



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. 5 Issue3 April 2002

Behr named Outstanding Student

April Behr is the outstanding Fisheries student for the School of Fisheries and Ocean Sciences!

Dr. Al Tyler interviewed two candidates for the Outstanding Student Award for the Fishery Major, after reviewing their academic records. These candidates were Pamela Lestenkoff and April Behr.

"I believe that April Behr shows the extra achievement we look for in making the Outstanding Student Award," Tyler said.

Behr has a 3.59 GPA. She was on the Chancellor's List twice and the Dean's List three times.

Behr came to the University of Alaska Fairbanks after completing two years at colleges in Oregon. She has a strong interest in the biology of the aquatic species around her, especially fishes of the Yukon River System.

Behr plans to pursue a career in fishery biology after attending graduate school.

In This Issue

Behr	1
Rasmuson Fisheries	1
Don Hood in memorium	2
Memories of Hood	2
Alaska Natives Fisheries Mgt. ...	3
Benthic Ecology meeting	4
Salmon Program airs	5
People	6
Funding	7
Dearborn Retires	8
Effects of Trawling	8
Bruce Finney in <i>Nature</i>	9
Publications	10

Rasmuson Fisheries Research Center takes care of business

At its recent board meeting the Rasmuson Fisheries Research Center, along with its other business, gave out first-year completion certificates, observed student presentations, voted to continue six fellowships, and unanimously approved three new Rasmuson scholars.

First year completion certificates were presented to **Briana Witteveen**, **Georgina Blamey**, and **Jamie Womble**.

Next on the agenda came presentations given by current Rasmuson Fellows:

Briana Witteveen: *Humpback whale abundance and feeding ecology in Kodiak, Alaska.*

Georgina Blamey: *Natural Variability of Salmon Stocks in the coastal Gulf of Alaska: Links to physical forcing and lower levels.*

Steven Whitney: *Jellyfish impact on food web production and ecosystem structure in the Southeastern Bering Sea.*

Zachary Hoyt: *Movement and habitat utilization of golden king crab in Frederick Sound, Alaska.*

Jamie Womble: *Ecology of Steller sea lions and forage fish in Southeastern Alaska.*

Jack Piccolo: *Modeling the mechanisms linking stream habitat characteristics to the distribution, growth, & abundance of juvenile coho salmon & steelhead trout.*

Stephen Trumble: *Assessing the dietary significance of commercially important fishery species on*

the health status of captive and free-ranging pinnipeds in Alaska.

Georgina Blamey, Ph.D. student, (advisor: Professor Dave Musgrave); **Jamie Womble**, M.S. student, (advisor: Professor Brendan Kelly); **Jack Piccolo**, Ph.D. student (advisor: Professor Nick Hughes); **Briana Witteveen**, M.S. student (advisor: Professor Kate Wynne); **Steven Trumble**, Ph.D. student – six-month extension (advisor: Professor Mike Castellini); **Steven Whitney**, M.S. student – six-month extension (advisor: Professor Alan Springer) all received unanimous board approval for a continuation of their fellowships.

The board also unanimously approved three new Rasmuson Fellows:

Katherine A. Murra, M.S. student. (Advisor: Dr. Loren Buck). *Black-legged kittiwake foraging ecology and reproductive performance in Kodiak, Alaska.*

Olav A. Ormseth, Ph.D. student. (Advisor: Dr. Brenda Norcross). *The influence of ocean temperature on the reproductive potential and spawning distribution of Pacific cod in Alaskan waters.*

Cara J. Rodgveller, M.S. student. (Advisor: Dr. William Smoker). *Growth and survival of Intercrossed Wild and Hatchery-bred Chinook Salmon.*

Total awards for 2002 are \$191,210 (\$124,190 in continuances and \$67,020 for new fellows).

Donald W. Hood, former IMS Director, dies

In 1965 **Dr. Donald W. Hood** moved from Texas A&M University, where he had served as Professor of Chemical Oceanography, to the University of Alaska Fairbanks where he accepted a position as Director of the Institute of Marine Science. He subsequently held the Director's position until 1976.

During Dr. Hood's tenure, the Institute enjoyed precipitous growth, and developed into a leading institution of oceanography. The Institute prospered and grew during this time for a number of reasons. Primary, of course, was Dr. Hood's leadership. Also, there were several new opportunities, which he seized with enthusiasm. The impending development of the oil and gas industry precipitated the Outer Continental Shelf Environmental Assessment Program, and Dr. Hood worked effectively to ensure that IMS was heavily involved and received substantial funding from the program. He also spearheaded the first ecological study of the southeast Bering Sea – Processes and Resources of the Bering Sea Shelf (PROBES) – and secured financial



Dr. Donald W. Hood

support from the Office of Polar Programs at the National Science Foundation. Through this program, Dr. Hood began our strong association with Japanese scientists, which continues to this day. At the same time, he developed a tradition of interdisciplinary work, which expanded into the Arctic through the Colville River Project.

