

SFOS News

University of Alaska Fairbanks School of Fisheries and Ocean Sciences

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Held at UAF

53rd annual AAAS meeting a success

The Arctic Division of the American Association for the Advancement of Science sponsored the 53rd annual Arctic Science Conference on the University of Alaska Fairbanks campus September 18–21, 2002. The theme of the conference was “Connectivity in Northern Waters: Arctic Ocean, Bering Sea, and Gulf of Alaska Interrelationships,” and was highlighted by an opening plenary session. School of Fisheries and Ocean Sciences Dean **Vera Alexander**, UAF Chancellor Marshall Lind, University of Alaska President Mark Hamilton, and UA Vice President for Research Craig Dorman welcomed the meeting participants and outlined a short history of the development of the UAF campus as well as describing the

emphasis of northern studies within UAF institutes and departments. The plenary presentations focused on: “Atmospheric Connections Across Alaskan Ecosystems” by James Overland, NOAA/PMEL; “Understanding Ocean Circulation, Ice Conditions, & Communications Among Alaska’s Three Seas” by Wieslaw Maslowski, Naval Postgraduate School; “Biological Coupling of Water & Benthos in Northern Seas” by Jacqueline Grebmeier, University of Tennessee; “Terrestrial–Marine Interactions at High Latitudes” by Terry Chapin, UAF; and “Future Arctic Research & Coastal Alaska Needs” by George Newton, Arctic Research Commission.

There were approximately 350

participants and 200 abstracts were contributed to the oral and poster sessions, including a special session for undergraduate posters. Topics covered in the special sessions included: 1) The Bering Sea: Where the Pacific Meets the Arctic; 2) Plant Terrestrial Biology; 3) Climate & Weather; 4) Hydrology: Connecting the Land, Oceans, & Atmosphere; 5) Cold Regions Engineering; 6) Currents Connecting Science & Education; 7) North Pacific, Gulf of Alaska, & Adjacent Inland Waters; 8) Protection of the Environment from Ionizing Radiation; 9) Sinks & Links: The Chukchi & Beaufort Seas & the Arctic Ocean; 10) Animal Terrestrial Biology; 11) Circumpolar Health: Connecting Research & Policy; 12) Mesoscale Perturbations in the Arctic Middle Atmosphere; & 13) Social, Political, & Human Impacts.

A special word of thanks goes out to all of the session chairs, SFOS students, staff and faculty, and especially to conference coordinator, **Maggie Billington**, for help with the conference arrangements, activities, and presentations. Many good comments have been received from participants concerning the interesting, well-planned conference activities. Many thanks to all.

SFOS and Shirshov Institute of Oceanology ink agreement

by Terry Whitledge

A new cooperative agreement has been signed between the School of Fisheries and Ocean Sciences and the P.P. Shirshov Institute of Oceanology, Russian Academy of Science, Moscow to pursue scientific cooperation between scientists in their respective institutions. Both institutions have extensive background in physical, climatological, chemical, biological, geological and geochemical studies of the World Ocean, especially in high latitudes, as well as in multidisciplinary research of marine ecosystems. Joint efforts will result in a more profound understanding of the structure and function of the oceans and its evolution under the influence of climatic and anthropogenic forces. Future activities will include the development and conduct of cooperative research programs, coordination of research approach, joint research between

individual faculty, and exchange of faculty, staff, and students between laboratories. Initially, three specific areas of research are proposed, but additional topics can be included by mutual agreement, such as: 1) Shelf-Basin Interactions in the northern Bering Sea and Arctic Ocean; 2) Ocean circulation related to the arctic part of the World Ocean conveyor belt; and 3) Structure, dynamics, and productivity of the ecosystems of the Bering Sea continental shelves. The parties agree that neither the USA nor Russia can successfully undertake studies of the above substantial issues independently. Only coordinated and collaborative Russian/American programs and efforts can address these questions about the shelves and deep basin waters which are of key importance for understanding of the Bering Sea and Arctic Ocean ecosystems.

