



SFOS NEWS

Institute of Marine Science • Marine Advisory Program • Fishery Industrial Technology Center • Coastal Marine Institute
Alaska Sea Grant College Program • North Pacific Marine Research Program • Fisheries Division • Global Undersea Research Unit

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Dr. Jewett Investigates Red Dog Mine's Port Facility Plan

Dr. Stephen Jewett, IMS, has been examining and investigating the possible environmental impacts of the creation of the DeLong Mountain Terminal (DMT), a loading/port facility that would replace the existing barge process used to transport zinc concentrate originating from the Red Dog Mine. The port facility, approximately 15 miles south of Kivalina, is located on NANA Regional Corporation land leased to the Alaska Industrial Development and Export Authority (AIDEA). Cominco Alaska, who operates the Red Dog Mine, is reviewing the potential for extending the dock (pier) and dredging a shipping canal to the new dock facility, thus allowing ships to directly load the concentrate. This would eliminate lightering barge traffic for the concentrate. Cominco initiated studies related to the DMT concept. Later the U.S. Army Corps of Engineers (COE) took interest into making the AIDEA facility into a greater national asset and began their own feasibility study with AIDEA as the local sponsor. Cominco provided past studies to the COE and the COE chose to use many of the same contractors for purposes of continuity and established expertise at the site. RWJ Consulting of Chugiak, AK and **Dr. Jewett**, IMS, were contracted to assist the



Kivalina resident, Willard Adams (spotting) and COE biologist, Larry Bartlett, viewing seals off DMT, April, 2000. Photo: S. Jewett

See Jewett, Page 2

Dr. Finney Highlighted in Media

Dr. Bruce Finney's research using lake sediment records and biological indicators to reconstruct sockeye salmon abundance over hundreds of years has generated a media blitz of sorts. The research **Dr. Finney** and his colleagues have reported has been recently featured in the Anchorage Daily News, the Fairbanks Daily-News Miner, ABCNews.com, and Arctic Science Journeys. A recent article in the science journal *Science*, authored by **Dr. Finney** and his colleagues, seems to have captivated many scientists, fisheries managers, historians and the general public.

Dr. Finney and other researchers determined the size of sockeye salmon runs going back 300 years by measuring levels of the stable nitrogen isotope, N15, in lake bottom sediments. As each generation of salmon returned home to spawn and die, their decomposing bodies left behind a nitrogen fingerprint in the sediment. Scientists took core samples and measured the nitrogen isotope in the sediment layers. From that, they calculated the relative size of salmon runs over time. Markers, such as ash from known volcanic eruptions, helped scientists affix a date to the layers. The study found that the 300-year record showed these nutrient links to be important to salmon survival, and they are amplified by the effects of climatic change. **Dr.**

Finney says salmon runs were largest in years of favorable climate and increased production of algae and zooplankton. Commercial fishing, on the other hand, was found to have



Dr. Bruce Finney

negative long-term effects on the size of Kodiak Island's sockeye runs. Harvests of sockeye salmon from the Karluk Lake system, for example, began to decline shortly after commercial fishing began in 1882. By the 1970s, salmon catches that had peaked at nearly four million fish declined to just 100,000. The findings have important implications for commercial fisheries management in Alaska. Traditionally, fisheries managers assumed the environment was constant when they calculated the maximum number of salmon fishermen could harvest. **Dr. Finney's** *Science* (vol. 290, issue 5492- Oct. 27, 2000) study suggests a need for new, flexible management policies that take climate and lake nutrient levels into account.



