

# 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

Vol. 3 Issue 2 February 2000

## Staff Service Awards

We congratulate the following SFOS staff and faculty for their help in making the school what it is today.

**35 Year Service Award**—Dr. Don Button

**30 Year Service Award**—Dr. Satyanarayan Naidu

**25 Year Service Award**—Kenneth Coyle,

Judy McDonald

**20 Year Service Award**—Brian Paust

**15 Year Service Award**—Elena Ortiz



Dr. Don Button and Research Associate Betsy Robertson collection picoplankton in Resurrection Bay.

See Awards, Page 3

## NOSB Rescheduled

See Page 3 for more details.

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## Colder? Warmer? Does it matter....

The Pacific Ocean is getting warmer, or colder, depending on who's talking. According to Andrew Bridges, chief Pasadena correspondent to *www.space.com*, an internet news source, data collected by a joint U.S.–French satellite suggested that the western Pacific Ocean may be swinging into a protracted warm phase. Usha Le McFarling of the *Los Angeles Times* says that the eastern Pacific Ocean is getting colder.

The truth is, both are correct. Known as the Pacific Decadal Oscillation (PDO), records over the past century show that the Pacific Ocean climate has shifted periodically every 20 to 30 years. Atmospheric and oceanic scientists are now arguing when the latest shift occurred. Some say it began about three years ago, others say five years ago. According to Greg Rosenkranz, former

Fisheries Division graduate student who now works for the Alaska Department of Fish and Game, Bristol Bay crabs knew about the change as early as 10 years ago.



Greg's thesis, "Statistical Modeling of Tanner Crab Recruitment," looked at both the biological and physical aspects of Tanner crab recruitment. What he found was a direct correlation between environmental conditions and Tanner crab populations. Lower water temperature in the spawning areas affect the development of gametes and embryos while wind shifts affect the transport of

larvae.

"The statistical results suggested that strong recruit classes were hatched during years when May-June winds were predominantly from the northeast," writes

See weather, Page 2

## R/V Alpha Helix 2000 cruise schedule

If all projects are funded, the R/V Alpha Helix will spend a total of 148 days at sea for the 2000 season. For a complete list of cruises, visit:

<http://www.ims.uaf.edu:8000/helix.html>

Agency NSF*	Total	Funded	Proposed	To Be Proposed
	95	27	68	0
<b>Other:</b>				
NOAA (GLOBEC)	21	21	0	0
State of Alaska	1	1	0	0
NPMR	31	31	0	0
<b>TOTAL</b>	<b>148</b>	<b>80</b>	<b>68</b>	<b>0</b>

\*Includes 21 GLOBEC days

# Funding -- January 2000

PI	Title and Agency	Funded Amount
Smiley	Salmon Products - Marketing - USDA-CSREES	\$ 3,315
Kramer	Food Quality - Salmon - USDA-CSREES	\$ 9,988
Feder	Environmental Studies of Port Valdez - Alyeska	\$ 91,242
Shaw	Environmental Studies of Port Valdez - Alyeska	\$ 110,006
Jewett	Investigation of the Effect of El Nino on Juvenile Salmon in Port Valdez - Alyeska	\$ 10,000
Stekoll	Assessment of Injury to Intertidal Communities - ADF&G/EVOS	\$ 8,500
Jewett	Prey Availability: Nearshore Vertebrate Predators in the PWS Ecosystem - ADF&G/EVOS	\$ 20,800
Adkison & Smoker	Forecasting Salmon Abundance - ADF&G	\$ 28,307
<b>January Funded Projects Total</b>		<b>\$ 282,158</b>

## Publications

Weingartner, TJ; S. Danielson; Y. Sasaki; V. Pavolv; and M. Kulakov (1999): The Siberian Coastal Current: A wind- and buoyancy-forced Arctic coastal current. *J. Geophys. Res.* 104(C12, 15 December), 29,697-29,714

Shirley, TC; V. Storch (1999): *Halicryptus higginsii* n.sp. (Priapulida) - a giant new species from Barrow, Alaska. *Invert. Bio.* 1118(4), 404-413.

