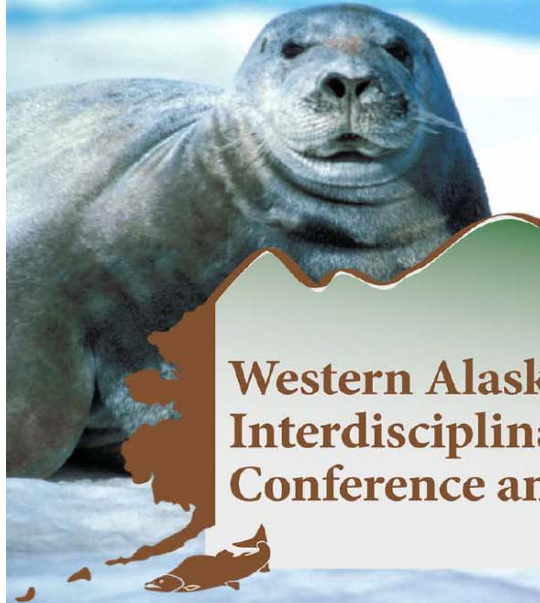


7th Annual WAISA Conference **Science of a Cold Place in a Warming World**

Kotzebue, AK
April 23-25, 2014



**Western Alaska
Interdisciplinary Science
Conference and Forum**

UAF UNIVERSITY OF ALASKA
FAIRBANKS
Chukchi Campus



Alaska EPSCoR

Sea Grant Alaska



WELCOME!

On behalf of the Chukchi campus, University of Alaska Fairbanks and the organization committee of the 7th Western Alaska Interdisciplinary Science Conference (WAISC) 2014, we would like to welcome you to Kotzebue. The purpose of this conference is to provide the attendees with an opportunity to discuss scientific issues relevant to the residents of rural Alaska. We look forward to hosting you at this conference so that you can meet new people, discuss important issues, inspire new ideas, develop novel solutions and initiate cooperative efforts to solve the problems facing rural Alaska. We hope you will help us make this conference a success. Enjoy the conference, have fun, and welcome!

Organizing Committee

WAISC, 2014. Kotzebue.

Organizing Committee:

Pauline Harvey
WAISC Co-chair
Director, UAF Chukchi Campus

Frank Hays
WAISC Co-chair
Superintendent, National Park Service

Dr. Anshul Pandya
WAISC Executive organizer
Assistant Professor of Biomedical Sciences
UAF Chukchi Campus

Siikauraq Whiting
Member, organizing committee
Grants Manager, UAF Chukchi campus

Chad Nordlum
Member, organizing committee
Assistant to the Director, UAF Chukchi campus

Stacey Glaser
Member organizing committee
Library Manager, UAF Chukchi campus library

Brenda Erlich
Treasurer, organizing committee
Business Office, UAF Chukchi Campus

About WAISA



Western Alaska Interdisciplinary Science Association

The Western Alaska Interdisciplinary Science Association, or WAISA, is the executive authority that sponsors the Western Alaska Interdisciplinary Science Conference (WAISC) in partnership with local organizers. At its annual general meeting (held at WAISC), WAISA votes on the location of its next meeting and elects representatives. Anyone who attends WAISC automatically becomes a member of WAISA. There are no membership dues.

Major duties of WAISA Executive

President: To convene and chair an annual meeting and to convene such other activities as the executive deems appropriate.

Secretary/Treasurer: To be responsible for notifying all members of details of the annual meeting at least one month in advance of that meeting. He/she shall have charge of the finances of the association, shall be responsible for producing a newsletter, and shall keep the files of the association. The secretary/treasurer shall also provide liaison between members.

Four Executive Members-At-Large: Responsible for assisting the secretary with liaison between the executive and the general membership. They shall also assist in conducting the business of the association.

Student Member: Responsible for assisting the secretary with liaison between the executive and the general membership. The student member shall also assist in conducting the business of the association.

2012-2014 WAISA Executive

President: Todd Radenbaugh (2014)

Secretary/treasurer: Claudia Ihl (2014)

Four executive members: Kevin Jernigan (2014), Phil Loring (2014), Rich Seifert (2014), Larry Duffy (2014)

Student member: David Finney (2013) (high school student from Bristol Bay School District)

WAISC Sciences Awards

Colleagues who have demonstrated excellence are presented awards at Thursday night's banquet.

Excellence in Interdisciplinary Science: Given to an individual showing achievement in interdisciplinary science through contributions in research, teaching, and service in western Alaska.