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Funding -- October 2000

<u>PI</u>	<u>Title</u>	<u>Agency</u>	<u>Cumulative</u>
Adkison, Milo and Quinn II, Terrance	Design of Alaska Harbor Seal Survey	ADF&G	\$ 20,609
Button, Don	Dilute-Environment Bacteria	NSF	\$ 345,000
Coyle, Ken	Zoop GLOBEC LTOP Gulf of Alaska	NSF	\$ 278,379
Coyle, Ken	MOCNESS Sample Processing	Oregon State University	\$ 9,999
Gharrett, Anthony	Coloration in Rougheye Rockfish	NOAA	\$ 65,000
Haldorson, L.	Fish GLOBEC Gulf of Alaska	NSF	\$ 237,182
Haldorson, L.	GLOBEC Juvenile Pink Salmon	NSF	\$ 403,256
Highsmith, Ray	Kasitsna Bay Upgrades & Renovation	NOAA	\$ 95,000
Hills, Susan	GOA Contaminants Mtg Facilitation	ADF&G	\$ 7,803
Hopcroft, Russell	GLOBEC Copepod Growth/Reproduction	NSF	\$ 247,554
Hughes, Nicholas	Estimating Sockeye Outmigrating	ADF&G	\$ 91,161
Jewett, Stephen	COMINCO Benthic Assessment	RWJ Consulting	\$ 55,533
Naidu, Sathy	Oyster Cadmium Analysis	NOAA	\$ 1,513
Norcross, Brenda	Eulachon Life History	USDA Forest Service	\$ 20,601
Paul, A.J.	Reproductive Biology of Female Gold	ADF&G	\$ 27,862
Quakenbush, Lori and Kelly, Brendan	McCovey Ringed Seal Surveys	Parametrix, Inc.	\$ 19,457
Reynolds, Jennifer	Rift Zone Magmatism at Puna Ridge	NSF	\$ 21,715
Smith, Thomas	Ship Operations	NSF	\$ 298,367
Smith, Thomas	Ship Operations - Training	NSF	\$ 19,198
Wang, Jia	OSRO 3D Bio/Phys Model of PWS	OSRI	\$ 50,000
Weingartner, Thomas	GLOBEC LTOP Gulf of Alaska	NSF	\$ 311,500
Wheat, Geoff	Juan de Fuca Hydrogeologic Studies	NSF	\$ 300,134
Wheat, Geoff	Mariana Foreacr Mud Volcanism Study	NSF	\$ 102,069
Whitledge, Terry and Stockwell, Dean	Phyto GLOBEC LTOP Gulf of Alaska	NSF	\$ 154,156
Wynne, Kate	ADF&G Harbor Seal Assessments	ADF&G	\$ 7,839
SFOS Awards Processed in October 2000			\$3,190,887

Jewett

COE in various environmental studies. **Dr. Jewett** is examining the benthic fauna within the proposed dredge corridor as well as the offshore disposal area. Sampling



Dr. Stephen Jewett

occurred in 1998 and 2000 via SCUBA, van Veen grab, otter trawl, plankton net, hook & line, and crab and shrimp pots. Concerns over the proposed expansion of the DMT focus mainly on impacts to bearded, spotted, and ribbon seals, migrating whales, and red king crab.



Kivalina resident, Willard Adams, assisting in the crab/shrimp survey off DMT, August 2000. Photo: S. Jewett.

Alaska Sea Grant Hosts Meetings

According to Alaska Sea Grant's *Fishlines*, thirty Sea Grant communicators from 21 state programs and national offices gathered in Seward, October 1-4. **Kurt Byers**, AK Sea Grant communications manager, organized the gathering. During the same time, 35 Sea Grant extension leaders and administrators were in Seward attending meetings organized by MAP director **Don Kramer**. At the communicators' meetings, National Sea Grant director Ron Baird challenged communicators be part of the national planning process by participating on "theme teams." Sea Grant