Quakenbush, L; R. Suydam (1999): Periodic nonbreeding of Stellar's Eiders near Barrow, Alaska, with speculations on



possible causes. In: *Behaviour and ecology of sea ducks*. Occasional Paper ed. Vol. Number 100. (Eds: Goudie, RI; Petersen, MR; Robertson, GJ) Canadian Wildlife Service, Victoria, British Columbia, 8-12 November 1995. Published for the Pacific Seabird Groups by the Canadian Wildlife Service.

Blanchard, A; HM Feder (2000): Shell Growth of *Mytilus trossulus* Gould, 1850, in Port Valdez, Alaska. *Veliger* 43(1), 34-42.

Gharrett, AJ; WW Smoker; HJ Geiger; IA Wang; KP Herbert; PL Goddard; AJ McGregor; S Land; J Joyce and SG Taylor (1999): Genetic structure in Auke Creek pink salmon and its role in productivity. *Bull. Nat. Res. Inst. Aquacult., Suppl.* 1:19-26.

Phillips, RB; MP Matsouka; WW Smoker and AJ Gharrett (1999): Inheritance of a chromosomal polymorphism in odd-year pink salmon from southeastern Alaska. *NRC Canada* 42(5):816-820.

Stekoll, MS; R Lin and SC Lindstrom (1999): *Porphyra* cultivation in Alaska: conchocelis growth of three indigenous species. *Hydrobiologia* 398/399:291-297.

Kline, ER and MS Stekoll (2000): The role of calcium and sodium in toxicity of an effluent to mysid shrimp (*Mysidopsis bahia*). *Environmental Toxicology and Chemistry* 19:234-241.

Kline, ER and MS Stekoll (2000): Relative sensitivity of marine species to an effluent with elevated total dissolved solids. *Environmental Toxicology and Chemistry* 19:228-233.

### Crab Recruitment

Rosenkrantz in his thesis. During this same period, the bottom temperature in the spawning areas was comparatively warm. The warm water in the spawning areas increased larval survival with the winds allowing the larvae to settle in more favorable habitats. According to Rosenkrantz, all this started changing around the early to mid-1980s.

What Rosenkrantz discovered was that since then, the northeast winds have increased and bottom temperature has decreased, possible early indications of a regime shift that has been reflected in Tanner crab year-class strength. If bottom temperature continues to decline, fewer larvae are produced. Thus, the problems the snow crab fishery is currently experiencing (see "Ice and low stocks threaten crab fishery," page 4) may have their seeds in

the regime shift that began over 10 years ago.

A pair of federal scientists studying the Gulf of Alaska seem to support Rosenkrantz.

Paul Anderson, a National Marine Fisheries Service biologist from Kodiak, and John Piatt, a biologist with the Alaska Biological Research Center in Anchorage, wrote in an *Marine Ecology Progress* article that the Gulf of Alaska is cooling. They based their research on biomass samples and temperature readings dating back to 1953 and documented a structural ecological change that happens when Gulf waters alternately go through a long cooling period followed by a long warming period.

According to Anderson and Piatt, the current changes may bring about the return of shrimp after a 20 year hiatus, but also may result in declines in salmon and pollock.

### REMINDER BINDER

#### FastLane Reminder

As of May 2, 2000, all proposals to the National Science Foundation (NSF) must be initiated via FastLane. Full FastLane submission is encouraged. FastLane makes extensive use of Adobe PDF files. If you do not have Adobe's PDF Acrobat Reader currently installed on your computer system, it is suggested you visit their web site and download a free copy as soon as possible ([www.adobe.com](http://www.adobe.com))

## Awards, from Page 1

### 10 Year Service Awards—Army

Blanchard, Dr. Michael Castellini, David Doudna, Wendy Farrell, Juan Goula, Max Hoberg, Brenda Holladay, Dr. Brenda Norcross, Mark Vallarino, Steven Hartz, Dr. Scott Smiley

### 5 Year Service Awards—Nancy Mighells,

Roberta Miller, Kevin Marlow, Dr. Tatiana Proshutinsky, Dr. C. Geoffrey Wheat, Ethel Nelson

## New MAP television program

A new one-hour television program, produced by the SFOS Marine Advisory Program's Deborah Mercy and Rick Steiner, started airing in mid-January on Alaska public television stations.

*Sharing the Sea: Alaska's CDQ Program* describes the federal Community Development Quota fisheries program for rural Alaska villages near the Bering Sea. The program tells the story of how the CDQ program was initiated, developed, and how it works today to provide jobs, education, training and resource stewardship.