Dr. Hood prided himself on an Institute

that was always prepared to address pragmatic marine and coastal problems, on short notice if necessary. During those days, IMS was involved in environmental assessment in connection with virtually each and every coastal development activity within the State. He served on the Alaska Coast Commission, and was respected throughout the state government. He hired no less than eighteen new faculty during his decade of leadership. Several are still with us today, either full-time or as emeriti.

The University of Alaska was very fortunate to have had Dr. Hood as a member of its leadership team.

On a more personal level, Dr. Hood was a friend and mentor to many of us. With his wife Betty, and daughters Becky, Barbie, and Susan, he served as an anchor, lending stability to our lives. In recent years, I had affectionately dubbed him “godfather.” He will be very greatly missed, even by those of us who in recent years only saw him about once a year. Our sympathies go to his family and close friends. –**Vera Alexander**

Memories from friends and co-workers of Don Hood

John Kelley – I've known Don Hood and his family since the early 1960s. We were both interested in the same thing; carbon dioxide and the dynamics of its exchange between the air-sea-land-ice environment.

Our first paper together was on the North Pacific Ocean-Bering Sea carbon dioxide partial pressures by Lou Gordon (retired OSU), Kilho Park (retired NOAA), Don Hood (retired, emeritus) and myself – still plugging away.

What I remember most about Don is, first, that he was a very warm person who would go out of his way to make friends and colleagues comfortable. He was also a fine scientist and administrator who very capably guided the IMS during its formative years.

I remember the scoping sessions where everyone was welcome and the emphasis was on exciting new science pathways and opportunities.

Throughout his more than twenty years

in retirement he led an active life at home in Friday Harbor, WA, but always kept his interest in oceanography. It was a pleasure to have the opportunity to talk to him or go to a seminar with him on his visits to Fairbanks each year.

Don Button – One of the funniest times I had with Don Hood was when we tried to pump up bottom water from a Goldstream pond to keep it aerated for growing fish. We froze up the pump! Good thing, too, because in retrospect we could probably have frozen up the lake had the pump worked.

The most memorable time I had was watching Don sitting in a fluorescent orange hat and white coveralls measuring dissolved organic carbon on the R/V *Acona* while the boat was pitching every way for Sunday.

And, the time I most appreciated him was when I was considering trying out for the astronaut program and Don asked, “What will we do if you go?”

Ole Mathisen – I met Don for the first time in Fairbanks in 1976 when I tried to get him interested in some freshwater/salmon problems in Bristol Bay.

The next time our paths crossed was on the San Juan Island, where Don was deeply engaged in preparing the PROBES results for publication.

After I moved to Friday Harbor we often met on a social basis. On many occasions we sat as two Monday quarterbacks discussing the “shortcomings” of the marine programs at UAF.

My last memory of Don comes from a fitness center in Friday Harbor shortly before illness struck him. With a smile he was pumping one of the stressful exercise machines. This is how I shall remember him.

Don was the kind of man you proudly considered as your friend.

Howard Feder – Don Hood was one of the most important people in my life and, in fact, turned my life around so that I could
(See *MEMORIES*, page 3)

Alaska Natives and Fisheries Management

The following article is a reprint from *The Journal of Marine Education* titled Alaska Natives and Fisheries Management, by **Dr. Dolly Garza**. Vol. 18, Number 1. Pages 13–16.

By Dr. Dolly Garza

Alaska is inhabited by several tribes, including the Tlingit, Haida, Tsimshian, and Athabaskan Indians; the Yupik, Siberian Yupik, and Inupiat Eskimos; and the Eyak, Supiak, and Alutiiq. These tribes maintain distinct ancestral lands, which they have



Dr. Dolly Garza

owned or stewarded over the course of their history.

Having lived in these areas over hundreds or thousands of years, the Natives knew that their survival depended on the careful utilization and allocation of resources on these lands.

Wealth and survival of the community depended on the continued harvesting of resources over generations.

Alaska Natives have been impacted for the last 200 years, beginning with the Russian fur trading ships and continuing after the U.S. purchase of Alaska in 1867. During these early years, the United States implemented assimilation and provided various economic and social incentives to civilize the Alaska Native. Today several (See *ALASKA NATIVES*, page 4)

MEMORIES . . . (continued from page 2)

return to Alaska and its marine environment after a twenty-year absence. As a young man, in 1949–50, I spent a year working as a biologist at the Naval Arctic Research Laboratory at Barrow. When I left, I had hoped to return to Alaska but this took a long time to happen. Finally, in 1969 I heard about an opening at the Institute of Marine Science. Don Hood, the Director of the Institute at that time, interviewed me and accepted me into the Institute of Marine Science in 1970. He enabled me to return to the place I had worked twenty-years before, and I will forever be grateful to him for the many years of Alaskan research that he made possible for me.

