Alaska Marine Science Symposium

AGENDA • SPEAKERS • WORKSHOPS

17–21 JANUARY 2011
ANCHORAGE, ALASKA

Since 2002, the Alaska Marine Science Symposium has provided opportunities for scientists from Alaska, the Pacific Northwest, and beyond to share their research activities in the marine regions off Alaska. This year's event features plenary sessions, keynote speakers and luncheon events on a wide variety of topics. We hope you enjoy the program.

alaskamarinescience.org

Events at a Glance

	MONDAY, JAN 17	TUESDAY, JAN 18
Morning Plenary Session 8:00–noon	**Workshop, 8:00–1:00** *Communicating Ocean Science: Helping Ocean Scientists with Outreach* *Discovery Ballroom* **Workshop, 8:00–noon** *Present and Future Herring Research* *Club Room 1, 10th floor* **Workshop, 8:00–noon** *Northern Bering Sea Research Area Research Plan* *Endeavor Room* **Workshop, 10:00–noon** *Career Tracks at the Alaska Department of Fish and Game* *Whitby Room*	**Gulf of Alaska plenary, 8:00–noon** *Fish and Fish Habitat, continued* *Seabirds* *Marine Mammals* *Humans*
Lunch noon–1:30	*Lunch on your own*	**Luncheon speaker, 12:30–1:00** Clarence Pautzke, NPRB *The Flowering of NPRB: Some Reflections on Nine Years Well Spent*
Afternoon Plenary Session 1:30–5:30	**Symposium opens** Opening Remarks, 1:30–2:00 Clarence Pautzke, NPRB Anchorage Mayor Dan Sullivan U.S. Senator Lisa Murkowski U.S. Senator Mark Begich **Keynote, 2:00–2:30** John Piatt, USGS *Predator Response Functions and the "Ecosystem Approach to Fisheries"* **Gulf of Alaska plenary, 2:00–5:30** *Climate and Oceanography* *Ecosystem Perspectives* *Lower Trophic Levels* *Fish and Fish Habitat*	**Workshop, 1:30–3:30** *AOOS Demonstration & Feedback Session for Visualization & Data Access Products* *Adventure Room* **Workshop, 1:30–5:00** *How Do Marine Indicators Influence Salmon Population Dynamics?* *Quadrant Room* **Workshop, 1:30–5:00** *Yup'ik Environmental Knowledge: Natural and Cultural History of the Bering Sea Coast* *Club Room 2, 10th floor* **Workshop, 1:30–5:00** *New Films, Books, and Songs about Alaska's Seas* *Fore Deck Ballroom* **Workshop, 3:30–5:00** *AK Marine Mammal Tissue Archival* *Voyager Room* **Workshop, 3:30–5:00** *Alaska's Landscape Conservation Cooperatives: the Marine Side* *Quarter Deck, 10th floor* **Workshop, 4:30–6:00** *Applications of the Alaska ShoreZone Coastal Habitat Mapping Dataset* *Adventure Room*
Evening 5:30–9:00	**Poster Reception, 5:30–9:00** **Gulf of Alaska Research plus Exhibits** Refreshments, no-host bar *Egan Center, 555 Fifth Avenue, between E and F Streets*	**Poster Reception, 5:30–9:00** **Arctic, Bering Sea and Aleutian Islands Research plus Exhibits** Refreshments, no-host bar *Egan Center, 555 Fifth Avenue, between E and F Streets*

Events at a Glance

WEDNESDAY, JAN 19	THURSDAY, JAN 20	FRIDAY, JAN 21	
Keynote, 8:00–8:30 Fran Ulmer, Chancellor, University of Alaska Anchorage *Oil Spill Commission Report and the Implications for Future Offshore Oil Development* **Arctic plenary, 8:30–noon** *Climate and Oceanography* *Ecosystem Perspectives* *Lower Trophic Levels* *Fish and Fish Habitat*	**Keynote, 8:00–8:30** Mike Sigler and Rodger Harvey, BEST-BSIERP Bering Sea Project *Headlines from 2010 Research* **Bering Sea and Aleutian Islands plenary, 8:30–noon** *Climate and Oceanography* *Ecosystem Perspectives* *Lower Trophic Levels* *Fish and Fish Habitat*	**Meeting, 8:00–noon** *Pollock Conservation Cooperative Research Center (open portion)* *NPRB Conference Room* **Workshop, 8:00–5:00** *Polar Bear Conservation Planning* *Aft Deck Ballroom* **Workshop, 8:00–noon (morning session)** *Introduction to Metadata (pre-registered participants only)* *Adventure Room* **Meeting, 8:30–5:00** *U.S. Arctic Research Commission 95th meeting* *Quadrant Room* **Discussion, 9:00–noon** *USGS Study on Science Needs to Inform Decisions on Outer Continental Shelf Energy* *Fore Deck Ballroom*	**Morning Plenary Session 8:00–noon**
Luncheon speaker, 12:30–1:15 Jack Dalton, Storyteller	**Luncheon speaker, 12:30–1:15** Russ Andrews, UAF and ASLC *Steller's curse: The fate of Alaska's first naturalist and the marine animals that bear his name*	*Lunch on your own*	**Lunch noon–1:30**
Arctic plenary, 1:30–5:20 *Seabirds* *Marine Mammals* *Humans* Student Poster Presentation Award Announcements, 5:15–5:20	**Bering Sea and Aleutian Islands plenary, 1:30–5:15** *Fish and Fish Habitat, continued* *Seabirds* *Marine Mammals* *Humans* Student Oral Presentation Award Announcements and Closing Remarks by Ian Dutton, 5:15–5:30	**Meeting, 1:30–5:00** *U.S. Arctic Research Commission, continued* *Quadrant Room* **Workshop, 1:00–5:00 (afternoon session)** *Introduction to Metadata (pre-registered participants only)* *Adventure Room* **Workshop, 1:30–3:30** *The Distributed Biological Observatory: A Change Detection Array in the Pacific Arctic Region* *Voyager Room*	**Afternoon Plenary Session 1:30–5:30**
Special Session, 5:45–8:15 *Lessons Learned from the Gulf of Mexico Oil Spill* *Fore Deck Ballroom*			**Evening 5:30–9:00**

Featured Speakers

Keynote Speakers

Monday, 17 January — **John Piatt, U.S. Geological Survey**

Predator Response Functions and the "Ecosystem Approach to Fisheries"

Marine predators such as seabirds and marine mammals feed heavily on small forage species, facilitating rapid transfer of energy to top trophic levels. Because of this, apex predators are useful indicators of the current state of pelagic ecosystems and informative to the "Ecosystem Approach to Fisheries" adopted by many fisheries organizations. Marine birds and mammals are not just handy ecosystem indicators—we also want healthy wildlife populations and an adequate forage base to sustain them. Whether their primary concern is for fish stocks or for wildlife, managers need quantitative data on the functional relationships between predators and prey to identify "minimum biologically acceptable limits" of forage biomass. We are compiling and contrasting data from several marine ecosystems to assess the form of these basic predator-prey relationships. Preliminary analyses suggest that response functions are usually non-linear and exhibit thresholds. The threshold biomass of prey at sea (bS) required by seabird predators for successful reproduction appears to be 1-3 orders of magnitude greater than the biomass needed to meet metabolic energy demands (bE) of populations during summer. Different predators may have markedly different bS/bE ratios because of differing sensitivities to prey depletion, and sensitivity may be predicted from a few life history characteristics. Initial findings show promise for discerning what different "indicator species" are actually indicating, and what levels of forage abundance may be required to sustain healthy apex predator communities.