For more information on these and other programs produced by MAP, visit [www.uaf.edu:8000/](http://www.uaf.edu:8000/) and select Marine Advisory Program.



Rick Steiner (top) and Deborah Mercy create new video program.

## Dr. Castellini interviewed by everyone

Dr. Michael Castellini's Antarctic adventures are getting a lot of positive press thanks to the efforts of Doug Schneider, Information Officer for the Alaska Sea Grant College Program.

In addition to being interviewed by Theresa Bakker from KUAC-FM



Dr. Castellini

and by Voice of America for their English language news program--*News Now*, Dr. Castellini is authoring a series of journal articles for the Environmental News Network ([www.enn.com](http://www.enn.com)). ENN is one of the largest internet science news web sites.

## Graduate Students help National Ocean Science Bowl

Seven graduate students from the School of Fisheries and Ocean Sciences joined with an employee from the Geophysical Institute (GI) to review questions for the NOSB competition.

Dmitri Dukhovskoy, Mike Simpkins, Grace Abromaitis, Jon Sweetman, Frank Satterfield, Elizabeth Grover and Chris Foshee volunteered their time to review the questions for the contest. Brent Foshee, from GI and husband of Chris Foshee, also helped with the review.

## NSOB Rescheduled due to weather

Each winter, Alaska holds a regional ocean sciences competition as part of the National Ocean Science Bowl. Teams from all across Alaska compete in a jeopardy-style quiz and a research project, with each counting 50 percent toward the winning score.

This year's competition was originally scheduled for February 5-6 at Seward High School; however, heavy snows and avalanches forced rescheduling the competition to February 12-13. The weather delayed delivery of the bowl's electronic buzzer system, the caterers' supplies, t-shirts, prizes and the trophy that was to be presented to the winning team.

The winning team will go to Washington, D.C. in mid-April to compete with regional winners from all across the country, and the first and second place teams also receive free tuition at the University of Alaska.

For more information and a list of the participants and winners, visit:

[www.uaf.edu/seagrant/nosb](http://www.uaf.edu/seagrant/nosb)

## Ocean Sciences meeting update

Dr. Haldorson and graduate student Jennifer Boldt presented a poster on their GLOBEC research titled "Distribution of Small Pelagic Fishes Along the Seward Hydrographic Transect in the Gulf of Alaska," at the Ocean Sciences meeting sponsored by the American Society of Lim-

nology and Oceanography held in San Antonio, Texas, January 23-28.

Jennifer Boldt is a Ph.D. candidate in Fisheries on the Juneau campus.

Other presenters include:

*Structure and Seasonal Variability of the Alaska Coastal Current*, S. L. Danielson, T. J. Weingartner, and T. C. Royer.

*The Distribution of Zooplankton, Nutrients, Chlorophyll, Fish, and Seabirds Relative to Major Water Masses and Current Regimes on the Shelf of the Northern Gulf of Alaska during 1998 and 1999*. K. O. Coyle, A. J. Paul, T. J. Weingartner, T. C. Royer, A. I. Pinchuk, D. A. Stockwell, T. E. Whitley, L. J. Haldorson, J. Boldt, R. H. Day.

*Major Nutrient Distributions in Relation to the Physical Structure of the Gulf of Alaska Shelf*, A. M. Ruehs, T. E. Whitley, D. A. Stockwell, T. J. Weingartner, S. L. Danielson, K. O. Coyle. Amy Ruehs (now Childress) is an M.S. candidate.

*Associations Between Water Properties and Bottom Topography on the Beaufort-Chukchi Shelf and Slope*. S. R. Okkonen, M. Edwards, T. Weingartner, R. D. Muench.

*Recent Changes in Bering Strait*, A. T. Roach, K. Aagaard, T. Weingartner.

*Nutrient, Pigment, and DOC Distributions in the Arctic Ocean as Sampled by Submarine: 1995-1999*. T. E. Whitley, D. A. Stockwell, R. Benner, T. Weingartner.

*Cross-shelf Transport of Dense Water over the Chukchi Shelf: Observations and Process Models*, G. Gawarkiewicz and T. J. Weingartner.

*Circulation on the Central Chukchi Sea Shelf*, T. J. Weingartner, K. Aagaard, K. Shimada, D. Cavalieri, A. Roach.