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Garza presents subsistence gathering program for American Indian heritage month

by Gigi Pilcher

Courtesy Sitnews - Ketchikan, Alaska
<http://www.sitnews.org>

In celebration of National American Indian Heritage Month the Southeast Alaska Discovery Center presented a special program on subsistence gathering on Tuesday evening, November 12th, at the Discovery Center.

Ketchikan residents, young and old alike, were treated to a very informative program as well as culinary delights by **Delores (Dolly) Garza**, a professor of the University of Alaska Fairbanks SFOS Marine Advisory Program.

Gayle Nixon of the Southeast Alaska Discovery Center introduced Professor Garza, and the professor

addressed the crowd in her maternal language of Haida and followed Native tradition by giving homage to her house and clan.

Garza's informative presentation included a slide show of the various food items that are staples in the traditional diet of Southeast Alaska Native peoples and she spoke about the areas throughout Southeast Alaska where the foods could be harvested.

Garza said that subsistence gathering begins in the spring and continues through early fall with the food being dried or smoked to last through the winter months. March marks the beginning of subsistence gathering of herring roe on kelp or roe on hemlock branches. She said that areas around Sitka are most plentiful and the harvesters share the roe with others who do not have access to boats or can't go out to gather.

Garza also shared information about:

- Different types of sea weed, when and where they are gathered.
- How ball kelp was used to hold such things as ooligan grease.
- Beach asparagus – both a traditional Native food and prized by gourmets world wide – which can be gathered in July around Ketchikan and on Prince of Wales Island.
- Devil's Club which is used as a tonic,

in ointments and as a medical drink for illnesses such as diabetes and cancer.

· Hudson Bay tea – also known as Labrador tea – which is used for medical purposes and found all over Revilla Island, especially around the Ward Lake area.

In July, Garza said that dip netting for sockeye salmon begins and the salmon is dried or smoked. Blueberries, salmon berries, and elder berries are also picked and dried to last the winter.

Photo Gallery

After the slide presentation, Garza invited the crowd to taste some of the delicacies she had spoken about.

Garza is Haida and Tlingit. She was born and raised in Southeast Alaska and learned subsistence gathering as a child growing up in Hydaburg and Ketchikan. Garza is author of a national award-winning, two-volume curriculum called "Outdoor Survival Training for Alaska's Youth," which includes a student workbook and teacher manual. She also wrote the booklet "Surviving on the Foods and Waters of Alaska's Southeast Shores." For her work on "Tlingit Moon and Tide Teaching Resource," Professor Garza won the 1999 American Book Award, sponsored by the Before Columbus Foundation.



Holiday timesheets due early

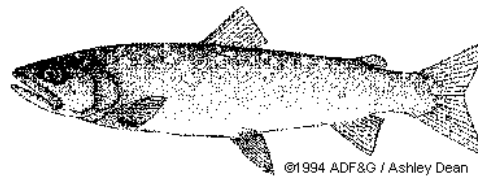
Early timesheet submission is required for the holidays. We need to key them early. Please note the adjusted schedule:

Christmas Holiday Pay period
Payroll Run # 01 time sheet
due December 18th by 5:00pm
in Fairbanks office

(Note: Outlying units are subject to this deadline as well.)

If you will be out of town for the holidays don't forget to stop by 245 O'Neill and see me to obtain the proper timesheets for your absence. You can also contact me via e-mail: shelbye@sfos.uaf.edu or by phone: 474-7928

Wishing you all the best wishes for the holiday season,
Shelbye Greenway



2003 Global Change Student Research Grant Competition

Application packets for the 2003 Global Change Student Research Grant Competition are now available on the web at <http://www.cgc.uaf.edu>; from the Center for Global Change, 306 IARC; or from the CLA Dean's Office, 404 Gruening. Submission

deadline is Friday, March 7, 2003. A workshop to familiarize students and faculty with this competition is being planned for late January; details will be available at the beginning of Spring semester. For more information call x5818.

Publications

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Golet, G.H., P.E. Seiser, A.D. McGuire, D.D. Roby, J.B. Fischer, K.J. Kuletz, D.B. Irons, T.A. Dean, S.C. Jewett, S.H. Newman. (2002). Long-term direct and indirect effects of the *Exxon Valdez* oil spill on pigeon guillemots in Prince William Sound, Alaska. *Marine Ecology Progress Series*. **241**: 287–304.