theme teams identify needs and write plans for research and out-reach in fisheries, coastal processes, and other topic areas. Victor Omelczenko, National communications monitor, reinforced Baird's remarks, and reported on a national Sea Grant leadership retreat. The retreat report, as well as the Sea Grant business plan, emphasize the need to develop "brand name" identification for Sea Grant, to improve national recognition. To get a first-hand look at some of the important topics Alaska's scientists and outreach specialists deal with, the group toured Kenai Fjords, Qutekcak Bivalve Hatchery, and the Alaska SeaLife Center. **Shannon Atkinson**, SFOS, and SeaLife Center science director, led a behind-the-scenes tour of the facility's research operation. In addition, communicators met with the Assembly of Sea Grant Extension Program Leaders on how to meld outreach efforts of Sea Grant Extension and Communications personnel. Extension leaders attended new leader training, which included addressing regional networks, integrating extension into research proposals, cooperative outreach with other NOAA organizations, and international Sea Grant projects.



Cominco Alaska barge transferring zinc concentrate to transport ship off DMT, August 2000. Photo: S. Jewett.

Sitka WhaleFest 2000

Dr. Michael Castellini, IMS, represented UAF at the Sitka WhaleFest 2000 (Nov 3-5) with a series of talks and discussions on cetacean adaptations for living in the sea. This is the 2nd time for **Dr. Castellini** to



Dr. Michael Castellini

talk at the Sitka event (also 1999) and the third WhaleFest talk (Kodiak, 1998). Speakers at the event include: U.S. Fish and Wildlife, University of British Columbia, AK Dept. of Fish and Game, and other agencies and institutions. Topics covered included whale biology, ecosystem monitoring, harbor seals, otters, and other related topics and interests. The ASLC hosted a NOAA workshop Nov 8-9 on methods

involved in capturing and studying juvenile Steller sea lions and holding them at the ASLC for 1-2 weeks for intensive work before re-releasing the animals to the wild.



Dr. Shannon Atkinson

This will be the first time that animals from the endangered western population have been proposed to be brought into captivity. UAF, Texas A&M, ADF&G, NOAA, and a variety of private consultants will be attending the workshop. **Dr. Atkinson**, Alaska SeaLife Center, is the program coordinator and **Dr. Castellini** headed the section on scientific sampling while the animals are in captivity.

Fisheries Acoustic Seminars: Shrinking Distances in Learning and Teaching

The Alaska Television Network (ATN) has proved to be a valuable media for the presentation of courses of interest to students in Alaska's major cities—Fairbanks, Anchorage and Juneau. A fisheries acoustics seminar lead

by **Dr. John Kelley**, IMS, and Dr. Vikas Sonwalkar, Electrical Engineering, has been given each semester for the past three years with participants in Juneau and Anchorage. A strong desire by all was to have the



Dr. John Kelley

ability to extend this seminar to the University of Washington (UW) and NOAA in Seattle. SPRINT and the Television Network at the University of Washington, in collaboration with ATN, made it possible this year to install new hardware to connect Seattle with Alaska. Dr. John Horne of NOAA/NMFS, and professor in the School of Fisheries at the UW, agreed to coordinate the effort at the UW. The first broadcast occurred on October 10 with a seminar presented by **Dr. Michaela Dommissé**, SFOS. Dr. Horne presented the second lecture and seminars will alternate between the UA and the UW. UA President Hamilton made this connection possible and attended the first seminar.



MAP Agent on Stellar Sea Lion Committees

Kate Wynne, Kodiak, MAP, was recently appointed to the Governor's "Alaska Steller Sea Lion Restoration Team." In Governor Knowles' words the purpose of this group is "to develop a comprehensive research program designed to address the scientific theories about potential impacts to Steller sea lions from food competition and localized depletion due to groundfish fisheries." The team will begin work in mid-November and present its report to the North Pacific Fisheries Management Council "as soon as possible." **Wynne** will be attending the semi-annual meeting of the Marine Fisheries Advisory Committee (MAFAC) in New York City from November 10-12. This committee advises the National Marine Fisheries Service director and Secretary of Commerce on a variety of marine fishery and conservation issues. **Wynne** was appointed to MAFAC last year and recently became chair of its Outreach Subcommittee.