From the very beginning, I liked Don for his warmth, friendliness and thoughtful conversation. As I settled into the Institute and attended meetings with Don, I felt that the Institute was a good one because of his leadership. He was never overbearing in the meetings but was always there to present his thoughts and ideas. The years with Don at the helm of the Institute were wonderful ones for many of us. He was always aware of possible projects and funding opportunities, and encouraged us to write proposals and become involved in new research activities in areas of regional or national interest. He had many ideas for research endeavors, and was continually attempting to develop new projects on a collaborative basis with colleagues in similar fields at other universities. He was very interested in the Bering Sea, and organized a workshop on the Bering Sea that was held at Salishan Lodge, Oregon. He was the central figure in that workshop, always keeping everyone on track so that we could emerge with important research directions. The ultimate outcome of that workshop was the all-important multidisciplinary project PROBES that examined the southeastern Bering Sea

as a system. Many important ideas that contributed to a better understanding of the Bering Sea emerged from the workshop.

Another example of Don's importance to the Institute was his understanding of the importance of the Outer Continental Shelf (OCS) studies that were emerging as a result of potential oil-lease sales on the Alaska continental shelf. He made sure that investigators at the Institute were aware of potential research activity and that they attended meetings that might lead to projects. His efforts were directly responsible for the many OCS projects in Alaskan waters that my colleagues and I were involved over the years. These projects were the key to my understanding benthic systems of Alaskan shelves. Numerous reports, scientific papers and student theses and doctoral dissertations emerged from the OCS project.

When it was known that Port Valdez would be the terminus of the Alaska pipeline from the Arctic, Don was right there to involve the Institute in work on the marine system. He had a project funded there, and numerous investigators from the Institute were in the Port from 1971–72 on the R/V *Acona* where intensive oceanographic and marine biological investigation took place. The results of these initial investigations were published in two books, and forms the basis of the understanding of the marine system in the Port prior to the construction and operation of the marine terminal. Don was also responsible for keeping the Institute involved in research and monitoring activities in the Port. In fact, the work that I initiated there in 1971 is continuing to this day. The research activities in the Port by various Institute investigators has been published in two additional books, many reports and numerous papers.

Don was a great communicator, and believed research information should be

made available as soon as possible. Consequently, he liked workshops. However, one of his favorite means of communication was by way of his occasional publications, books on a variety of subjects including the Bering Sea, Port Valdez, and the Arctic. Don was also responsible, as co-editor, for a two-volume set on the Bering Sea and a major book on the Gulf of Alaska. These volumes considered physical, biological, and fisheries aspects of the marine systems in these waters. He was also involved in other books, scientific papers, workshops and seminars.

I consider it a privilege and honor to have known Don and to have worked in an Institute where he was Director. I was so impressed that Don was aware of all research activities underway in the Institute. He was always interested in hearing about the results of research in the many projects worked on by faculty and students, and seemed to have time to talk to any of us about our research problems and thoughts. He was a great synthesizer of research components, and was ahead of his time in that he encouraged multi-disciplinary projects. I personally feel that his influence was responsible for the wonderful time I have had at the Institute with research projects, many of which originated from Don's encouragement and perception of what problems needed to be addressed in the Alaskan marine environment. The Institute was a wonderfully productive and interesting place under Don's leadership. He is a man I will never forget.



2002 Benthic Ecology Meeting in Orlando

This year's Benthic Ecology Meeting was hosted by the Florida State University at the Sheraton World Resort in Orlando, Florida. From March 22 to March 24, over 400 participants presented 202 talks and 109 posters. Topics included ecology of coral reefs, kelp forests, salt marshes and communities in general, hot

vents, crab and sea urchin biology and ecology, growth, symbiosis, human impact, invasive species, chemical ecology, nutrient uptake, and larval dispersal. UAF was represented by **Dr. Bodil Bluhm** who talked about "Age determination in high latitude crustaceans: the lipofuscin approach" (B.A. Bluhm, T.C. Shirley, T. Brey & M. Klages).



ALASKA NATIVES . . .

continued from page 3

Alaska Native languages are in peril, and much of Native history and culture has been lost. Traditional educational systems were lost or replaced by churches and the Bureau of Indian Affairs boarding schools.