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Zheng, J. and G.H. Kruse. 2002. Assessment and management of crab stocks under uncertainty of massive die-offs and rapid changes in survey catchability. Pages 367–384 in Paul, A.J., E.G. Dawe, R. Elner, G.S. Jamieson, G.H. Kruse, R.S. Otto, B. Sainte-Marie, T.C. Shirley, and D. Woodby (editors). *Crabs in cold water regions: biology, management, and economics*. University of Alaska Sea Grant, AK-SG-02-01, Fairbanks.

Juneau students participate in shipboard research

Julie Nielsen and Zachary Hoyt, graduate students at the Juneau Center, School of Fisheries and Ocean Sciences, University of Alaska Fairbanks, participated in a research cruise in June and July 2002, funded by the NOAA Office of Ocean Exploration, to study seamounts in the Gulf of Alaska. The cruise aboard the R/V *Atlantis* utilized the deep diving submersible *Alvin* from Woods Hole Oceanographic Institution to study crabs on six seamounts located from near Astoria, Oregon to Kodiak, Alaska. The *Alvin* is capable of carrying a pilot and two scientists to depths of 14,700 feet. Both Julie and Zac had the opportunity to make dives in the *Alvin* and assist **Professor Tom Shirley** (UAF) in his study of deep-water crabs.



Crab research team poses in front of the deep sea submersible Alvin used to study crabs on seamounts in the Gulf of Alaska. Graduate Students Zachary Hoyt is on the far left, with Julie Nielsen on the far right.

Graduate students **Aaron Baldwin, Julie Nielsen, Wongyu Park** and **Brian Pyper**, all of the Juneau Center, School of Fisheries & Ocean Sciences, University of Alaska Fairbanks, participated in a research cruise in September 2002, helping **Tom Shirley** study Dungeness crabs in Glacier Bay National Park & Preserve. The research is funded by the United States Geological Survey and is studying the effects of the closure of commercial harvesting on different aspects of the biology of Dungeness crabs in the park.



UAF graduate students participating in crab research in Glacier Bay.

The Hidden Ocean: Explorations under the ice of the Western Arctic—life in the crystal palace



Bluhm checking the filtration units to collect under-ice fauna. The hose is connected to a funnel, which is operated by the divers.

By R. Gradinger, B. Bluhm, K. Iken, and G. Plumley

This summer, several School of Fisheries and Ocean Sciences faculty and other scientists from Washington and China, participated in the NOAA Arctic Exploration expedition onboard the Canadian Coast Guard icebreaker *Louis S. St. Laurent*. The Ocean Exploration Initiative lead us into the deep Canada Basin, which so far is largely under-explored due to year-round heavy ice cover. Marine science professors **Bodil Bluhm, Rolf Gradinger, Gerry Plumley** (UAF-SFOS) and Qing Zhang from the Second Institute of Oceanography, Hangzhou, China, focused on sympagic (i.e., ice-related) communities. Traditionally, work on sea ice communities involved the analysis of ice cores taken from ice floes. To observe the biological dynamics of larger organisms on the underside of the ice we also took underwater videos of that interface layer. A dive team of the National Geographical Society, Department of Fisheries and Oceans Canada provided an exciting opportunity to obtain samples directly from under the ice using so-called suction pumps, which work like a gentle vacuum cleaner and collect larger animals such as amphipods.

Our ideas of investigating the sea ice quickly changed when we reached our study area and realized that this year obviously was a bad ice year. Ice floes were small and thin. Melt water puddles covered 40–60% of the surface of the ice floes. Our ice-breaking vessel could not maintain its position itself, let



Our ice coring and pumping equipment on the ice was powered by generators. In the background members of the diving team

enough to the ice to allow for the safe transport of scientists and equipment onto the ice. We changed plans and used an FRC (fast recovery craft). The small boat brought ice scientists, SCUBA divers, dive tenders, and the polar bear watch person to the ice and then remained on stand-by. We collected five to eight ice cores per station as well as water from melt ponds and brine holes to study the associated organisms. On two ice floes we measured *in situ* primary production of melt pond water and brine, together with **Professor Terry Whitledge** and Sang Lee, using stable isotopes (^{13}C , $^{15}\text{NO}_3$).