Kate Wynne

Local Chapter of Sigma Xi receives Certificate of Excellence

Sigma Xi, The national Scientific Honorary Research Society, announced on October 20 that its Board of Directors recommended 10 chapters to be awarded a Certificate of Excellence. The Alaska Chapter was among the awardees. The

Alaska Chapter office is located in the Institute of Marine Science and maintained by **Dr. John Kelley**, IMS. **Dr. Kelley** and Dr. Larry Duffy, IAB, Alaska Chapter Secretary-Treasurer, will attend the annual meeting of Sigma Xi in Albuquerque, NM November 9-13, 2000.

Scientists, whalers at sea ice symposium

According to MediaNews Group, Inc. and Fairbanks Publishing Company, Inc., scientists met in Barrow with Native hunters, whalers and elders for a series of conversations about sea ice. The three-day symposium was part of a project to merge the latest in high-tech sea ice research with the traditional knowledge of indigenous people. A goal of the program is to come up with a better understanding of what's going on with sea ice—what drives it, what makes it safe and what makes it unsafe, said David Norton, with the Barrow Arctic Science Consortium.

Publications

Blanchard, A, and H. Feder. 2000. Distribution, Reproduction, and Shell Growth of Limpets in Port Valdez, Alaska. *The Veliger*. 43:289-301.
Finney, BP, I. Gregory-Eaves, J. Sweetman, M.S.V. Douglas, and J.P. Smol. Impacts of Climatic Change and Fishing on Pacific Salmon Abundance Over the Past 300 Years. *Science*. 290(5492):795-799.

Seminars

Monday, November 13, 2000

Dr. Marcus Horning, Texas A&M

3:30-5:00PM, 138A Irving II

The presentation will highlight new experimental, manipulative approaches to the study of pinnipeds, including the development of new technology to address these issues.

Wednesday, November 29, 2000

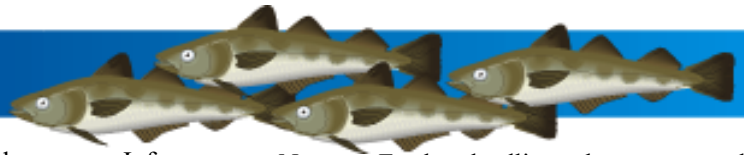
Bruce Finney

Topic T.B.A.

Unless otherwise noted, all seminars will be held between 3:30 PM- 4:30 p.m. in the Elvey Auditorium, Elvey Building (Geophysical Institute)

For more information and the most up-to-date list for seminars, visit <http://www.ims.uaf.edu:8000/> and select **Seminars Schedule**, or call Dr. Brenda Konar at 474-5028.

Announcements



Sustainable Fisheries

The Conservation Program seeks to ensure a healthy future for all life by conserving critical natural systems, addressing key threats to these systems, and providing the scientific information and training that will enhance their conservation. Proposal deadline is: **December 15, 2000**. Contact: Jeanne Sedgewick, Program Director, David and Lucile Packard Foundation, 300 Second Street, Suite 200, Los Altos, CA 94022. Web site: www.packfound.org/html/conservation__1998_guidelines.html

The American Museum of Natural History Grants and Fellowships

The American Museum of Natural History offers competitive grants and fellowships in areas broadly related to its scientific and educational objectives. Four major programs are involved: Grants, Research Fellowships, (Inter)national Graduate Student Fellowships, and Research Experiences for Undergraduates. Web site: <http://research.amnh.org/grants/index.html>.

EPA STAR Fellowships

The U.S. Environmental Protection Agency (EPA), as part of its Science to Achieve Results (STAR) program, is offering Graduate Fellowships for master's and doctoral level students in environmentally related fields of study. The deadline for receipt of pre-applications is **November 20, 2000**. Information: <http://es.epa.gov/ncerqa/rfa/gradfellows01.html>. Also available are Minority Academic Institutions (MAI) Fellowships for Graduate Environmental Study and Fall 2001 Minority Academic Institutions (MAI) Undergraduate Student Fellowships.

