



# 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. 4 Issue 7 November 2001

## PBS' "Real Science" features Brown

Check your December TV listings for **Episode 710 of Real Science!**, where our own Marine Ecologist **Evelyn Brown** gives the ocean a check-up with the help of some sophisticated technology, as she teaches high school students how to use remote sensing from aircraft to study the ocean.

First, Evelyn and Teen Reporter Adryan Glasgow fly over the Alaska coastline, using spectrographic imagery to monitor changes under the ocean's surface. Then, they go to the lab to interpret the data they've collected in order to get a clearer picture of the ocean's health.

Real Science!, an Emmy-winning weekly half-hour series for viewers aged 12 to 16 years old, features peers spending a day on-the-job with science professionals.

According to the Real Science! website, **Evelyn Brown** spent her early years exploring the plants and animals that inhabit the shores of the Great Lakes. "But it wasn't until she saw a documentary about the ocean on television that she seriously considered marine science as a career. After graduating from high school, Evelyn went on to receive degrees in zoology and chemistry, biology, and oceanography. As a marine ecologist with the University of Alaska Fairbanks, Evelyn feels that the best parts of her job are the interesting people she meets, the exotic places she visits, and the stimulation of doing "fun" science for a living."

### In This Issue

|                              |   |
|------------------------------|---|
| Brown on "Real Science ..... | 1 |
| Bristol Bay Crabs .....      | 1 |
| Flow Cytometry .....         | 2 |
| Publications .....           | 2 |
| People .....                 | 3 |
| Grad. Student Symposium..... | 4 |

## How the Wind Blows for Bristol Bay Crabs

In Ned Rozell's Heartland Magazine article, "Northeast wind favors Bristol Bay crabs," we learned that, "Crab fishermen in Alaska's Bristol Bay pulled up 40 million pounds of Tanner crabs in 1990. Ten years later, fishermen harvested zero pounds of Tanner crab in Bristol Bay."

What causes the boom and bust cycle in year-classes for crabs in Bristol Bay? This was the question addressed by crab experts from Alaska, British Columbia, and Washington, led by UAF School of Fisheries and Ocean Science's **Al Tyler**, his grad student **Gregg Rosenkrantz**, and **Gordon Kruse**, their ADF&G partner and member of Gregg's grad committee.

With several hypotheses in hand they investigated the possibilities that the crabs might be over-harvested, or that predators, such as the Pacific cod, yellowfin sole, and rock sole might interfere with the development of strong year-classes, since they consume Tanner crabs. These two hypotheses, however, weren't statistically supported by data obtained from several sources.

Interestingly, the hypotheses that were supported by the data were that a northeast wind in May and June slows the non-tidal current, allowing the larval Tanner crabs to settle in the sandy-mud habitat that is necessary for their survival. "We found that winds from the south actually reduce survival and winds from the northeast are associated with strong year-classes. Winds from other directions were irrelevant," Tyler said.

In addition, Tanner crabs are subjected to the Bering Sea cold pool, a large mass



Tanner Crab

AK Dept. of Fish & Game photo

of frigid bottom water. In years when the cold pool is extensive, reproduction and survival appear inhibited due to exposure of the eggs and embryos to extreme cold.

On a side-note, Tyler added, "The females show considerable parental care, carrying and developing the eggs for a year, and then carrying the embryos for another year."

Since fisheries surveys can only give information on crabs four-to-five years after hatching, the research conducted by **Tyler, Rosenkrantz, and Kruse**, which can predict population levels seven years into the future, may help crab fishermen plan whether they want to sell their boats or hang in there in anticipation of improved Tanner crab populations. This information should also be of help to managers whose plans can then be based on expectations for crab harvests.

In the meantime, this research has proved valuable to **Gregg Rosenkrantz**, who was awarded a MS in Fisheries Science partly as a result of his thesis on Bering Sea Tanner crabs, and now has a position with ADF&G in Kodiak.

## SFOS Scientists' Work Included in *Fifty More Years Below Zero*

*Fifty More Years Below Zero. Tributes and Meditation for the Naval Arctic Research Laboratory's First Half Century at Barrow, Alaska.* (David Norton, Editor. 576 pp.), has just been published by the University of Alaska Press.