Through these transitional times, Alaska Natives maintained customary and traditional practices, and continued their dependence on, and stewardship of, their lands. Subsistence is essential to the cultural survival of the Alaska Natives as a whole, and is critical to the physical and spiritual well-being of the individual. Alaska Natives continue traditional hunting, fishing, and gathering of fish, wildlife, and flora for use as food, clothing, shelter, and as a commodity for trade and barter.

The methods may have changed, but subsistence goes on. Families come together during harvesting times "to work on food." The subsistence activity may take days or may require a commitment of weeks. It involves all: elders take the lead in organization, their adult children perform the tasks of hunting, gathering, and processing, and grandchildren perform smaller tasks such as gathering firewood or packing water. Through these seasonal activities families come together, lessons are learned, and culture and history are maintained.

Alaska Natives were the original stewards of Alaska's land and resources. In Southeast Alaska where the Tlingit, Haida, and Tsimshian live, resources were owned and managed by extended family units, called clans. Access was protected and wars were fought to protect an area and its resources. Rivers and streams were accessed through the head of the clan or chief of the village who managed the taking of the resource. Harvest levels were controlled to ensure the continued return of resources.

Rituals and customs, such as the salmon blessing ceremony, which gives thanks to the first returning salmon, served as a harvest control. While

preparing for the ceremony, salmon continued their journey. Since no salmon were taken while the community was getting ready for and conducting the blessing, escapement was ensured.

THE VALUE

Subsistence continues to support a major part of the State's rural economy. There are approximately 622,000 residents in the state of Alaska today. Approximately 20% of Alaska's residents live in rural Alaska. Subsistence activities are primarily carried out by the approximately 62,000 native and 60,000 non-native rural residents. The Alaska Department of Fish and Game (ADF&G) surveys indicate subsistence provides 375 pounds of food per person, per year to rural Alaska residents (ADF&G 2000). This equates to approximately 43 million pounds of product annually.

However, this take is small relative to the total Alaska harvest. Statewide harvest of fish and game. Commercial harvest takes approximately 2 billion pounds of fish annually, 97% of the total fish harvest (ADF&G 1997). Recreation takes account for 1%, about 18 million pounds annually (ADF&G 2000).

THE SETTING

Traditional native use and management of these resources were ignored by the Russians and then by the Americans. During the early years, resources such as salmon, herring, fur seal, and sea otters were severely overharvested. When Alaska became a state in 1959, there were about 226,000 residents. State coastal fishery management commenced and in 1960 the Alaska Fish and Game Code was amended to provide for subsistence fishing.

The building of the trans-Alaska oil pipeline during the 1970s created a large surge of immigrants into the state. By 1974 there were an estimated 340,000 people living in Alaska. These new residents generally did not grow up with the respect for Alaska's land and resources, as did the

natives and early pioneers. Competition between users became an issue.

The federal Alaska Native Claims Settlement Act (ANCSA) was passed in 1971. ANCSA "resolved land claims," and "extinguished aboriginal title to fish and wildlife." The accompanying legislative history document, however, clearly states the intent of Congress to protect the subsistence harvests by Alaska Natives (Case, 1984).

In response, the Alaska Board of Fish and Game adopted a policy in 1973 giving subsistence the highest priority among beneficial users. Legislation followed and in 1978 a subsistence priority was established. Subsistence was defined as the "customary traditional uses in Alaska of wild renewable resources."

As the state's population continued to increase, commercial and recreation fishing efforts also increased, competing with subsistence users for fish. Efforts to protect subsistence access to resources were not considered enough.

Thus, subsistence harvest policy for Alaska's rural residents was established by Congress under the Alaska National Interests Lands Conservation Act (ANILCA) of 1980. ANILCA requires the State to manage for a subsistence priority on both state and federal lands, which comprise approximately 60% of Alaska.

The state legislative body and the Board of Fish have made numerous policy decisions to support subsistence, but they have not been successful in managing for a rural subsistence priority. Subsistence has been challenged in the courts or through legislative action in one form or another since 1980.

In December 1989, the McDowell decision made by the Supreme Court determined that it was unconstitutional to

(See ALASKA NATIVES, page 5)

The Future of Alaska's Salmon Industry airs

For over a century, the commercial salmon industry has been the lifeblood of Alaska's coastal and river economy – it has been Alaska's single largest private employer, and contributed hundreds of millions of dollars annually into the state's economy. But the value of the fishery has dropped dramatically over the past decade due to declining prices and weak runs in some regions, causing economic turmoil in coastal communities.

Addressing these issues is "The Future of Alaska's Salmon Industry," a one-hour public television program that brings together experts from government and industry to discuss the problem and what changes need to occur to make the industry viable and sustainable.

The program is moderated by **Rick Steiner**, with panelists Terry Gardiner, President, NorQuest Seafoods; Jerry

McCune, United Fishermen of Alaska; Gunnar Knapp, UAA Professor of Economics; Doug Mecum, ADF&G Commercial Fisheries Director; and State Senator Alan Austerman, of Kodiak.