Wednesday, 19 January — **Fran Ulmer, UAA Chancellor**

Oil Spill Commission Report and Implications for Future Offshore Oil Development

President Barack Obama established the BP Deepwater Horizon Oil Spill and Offshore Drilling Commission to investigate and document the causes of the spill and make recommendations to prevent future spills from offshore drilling. UAA Chancellor Fran Ulmer was appointed to the commission along with six others. Since July 2010 Oil Spill Commission members have made site visits in all the Gulf states, held public meetings in New Orleans and Washington, D.C., and heard testimony from industry and government representatives and many others. They've received background information describing the factors that contributed to the April 20 explosion that killed 11 workers, and led to an estimated 200 million gallon oil spill requiring the largest environmental cleanup in U.S. history. On January 11, 2011, commissioners will present their final report to President Obama. Recommendations for improving process safety systems, creating higher standards for safe operation and a better-resourced and better-prepared regulator are among the recommendations which will have implications for future offshore oil development in the Gulf of Mexico, in Alaska and elsewhere.

Thursday, 20 January — **Mike Sigler and Rodger Harvey**

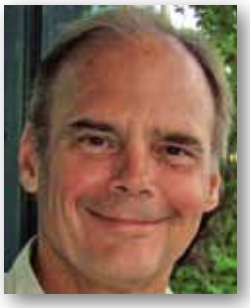
BEST-BSIERP Bering Sea Project Headlines from 2010 Research

MIKE SIGLER (far right) and RODGER HARVEY (right) are principal investigators with the BEST-BSIERP Bering Sea Project, the most comprehensive investigation of the Bering Sea ecosystem to date. Extensive fieldwork and ecosystem modeling link climate, physical and biological oceanography, lower and upper trophic level organisms, and economic outcomes in an attempt to predict the impacts of climatic change on the Bering Sea ecosystem. This work has been made possible thanks to the coordinated efforts of nearly one hundred principal investigators working within a partnership between the North Pacific Research Board and the National Science Foundation.

Luncheon Events

Tuesday, 18 January — Clarence Pautzke, North Pacific Research Board

The Flowering of NPRB: Reflections on Nine Years Well Spent



With little fanfare in 1997, Senator Ted Stevens created the North Pacific Research Board to support marine research on pressing fishery management issues and marine ecosystem information needs off Alaska. He set aside an endowment within the U.S. Treasury to support research for many years to come. Since 2001, the Board has fielded 252 projects worth some $41.5 million covering all major components of our northern marine ecosystems. The Board also has contributed $16 million to a $52 million partnership with the National Science Foundation to study the Bering Sea, and has just commenced a $9 million ecosystem study in the Gulf of Alaska. An Arctic initiative, now being developed, may result in a $3 million program in 2013-14. The retiring Executive Director will provide some reflections on the flowering of NPRB over the past nine years, concluding that this research institution may be one of Senator Stevens' greatest legacies.

Wednesday, 19 January — Jack Dalton, Storyteller

Rooted in Naparyarmiut (Hooper Bay), born in Bethel and raised in Anchorage, Alaska, Jack Dalton has grown up an ambassador between two worlds, his Yup'ik Inuit and European heritages. A professional storyteller, actor, writer and teacher, Jack has been honored by the World Indigenous Peoples' Conference on Education as a Distinguished Dignitary, featured as the cover story for the premiere issue of First Alaskans magazine and considered by many people around the world, indigenous and non-native alike, to be "The Storyteller." He received one of the first Expressive Arts Grants from the Smithsonian Institute's National Museum of the American Indian, and was featured as the first storyteller ever at the 2008 Cama-i Dance Festival in Bethel, Alaska. He has created and produced five theatrical works of epic storytelling, written a book, co-wrote and starred in the play *Raven's Radio Hour* (which aired nationally in 2009), performed internationally in France, Norway, Denmark, New Zealand, at the National Multicultural Festival in Australia, and headlined the Scottish International Storytelling Festival. Co-authored by Allison Warden, his play *Time Immemorial* premiered at Cyrano's Playhouse in Anchorage in April 2009, and was selected as part of The Autry National Center's Native Voices Festival of New Plays. It will be a full equity production at Native Voices in 2012. *Cauyaqa Nauwa?: Where Is My Drum?* is his first "musical/opera," co-written with Stephan Blanchett, and will premiere in March 2011. *Assimilation* is his fourth play.

Thursday, 20 January — Russ Andrews, UAF and Alaska SeaLife Center

Steller's Curse: The Unfortunate Fate of Alaska's First Naturalist and the Marine Animals that Bear His Name

In 2009, while Alaskans celebrated the 50th anniversary of statehood, another important anniversary was mostly overlooked, the 300th anniversary of the birth of Georg Steller, Alaska's first naturalist. Steller was the physician and naturalist on Vitus Bering's second expedition to search for the connection between Asia and North America. Steller became the first Westerner to collect and scientifically describe numerous animals and plants, including herbs that Steller successfully used to treat scurvy over a decade before a British physician laid claim to this discovery.

Amongst the marine animals he described, Steller provided the first scientific accounts of the Steller sea lion, the northern fur seal, the sea otter, and the Steller's sea cow. A few of these species, like Steller himself, did not survive for long after that fateful voyage, and others have recently been threatened with extinction.

Steller's discoveries on that voyage will be described along with some interesting details of scientific research conducted by Russ and his colleagues on many of these same species in far eastern Russia and Alaska. They have not been content to spy through a looking glass like Steller, but rather have turned to high-tech gizmos that they have designed and deployed so that they can peer out beyond the horizon and below the surface of the sea to track these animals and their main predator, the killer whale.

Although these sophisticated electronic devices can lead to accidental entanglement in real-life spy sagas, they have allowed the researchers to peek beneath the waves and gain insights that may be useful for managers seeking to mitigate threats to the animals that have fallen under Steller's curse.

MONDAY JANUARY 17

8:00 **SYMPOSIUM REGISTRATION** begins, lobby level, Hotel Captain Cook

Sessions, Workshops and Meetings

8:00–1:00 **Communicating Ocean Science: Helping Ocean Scientists with Outreach**
Discovery Ballroom (see pages 15–18 for details)

8:00–noon **Present and Future Herring Research**
Club Room 1, 10th floor (see pages 15–18 for details)

8:00–noon **Northern Bering Sea Research Plan Science Workshop**
Endeavor Room (see pages 15–18 for details)

10:00–noon **Career Tracks at the Alaska Department of Fish and Game**
Whitby Room (see pages 15–18 for details)

AFTERNOON

Welcoming Remarks, 1:30–2:00

Clarence Pautzke, North Pacific Research Board

Dan Sullivan, Mayor of Anchorage

Lisa Murkowski and Mark Begich, United States Senators

Gulf of Alaska Plenary Session

Session Chair *Francis Wiese, North Pacific Research Board*

Discovery Ballroom, 2:00–5:15

2:00–2:30 **KEYNOTE: JOHN PIATT,**
U.S. Geological Survey Alaska Science Center
Predator Response Functions and the "Ecosystem Approach to Fisheries"
SEE FULL ABSTRACT ON PAGE 4.