Leadership for Sustainable Communities: Given to an individual or organization to recognize successful initiatives that promotes sustainable communities in western Alaska.

Educational Leadership: Given to an educator that has distinguished him or herself as a leader in a western Alaska educational institution through innovative programs and curriculum.

Distinguished Teaching Award: Given to a teacher in western Alaska who has made extraordinary contributions to the field of science teaching.

Distinguished Contributions in Science: WAISC Special Award: Given to an individual selected by the WAISA conference organizing committee who has shown significant contributions in promoting science in western Alaska.

WAISC Student Awards: Interdisciplinary Science Student Award: Award for the best paper on interdisciplinary science presented by a student at the WAISC.

Community Stewardship Award: Award to the best student paper that shows success and excellence in stewardship in a Western Alaska community.

About Chukchi Campus

College of Rural and Community Development
University of Alaska Fairbanks

Based in the community of Kotzebue, Chukchi campus serves eleven communities amid more than 36,000 square miles of spectacular mountains and tundra wilderness known as the Northwest Arctic Borough. No modern road system connects the villages to each other or to the outside world. The Northwest Arctic Borough population is 7300, of which over 82% are Iñupiaq. The pursuit of a traditional way of life and subsisting off of the land are the driving forces behind most of the residents. At the same time, western higher education and the UAF are becoming increasingly crucial to the region's future. Residents recognize the need of an appropriate balance between the increasing presence of western institutions and preserving Iñupiat traditions.

Chukchi Campus Motto

inuuniayuliksranaq piqutigiplugu

For the purpose of a good life

Chukchi Campus Mission Statement

To be a responsive and collaborative rural college that inspires and develops each student to contribute to the cultural and civic needs of her or his community

Chukchi campus Values

To represent the higher educational needs of the people of the NANA region to the UA system and to meet of help meet these educational needs.

CONFERENCE SESSION CHAIRS

ALTERNATIVE ENERGY AND CONSERVATION SESSION

Tom Marsik, Ph.D.

Assistant Professor, Sustainable Energy

UAF Bristol Bay Campus

ECOLOGY, ENVIRONMENT AND CLIMATE CHANGE SESSION

Michael Y. Brubaker, M.S.

Director, Department of Community Environment and Safety

Co-Director, Center for Climate and Health

Alaska Native Tribal Health Consortium

ANIMALS, FISHERY AND MARINE SCIENCE SESSION

James Lawler, Ph.D.

Arctic Network Inventory and Monitoring Program

National Park Service

LOCAL AND SUBSISTENCE SCIENCE SESSION

Pauline Harvey, M.E.

Director, Chukchi campus

University of Alaska Fairbanks

KEYNOTE AND PLENARY SPEAKERS

Keynote Speaker

F. Stuart Chapin, Ph.D.

Distinguished Professor Emeritus, Department of Biology and Wildlife & Institute of Arctic Biology, University of Alaska.

Linking science to action in a warming Arctic

Professor F. Stuart Chapin is known to his students and colleagues as 'Terry.' He served as the principal investigator of the Bonanza Creek Long-Term Ecological Research (LTER) program, and has a background in plant physiological ecology and ecosystem ecology. His current research interests focus on the resilience of communities and ecosystems in rural Alaska.

Plenary Speakers

Chanda Meek, Ph.D.

Assistant Professor, Department of Political Science, University of Alaska.

Do changing Arctic environments need new rules?

Dr. Chanda Meek is an assistant professor of political science at the University of Alaska Fairbanks specializing in environmental and marine policy. She has worked with and researched policy options for community-based resource management and collaborative management since the mid-1990s. She is currently collaborating with the Bristol Bay Native Association on a traditional knowledge project, "Building capacity for community-based marine mammal conservation in Bristol Bay."

Bert Boyer, Ph.D.

Professor of Biochemistry and Molecular Biology, Department of Biology and Wildlife and Institute of Arctic Biology, University of Alaska Fairbanks.

Building culturally respectful community-academic research partnerships

Dr. Bert Boyer is the director for the Center for Alaska Native Health Research (CANHR). He is interested in understanding genetic and environmental risk and protective factors related to obesity and diabetes in Alaska Native Yup'ik people using a community-based participatory research framework. Dr. Boyer and colleagues have worked in 11 communities of southwest Alaska to investigate health research priorities of the Yup'ik people. He works

closely with co-investigators in the cultural adaptation, implementation and evaluation of translational research strategies, including return of the full continuum of research results to participants in a culturally respectful and understandable format.