The following are presentations wherein SFOS students were the first author:

*Freshwater Variability on the Gulf of Alaska Shelf*, G. O. Irving, T. J. Weingartner, T.C. Royer, S. R. Okkonen, and D. L.

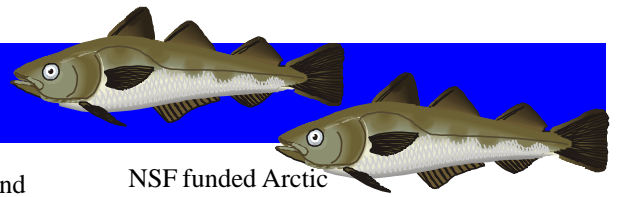
Musgrave. Geoffrey Irving was an undergraduate supported during summer 1999 by an REU-NSF grant to T. Weingartner.

*The Response of Buoyancy Driven Coastal Currents to Downwelling-favorable wind-stress*, W. J. Williams and T. J. Weingartner. Bill Williams is a Ph. D. candidate supported by the North Pacific Marine Research Program.



Dr. Lew Haldorson

# Announcements



## NSF Deadlines

February 15 is the deadline for the following NSF programs:

CLIVAR (Climate Variability and Predictability):

[www.nsf.gov/geo/egch/gc\\_clivar.html](http://www.nsf.gov/geo/egch/gc_clivar.html)

Ocean Sciences: Biological Oceanography Research:

[www.geo.nsf.gov/oce/research.htm](http://www.geo.nsf.gov/oce/research.htm)

Ocean Sciences: Physical Oceanography Research:

[www.geo.nsf.gov/oce/research.htm](http://www.geo.nsf.gov/oce/research.htm)

Ocean Sciences: Chemical Oceanography:

[www.geo.nsf.gov/oce/research.htm](http://www.geo.nsf.gov/oce/research.htm)

Global Change Research: Ridge Interdisciplinary Global Experiments (RIDGE)

[www.nsf.gov/geo/egch/gc\\_ridge.html](http://www.nsf.gov/geo/egch/gc_ridge.html)

Global Change Research: Arctic System Science (ARCSS):

[www.nsf.gov/od/opp/arctic/system.htm](http://www.nsf.gov/od/opp/arctic/system.htm)

Polar Programs: Arctic Research Program Opportunities:

[www.nsf.gov/od/opp/arctic/](http://www.nsf.gov/od/opp/arctic/)

All of the above also have an August 15 deadline for proposal submission.

## President's Special Projects Fund

Proposals for the next President's Special Projects Fund competition are due at UA Proposal Office by March 1, 2000.

Proposals must be signed off by your dean or director prior to submission to the Proposal Office. For more information, call SFOS Academic Services at 474-6735 or Mary Floyd at 474-7314, or you can email SFOS at [algeist@sfos.uaf.edu](mailto:algeist@sfos.uaf.edu).

## North Pacific Universities Marine Mammal Research Consortium (NPUMMC) call for proposals

NPUMMC's mission is to undertake long-term research on the relation between fisheries and marine mammals of the North Pacific Ocean and Eastern Bering Sea.

Funding is available for studies of Stellar sea lions or related species that might shed light on 1) why the Stellar sea lions have declined, 2) what is preventing them from recovery and 3) what might be done to assist recovery.

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Proposals are due February 28 and proposers are encouraged to contact a member of the Consortium's Research Committee (UAF proposers should contact Dr. Alan Springer), or the School of Fisheries and Ocean Sciences Academic Services department.

## Oceans 2000 Marine Technology Conference Call for Papers

The Marine Technology Society (MTS) and the Ocean Engineering Society of the Institute of Electrical and Electronics Engineers (IEEE) are soliciting abstracts for Oceans 2000, an ocean technology conference to be held in Providence, Rhode Island, from September 11-14, 2000.