The program first aired on the rural network on March 29. Upcoming airings will be at **7 p.m., Wednesday, April 24 on KAKM, and at 10 p.m., Thursday, April 25 on Alaska-ONE.**

ALASKA NATIVES . . . *continued from page 4*

have a priority for rural residents, according to the state's equal access clause. This court case stymied years of attempts to find a solution.

The state legislature can, with a two-thirds vote, place a ballot issue before the voters to amend the constitution to allow for this preferential use. Although several attempts were made, the two-thirds legislative support to allow for a constitutional amendment vote has been unattainable.

Consequently, in 1990 the federal government resumed subsistence management control on federal lands. This resulted in a dual management regime for Alaska: federal management on federal lands and state management on state lands. Management expanded to include subsistence fisheries on federal lands in 1998. In this context, federal jurisdiction includes rivers and lakes, but does not include the three miles of ocean adjacent to the coastline, which is part of state management.

STATE MANAGEMENT

The State Board of Fisheries is the public policy board for the State of Alaska. This seven-member board is seated with residents knowledgeable of the issues at hand. Members are appointed by the governor and serve three-year terms. They are bound by the state constitution to utilize natural resources "for the maximum benefit" and manage them on a "sustained yield principle" (Alaska Constitution).

Typically the Board meets during the winter and early spring to review and take action on fish proposals submitted for consideration. Anyone may submit a proposal for any regulation or policy change. When the board meets, anyone may be present.

It can now take close to 100 days for the Board of Fisheries to wade through the hundreds of proposals submitted each year.

They meet day after day, week after week, covering issues ranging from simple regulation requirements to complex allocation issues between user groups.

Those who come to testify may have to spend a week at the meeting before they are called, and are given only five minutes for testimony. They generally sit through days of testimony and deliberation before the Board makes a decision. This whole process is lengthy, costly, political, and not good for subsistence.

The goal of this process is to ensure adequate public participation. The process unfortunately is often used to attempt to reallocate from one user group to another, or to increase the harvest beyond what biologists recommend. Some groups, including fishing organizations are very good at working within this process-oriented format. Others, including residents from some small villages, cannot afford to attend these lengthy meetings and do not have the skills to work the process.

Even though subsistence is considered a priority use under state management, this provision is not enacted unless the stock appears to need protection. This allows the Boards to allocate differently and preferentially among various users as long as the resource appears to be in good shape.

Subsistence season openings and bag limits are made based on the "reasonable opportunity" that subsistence needs will be met. Consequently, you have major salmon seine and gillnet fisheries where millions of salmon may be harvested right outside of areas where subsistence harvesters are limited to ten fish per day in the freshwater system.

Because subsistence activities generally occur near shore and in-river, commercial harvesting generally takes place before subsistence. Once the fish move into freshwater systems and stock abundances are calculated, subsistence fishing may be cut back to ensure escapement. Through this

management process subsistence, the last user, carries a heavy conservation burden.

SUMMARY

Subsistence protection as a native, and separately, as a rural activity, has changed over time. Initially the state population was small enough to meet everybody's needs with few conflicts. As Alaska's population increased, conflicts between user groups started. Both federal and state policy was developed to attempt to recognize the importance of subsistence activities and protect these uses.

State management, through the Board of Fisheries policy process, has not been successful in ensuring subsistence rights and needs. Congress took action to ensure a subsistence priority on federal lands. Dual management has been beneficial to subsistence activities on federal lands; however, protecting subsistence on state lands, which extend to ocean waters three miles from shore, has not been adequate.

Rural residents are not happy with the state Board of Fisheries process. They do not have the time, money, or skills to attend these meetings. It has been argued every year and at each meeting, commercial and recreational fishing activities have a greater economic benefit and should take precedence over subsistence activities. This argument is backed by the Board's constitutional obligation to maximize benefit.

The subsistence benefits, although enormous, are not tangible or comparable to economic benefits for commercial fishing. New residents to Alaska, and some Board members do not understand subsistence and its many cultural, physical, community, and food values.

Finally, in this dual management process, urban natives are generally denied subsistence opportunity since the federal subsistence preference is rural based, and state management strives to maximize benefit, thus favoring commercial uses.

People



John Kelley and **Dr. Sathy Naidu** in association with Dr. Orson Smith of the School of Engineering (UAA) led this year's training cruise to Aialik Bay. The thirteen participants had an opportunity to experience calm waters and clear skies for the duration of the trip. This cruise was also tasked to recover and redeploy an oceanographic data buoy at GAK-1. Students had an opportunity to witness this operation which involved dragging for the buoy with grappling hooks.