This colorful book includes chapters written by **Vera Alexander, Robert Elsner, Howard M. Feder, Lori Quakenbush, Thomas Weingartner, and John Kelley** all of the School of Fisheries and Ocean Sciences and the Institute of Marine Science at the University of Alaska Fairbanks.

In her chapter, "Marine Biological Studies at NARL," **Vera Alexander** describes studies done in the Arctic before the NARL facility. Most of the scientific exploration in the Arctic in the late 19th and early 20th centuries was of an expeditionary nature and resulted in conflicting opinions about the productivity of the Arctic Ocean. After NARL was established, however, a large amount of scientific study took place which not only proved some of the early hypotheses about this area, but also resulted in the exploration of new areas. Alexander outlines the highlights of the work that has been done using the NARL facility as a base, as well as work in progress and future research goals.

**Robert Elsner**, in his chapter titled: "Cold Adaptations and Fossil Atmospheres: Polar Legacies of Irving and Scholander," describes the contributions to science that were made by Per F. Scholander and Laurence Irving, the first investigative team to work at NARL. From their work on cold adaptations in mammals, birds, fishes, and insects, to the influence that their teamwork had on future scientists, this interesting chapter outlines the legacy of these two outstanding scientists.

After graduating from UCLA in 1948 **Howard Feder** was hired by Professor G.E. MacGinitie to work on his continuing project designed to assess marine organisms living in the water adjacent to NARL and Barrow Village. "A Year at NARL: Experiences of a Young Biologist in the Laboratory's Early Days," chronicles the day-to-day life of Feder during this first trip to NARL. Taken from memories and journal entries, Feder includes anecdotal

accounts of the people, animals, weather, and sea conditions of the area in 1949-1950. This chapter also includes photographs taken during his stint at NARL, which illustrate many of the events described in the chapter.

**Lori T. Quakenbush** wrote: "NARL's Scientific Legacy, Bridging to the 1990s." In this chapter Quakenbush discusses what NARL was like between the time that it was vacated by the Navy and its transfer to the Ukpeagvik Inupiat Corporation. She refers to NARL as "a candy store for this young arctic biologist," and goes on to talk about all of the facets of the NARL facility that both intrigued and inspired her. As the chapter continues, Quakenbush discusses her work there throughout the 1990s as she conducted studies on Steller eider nesting, king and common eider counts, and king eider contaminants.

Arctic oceanographic research was mostly focused on national security issues after World War II, but since the end of the Cold War climatic issues have taken the forefront of the national research agenda. This is according to **Thomas Weingartner** and **Craig George** in their chapter, "Chukchi Sea Oceanography: Regional and Global Issues." Their work at NARL focused on how climate and contaminant subjects require an understanding of the processes controlling ocean circulation and seawater property modification.

**John Kelley's** chapter, "Contributions through NARL to Monitoring and Process Studies of Atmospheric Greenhouse Gases," provides photographs and graphs illustrating CO<sub>2</sub> levels in the Arctic and its possible relationship to atmospheric warming. These observations began forty years ago and are continuing today. They have provided some interesting insight into what the effects of climate related changes would be under different scenarios, such as the rapid melting of sea ice and glaciers, and the compensating factors in nature.

All in all, this book is an informative, well written and convincing treatise on the research that has been conducted at NARL and the need for continued Arctic studies from this facility.

## Flow Cytometry

I am pleased to see the progress in our flow cytometry facility. It specializes in the analysis of the small microorganisms that pervade our freshwater and marine systems. Previous operations were of the highest quality and precision, as evidenced by numerous invitations for articles on microbiological measurements. But it was low profile and deficient in outreach to other members of the UA scientific community. **Garrett Perney**, the new facility manager, has a good grasp of facility organization, and is an excellent hands-on, make-it-work, operator. Moreover, commitment to quality data is unsurpassed. While our highly modified instrument is thirteen years old, it is still among the best in providing the biochemical analysis of the very small organisms in seawater on a cell-by-cell basis. An exciting new effort in progress is to build a new cytometer, in combination with the National Flow Cytometry Resource in Los Alamos, which has even greater sensitivity. This instrument is envisioned to have detection limits to near a single molecule and sufficient for detecting a wide range of molecular probes for biochemical and genetic investigations.