Kelly Drew, Ph.D.

Professor, Department of Chemistry and Biochemistry and Institute of Arctic Biology, University of Alaska Fairbanks.

Translating hibernation for therapeutic hypothermia in rural Alaska

Professor Kelly Drew's research focuses on the neurobiology of hibernation in arctic ground squirrels. She studies how the brain regulates hibernation and applies what she learns to human medicine.

Willie Argagiaq Goodwin

Chairman of the Beluga Whale Committee, Tribal Liaison for the National Park Service.

Use of Traditional Knowledge to Enhance Science

Willie Argagiaq Goodwin was born in Kotzebue and currently serves as Chairman of the Kotzebue Elders Council. He is also Chairman of the Regional Elders Council and has been there for the past 19 years. He serves as the Chairman of the Beluga Whale Committee who coordinates with the National Marine Fisheries Service to co-manage belugas. Willie is employed on a part-time basis as Tribal Liaison for the National Park Service. He is married to Donna and has 3 children, 18 grandchildren, 4 great grandchildren.

Location:

Conference Room

Nullagvik Hotel

306 Shore Avenue,

Kotzebue, Alaska 99752.

Conference Schedule

Wednesday 23 April, 2014

The Nullagvik Restaurant, Nullagvik Hotel

7:30 pm Informal Dinner (on your own)

Thursday 24th April, 2014

7:30 am Registration (Lobby, Nullagvik Hotel)

Main Conference room, Nullagvik Hotel

8:00 am Welcome - WAISC organization committee co-chairs

8:15 am OPENING EVENT: Keynote address by **Terry Chapin**

Title - Linking science to action in a warming arctic

9:15 am Break (15 minutes)

ECOLOGY, ENVIRONMENT AND CLIMATE CHANGE SESSION

Session Chair: Michael Brubaker

9:30 am Amy Lovecraft, Associate Professor of Political Science, UAF

Title: The Value of Scenarios for Northern Alaska: Facilitating Local Expert
Dialog on Well-being and Sustainability for 2040

9:50 am Ted Jacobson, Solid Waste Tribal Liaison, SEE Program, EPA, Alaska

Title: Fail To Plan - Plan To Fail: Seasonal Planning For Rural Alaska Landfills

10:10 am David Swanson, Ecologist, National Park Service, Fairbanks

Title: Permafrost Thaw Slumps and Slides in Alaska's Arctic National Parks

10:30 am Phil Loring, School of Environment & Sustainability, Univ of Saskatchewan

Title: The New Environmental Security: Linking food, water, and energy for
sustainability research and practice in rural Alaska

- 10:50 am Michael Holt, Archaeologist, National Park Service, Kotzebue
Title: Assessment of Climate Change Impacts on Coastal Cultural Resources in Northwest Alaska
- 11:10 am Molly McCammon, Executive Director, Alaska Ocean Observing System
Title: Expanding the Toolbox: Integrating and Visualizing Marine Data
- 11:30 am Seth Kantner, Maniilaq Agriculture Program, Kotzebue
Title: Gardening North of the Arctic circle: successes, difficulties and realities
- 11:50 am Lunch Break (on your own)
- 1:00 pm Plenary address by **Chanda Meek**
Title - Do changing Arctic environments need new rules?
- 2:00 pm Greg Balogh, Arctic Landscape Conservation Cooperative, US Fish & Wildlife Service
Title: Answering the Call for a Long-Term Environmental Monitoring Network
- 2:20 pm Tom Moran, Communications Manager, Alaska EPSCoR
Title: Interdisciplinary Research and Outreach across Alaska
- 2:40 pm Break (10 minutes)
- 2:50 pm James Lawler, National Park Service, Fairbanks
Title: Projecting Ecotypes and Wildlife Habitats in the Arctic National Parks and Selawik National Wildlife Refuge
- 3:10 pm Sarah Betcher, Center of Cross-Cultural Studies, UAF
Title: Filming as a means of Documentation: Effects of weather and climate on subsistence reliant communities of Northwest Alaska
- 3:30 pm Claudia Ihl, associate professor, Northwest Campus, UAF, Nome
Title: Lessons from a 10-gallon tank - aquariums as teaching tools from preschool to college