M.J. Murdock Charitable Trust: Scientific Research

For consideration of projects and programs in the natural sciences in which acquisition of new knowledge is the main objective. Training of students in conducting research is an important consideration. Priority is given to applications for the support of projects and programs conducted by qualified institutions within five states of the Pacific Northwest, including Alaska. There are no specific deadlines for receipt
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of requests for general purposes. Information and related deadlines available at: http://www.murdock-trust.org/grants_information/.

Explorers Club Exploration Fund Grants

The Exploration Fund provides grants in support of exploration and field research. Grants of up to \$1,200 are made primarily to graduate students and members of expeditions. Applications are due no later than January 31 for consideration in that calendar year. Web Site: <http://www.explorers.org/>. E-Forms: <http://www.explorers.org/servicesfiles/exploration.html>.

ORNL Research Visits

Higher Education Research Experiences at Oak Ridge National Laboratory (ORNL) for Research Visits provides opportunities to make short, collaborative research visits to research and development facilities. Awards provide limited reimbursement for travel and living expenses while conducting research at the laboratory. This program is tenable at Oak Ridge National Lab., Oak Ridge, Tennessee. Open to full-time college or university faculty and graduate students in the environmental, health, natural, and physical sciences, or other energy-related areas of study. Applications are accepted on a year-round basis. E-mail: ketnerk@orau.gov. Web Site: <http://www.orau.gov/orise.htm>.

McDonnell Foundation

21st Century Science Collaborative Activity Awards Studying Complex Systems is a new program for the foundation. Grants in this program area will support scholarship and research involving the development of theories and models that can be applied to the study of complex, nonlinear systems. Web site: <http://www.jsmf.org/programs/21stcentury/BMBB/CollaborativeActivityDescription.htm> and <http://www.jsmf.org/programs/21stcentury/mcs/21stSCSdescription.htm>.

7th Circumpolar University Cooperation Conference

7th Circumpolar University Cooperation Conference, August 19-21, 2001, Tromsø,

Norway. Further deadlines, themes, general information available at Association web site at: <http://www.arctic.uit.no/cua/>. Prospective authors can submit an A4-page abstract of their proposed paper, not later than **January 15, 2001**.

Oracle Corporate Giving Program

Through the Corporate Giving Program, Oracle responds directly to the financial needs of medical research, endangered animal protection, environmental protection, and K-12 math, science, and technology education. Deadline: **December 1, 2000**. Contact: Oracle Corporate Giving Program, 500 Oracle Parkway, Mail Stop 5OP11, Redwood Shores, CA 94065 Website: <http://www.oracle.com/corporate/giving/community/index.html?giving.html>.

Cryopedology Conference

For more information about the Third International Conference on Cryopedology to be held in Copenhagen, Denmark, please contact the Conference Secretariat at: Karin Bloch, Institute of Geography, University of Copenhagen, Øster Voldgade 10, DK-1350 Copenhagen K, DENMARK, Tel: +45/3532-2558. E-mail: kb@geogr.ku.dk. Web site: <http://www.geogr.ku.dk/cryosols>.

Holly A. Cornell Scholarship

For support of outstanding female, and/or minority students pursuing advanced training in the field of water supply and treatment. Deadline: **January 15, 2001**. Website: <http://www.awwa.org/scholars/corn%5F00.doc>.

Community of Science

Do not forget that the UA system is a member of the Community of Science, a comprehensive source of funding information, with more than 18,600 awards from around the world. Web Site: <http://www.cos.com/>. It contains researcher profiles, workbenches, individualized searches and alerts, news, forums, a career center, and lists of meetings and conferences.

Check older editions of newsletter for other funding announcements; they are not generally repeated.