Climate and Oceanography

2:30–2:45 **MARK HALVERSON** Near-surface circulation in Prince William Sound during the Sound Predictions project

Ecosystem Perspectives

2:45–3:00 **ALAN MEARNS** Recovery of a mussel reef in Prince William Sound 22 years after the *Exxon Valdez* oil spill and cleanup

3:00–3:15 **ARNY BLANCHARD** Highlights from 40 years of research in Port Valdez

3:15–3:30 **JAMES ESTES** Patterns of covariation in prey availability, morphology, behavior and ecology associated with collapse of sea otter populations in southwest Alaska

3:30–3:45 **BREAK Enjoy refreshments in the Discovery Ballroom**

Session Chair *Rob Campbell, Prince William Sound Science Center*

Lower Trophic Levels

3:45–4:00 **JOHN CRUSIUS** Abundant, seasonally variable supply of glacier flour-derived iron drives high nitrate consumption in Copper River plume and adjacent Gulf of Alaska continental shelf

4:00–4:15 **MELISSA DEIMAN** Kelp spore susceptibility to sedimentation and light attenuation in Alaska ***STUDENT PRESENTATION***

4:15–4:30 **CHRIS SIDDON** Comparison of three independent methods for estimating red king crab biomass in southeast Alaska

Fish and Fish Habitat

4:30–4:45 **JAKE GREGG** Inability to demonstrate horizontal transmission of the highly pathogenic parasite *Ichthyophonus* from laboratory infected Pacific herring to naïve conspecifics

4:45–5:00 **PAUL HERSHBERGER** Development of tools to forecast the potential for viral hemorrhagic septicemia epizootics in Alaskan herring

5:00–5:15 **LOUISE COPEMAN** Importance of prey quality to North Pacific marine fish larvae: a test case with Pacific cod

EVENING

5:30–9:00 **POSTER RECEPTION, Gulf of Alaska**
Egan Center, 555 Fifth Avenue between E and F Streets
Free shuttle bus from hotel to Egan Center.
Presenters will be available either at 5:45–7:15 or 7:20–8:50.
A list of poster presenters and the time they will be at their poster is printed in the Abstract Book. See map on pages 20–21 for poster locations.
No-host bars, appetizers and dessert will be provided.

FEATURED EXHIBITS AT THE EGAN CENTER
Alaska Bering Sea Crabbers
Alaska Center for Ocean Science Education Excellence
Alaska Department of Fish and Game
Alaska Marine Exchange
Alaska Ocean Observing System
Alaska Pacific University
Alaska Sea Grant
Bureau of Ocean Energy Management, Regulation and Enforcement
NOAA Alaska Regional Collaboration Team
North Pacific Research Board
Ocean Biogeographic Information System
Oil Spill Recovery Institute
Prince William Sound Science Center
UAF School of Fisheries and Ocean Science
U.S. Arctic Research Commission / Alaska Data Integration Working Group
U.S. Fish & Wildlife Anchorage Field Office

TUESDAY JANUARY 18

8:00 **SYMPOSIUM REGISTRATION,** lobby level, Hotel Captain Cook

MORNING

Gulf of Alaska Plenary Session

Continued
Discovery Ballroom, 8:00–noon

Session Chair ***Michele Buckhorn, Prince William Sound Science Center***

Fish and Fish Habitat

8:00–8:15 **BENJAMIN VAN ALEN** The hatchery regime shift

8:15–8:30 **CHRIS ROOPER** Estimating distribution and abundance of rockfishes using a combination of acoustical, optical, and trawl survey tools

8:30–8:45 **MARY ANNE BISHOP** Application of the POST Prince William Sound acoustic array to assess movements and dispersal of lingcod

8:45–9:00 **JOHN EILER** Tracking tagged fish with an autonomous underwater vehicle

9:00–9:15 **JULIE NIELSEN** Characterizing space use of Pacific halibut during summer in Glacier Bay, Alaska using acoustic telemetry ***STUDENT PRESENTATION***

9:15–9:30 **CHRISTINA CONRATH** Field studies in support of the stock assessment of the giant Pacific octopus

Seabirds

9:30–9:45 **KIRSTEN BIXLER** Why aren't pigeon guillemots in Prince William Sound recovering from the *Exxon Valdez* oil spill? ***STUDENT PRESENTATION***

Marine Mammals

9:45–10:00 **JOSH LONDON** Ecologically meaningful units for managing harbor seals

10:00–10:30 **BREAK Enjoy refreshments in the Discovery Ballroom**

Session Chair ***Scott Pegau, Oil Spill Recovery Institute and PWS Science Center***

10:30–10:45 **KELLY HASTINGS** Temporal and spatial variation in age-specific survival rates of Steller sea lions from southeast Alaska

10:45–11:00 **MARTIN HAULENA** Remotely delivered chemical immobilization of adult female Steller sea lions for physiological sampling and satellite telemetry attachment in southeast Alaska

11:00–11:15 **KIM PARSONS** Examining the structuring of killer whale populations across the northern North Pacific

11:15–11:30 **ROBERT SMALL** Seasonal distribution of Cook Inlet beluga whales based on passive acoustic monitoring

11:30–11:45 **JANICE STRALEY** Inshore and offshore movement of humpback whales in the Gulf of Alaska: Are offshore whales different from their coastal neighbors?

Humans

11:45–noon **SCOTT GENDE** Cruise ship-humpback whale interactions in Alaska

noon–1:30 **LUNCH Discovery Ballroom**

12:30–1:15 **LUNCHEON PRESENTATION**

Clarence Pautzke, North Pacific Research Board

The Flowering of NPRB: Some Reflections on Nine Years Well Spent

SEE FULL ABSTRACT ON PAGE 5.

AFTERNOON

Sessions, Workshops and Meetings

1:30–3:30 **AOOS Demonstration and Feedback Session for New Visualization and Data Access Products**
Adventure Room (see pages 15–18 for details)

1:30–5:00 **How do Marine Indicators Influence Salmon Population Dynamics?**
Quadrant Room (see pages 15–18 for details)

1:30–5:00 **Yup'ik Environmental Knowledge: The Natural and Cultural History of the Bering Sea Coast**
Club Room 2, 10th floor (see pages 15–18 for details)

1:30–5:00 **New Films, Books, and Songs about Alaska's Seas**
Fore Deck Ballroom (see pages 15–18 for details)

3:30–5:00 **Alaska Marine Mammal Tissue Archival Project**
Voyager Room (see pages 15–18 for details)

3:30–5:00 **Alaska's Landscape Conservation Cooperatives: the Marine Side of LLCs**
Quarter Deck, 10th floor (see pages 15–18 for details)

4:30–6:00 **Applications of the Alaska ShoreZone Coastal Habitat Mapping Dataset Using Web and GIS**
Adventure Room (see pages 15–18 for details)

EVENING

5:30–9:00 **POSTER RECEPTION, Arctic, Bering Sea and Aleutian Islands**
Egan Center, 555 Fifth Avenue
Free shuttle bus from hotel to Egan Center.
Presenters will be available either at 5:45–7:15 or 7:20–8:50.
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FEATURED EXHIBITS AT THE EGAN CENTER
Alaska Bering Sea Crabbers
Alaska Center for Ocean Science Education Excellence
Alaska Department of Fish and Game
Alaska Marine Exchange
Alaska Ocean Observing System
Alaska Pacific University
Alaska Sea Grant
Bureau of Ocean Energy Management, Regulation & Enforcement
NOAA Alaska Regional Collaboration Team
North Pacific Research Board
Ocean Biogeographic Information System
Oil Spill Recovery Institute
Prince William Sound Science Center
UAF School of Fisheries and Ocean Science
U.S. Arctic Research Commission / Alaska Data Integration Working Group
U.S. Fish & Wildlife Anchorage Field Office

WEDNESDAY JANUARY 19

8:00 **SYMPOSIUM REGISTRATION,** Lobby level, Hotel Captain Cook

MORNING

Arctic Plenary Session

Discovery Ballroom, 8:00–5:20

Session Chair *Molly McCammon, Alaska Ocean Observing System*

8:00–8:28 **KEYNOTE: FRAN ULMER, UAA Chancellor**
Oil Spill Commission Report and Implications for Future Offshore Oil Development
SEE FULL ABSTRACT ON PAGE 4.