Deadline for abstracts is February 16. For more information, visit the Oceans 2000 web site at: [www.Oceans2000.com](http://www.Oceans2000.com)

## Upcoming Meetings

11th Western Groundfish Conference, April 24-28, Sitka, Alaska. Contact Tory O'Connell (907) 7474-6688 or

[tory\\_oconnell@fishgame.state.ak.us](mailto:tory_oconnell@fishgame.state.ak.us)

The Crustacean Society Summer Meeting, June 24-26, Puerto Vallarta, Mexico. For more information, visit:

[www.ibiologia.unam.ms/TCS/](http://www.ibiologia.unam.ms/TCS/)

National Shellfisheries Association 92nd Annual Meeting, March 19-23, Seattle, Washington. Contact:

[chris.langdon@hmsc.orst.edu](mailto:chris.langdon@hmsc.orst.edu)

First International Symposium on Deep Sea Corals, July 30-August 2, Halifax, Nova Scotia, Canada. Contact:

[coral@is.dal.ca](mailto:coral@is.dal.ca)

American Society of Limnology & Oceanography, Copenhagen, Denmark, June 5-9. First ASLO meeting outside of the U.S.A. Contact:

[www.aslo.org/copenhagen2000](http://www.aslo.org/copenhagen2000)

## VECO Polar Resources (VPS) to provide logistics support for NSF's Arctic Research Program

VECO Polar Resources, a team consisting of VECO Corporation with assistance from Polar Field Services and SRI International, will provide service and support for

NSF funded Arctic research projects. For more information, visit the VPS website at: [www.veco.com/vpr](http://www.veco.com/vpr)

## Herring 2000: Expectations for a New Millennium

The 18th Lowell Wakefield Fisheries Symposium, *Herring 2000: Expectations for a New Millennium*, will be held at the Regal Alaskan Hotel in Anchorage, Alaska, February 23-26.

Robert L. Stephenson of the Department of Fisheries and Oceans, Biological Station, St. Andrews, New Brunswick, Canada, will deliver the keynote address, *The Role of Herring Investigations in Shaping Fisheries Science in the Past, and Expectations for the Future*.

For more information, contact Brenda Baxter at:

[fyon@uaf.edu](mailto:fyon@uaf.edu)

or,

[www.uaf.edu/seagrant/Conferences/Herring-reg.html](http://www.uaf.edu/seagrant/Conferences/Herring-reg.html)

## NOAA Reorganized

NOAA's Office of Oceanic and Atmospheric Research has been reorganized. Specific changes include restructuring the 12 OAR laboratories so they now report directly to the Assistant Administrator's office and establishing a Senior Research Council to lead strategic planning and to formulate long-term research outlook for OAR. Copies of the reorganization chart and descriptions of changes are available from Terry Schaff at:

[Tschaff@brook.edu](mailto:Tschaff@brook.edu)

## Alaska SeaLife Center offers college internships

The Alaska SeaLife Center (ASLC) is currently sponsoring an internship/externship program for college students or recent graduates who are interested in gaining an educational experience in a world-class marine facility. Internships are available in all areas of research, rehabilitation and public education. Deadline for applying is March 1, 2000.

For an application, visit:

[www.alaskasealife.org](http://www.alaskasealife.org)

# In the News

## Algae turns fish into lethal lunch

According to the January 8th issue of *Science News*, scientists at the Monterey Bay Aquarium Research Institute found that when anchovies eat the toxic diatom *Pseudo-nitzschia australis*, they in turn end up becoming toxic to whatever eats them. It was the deaths of over 400 sea lions during May and June 1998 and some scientific sleuthing that led to this discovery. The researchers are currently working on an experimental remote sampling system.

## Buoy system tracks El Niño-La Niña

Buoy mounted sensors, which transmit readings from 72 equatorial sites, and an optical satellite sensor, have provided researchers with one of the most comprehensive observations of the largest El Niño-La Niña events ever.

One of the unexpected results of the data was a dramatic plankton bloom after El Niño,

said Francisco Chavez, a biological oceanographer. For more information, see the December 11 issue of *Science News*, or the December 10 issue of *Science*.

## Researcher finds new form of Vitamin E in cold water fish

Yorihiro Yamamoto of the University of Tokyo found that Chum salmon load up their eggs with antioxidants, especially Vitamins C and E, according to an article in the January 15 issue of *Science News*.

Dr. Yamamoto's research team also discovered that up to 20 percent of the Vitamin E was a variant. This same variant was found in lesser proportions in the roe of Sockeye salmon and walleye pollock. Yamamoto believes this variant could reflect some adaptation to cold-water environments. For more information, refer to the December 27 issue of the *Journal of Natural Products*.



an additional \$675 million to NSF's research programs.

## Halibut and pink salmon fisheries both had healthy years

The end of the century was a great year for Southeast fishermen as the pink harvest approached 77 million salmon. According to the *Alaska Fisherman's Journal*, the catch would have been higher except for a shortage of cans at the canneries.