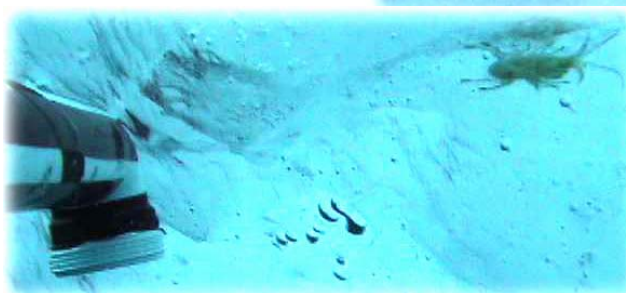
Since we could not sample as many ice floes as anticipated, we were very excited about the additional work the divers could do for us. They recorded video transects of about 30m lengths while the diver was swimming at about 30cm under the ice. A

Continued on page 5



G. Plumley and R. Gradinger are processing ice cores on an ice floe.

*A still image from one of our video transect shows Arctic cod, *Boreogadus saida*, in a gap along the edge of a floe discovered by divers*



*Under-ice amphipod *Gammarus wilkitzkii* below Arctic sea ice as observed by divers.*

Crystal Palace . . . continued

Continued from page 4

PVC pipe, which can be seen in the pictures, was attached to the camera housing to provide a scale as well as consistent distance from the ice. The recordings will be used to estimate abundance and diversity of under-ice amphipod fauna. The divers also recorded the occurrence and abundance of one of the major under-ice predators, the arctic cod (*Boreogadus saida*).

Back in the ship's lab we analyzed brine, melt pond, and under-ice water, as well as melted ice sections, for algal pigment composition by HPLC, algal activity (PAM fluorometry), and salinity. Other samples were preserved for vouchers, algal counts, community analysis, stable isotope composition (¹³C, ¹⁵N), POC, PON, and lipid analysis. Unpreserved samples were sorted and counted at the dissecting scope.

Our results so far indicate that the ice was especially clean of sediments and ice algae. This was confirmed by low photosynthetic rate determined with the PAM fluorometer. The sea ice metazoan meiofauna consisted mainly

of turbellarians, nematodes, and harpacticoid copepods. Their diversity was low, with each of the three groups represented by only one species. Abundances were less than one hundred individuals per liter of melted sea ice. Several female copepods had egg sacks indicating reproduction during the late arctic summer.

Amphipods caught by the divers, either directly or with the suction pump, belonged to the species *Apherusa glacialis*, *Onisimus* spp. and *Gammarus wilkitzkii*. For *A. glacialis* and *G. wilkitzkii*, we found both adult animals and juveniles. One female *G. wilkitzkii* released a total of thirty-two juveniles from her marsupium (egg pouch) within several days in a tank onboard the ship. While amphipod abundance was low in the stations in the eastern Beaufort Sea, the more westerly stations revealed higher abundances of amphipods of all three species. After an initial observation of the occurrence of Arctic cod in gaps along the edges of the ice floes, later systematic surveys provided strong evidence that this species uses this habitat for resting and/

or hiding.

In summary, this first Arctic Exploration cruise facilitated a quick glimpse into an under-explored area. Our study documented that algal and animal biomass within the summer sea ice was low in the Canadian Basin, at least during the late Arctic summer. However, representatives of all major taxa known from studies in the transpolar drift, were encountered. At this point in the analyses, the most interesting and novel ecological findings are a) the observed reproduction of copepods and amphipods in late summer (rather than in the spring), and b) the so-far-unknown use of a spatial niche in melting summer sea ice by the polar cod, *Boreogadus saida*. A detailed study on the ecological significance of this supposedly critical cod habitat within the life cycle of offshore cod would be a challenging and important topic for future investigations. Under-ice amphipods and polar cod are likely the most important links of carbon from the sea ice to the water columns and higher trophic level, and, therefore, deserve special attention.