8:28–8:30 **DEE WILLIAMS,** BOEMRE (brief announcement)

Climate and Oceanography

8:30–8:45 **CARIN ASHJIAN** Year-to-year variability of ocean conditions across Barrow Canyon and the western Beaufort shelf: 2005–2010

8:45–9:00 **RACHEL POTTER** Surface current measurements in the northeast Chukchi Sea using shore-based high-frequency radar

9:00–9:15 **PETER WINSOR** AUV glider missions in the Northeast Chukchi Sea

Ecosystem Perspectives

9:15–9:30 **GEORGE HUNT** The Barents and Chukchi Seas compared: Why is the Barents so much more productive?

9:30–10:00 **BREAK Enjoy refreshments in the Discovery Ballroom**

Session Chair *Tom Hurst, NOAA Alaska Fisheries Science Center*

10:00–10:15 **BODIL BLUHM** Arctic Ocean Diversity (ArcOD) Synthesis: How many species are there?

10:15–10:30 **JOHN TREFRY** In search of sources and distribution patterns for trace metals in seawater, biota and sediments of the eastern Chukchi Sea

10:30–10:45 **KENNETH DUNTON** COMIDA: Sources and fates of nitrogen and carbon in the benthic ecosystem of the eastern Chukchi Sea

Lower Trophic Levels

10:45–11:00 **JACQUELINE GREBMEIER** COMIDA: Pelagic–benthic coupling and benthic community structure in the Chukchi Sea

11:00–11:15 **LEE COOPER** Characterization and comparison of benthic biological communities using video and trawling approaches during COMIDA CAB

Fish and Fish Habitat

11:15–11:30 **VANESSA VON BIELA** Terrestrial and marine sources fuel the growth of young-of-the-year Arctic cisco as determined from diet and stable isotope analysis

11:30–11:45 **JUSTIN PRIEST** Benthic and pelagic fish sampling in the northeastern Chukchi Sea

11:45–noon **BRENDA NORCROSS** Fifty years of demersal fishes in the Chukchi Sea

noon–1:30 **LUNCH Discovery Ballroom**

12:30–1:15 **LUNCHEON PRESENTATION**
Jack Dalton, Storyteller *SEE FULL ABSTRACT ON PAGE 5.*

AFTERNOON

Session Chair ***Cathy Coon, U.S. Bureau of Ocean Energy Management, Regulation, and Enforcement***

Seabirds

1:30–1:45 **SUZANNE BUDGE** Estimating diets in threatened eiders using stable carbon isotopes of specific fatty acids

Marine Mammals

1:45–2:00 **JEFF MCDONNELL** Combining acoustic propagation modeling and long-term monitoring data to determine bowhead moan source levels

2:00–2:15 **LORI QUAKENBUSH** Interannual variability and exceptional movements of western Arctic bowhead whales from satellite telemetry, 2006–2010

2:15–2:30 **MEGAN FERGUSON** A tale of two seas: lessons from multi-decadal aerial surveys for cetaceans in the Beaufort and Chukchi seas

2:30–2:45 **GREG O'CORRY-CROWE** Kinship, group structure and philopatry in beluga whales: the genetic evidence

2:45–3:00 **JOHN KUCKLICK** Temporal and spatial trends of current-use and legacy persistent organic pollutants in Alaska beluga whales

3:00–3:15 **JULIEN DELARUE** Acoustic detections of belugas in the northeastern Chukchi Sea, 2007–2009

3:15–3:30 **BREAK Enjoy refreshments in the Discovery Ballroom**

Session Chair ***Douglas Woodby, Alaska Department of Fish and Game***

3:30–3:45 **SARA CARROLL** What's in the mix: treatment of ice-seal prey sources within stable isotope mixing models ***STUDENT PRESENTATION***

3:45–4:00 **CHADWICK JAY** Pacific walrus behaviors during summer and autumn, 2007–2010

4:00–4:15 **GEORGE DURNER** Predicting the seasonal distribution of sea ice habitats used by female polar bears in the Beaufort Sea

Humans

4:15–4:30 **GARRETT YAGER** Modeling causeway impacts on coastal morphology in the Sagavanirktok River Delta ***STUDENT PRESENTATION***

4:30–4:45 **STEPHEN BRAUND** Oil development impacts on subsistence: monitoring and assessing mitigation

4:45–5:00 **HAJO EICKEN** A community-of-practice approach to assess the nature and impacts of sea-ice changes on Bering and Chukchi Sea ice users

5:00-5:15 **MELANIE SMITH** The Arctic Marine Synthesis: Using maps to influence science and policy in the Chukchi and Beaufort seas

5:15–5:20 **STUDENT POSTER PRESENTATION AWARDS**
sponsored by NPRB, announced by Carrie Eischens

EVENING

5:45–8:00 **Special Session: Lessons Learned from the Gulf of Mexico Oil Spill**
Fore Deck Ballroom (see pages 15–18 for details)

THURSDAY JANUARY 20

8:00 **SYMPOSIUM REGISTRATION,** Lobby level, Hotel Captain Cook

MORNING

Bering Sea and Aleutian Islands Plenary Session

Session Chair *Nora Deans, North Pacific Research Board*

Discovery Ballroom, 8:00–5:30

8:00–8:30 **KEYNOTE: MIKE SIGLER & RODGER HARVEY, BEST-BSIERP Bering Sea Project**
Headlines: Research Highlights from 2010
SEE FULL ABSTRACT ON PAGE 4.

8:30–8:45 **GEORGE MATSUMOTO** The Bering Sea Ecosystem Professional Development Workshop: transforming BEST-BSIERP science into educational resources

Climate and Oceanography

8:45–9:00 **SETH DANIELSON** The BEST years from a mooring array's perspective

9:00–9:15 **MARGARET ESCH** The effect of bioturbation on iron and manganese oxide reduction pathways in Bering Sea shelf sediments *STUDENT PRESENTATION*

Ecosystem Perspectives

9:15–9:30 **CHRISTOPHER WAYTHOMAS** Volcanic eruptions, landscape disturbance, and potential impacts to marine and terrestrial ecosystems in Alaska: an example from the 2008 eruption of Kasatochi Volcano and other noteworthy eruptions in Alaska

9:30–10:00 **BREAK Enjoy refreshments in the Discovery Ballroom**

Session Chair *Jeff Napp, NOAA Alaska Fisheries Science Center*

Lower Trophic Levels

10:00–10:15 **MICHELLE RIDGWAY** Benthic biogeography and foodwebs in Beringian canyons

10:15–10:30 **JARED WEEMS** Isotopic assimilation in the bivalve *Nuculana radiata:* possible trophic consequences in changing Bering Sea ice-benthic coupling *STUDENT PRESENTATION*

Fish and Fish Habitat

10:30–10:45 **FRANZ MUETER** Effects of temperature and density on spatial dynamics and interactions among Bering Sea groundfishes

10:45–11:00 **ROBERT LAUTH** The 2010 eastern and northern Bering Sea shelf bottom trawl survey: a first-time synoptic view of groundfishes and crabs

11:00–11:15 **INGRID SPIES** Landscape genetics of Pacific cod in the Bering Sea and Aleutian Islands *STUDENT PRESENTATION*

11:15–11:30 **RUTH DIMARIA** Natal source contributions of Pacific cod recruits in the southeastern Bering Sea *STUDENT PRESENTATION*

11:30–11:45 **SANDRA PARKER-STETTER** Age-0 walleye pollock late-summer and early fall distributions: the intrigue deepens