- 3:50 pm Todd Radenbaugh, associate professor, Bristol Bay Campus, UAF, Dillingham
Title: Designing a Field Methods Science Course that is Relevant to Western Alaskan College Students
- 4:10 pm Prajna Regmi, Graduate student, Geophysical Institute, UAF
Title: Object-Based Classification Model to Quantify Lake Distribution in the Western Alaska Landscape Conservation Cooperative (LCC) Region
- 4:30 pm Poster session (Lobby, Nullagvik Hotel)
- 6:00 pm Dinner* and Plenary address by **Bert Boyer**
Title - Building culturally respectful community-academic research partnerships

(*Registration required for attending the dinner)

Thursday 24th April, 2014

Chukchi campus science room

ALTERNATIVE ENERGY AND CONSERVATION SESSION

Session Chair: Tom Marsik

- 2:00 pm Tom Marsik, assistant professor, Bristol Bay campus, UAF
Title: Economics of Energy Efficiency vs. Renewable Energy
- 2:20 pm Tim Ellis, undergraduate student, Bristol Bay campus, UAF
Title: LED street lighting case study
- 2:40 pm Richard Kemper, undergraduate student, Interior-Aleutians campus, UAF
Title: A Feasibility Study concerning Retrofitting of Tok public school with LED lights
- 3:00 pm Michael Golub, Sustainable Energy Coordinator, Bristol Bay Campus, UAF
Title: Sustainable Energy Education at UAF CRCD

3:20 pm Art Nash, Energy Specialist and Assistant Extension Professor- UAF
Cooperative Extension
Title: What energy does my community use and what can it save?

3:40 pm Tom Marsik, assistant professor, Bristol Bay campus, UAF
Title: Performance of the World's Tightest Known House

Friday 25th April, 2014

Main Conference room, Nullagvik Hotel

LOCAL AND SUBSISTENCE SCIENCE SESSION

Session Chair: Pauline Harvey

8:30 am Plenary address by **Willie Goodwin**

Title - Use of Traditional Knowledge to Enhance Science

9:30 am Stephanie Maggard, graduate student, Interdisciplinary studies, UAF

Title: The ROAM project - understanding complimentary and alternative medicine in Alaska

9:50 am Break (10 minutes)

10:00 am Douglas Causey, Professor, Department of Biological Sciences, UAA

Title: Subsistence hunting is a strong predictor of waterfowl abundance in the Yukon-Kuskokwim delta region

10:20 am Kevin Jernigan, assistant professor of Ethnobotany, Kuskokwim campus, UAF,

Title: Resilience and Changing Food Practices in Southwest Alaska

10:40 am Glenn Gray and Siikauraq Whiting, Chukchi campus, UAF

Title: April 2013 Workshop on Improving Local Participation in Research in Northwest Alaska

11:10 am Alex Whiting and John Goodwin, Native Village of Kotzebue

Title: Addressing local research priorities: Tribally centered approach, Kotzebue, AK.

11:50 am Lunch Break (on your own)

Friday 25th April, 2014

Main Conference room, Nullagvik Hotel

ANIMAL, FISHERY AND MARINE SCIENCE SESSION

Session Chair: James Lawler

- 1:00 pm Plenary address by **Kelly Drew**
Title - Translating hibernation for therapeutic hypothermia in rural Alaska
- 2:00 pm Jared Weems, Arctic Ecosystem Integrated Survey, School of Fisheries and
Ocean Sciences, UAF
Title: Arctic Eis: An Integrated Marine Survey of the northern Bering Sea and
Chukchi Sea
- 2:20 pm Break (10 minutes)
- 2:30 pm Raymond Hander, Fishery Biologist, U.S. Fish and Wildlife Service, Fairbanks
Title: Age Structure Analyses of Inconnu *Stenodus leucichthys* in Northwest
Alaska Indicate Periodic Rather than Annual Recruitment
- 2:50 pm Karsten Hueffer, Department of Veterinary Medicine, UAF
Title: Population structure of arctic foxes and red foxes in Alaska is correlated
with geographically restricted strains of rabies virus
- 3:10 pm Bonita Dainowski, graduate student, Dept of Biology & Wildlife, UAF
Title: Hair and Bone as Predictors of Tissue Concentration of Mercury in the
Red Fox *Vulpes vulpes*
- 3:30 pm Hector Douglas, assistant professor of biology, Kuskokwim campus, UAF
Title: Sex, lice and chemistry
- 3:50 pm Joel H. Reynolds, Western Alaska Landscape Conservation Cooperative
Title: From reach to region: activities to advance our understanding of climate
change impacts on western Alaska's freshwater systems