After a successful buoy deployment the *Alpha Helix* proceeded into Aialik to commence various oceanographic sampling techniques and the test of a new SonTek ADCP for small boat operation. This was the first year that this course (MSL 625) was co-taught with the UAA School of Engineering CE-694.



Sathy Naidu



Ole Mathisen
March 14–15, 2002.

Together with Renate Riffe from ADF&G in Juneau they presented a poster comparing marine survival estimates based on coded wire tagging and thermal marking.

On March 18, **Dr. Ole A. Mathisen** attended the annual meeting of the Scientific Advisory Committee to the North Pacific University Consortium on Marine Mammals in Seattle.

At its recent meeting the board of the Rasmuson Fisheries Research Center approved **Dr. Charles Hocutt** as the new Director of the center and former director **Dr. Al Tyler** was appointed as a new board member.



Gordon Kruse

Ph.D. in Fisheries at Oregon State University in 1983. For the past 16 years, he worked for the Alaska Department of Fish and Game, most of this time as their chief marine fisheries scientist. During his tenure with the department, he focused on developing the state's marine assessment and research program, with particular research emphasis on crab stock assessment, population modeling, and analysis of alternative management strategies. He was the state's lead scientist on many important marine fishery issues, most recently as chair of the Governor-appointed Steller sea lion restoration team. At UAF, Dr. Kruse maintains his research interests in fish stock assessment methodology, population and ecosystem dynamics, fisheries oceanography, and fisheries management. He particularly enjoys collaborative interdisciplinary research projects addressing pressing fishery management issues. In fall 2002, Dr. Kruse will join **Dr. Tom Shirley** to teach MSL 652 Marine Ecosystems, and he looks forward to developing new graduate course offerings on other subjects, such as management of marine fishery resources. Dr. Kruse is very excited to join SFOS, and he looks forward to working with faculty, staff, and students in the years ahead.



Terry Johnson

At the invitation of Pacific Fishing magazine and FIS (Fisheries Information and Services, the leading international on-line seafood industry newsletter), Marine Advisory Program agent **Terry Johnson** made a two-week trip to Moscow and Vladivostok to write a report on the status of the Russian Far East fishing industry. Johnson had meetings with heads of several fishing and seafood industry corporations, fisheries associations, and management agencies. He reports that since he first started monitoring the industry with trips to Vladivostok, Kamchatka and

Dr. Gordon Kruse joined the School of Fisheries and Ocean Sciences as the President's Professor of Fisheries in November 2001. He is located at the Juneau Center. Dr. Kruse earned his

Sakhalin in the early 1990s he has observed dramatic changes in product diversity and quality. The fishing industry in the Far East is suffering from the effects of resource depletion and an expensive new quota allocation scheme, but is responding with more value-added processing and improved product quality. Johnson will publish his report in a Russian fisheries supplement to Pacific Fishing, and in subsequent Marine Advisory bulletins.

Also, **Terry Johnson** participated in a two-day meeting on Bristol Bay walrus research and management, sponsored by the U.S. Fish and Wildlife Service on April 4 and 5. Johnson, who is MAP's marine recreation and tourism specialist, and in the summer runs a walrus viewing business, was invited to contribute an industry perspective at the meeting.

Richard Steiner just returned from a two-week trip to Siberia, sponsored by Baikal Environmental Wave and Pacific Environment. While there he conducted town meetings on the risks of oil and gas development and made various fiscal, public process, and environmental recommendations. "Russia Petroleum so objected to what we were telling villagers that they actually blocked the road during our trip toward one village, and wouldn't let us pass," Steiner recalled.

Other meetings were held in the Tungka National Park region of the Republic of Buryatia. The Tibetan Buddhists consider this area to be sacred, and thus they worry about plans to route a natural gas and oil pipeline through this region toward China.

Steiner's group also met with oil company executives, asking them to consider re-routing the proposed gas pipeline away from the Tungka, and north along the existing railroad route.

At the March 22–24 "Public Participation in Oil and Gas Projects" in Irkutsk, Steiner spoke at the Seminar.