11:45–noon **TRACEY SMART** Alternating climate conditions influence walleye pollock early life stages in the southeastern Bering Sea

noon–1:30 **LUNCH Discovery Ballroom**

12:30–1:15 **LUNCHEON PRESENTATION Russ Andrews, UAF and Alaska SeaLife Center**
Steller's Curse: The Unfortunate Fate of Alaska's First Naturalist and the Marine Animals that Bear His Name **SEE FULL ABSTRACT ON PAGE 5.**

AFTERNOON

Session Chair ***Franz Mueter, University of Alaska Fairbanks***

1:30–1:45 **GREG ALBRECHT** Genetic population structure of snow crab **STUDENT PRESENTATION**

1:45–2:00 **MEGAN WINTON** Age, growth, and maturity of the roughtail skate from the eastern Bering Sea **STUDENT PRESENTATION**

2:00–2:15 **ANDREW TRITES** Steller sea lion trends from 2000 to 2009 were not associated with Atka mackerel fishery indices in the western and central Aleutian Islands

Seabirds

2:15–2:30 **ROSANA PAREDES** Differences in at-sea foraging behavior of chick–rearing black–legged kittiwakes nesting at three Bering Sea colonies

2:30–2:45 **RACHAEL ORBEN** A comparison of two years of winter migrations of black-legged kittiwakes breeding on the Pribilof Islands **STUDENT PRESENTATION**

2:45–3:00 **NATHAN JONES** Stomach contents and stable isotope signatures quantify contrasting foraging patterns and diet of thick-billed murres and black-legged kittiwakes in the central Bering Sea, July and August 2008 and 2009 **STUDENT PRESENTATION**

3:00–3:15 **JON ALLEN** Modeling storm surge and sediment transport to forecast the health of nesting seabird populations in the Yukon-Kuskokwim Delta

3:15–3:30 **BREAK Enjoy refreshments in the Discovery Ballroom**

Session Chair ***David Christie, UAF School of Fisheries and Ocean Sciences***

3:30–3:45 **JEFF WILLIAMS** Ashes to ashes: destruction and response of a seabird colony after the volcanic eruption of Kasatochi Island

3:45–4:00 **GARY DREW** Short-term effects of the 2008 Kasatochi Island eruption on marine birds and their at-sea habitats: where do we go from here?

Marine Mammals

4:00–4:15 **PETER BOVENG** Movements and dive behavior or ribbon and spotted seals: evidence for niche partitioning in the Bering Sea

4:15–4:30 **BOBETTE DICKERSON** Population structure as revealed by mtDNA and microsatellites in northern fur seals throughout their range

4:30–4:45 **TERRY SPRAKER** Causes of mortality in northern fur seal pups, St. Paul Island, Alaska, 1986–2010

4:45–5:00 **PAUL OLIVIER** Steller sea lion foraging on Atka mackerel revealed by animal-borne video and data recorders **STUDENT PRESENTATION**

Humans

5:00–5:15 **JAMES STRONG** Institutional structure and profit maximization in the eastern Bering Sea fishery for Alaska pollock **STUDENT PRESENTATION**

5:15–5:20 **STUDENT ORAL PRESENTATION AWARDS**
sponsored by UAF-SFOS, announced by Paula Cullenberg

5:20–5:30 **END of plenary session, with closing remarks by Ian Dutton, CEO of the Alaska SeaLife Center and Chair of the North Pacific Research Board**

Friday Sessions

FRIDAY JANUARY 21

Sessions, Workshops and Meetings

8:00–noon	**Pollock Conservation Cooperative Research Center Board Meeting** NPRB Conference Room, 1007 W. 3rd Avenue (corner 3rd and K), Suite 100
8:00–5:00	**Polar Bear Conservation Planning** Aft Deck Ballroom (see pages 15–18 for details)
8:00–noon	**Introduction to Metadata (morning session)** *pre-registered participants only* Adventure Room (see pages 15–18 for details)
8:30–5:00	**U.S. Arctic Research Commission 95th Meeting** Quadrant Room (see pages 15–18 for details)
9:00–noon	**USGS Study on Science Needs to Inform Decisions on Outer Continental Shelf Energy** Fore Deck Ballroom (see pages 15–18 for details)
noon–1:00	**Lunch on your own**
1:00–5:00	**Introduction to Metadata (afternoon session)** *pre-registered participants only* Adventure Room (see pages 15–18 for details)
1:00–3:00	**The Distributed Biological Observatory: A Change Detection Array in the Pacific Arctic Region** Voyager Room (see pages 15–18 for details)

Workshops

See map on page 22 for room locations.

MONDAY JANUARY 17

Communicating Ocean Science: Helping Ocean Scientists with Outreach — 8:00–1:00, Discovery Ballroom

Convenors: Nora Deans (COSEE Alaska and NPRB) and Marilyn Sigman (COSEE Alaska)

"Helping Ocean Scientists with Outreach" is the theme for the 2011 Communicating Ocean Science Workshop, co-hosted by COSEE Alaska, NPRB and AOOS. Ocean scientists, graduate students and outreach specialists will have a chance to network and meet with national communications experts, regional educators and community members through presentations and hands-on sessions. Topics include the risks and rewards of communicating about research, how to work with the media, how to involve communities in research and outreach, how to achieve place-based, culturally relevant education and outreach and how to lead an outreach expedition around the Americas. Over a networking lunch, participants will have a chance to help plan the 2012 National Marine Educators Conference, which will showcase research in Alaska's marine ecosystems.

Present and Future Herring Research — 8:00–noon, Club Room 1, 10th floor

Convenor: Scott Pegau (Prince William Sound Science Center)

A significant amount of research is currently being done to understand Pacific herring. The *Exxon Valdez* Oil Spill Trustee Council's FY12 request for proposals provides an opportunity to continue doing research on herring. The purpose of this workshop is to provide a forum for herring researchers to share information and to discuss what our approach on future work should be.

Northern Bering Sea Research Plan Science Workshop — 8:00–noon, Endeavor Room

Convenor: Russ Nelson (NOAA)

The Alaska Fisheries Science Center is developing a scientific research plan for the Northern Bering Sea Research Area (NBSRA) to investigate the effects of bottom trawling on bottom habitat, and provide information to help with developing future protection measures in the NBSRA for crab, marine mammals, endangered species, and the subsistence needs of western Alaska communities. The intent of this workshop is to gather the latest information and solicit expert opinions from the scientific community for research planning in the NBSRA.

Career Tracks at the Alaska Department of Fish and Game — 10:00–noon, Whitby Room

Convenor: Candice Bressler (ADF&G)

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™!

TUESDAY JANUARY 18

AOOS Demonstration and Feedback Session for New Visualization and Data Access Products

1:30–3:30, Adventure Room

Convenor: Rob Bochenek (AOOS Data Manager)

The Alaska Ocean Observing System data management team will demonstrate new data access tools. They will brief the audience on technical approaches and solicit feedback from users through a facilitated discussion. The workshop will be open to all interested parties. Users are encouraged to bring laptops to explore the new web based tools showcased during this meeting. Among the tools highlighted will be a Real-time Sensor Map, Arctic Research Assets Map, Model Explorer, and Sea Bird Portal.

How do Marine Indicators Influence Salmon Population Dynamics?

3:30–5:00, Quadrant Room

Convenors: Bill Heard (NOAA) and Eric Volk (Alaska Department of Fish and Game)

Pacific salmon, keystone species in the Gulf of Alaska, Bering Sea, and adjacent waters, are subject to multiple influences in marine environments that affect behavior, survival and annual run strength of the different species and stocks. Salmon collectively function both as predator and prey and play significant but often poorly understood roles in marine ecosystems. These fishes are an important mainstay of the historic, cultural, social, and economic fabric throughout Alaska, yet much remains unknown about salmon in marine environments. This workshop will focus on a series of short reports by a group of knowledgeable scientists on issues affecting salmon in North Pacific marine ecosystems. Join this session to hear how factors in marine environments can influence salmon.