- **Dr. Don Button**

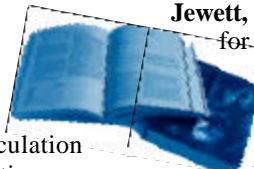
**Dean, T.A & S.C. Jewett**, 2001. Habitat-specific recovery of shallow subtidal communities following the Exxon Valdez oil spill. *Ecological Applications*. 11(5):1456-1471

**Jewett, S.C.** (Ed.). 2001. Cold Water Diving for Science. American Academy of Underwater Sciences Proceedings of the 21st Annual Scientific Diving Symposium. University of Alaska Sea Grant, AK-SG-01-06

**Douglas, H.D. III, J.E. Co, T. H. Jones, and W.E. Connor**. 2001. Heteropteran chemical repellents identified in the citrus odor of a seabird (crested auklet: *Aethia cristatella*): evolutionary convergence in chemical ecology. *Naturwissenschaften* 88: 330-332

**Adkison, M.D.** and Z. Su. 2001. A comparison of salmon escapement estimates using a hierarchical Bayesian approach versus separate maximum likelihood estimation of each year's return. *Canadian Journal of Fisheries and Aquatic Sciences* 58:1663-1671.

**Su, Z.**, M.D. Adkison, and B.W. Van Alen. 2001. A hierarchical Bayesian model for estimating historical salmon escapement and escapement timing *Canadian Journal of Fisheries and Aquatic Sciences* 58:1648-1662.



# People

**Hector Douglas**, Ph.D candidate, was featured in Science News, September 8, 2001, for his research the on avian pest repellent of crested auklets.



**Rick Steiner**, MAP, co-authored a letter two days after the terrorist attacks, dated Sept. 13, addressed to Alaskan Governor Tony Knowles, FEMA Region X, the City of Anchorage Office of Emergency Management, and others, requesting that they

**Richard Steiner** immediately establish a counter-terrorism task force, with a significant chemical and biological weapons (CBW) component. On Sept. 29th, Governor Knowles announced the establishment of these groups - as "sub-cabinet level groups," including focusing on CBW. Subsequent to our recommendation to do just this two weeks prior, others, including the Department of Justice and Sen. Stevens, had recommended similar goals, but Steiner's group's recommendation initially catalyzed consideration of all this. Steiner also did some limited media work to support his group's recommendation, including the Compass Piece commentary on Sunday, Sept. 23: "Biological Warfare Threat is Real," and a live interview on ABC CH 13 on their evening news Sept. 18. This effort is part of our continuing rapid response mission, and disaster prevention and preparedness work globally. Also, Steiner and other collaborators are in discussions with Advanced Biosystems Inc. and George Mason University regarding sponsoring of a bio-terrorism defense and preparedness workshop on the U.S. west coast in the very near future, for civil defense authorities of western states.



Marine Advisory agent **Terry Johnson**, in Homer, is a co-recipient of the U.S. Secretary of Transportation's Partnering for Excellence Award. He shares the award with 32 other members of the Whittier Task Force, a multi-

**Terry Johnson** agency group formed in 1999 to address safety issues related to opening of the Whittier Road.

Numerous state and federal agencies, concerned that when the road opened in June of 2000, it would provide access to Prince William Sound to boaters who may

be unprepared for boating on often blustery tidal waters, came together to provide enhanced safety services. Products of the Whittier Task Force included a lifejacket loaner station, additional weather broadcasts, additional search and rescue capability, and a "float plan" tracking system. Johnson's specific contribution was to compile and write the Prince William Sound Supplement to the Alaska's Boater Handbook. The 31-page supplement was published in 2000 by the state's Office of Boating Safety



**Dr. Don Button**

this well attended conference of 3,500, together with a much larger meeting of the American Society of Microbiology, where Ph.D. student **Elizabeth Grover** also gave a session, are that aquatic bacteria, at nearly half the ocean's biomass, are beginning to receive overdue attention. For example, leaders in the area of human health have recognized the outstanding contribution of environmental scientists to genomics and to understanding organism function. New efforts to upgrade the sorely needed tools for experimental biology here at UA are certainly appreciated and likely to significantly impact our understanding of aquatic systems.

This past August, **Dr. Joe Margraf** received the Distinguished Service Award at the 2001 meeting of the American Fisheries Society in Phoenix, Arizona. The award was given for Margraf's fostering of student involvement in AFS and for his draft of the AFS revised Constitution, which the membership adopted at the meeting.

Reprints from the office/library of **Howard Feder** continue to be available on the table in the hallway near the School of Fisheries and Ocean Science's fiscal office.