5th International Flatfish Ecology Symposium

Brenda Norcross attended the 5th International Flatfish Ecology Symposium as a representative of Alaska and the U.S. She was the first of five invited keynote speakers. Her presentation entitled "Larval Dispersion and Settlement of Flatfishes," was extremely well received. Norcross used the opportunity of the invitation to analyze distribution of juvenile flatfish she and those in her lab had collected over ten years and 1000nmi. To get the most insight, she invited the participation of NMFS/AFSC scientists who contributed an equal amount of larval distribution data. The resulting paper will be published as part of the refereed proceedings in the *Journal of Sea Research* published in the Netherlands.

A brief Abstract of the paper follows:

Investigate processes affecting larval supply and settlement of flatfishes, we examined nine Pleuronectid species over almost 2000 km of coastline in the Gulf of Alaska. Spatial distribution of the abundance of eggs and larvae of each species is compared to the distribution of juveniles. Additionally, we

compare size distributions of larvae and juveniles. We use information about currents in the area to infer mechanisms to explain patterns of dispersal and retention. Interspecific comparisons reveal that not all species

in the same region use the same mechanisms for dispersal. Nursery characteristics common among species are examined. Nursery habitat characteristics together with larval distribution patterns are used to interpret choice of larval settlement location.

Kowalik's paper is published

The following abstract is from the paper published in the **Journal of Marine Research** titled *Tidal motion enhancement around islands*, by Zygmunt Kowalik and Aleksey V. Marchenko.

by Zygmunt Kowalik and Aleksey V. Marchenko

Tidally-generated, trapped motion can significantly enhance and modify sea level and currents in the island proximity. The analytical solution for incident waves interacting with a cylindrical island with a circular sill has been constructed to investigate this phenomenon. To derive solutions for the scattering problems, simple Sverdrup and Kelvin waves are used as incident waves. The amplification of

the signal along the island perimeter has shown to be a function of frequency, relative dimensions of the island and the circular sill surrounding the island, relative sill depth, and the bottom friction. Although the incident diurnal tide may be amplified through the resonant response, this resonance occurs in the shallow water where the bottom friction damps the effect. The dispersion equation shows that the geometry of the problem favors amplification of semidiurnal tides. Analytical solutions obtained by superposition of the incident and scattered waves around an island are used to explain the observed peculiarities of tides in the vicinity of the Pribilof Islands, Bering Sea.

The Hidden Ocean: Explorations under the ice of the Western Arctic – Deep-sea Benthos Diversity and Food Web Structure

By **Bodil Bluhm**

This summer, seven Institute of Marine Science faculty members, together with colleagues from various institutions throughout the country, were funded through NOAA's office of Ocean Exploration to explore the Canadian Basin in the high Arctic using the Canadian coast guard vessel *Louis S. St. Laurent*. Much of the deep offshore parts of the Canadian Basin have remained uninvestigated until today, largely due to its ice-cover related inaccessibility. One of the funded groups, consisting of IMS professors **Katrin Iken** and **Bodil Bluhm** and TAMU faculty I. MacDonald aimed to explore the Arctic deep-sea benthos. Deep-sea benthos has long been neglected in all oceans (more so in the Arctic) mainly due to practical problems related to sampling.

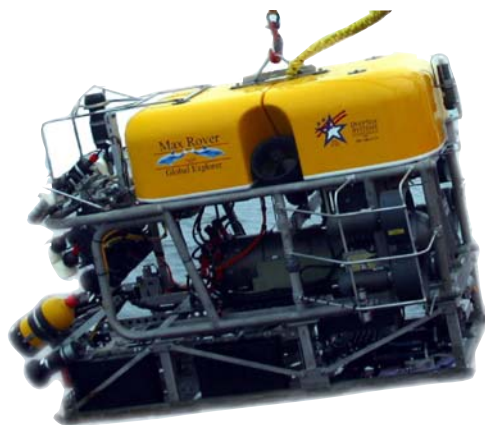
The pilot is staring at the screen while maneuvering his vehicle gently towards the bottom. He is "flying" the Max Rover, a brand new remotely operated vehicle (ROV), by using the live video of one of the vehicle's cameras. The benthic group or "mud team" in the ROV container is counting down; 30 m to go, 20, 10, 5, then the bottom with soft, muddy sediment that forms a cloud as we set the vehicle down. In our view is the precious ROV cable, the umbilical cord to the ship. This is the seventh and last dive of the cruise, but we are still as excited as we were during the first dive, especially since this one is an extra that we owe to the mellow ice conditions this year, which allowed us to steam faster than expected (much to the frustration of the ice group, see last SFOS news).