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

1:30–5:00, Club Room 2, 10th floor

Convenor: Ann Fienup-Riordan

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.

New Films, Books, and Songs about Alaska's Seas

1:30–5:00, Fore Deck Ballroom

Convenors: Marilyn Sigman and Nora Deans (COSEE Alaska)

This session will begin with a panel of book authors. Each film will be screened followed by a question-and-answer session with someone who was involved in the production or featured in the film. Featured Songs from *Only One Ocean,* a new album by the Banana Slug String Band that promotes ocean literacy, will also be aired. Featured Books: *Field Guide to Seaweeds of Alaska* by Mandy Lindeberg and Sandra Lindstrom; *Imam Cimiucia: Our Changing Seas* by Anne Salomon, Henry Huntington, and Nick Tanape, Sr. Featured Films: *Ancient Sea Gardens* (48 min.), *Faces of Climate Change* series: Introduction to Climate Change, Disappearing Sea Ice, and *Life on the Ice* (25 min.); and *People of the Seal* (72 min.)

Alaska Marine Mammal Tissue Archival Project

3:30–5:00, Voyager Room

Convenors: Cheryl Rosa (U.S. Arctic Research Commission) and Paul Becker (NOAA)

The banking of marine mammal tissues is of proven value to researchers performing a variety of investigations. Remarkably, in 2006 standardized tissue banking via the Alaska Marine Mammal Tissue Archival Project (AMMTAP) ceased to occur for Alaskan marine mammals. AMMTAP needs a restart. We would like to gather interested parties to discuss possible strategies to revive the AMMTAP program and tailor it to current needs. Researchers with interest in contaminants, genetics, zoonotic disease/wildlife pathogens, etc. should consider attending.

Alaska's Landscape Conservation Cooperatives: Looking to the Marine Side of LCCs — 3:30–5:00, Quarter Deck, 10th floor

Convenors: Karen Murphy (U.S. Fish and Wildlife Service) and Kim Rivera (NOAA)

This session is designed to provide an overview of the current status of the five Landscape Conservation Cooperatives (LCCs) within Alaska and encourage a dialog with marine scientists about future opportunities for collaboration. LCCs are self-directed partnerships designed to provide knowledge and science-based solutions to land and resource managers. LCCs have an emphasis on helping managers address climate change and other large "landscape"-scale effects into their management actions. The Arctic LCC was initiated in FY2010 and the Western Alaska LCC and North Pacific LCC are in a pilot phase. The Aleutians and Bering Sea Islands LCC has just begun the early pilot phase and we anticipate implementation funding in FY2012. All of these LCCs have strong ties to the marine environment and are looking for strategies for integrating with marine scientists and managers.

Applications of the Alaska ShoreZone Coastal Habitat Mapping Dataset Using Web and GIS — 4:30–6:00, Adventure Room

Convenors: Mandy Lindeberg, Steve Lewis and Cindy Hartmann Moore (NOAA), Mary Morris (Archipelago Marine Research), John Harper (CIRCAC), Sue Saupe (Coastal and Ocean Resources), Laura Baker (The Nature Conservancy)

ShoreZone is a coastal habitat classification, inventory and mapping system that is a powerful dataset for use in habitat modeling, oil spill prevention and response, marine debris catchment beaches, and a myriad of other uses. Since 2001, approximately 63 percent of Alaska's coastline has been imaged and approximately 39,000 km has been mapped. This workshop will focus on describing the Alaska ShoreZone coastal habitat mapping project and its current applications. Applications that will be highlighted include oil spill response, habitat capability models for use in research and invasive species assessment, and essential fish habitat identification. The workshop will also provide hands-on training with the ShoreZone web-based and GIS datasets for marine scientists, GIS specialists, coastal managers, and other users. Workshop attendees will have access to one-on-one training of the online database and a venue for feedback on needs or ideas for future applications of the ShoreZone dataset. Bringing your own laptop is encouraged.

WEDNESDAY JANUARY 19

Lessons Learned from the Gulf of Mexico Oil Spill — 5:45–8:00, Fore Deck Ballroom

Convenor: Philip McGillivary (U.S. Coast Guard)

In the wake of the Deepwater Horizon (DWH) Oil Spill in the Gulf of Mexico, scientists were asked to respond to track ship and personnel assets, track the surface oil, tar balls and underwater oil plume in four dimensions, measure rates of oxygen consumption by microbial decomposition oil and methane, assess damage to coastlines, fish stocks and fish larvae, and track effects on seabirds, sea turtles and marine mammals. The science community responded with great alacrity, but with varying levels of preparedness. A number of 'lessons learned' in the DWH response would be of great value in Alaska if a similar spill occurred in the Chukchi or Beaufort Sea. The goal of this workshop is to review these lessons learned so that Alaska scientists will be better prepared for the future.

FRIDAY JANUARY 21

Polar Bear Conservation Planning — 8:00–5:00, Aft Deck Ballroom

Convenor: James Wilder (U.S. Fish and Wildlife Service)

This is a workshop to aid USFWS in developing the Conservation/Recovery Plan for polar bears on the topic, "How to mitigate the impacts of climate change to polar bears." There will be a series of invited presentations, and the workshop will involve brainstorming sessions to develop specific mitigation measures to the potential impacts of climate change to polar bears. ***Please note:*** This workshop is designed for entire-session participation. We ask participants to stay for the entire workshop in order to effectively exchange information and ideas.

Introduction to Metadata — 8:00–noon and 1:00–4:00, Adventure Room

Convenor: Vivian Hutchison (USGS Center for Biological Informatics)

Pre-registered participants only.

This workshop will provide an introduction to metadata as an organizational tool. 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, explain the origin of the FGDC metadata standard and the Biological Data Profile, give an update on the status of the ISO North American Profile, illustrate ways in which a metadata program can be implemented, and show how to search and submit records in the USGS-NBII Clearinghouse. Participants will use Metavist, an online metadata entry tool, to learn the elements of the standard and how to create an FGDC compliant metadata record.

U.S. Arctic Research Commission 95th Meeting — 8:00–5:00, Quadrant Room

The 95th Meeting of the U.S. Arctic Research Commission is open to the public. The Commission's duties are:

- to establish the national policy, priorities, and goals necessary to construct a federal program plan for basic and applied scientific research with respect to the Arctic;
- to promote Arctic research, to recommend Arctic research policy, and to communicate our research and policy recommendations to the President and the Congress;
- to work with the National Science Foundation as the lead agency responsible for implementing the Arctic research policy and to support cooperation and collaboration throughout the Federal Government;
- to interact with Arctic residents, international Arctic research programs and organizations and local institutions including regional governments in order to obtain the broadest possible view of Arctic research needs.

We expect to receive input from a variety of researchers and other stakeholders at this meeting.

USGS Study on Science Needs to Inform Decisions on Outer Continental Shelf Energy — 9:00–noon, Fore Deck Ballroom

Convenor: Joy Geiselman (U.S. Geological Survey)

USGS is completing an evaluation of science needs to inform its Arctic Outer Continental Shelf resource management activities. The study summarizes existing scientific documents informative to various Arctic regulatory and policy decision points, highlights critical knowledge gaps, documents ongoing efforts to address those gaps, and makes initial recommendations on key scientific investments and approaches to improve understanding and/or mitigation of risks. USGS was asked to address science knowledge and gaps associated with 1) effects of noise on marine mammals; 2) cumulative impacts of development, infrastructure, and maintenance activities; 3) oil spill risk, response, and assessment in ice-covered regions; and 4) changing climate conditions and how this might mitigate or compound impacts from energy development in the Arctic environment. The analysis focuses on concerns that may be unique to the Chukchi and Beaufort Seas. This morning session is an open technical discussion to provide input on areas of critical and fruitful scientific investigation.