**Dr. Dave Hopkins**, an Affiliate Professor at the Institute of Marine Science and a UAF Emeritus Professor, died November 2, 2001 in Menlo Park, California.

**Carrie Jane Robinson Reynolds**, 64, died of heart failure November 6, 2001, at her home in Fairbanks.

Carrie was born June 28, 1937, to Jane and Earl Robinson in American Fork, Utah. She graduated from American Fork High School in 1955 and attended Utah State University in Logan where she met **Jim Reynolds**, her husband-to-be; they were both drummers in the marching band.

Carrie and Jim married on August 26, 1960, and later sealed as eternal companions in the Manti Temple of the Church of Jesus Christ of Latter Day Saints (LDS or Mormon). They lived in Iowa, Michigan and Missouri before moving to Fairbanks in 1978. Carrie was a dedicated church member and loved to serve everywhere she lived.

She was a Ward Relief Society president in Ypsilanti, Michigan; Columbia, Missouri; and Fairbanks. She was a Stake Relief Society President (northern Alaska) in the mid-1990s and served Fairbanks for many years as a church social services representative. Carrie was a ward primary teacher of the 4-year-olds at the time of her death. She was a popular speaker at church activities and often prepared a pie crust while giving a talk, then gave it to someone to take home.

Carrie worked hard as a girl, helping her father herd sheep and doing farm chores. She was a seamstress and provided day care in her home while raising her children in Iowa and Missouri. She certified as a nursing aide at Boone County Hospital (Missouri) and continued her career during 1983-1998 at Fairbanks Memorial Hospital, serving at times as nursing assistant in the Women's Center, phlebotomist at the blood bank and employee relations instructor. After retiring at the hospital, she worked at the Salvation Army Thrift Store, then as a bush shopper and greeter at Kmart, despite limitations with impending heart failure. Her fellow Kmart employees secretly watched her on security cameras to make sure she was all right as she worked the aisles. Carrie loved to watch wildlife, especially at Denali National Park. During June each year she would return to Utah to attend every rodeo possible. She frequented recycle stores and once bought back her own donation, not realizing it until caught by her family (she insisted it was a good deal, anyway).

Carrie was preceded in death by her parents and older sister, Earliene, and is survived by her husband; sons Blair, James and Joshua; daughters Heather, Debra Fullmer, and Robin Ormsby; brother Roy, sister Joy Proctor, and six grandchildren.

School of Fisheries and  
Ocean Sciences  
Academic Services  
University of Alaska Fairbanks  
Fairbanks, AK 99775-7220



## 4th Annual Fisheries Graduate Student Symposium

The afternoon of Nov. 9th at the Juneau Center was dedicated to the annual Graduate Student Symposium, organized by the Juneau Student Sub-Unit of the American Fisheries Society (officers **Kalei Shotwell, Cori Hicken, Dana Hanselman, and Brian Battaile**). Faculty and students from JCSFOS, as well as biologists and managers from NOAA, ADF&G, and other agencies, and a sizeable contingent of students from the local high school turned out to hear graduate students give presentations of their research.

Speakers included **Brian Battaile,**

**Kalei Shotwell, Johanna Vollenweider, Switgard Duesterloh, John Moran, Jamie Womble, Sara Gilk, Andrew Matala, Brian Pyper, Ben Williams, Barbi Failor, and Colin Schmitz.** A distinguished panel of reviewers provided tips to the speakers on improving their presentations. The reviewers commented on the high quality of all presentations, but singled out those of **Ms. Vollenweider** and **Mr. Pyper** as exceptional. Thanks to manager **Michelle Warrenchuck**, the two were rewarded with certificates for free caffeine at Spike's Cafe, the UAS coffee joint.

### Editor's Corner: Got News?

Special thanks to and others for material used in this newsletter.

*Kathy Carter*

*SFOS Academic Services, SFOS/UAFA  
carter@sfos.uaf.edu Phone: 907-474-7843*

*Fax: 907-474-7204*



**SFOS News**

is produced by the  
**School of Fisheries and Ocean Sciences  
Academic Services  
University of Alaska Fairbanks  
Fairbanks, AK 99775-7220**

*The University of Alaska Fairbanks is accredited by the Commission on Colleges of the Northwest Association of Schools and Colleges. UAF is an AA/EQ employer and educational institution.*