The objectives of our benthic team, which is completed by School of Fisheries and Ocean Sciences graduate student **Casey Debenham**, were to study the unexplored deep sea floor communities for their diversity, abundance, distribution patterns, and food web structure. Our strategy was to combine traditional sampling by box cores configurations, modified during each dive, and aimed at eventually getting the perfect configuration for



Invertebrates photographed during several ROV dives in the deep Canadian Basin, high Arctic in August/September 2002. Photos: I. MacDonald, B. Bluhm, Deep-Sea Systems.

For more information about the cruise go online to:
www.oceanexplorer.noaa.gov



The remotely operated vehicle "Max Rover" (Deep-Sea Systems) used during the Arctic Ocean Exploration expedition. Photo: I. MacDonald.

our purposes, or trying to accommodate the needs of the benthic and pelagic groups simultaneously. A set of four powerful, green lasers provided a scale in the images and four HID lamps, augmented as needed with quartz lamps, provided flood lighting in this otherwise pitch-dark environment. My notes of this particular dive go something like this.

**Tape 3, 45 min – A fish, some kind of eelpout, is curled up in our vision and then swims off, leaving a zigzag cloud of soft sediment. Tape 3, 47 min – A brittle star, partly burrowed into the sediment, the tips of its five arms sticking up into the water column. Seconds and minutes of nothing but mud and darkness. Tape 3, 58 min – A deep hole in the bottom with a marker beside it; this must be our box core marker. It was at exactly this*

location that we took a box core and the marker was set to check with the ROV whether our sample represented the surrounding habitat. Tape 4, 4 min – Another fish, probably a snailfish, pink in color and rattail-like in shape. Tape 4, 5 min – Yet another brittle star, larger than the first, about 3 inches in diameter from one arm to the other; seems like the same genus, Ophiopleura. Tried to catch one with the manipulator arm, but the vehicle drifted too fast over it. This same problem unfortunately prevented us from collecting larger epifauna throughout all dives. Tape 4, 9 min – Numerous "lebensspuren", i.e. tracks of animals, indicating a low current environment. Many more tracks than on the last dive, where we found rocks with hard bottom fauna and many dead remnants like bivalve and gastropod shells, otoliths and empty worm tubes, but few tracks. This indicated a higher energy environment with more water movement. Tape 4, 13 min – Anemones, that are burrowed in the sediment and only display their tentacle crown. Tape 6, 2 min – The captain is calling, we need to leave the seafloor for now, the last dive of this cruise, but hopefully not the last dive ever in the Arctic deep-sea!

After this first preliminary cruise with some trial and error we now feel prepared for the "real cruise" and are waiting for this year's call for proposals coming out soon.

People



Vera Alexander, Dean of the University of Alaska Fairbanks' School of Fisheries and Ocean Sciences was elected Chair of the North Pacific Marine Science

Organization, known as PICES, at the 11th annual meeting held in Qingdao, China, in October.

The role of PICES is to promote and coordinate marine scientific activities in the temperate and sub-Arctic region of the North Pacific Ocean and its adjacent seas, especially those north of 30 degrees North Latitude.

The organization promotes and coordinates marine scientific research in order to advance scientific knowledge of the area and promotes the collection and exchange of information and data related to marine scientific research in the area concerned.

PICES was established in 1992 by an international convention. Current member nations are Canada, Japan, the People's Republic of China, the Republic of Korea, the Russian Federation, and the United States of America.