A poster will be presented during the Arctic Poster Reception on Tuesday, January 18 from 5:30-9:00 p.m. at the Egan Center in preparation for the Friday session.

The Distributed Biological Observatory: A Change Detection Array in the Pacific Arctic Region — 1:30–3:30, Voyager Room

Convenors: Jacqueline Grebmeier (University of Maryland) and Sue Moore (NOAA)

The marine system in the Pacific Arctic region is experiencing unprecedented seasonal sea ice retreats and changes in the physical domain, resulting in biological changes and the potential for ecosystem reorganization. This session will discuss and solicit input on the developing plans for a marine "Distributed Biological Observatory" (DBO) in the Pacific Arctic sector. The DBO includes biological and supportive environmental sampling at explicit regional sites via latitudinal transects using a collaborative international network of logistical support. Provisional results form the international 2010 DBO pilot program, sponsored by the Pacific Arctic Group, will be presented along with an update of future efforts.

Notes

Egan Center Posters and Exhibits

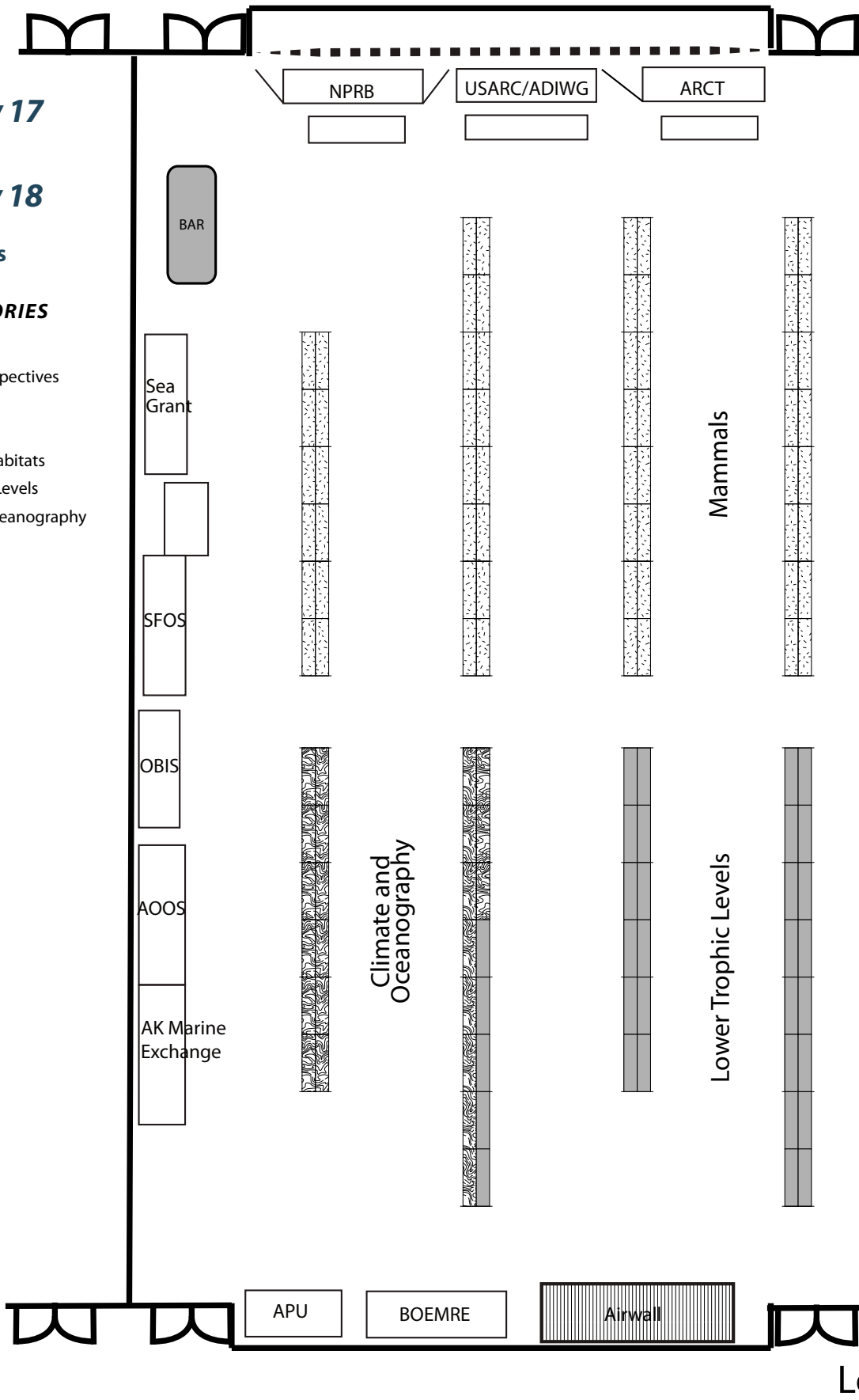
Poster Sessions 5:30-9:00. Presenters will be available either at 5:45–7:15 or 7:20–8:50
No-host bar, appetizers and dessert.

Monday, January 17
Gulf of Alaska Posters

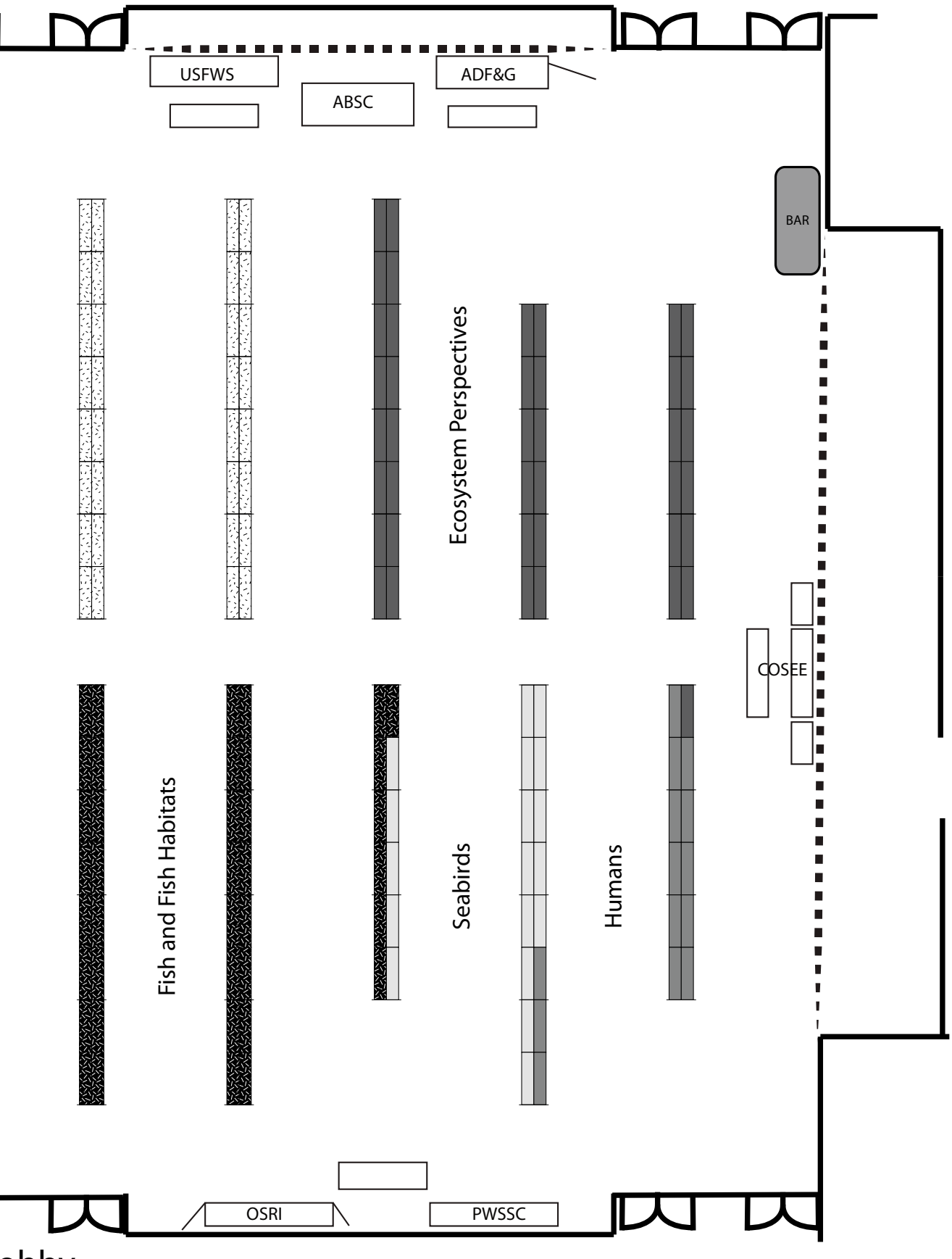
Tuesday, January 18
Arctic, Bering Sea and Aleutian Islands Posters