Finally, on his way back from Siberia, Steiner stopped in Japan's Ogasawara (Bonin) Islands, and was an invited speaker at the "Ogasawara Forum 2002" sponsored by the Japan Foundation, which looked at sustainable development issues for these biologically rich islands, about 1000 km

(See PEOPLE, page 7)



Richard Steiner

Funding

Primary PI	Title	Agency	Budget
Bluhm	Lipofuscin Aging of Large Male Snow Crabs	ADF&G	16,883
Brown	Evaluation of Airborne Remote Sensing Tools for GEM Monitoring	EVOS	59,435
Castellini	Metabolic Demands of Steller Sea Lion Survival	ASLC	260,782
Feder	Port Valdez Environmental Studies-2002	Alyeska Pipeline Service Co.	221,552
Fong	Bridging Gaps to Insure Long Term Via. of Sm.Trop.Mariculture	University of Hawaii, HILO	97,108
Gradinger	Phase 1: Biological coupling of sea ice	Coastal Marine Institute	51,175
Gradinger	Dynamics Of The Pelagic Microbial Food Web	NSF	186,362
Hollmen	Support for a Seabird Specialist	ASLC	88,458
Jewett	Relations Between Traditional and Scientific		
Mellish	Support Marine Mammal Specialist	ASLC	88,458
Mercy	Seabird Bycatch Video	University of Washington	15,000
Ralonde	Support for Mariculture Conference	ADF&G	10,000
Ralonde	Support for Mariculture Conference	Pacific Aquaculture Caucus	10,000
Shaw	Port Valdez Environ Studies-2002	Alyeska Pipeline Service Co.	221,552
Shirley	Tag Retention in Tanner Crabs (TRT)	Alaska Dept. of Fish and Game	10,000
Springer	Collaboration Alaska SeaLife Center	ASLC	34,670
Springer	Plantivorous Seabirds	Eppley Foundation for Research	14,808
Terschak	Semi-Tethered ROV	UA President's Special Projects	900
Wang	Implementation of Ocean Circulation	EVOS	74,800
Weingartner	Variable Outflow from Chukchi Shelf	ONR	72,110
Whitledge	Support for SBI	NSF	87,481
Whitledge	SBI Mooring Sensor Installation	NSF	63,207
Wynne	Harbor Seal Project - Kodiak FY02	ADF&G	10,739
Adkison	PIs Funded by Sea Grant Omnibus 2002-2004	Alaska Sea Grant - NOAA	1,488,210
Byers			
Castellini			
Crapo			
Criddle			
Cullenberg			
Dearborn			
Sugai			
Fong			
Johnson			
Kolbe			
Konar			
Kramer			
Mercy			
Plumley			
Quinn II			
Ralonde			
Steiner			
Stekoll			
Suomela			
Wynne			
Highsmith	West Coast and Polar Regions Undersea Research Center 2002 - 2(NURP - NOAA		2,364,096
Total of Partial List of Funding Received from January 1 - April 15, 2002			5,547,786

PEOPLE . . . *continued from page 6*

south of Tokyo. At that gathering, Steiner recommended the initiation of an “Ogasawara 2020” planning/visioning process for the islands (which only have about 2,400 people, and no airport, etc.). “We will participate in this to some extent,” he said.

Be sure to tune in to hear Teresa Bakker

conduct interviews with **Dave Musgrave** Thursday mornings at 8:20 a.m. on KUAC’s Alaska Edition.

Musgrave covers topics ranging from currents and mixing to the role oceanography plays in determining variability in marine natural resources such as fish stocks and Steller sea lions.

In recent broadcasts, Musgrave gave

thoughtful, informative, and insightful answers to the questions posed by Bakker in the areas of global warming, Rio Royer, SALMON, and the reasons why the research done in oceanography is so important.

You can listen to back editions of the broadcast by going online to KUAC’s webpage at www.kuac.org.

Ron Dearborn to retire from Sea Grant; Requirements for new Director listed in search

By Sue Keller

Alaska Sea Grant director Ron Dearborn will retire from UAF in June 2002. Dearborn was recruited as Sea Grant director in 1985, from University of Maine Sea Grant. He looks forward to spending a lot of time at his favorite fishing haunts in Alaska.

Dean Vera Alexander is chair of the search committee to hire a new Sea Grant director. An abbreviated description of the position follows:

Position: Director, Alaska Sea Grant College Program, University of Alaska Fairbanks

Responsibilities: This executive-level position provides leadership and program oversight for the Alaska Sea Grant College Program. Housed administratively within SFOS, Alaska Sea Grant has broad responsibilities in promoting marine research, education, and extension throughout Alaska. The Alaska Sea Grant director is in



Ron Dearborn

Photo by Kurt Byers

a position to make strategic investments, develop programs, and expedite solutions to today's marine and fisheries related issues.

Qualifications: Earned doctorate in marine or fisheries-related field. Experience working with or within the fishing industry.

Demonstrated, successful experience working cross-culturally. Strong interest in promoting excellence in research, marine extension, and educational programs; demonstrated leadership and communication skills; extensive program management experience.

Salary: Competitive DOE

Closing Date: Review begins July 1, 2002. Open until filled.

Application: Applicants should send a curriculum vitae, summary of professional interests, contact information for three professional references, and a signed University of Alaska application to: Human Resources, Attn: Dr. Vera Alexander, 108 Admin. Services, Fairbanks, AK 99775. UAF employment application: <http://www.uaf.edu/uafhr/>. For additional information about Sea Grant and this position go to <http://www.uaf.edu/seagrant/staff/director-app.html>.