The halibut fishery also had a good year with the fleet harvesting 56.45 million of their 58.39 million-pound quota.

However, all is not well. While the numbers of fish being caught is up, the average size of teenage fish has dropped dramatically--from 100 pounds to 30 pounds.

## Ice and low stocks threaten crab fishery

Poor recruitment, unusually cold and northerly winds and an ice clogged harbor all worked together to effectively kill the winter crab season and may force an overhaul of the industry, said a recent article in the *Fairbanks Daily News Miner*.

With pack ice only a few miles from the fishing grounds and the harbor at St. Paul frozen with more than 18 inches of ice, crab fishermen are clamoring for changes in the way the fishery is managed. They want a change in regulations that would downsize the fleet from the 240 boats now working the fishery. In the meantime, snow crab stocks are so low, there will probably be no 2001 season.

## UA Scientists win \$3.15 million in federal grants

In all, 19 University of Alaska research proposals were selected for funding by the International Arctic Research Center in Fairbanks, Alaska. The money was appropriated by Congress and issued through NSF and NOAA.

The overall goal of the research is to study the effects of global climate change on the Arctic.

## Seminars

Wednesday, February 02

Dr. Howard Feder, Professor Emeritus

The Life of a Young Biologist at NARL:  
Slide Show

Wednesday, February 09

Dr. Tom Weingartner

Circulation of the Chukchi Sea

Wednesday, February 16

Mr. Jon Sweetman and Frank Satterfield

Variability in Sockeye Salmon Ecosystems: Evidence from Marine and Freshwater Perspectives.

Wednesday, February 23

To Be Announced

*Unless otherwise noted, all seminars will be held between 3:30 PM-4:30 PM 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** under *Handy Links*, or call Dr. Dave Musgrave at 474-7837

## Patient eats salmon and ends up in hospital

A young Dutch woman with an allergy to dairy products ended up in the hospital after eating fresh salmon, according to the December 18/25 issue of *Lancet*.

The reason for her allergic reaction appears to be a manufacturing process whereby the company that marketed the fish used casein, a milk protein, to glue together pieces of salmon into seamless steaks. The practice is fairly common according to the article and spans most meat processing.

## President's budget proposes \$675 million increase for National Science Foundation

President Clinton's Fiscal Year 2001 budget request to Congress includes a \$2.8 billion increase in the "Twenty-First Century Research Fund." In addition to funding research in biomedical and information technology, the proposed budget would add

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## Editor's Corner: Got News?

Newsletter production begins the last week of each month. We are always eager for material and photographs.

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## SFOS Tid-Bits

Roberta Miller and her husband took a luxury cruise the first week of February while Laura Fenton spent the same period time enjoying California.

Dean Vera Alexander and Dr. John Kelly were in Japan from February 6-10 to attend the Mombetsu-2000 Conference, part of the 15<sup>th</sup> International Symposium on Okhotsk Sea and Sea Ice.

A full-color version of our newsletter is now available at:

<http://www.sfos.uaf.edu:8000/>

In order to view this version, you will need a copy of Adobe Acrobat Reader (available free from Adobe):

<http://www.adobe.com/products/acrobat/readstep.html>.

## Fisheries Division fall 1999 graduates

Master of Science degrees were awarded to Jan Marie Conitz and Katherine Swiney with Rulong Lin receiving her Doctoral degree. Congratulations to all of them.

## People Moves

Jennifer Deweese has taken over the Travel/Purchasing Clerk/Accounts Payable position. She replaces Jim Shanklin who returned to the private sector.

## Alaska Sea Grant Program

Where do Arctic scientists go when it's too dark and cold to do research? Why, the Antarctic of course.

That's where you'll find Dr. Michael Castellini and graduate students Tami Mau and Steve Trumble. You can hear all about their research by listening to Doug Schneider's two-part interview at:

<http://www.uaf.alaska.edu/seagrant/NewsMedia/00ASJ/castellini-1.ram> and  
[castellini-2.ram](http://www.uaf.alaska.edu/seagrant/NewsMedia/00ASJ/castellini-2.ram)

This interview requires a RealAudio player. You can download it free from:

[www.real.com/products/player/index.html](http://www.real.com/products/player/index.html)