KEY TO POSTER CATEGORIES

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



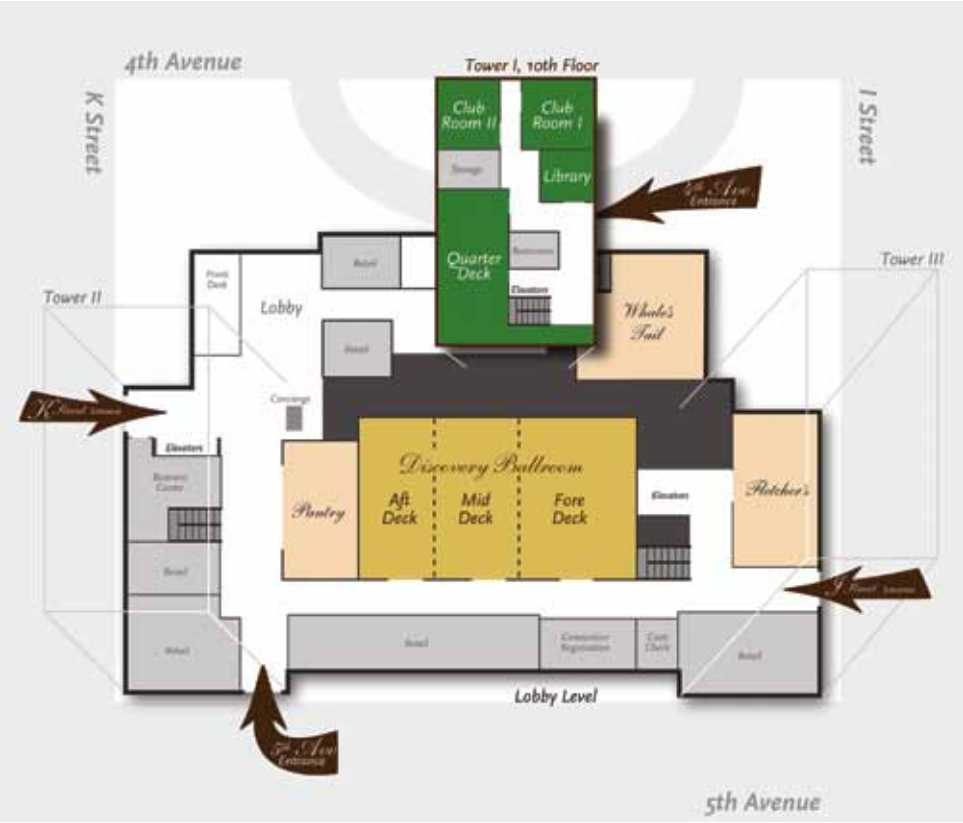
Egan Center Posters and Exhibits



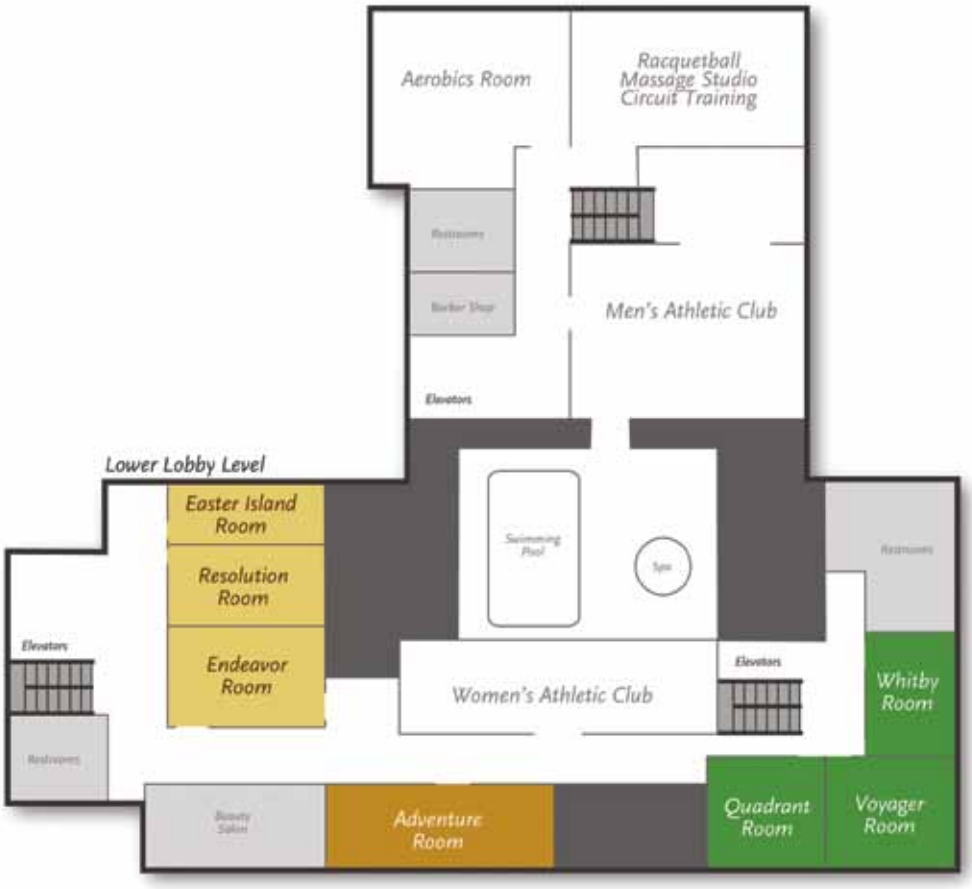
obby

Hotel Maps

Hotel Captain Cook, Lobby Level and Tower



Hotel Captain Cook, Lower Lobby



Thank You to our Volunteers!

The Symposium would not be possible without the help of volunteers who find time for planning meetings, abstract, poster, exhibit and workshop coordination, registration, and other duties among their regular tasks.

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- Exhibits ..... Nancy Bird, OSRI
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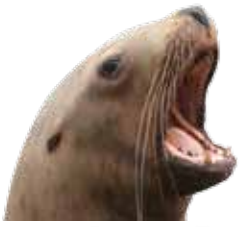
See you next year!



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