An update on the Census of Marine Life

The Census of Marine Life is an international research program that will examine changes in the diversity, distribution and abundance of marine organisms in time and space. The initial concept was developed by the Alfred P. Sloan Foundation of New York, and fleshed out through a number of feasibility workshops in 1997 and 1998. A secretariat was established at the Consortium for Oceanographic Research and Education in 1999, as was a steering committee. A scientific strategy is currently being drafted and will shortly be available for review and comment. Two programs have been started under the Census: History of Marine Animal Populations (HMAP), which looks at the ecological effects of large-scale harvesting, long term changes in stock abundance and the role of marine resources in historical development. The other is the Ocean Biogeographical Information System (OBIS), which is the development of an electronic information system for this program and to serve scientific needs well beyond the ten-year Census period. Funding for OBIS projects has been provided through the National Oceanographic Partnership Program, with Sloan providing \$1.5 million and NOPP \$2.2 million over a two-year period. Eight new projects were funded through the FY 2000 process. All deal with databases or system development. The next call for NOPP proposals should be in the near future.

In addition to the above activities, six pilot projects, selected by the Steering Committee, are receiving support to hold planning workshops and beginning to scope out the details. One of these is a Gulf of Maine project, and another project to apply acoustic tags to studying salmon migration in the Pacific Ocean. At present, the only opportunity for participation is through the NOPP funding process, although pilot project ideas presented to the Steering Committee would be considered for the future.

For further information, please contact Steering Committee member **Dr. Vera Alexander**, Dean of SFOS.

NEWNET

A ministerial meeting of the Arctic Council of AMAP convened during the week of October 23 in Barrow. Contaminants and radioactivity were a major topic of interest. The State Department and Department of Energy requested that the NEWNET radiation monitoring program be extended to Barrow in time for the conference and funding was provided in September for

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this purpose. A NEWNET tower which contains radiation and climatological instruments was acquired through the Los Alamos National Laboratory and installed at the UIC/NARL in September by Wily Splain, an AISES/NEWNET undergraduate intern and Stan Read, ADEC. Loda Griffeth, an AISES/NEWNET intern, and Stan Read attended the Arctic Council meeting in October and presented a poster paper on transboundary radioactivity and information about our project in Alaska. NEWNET sites are located in Fairbanks, Seward, Nome, Kotzebue, Pt. Hope and Barrow. **Dr. John Kelley** directs the project in association with Doug Dasher, ADEC. The project is supported through a contract with the Battelle-Pacific Northwest National Laboratory.

Fertilise the Sea, Thwart Global Warming

According to Fred Pearce, *New Scientist*, the rich waters off the coast of Chile could soon be producing even more plankton. In a bid to curb global warming, the Chilean government is considering a proposal by an Australian oceanographer and Toyo Engineering, a Japanese engineering company, to fertilise the sea with nitrogen. This would boost biological activity, and with it the ocean's capacity for absorbing carbon dioxide from the atmosphere. Ian Jones of the University of Sydney's Ocean Technology Group recently patented his idea of piping fertiliser into the ocean to encourage the growth of phytoplankton. As the organisms photosynthesise, they use up CO₂ dissolved in the water, causing the ocean to draw more out of the atmosphere. Some of this carbon eventually falls to the ocean floor, locked up in the skeletons of plankton and fish. So the effect of increased growth would be a reduction in atmospheric levels of CO₂, the main greenhouse gas driving global warming. But others are not so sure his plan will work. "You need inordinate amounts of nitrogen for this to work—a thousand times more than iron," says Martin Angel of Britain's Southampton Oceanography Centre. "And I would be worried about

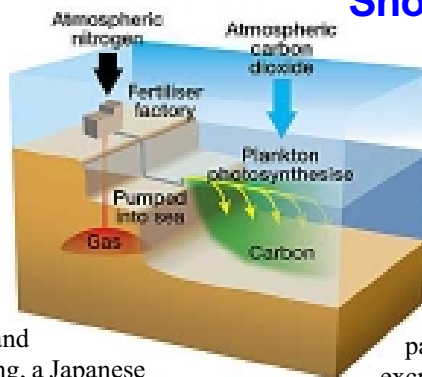
overloading the planet with yet more nitrogen, which is already a major pollution problem in its own right."