4:10 pm Ashley Stanek, graduate student, department of Biological Sciences, UAA
Title: Dietary ecology of Alaskan gray wolves: variation in seasonal foraging strategies in a salmon subsidized ecosystem

4:30 pm Michelle Cason, graduate student, Dept of Biology & Wildlife, UAF
Title: Updating the distribution of the Alaskan Hare, *Lepus othus*

Friday 25th April, 2014

Conference room - 1, Nullagvik Hotel

ECOLOGY, ENVIRONMENT AND CLIMATE CHANGE SESSION

Session Chair: Michael Brubaker

8:30 am Hank Boggs, Environmental Science Laboratory, Bristol Bay Campus, UAF
Title: Winter Aquatic Fauna in the Dillingham Alaska Region

8:50 am Clint Reigh, Research Technician, Bristol Bay Campus, UAF
Title: Whale Bones and Science Credit - A Whale Sized Opportunity for Rural Science Education

9:10 am Santosh Panda, Geophysical Institute, UAF
Title: State of Permafrost in and around Selawik National Wildlife Refuge, Western Alaska

9:30 am Lena Krutikov, Scenarios Network for Alaska & Arctic Planning, UAF
Title: Historical Sea Ice Atlas for Alaska Waters

9:50 am Edward Anger, Environmental science student, Bristol Bay Campus, UAF
Title: Biodiversity of the Epibenthic Organisms of Nushagak Bay

10:10 am Break (10 minutes)

10:20 am Timothy Nick, undergraduate student, Civil Engineering, UAF
Title: Understanding the Unfrozen Water Mobility in Clays in Subfreezing Temperatures; Research Procedures and Data Using the Zeta Potential

- 10:40 am Arlo Bante, Mechanical Engineering & Associates of Science student,
Interior Aleutians campus, UAF
Title: Feasibility of Outside Wood Boilers for Rural Alaskan Villages
- 11:00 am Kate Zuray, undergraduate student, Interior Aleutians campus, UAF
Title: Collection Project Rampart Rapids Data
- 11:20 am Brett Kirk, Civil Engineering and Associate of Science student, Interior
Aleutians Campus, UAF
Title: Possible strategies for preventing erosion on the banks of Noatak river
- 11:40 am Lunch Break (on your own)
- 1:00 pm Workshop - 1
Ukallaysaaq Tom Okleasik, Executive Director, Native Village of Kotzebue
Title: Understanding Subsistence and Traditional Ecological Knowledge
- 2:30 pm Break (10 minutes)
- 2:40 pm Workshop - 2
Art Nash, Energy Specialist and Assistant Extension, Professor-UAF
Cooperative Extension
Title: Alaskan Climigration Examined
- 4:10 pm Break (10 minutes)
- 4:15 pm Documentary (by Sarah Betcher)
Title: Effects of weather and climate on subsistence reliant communities of
Northwest Alaska

Friday 25th April, 2014

Main Conference room, Nullagvik Hotel

- 4:50 pm Closing - Pauline Harvey, Director, Chukchi campus, UAF

Thursday 24th April, 2014

Lobby, Nullagvik Hotel

4:30 pm Poster session

	Presenter	Poster title	Affiliation
1	Frank Nicholson	Rural Electric Snowmobile Project	Bristol Bay campus, UAF
2	Douglas Causey	Pushing The Limits—Authentic Research In An Uncontrolled Environment	Department of Biological Sciences, UAA
3	Stephanie Maggard	Comparative analysis of total antioxidant power and the effects of cooking methods on Botanicals	Interdisciplinary studies, UAF
4	Martha Lee	Ethanobotany program at the Chukchi campus of UAF	Chukchi Campus, UAF
5	Courtney Scerbak	Alaskan botanicals' influence on neuronal aging	Dept of Biology and Wildlife, UAF
6	Caroline Streeter	Trends in subsistence food use and college lifestyle changes	Dept of Chemistry, UAF
7	Jillian Richie	Place Names as Indicators of Environmental Change in the Upper Kobuk River Valley	National Parks Service, Fairbanks
8	Lisa Strecker	Northern Adaptations in Kamchatka (Russia): Fishing for Dogs or Fishing for Snow-Machines	Department of Anthropology, UAF
9	David Tessler	Traditional Ecological Knowledge and citizen science yield new insights on the distribution, ecology and overwintering behavior of the little brown bat (<i>Myotis lucifugus</i>) in Alaska	Alaska Department of Fish and Game, Anchorage