Alaska Sea Grant College Program's **Professor Susan Sugai** was awarded \$4,854 from the President's Special Projects Fund for her project, "Travel Funds for High School Teams From Off-Road Systems to Participate in 2003 Alaska Ocean Science Bowl." In his letter to Sugai, University of Alaska President Mark Hamilton said, "I am sincerely appreciative of your creativity and enthusiasm. It is a direct result of the work of such as like you that the University of Alaska continues to grow, prosper, and be recognized as a leading force in the development of the future of our state."



Homer agent **Terry Johnson** has looked at alternative commercial salmon harvesting technologies used in other parts of the world. He gave a short talk on alternative

harvest gears at the salmon industry restructuring workshop in Anchorage, and at Fish Expo. Johnson has observed salmon fisheries in Japan using floating fish traps, and in the Russian Far East with traps and beach seines. He recently observed a chinook salmon harvesting weir in Michigan. In his talk he also described reef nets, pile traps, and tangle or tooth nets. Commercial salmon harvests, mainly with passive harvesting technology, occur in at least ten countries worldwide, and Johnson plans to produce a more detailed report on the equipment used in those fisheries.



MAP agent **Richard Steiner** is traveling to Buryatia, a Tibetan Buddhist region of eastern Siberia on the border with Outer Mongolia, in late November through mid-December at the

invitation of the "Buryatia Center for Public Environmental Impact Review," and "Baikal Environmental Wave," to conduct a public expert review of the proposed Yukos oil pipeline that will stretch some 2,000 miles from eastern Siberia to China. The visit is sponsored by Earth Island Institute, with funds from the Trust for Mutual Understanding. He will be meeting with several of the region's public expert reviewers of the project, conducting his own technical review of the Environmental Impact Assessment for the project, and advising NGOs and other interested public entities in Buryatia, China, and the Irkutsk region regarding issues and concerns for the huge project, set to begin construction next year.

Professor

John Kelley was invited to present a seminar at the Battelle-Pacific Northwest National Laboratory, Richland, Washington on:

Concerns About Radionuclide Contamination in the Arctic and Subarctic Regions on November 31. He also presented this lecture at the Battelle Research Center, Richland, Washington on November 1. While at Battelle he entered into discussions about a collaboration with the Battelle Laboratories on projects associated with International Nuclear Safety. Battelle managers will visit the University of Alaska Fairbanks on November 18 for further discussions.



Professor Katrin Iken

assistant professor, SFOS/IMS, has been awarded the Tyge Christensen Prize for the best macroalgal paper

published in the journal "Phycologia" during 2000-2001. The paper is entitled "Qualitative and quantitative studies of swimming behaviour of *Hincksia irregularis* (Phaeophyceae) spores: ecological implications and parameters for quantitative swimming assays". The study investigates how spores as the motile dispersal stage of macroalgae have distinct behavioral patterns when choosing an optimal place for permanent settlement. The prize is awarded by the International Phycological Society and consists of an award of \$5,000.00 and certificates for Iken and her co-authors.



At the recent 11th annual meeting of the North Pacific Marine Science Organization (PICES) in Qingdao, China, SFOS graduate student **Olav Ormseth** won the Best Poster award for his poster entitled "Linking environment to the distribution and recruitment of Pacific cod in the North Pacific."

North Slope Borough Science Advisory Committee Review

The Mayor of the North Slope Borough (NSB) tasked its Science Advisory Committee (SAC) to review and comment on studies related to risks and probabilities of spills associated with proposed arctic offshore pipeline design and treatment of pipeline design issues. The NSB has a contract with the IMS to manage the SAC chaired by **Professor John Kelley**. This is the

20th year of operation of the SAC at the UAF.

The committee composed of faculty from the UAF, University of Washington and industry will meet at Sophie Station hotel on December 10-13, 2002 to discuss reports on risk and probability. They will meet at a later date to take up the issue of alternative engineering approaches.



A full-color version of our newsletter is available at: www.sfos.uaf.edu/
 In order to view this version, you will need a copy of Adobe Acrobat Reader.

Editor's Corner: Got News?

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