Studies Review Transport of Non-indigenous Aquatic Species

Recent studies in the *Journal of Plankton Research* and the journal *Ecology*, as well as reports carried in national TV and print news, have reported the impacts and problems associated with transport and invasion of aquatic species from one international port to others in the balast of ships. Studies have shown that those non-indigenous species which do survive transport in ballast water frequently cause profound change in the ecosystems into which they are released. Concern is growing over microorganisms, including viruses and other germs, that may harm people or marine life.

Penguin's Excrement Show Environmental Changes in Antarctica

According to the *Xinhua News Agency*, in a report published in the science journal *Nature*, Chinese scientists have found the number of penguins in Antarctica varied as a result of environmental changes over the past 3,000 years by studying the excrement left by the penguins. The number of penguins was at the lowest during the cold period of 1,800 to 2,300 years ago, and then peaked during a warm period between 1,400 to 1,800 years ago. More important, further studies to the excrement of the penguins will unveil environmental changes not only in Antarctica but also around the globe, said Sun Liguang, a professor from Chinese Univ. of Science and Technology. Sun collected four segments of ice core at the Antarctica to study the influence of human beings on the polar region. He found that the change of the content of nine chemical elements, including strontium, fluorine, sulfur and phosphorus, was caused by the excrement of penguins. By studying the variety of the elements, scientists can calculate the number of penguins over the past 3,000 years. Experts say Chinese scientists have found a new way to study the history of the South Pole.



SFOS Tid-Bits

Dr. Jim Reynolds, Meek Visiting Professor for Fisheries and Ocean Sciences, presided at a session on electro-fishing-induced injury in salmonids at the Wild Trout VII Meeting in Yellowstone Park, October 1-4. He also presented an invited paper, co-authored with his PhD. student **F.M. Holliman**, on the same topic.

Rick Steiner, MAP, was an invited speaker at the International Toji Symposium in Wonju, Korea Oct. 11 -15, where he presented a United Nations Global Habitat Conservation Fund proposal; the proposal was adopted by unanimous resolution of the symposium. (He also toured the infamous DMZ).

Former MAP agent **Hank Pennington** was appointed to the first Alaska boating safety board by Gov. Knowles.

Congratulations to **Arny Blanchard**, **Chris Stark**, and **Alexei Pinchuk** for achieving Research Associate status and congratulations to **Steve Sweet** for becoming our newly appointed Systems/Network Manager.

A full-color version of our newsletter is available at: www.sfos.uaf.edu:8000/
 In order to view this version, you will need a copy of Adobe Acrobat Reader.

As a reminder, the IMS stockroom has a reduced inventory. **Mark Ziesmer** will be leaving in December.

Alaska Sea Grant Program

One of the interesting projects Sea Grant supports is Tsunami Bowl. The 4th annual Alaska Tsunami Bowl occurs in Feb. 2001. For information go to: <http://www.uaf.edu/seagrant/nosb/index.html>. Each winter, Alaska holds a regional ocean sciences competition as part of the National Ocean Sciences Bowl. The Alaska regional NOSB consists of a jeopardy-style quiz and a research project, each of which counts 50 percent toward the winning score. The 2001 regional competition will be held Feb. 2-4 at Seward High School. Teams composed of four students each compete against each other in a timed quiz, and they give oral presentations as part of the research project component. The winning team goes to Miami, Florida, in April, to compete against other regional teams from across the United States.

Editor's Corner: Got News?

Special thanks to Drs. Vera Alexander, Michael Castellini, James Reynolds, Stephen Jewett and John Kelley; Rick Steiner, Kate Wynne, Alaska Science Journeys, Tania Lucas, Juan Goula, Alaska Sea Grant and others for material used in this newsletter.

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