Effects of Trawling & Dredging on Seafloor Habitats

In response to ongoing concerns about the ecological impact of fishing, the National Marine Fisheries Service requested a study to examine the effects of trawling and dredging on seafloor habitats. The National Academy of Science's Ocean Studies Board selected a committee of twelve international experts, including **Dr. Gordon Kruse** of the University of Alaska Fairbanks's School of Fisheries and Ocean Sciences to conduct the study. This study was completed in March 2002.

The committee reviewed many experimental studies and found that stable communities of low mobility, long-lived species are more vulnerable to acute and chronic physical disturbance than short-lived species in changeable environments. Trawling and dredging can reduce habitat complexity; the extent of initial effects and rate of recovery depend on stability of the habitat. More stable biogenic, gravel and mud habitats experience the greatest changes and slowest recovery. In contrast, less consolidated coarse sediments in areas of high natural disturbance show fewer initial effects. Because these habitats tend to be populated by opportunistic species that colonize more rapidly, recovery is faster.

The committee also compiled available information on the geographic distribution

and frequency of trawling and dredging in each marine region of the U.S. These data indicate that trawling and dredging take place over large areas of the continental shelf and slope, but that effort is not evenly distributed with some areas trawled many times per year and other areas untrawled. The highest intensity of fishing effort occurs in the Gulf of Mexico and New England regions, whereas the North Pacific is trawled relatively lightly, generally less than once per year.

Although there are still habitats, gears, and geographic regions that have not been adequately studied and characterized, there is extensive literature on the effects of fishing on the seafloor. It is both

possible and necessary to use this existing information to more effectively manage the effects of fishing on habitat. Three main management tools are available: effort reduction, modification of gear design or type, and establishment of closed areas to fishing. The optimal combination of these three measures depend on habitat type, resident seafloor species, frequency and distribution of fishing effort, gear type and usage, and the socioeconomics of the fishery.

A prepublication version of the report is available for online reading at: <http://www.nap.edu/catalog/10323.html>. Bound copies of the report will be available from the National Academies Press in May 2002.



© R.T. Wallen

Bruce Finney's work is a "Nature"al selection

The following reprint is from the April edition of the journal *Nature*.

Fairbanks, Alaska—Fishermen accustomed to the quick boom then bust of Alaska's salmon runs may wish they were born in a different time—about 800 years ago to be exact. In a study published in the April 18 issue of the journal *Nature*, Alaska and Canadian scientists say sockeye salmon runs to the state once rode waves of abundance lasting centuries. The most recent long-term boom began in the year 1200 and lasted until the turn of the last century, according to the report. "Looking back over the past 2,000 years of salmon runs, there were periods of high abundance lasting hundreds of years, not just the decades we see today," said **Bruce Finney**, the study's lead author and a marine scientist at the University of Alaska Fairbanks, Institute of Marine Science. Of course what went up, eventually came down—hard. In the case of salmon, Finney says the busts lasted as long as the booms. "There were periods of time lasting hundreds of years when salmon runs were far less abundant as well," Finney said. To reach their conclusions, Finney and scientists from Queen's University in Ontario, Canada, studied cores of mud taken from the bottom of two lakes on Alaska's Kodiak Island. The mud contained traces of the stable nitrogen isotope, N15, released into the lakes by salmon that had died and decayed after spawning. Nitrogen is a nutrient critical to northern freshwater systems, helping to nourish the growth of algae called diatoms. Once the diatoms die, they fall to the lake bottom and become a kind of historical record of N15 over time. Researchers dated the mud layers using carbon dating techniques and known events such as volcanic eruptions that left ash in the mud. They then analyzed the concentration of nitrogen in the diatoms and mud to estimate the relative size of ancient salmon runs to the lakes going back



Dr. Bruce Finney

some 2,000 years. "If you have high levels of specific types of diatoms and high levels of Nitrogen-15 present in the mud dated at certain times, the reasoning is that more salmon returned to the system at those times," said John Smol, a co-author of the study and a biologist at Queens University. Using these techniques, the researchers say salmon runs rose and fell on time-scales unheard of today. Beginning 800 years ago, at about the year 1200, for example, Finney said salmon numbers increased markedly and stayed relatively high through to the beginning of last century, when modern commercial fishing began. "The change was abrupt but sustained itself for hundreds of years," Finney said. Researchers say natural climate change most likely altered salmon abundance in the centuries before commercial fishing and global industrialization. That's contrary to salmon declines during the most recent century, which researchers say were caused by over fishing, pollution, and habitat destruction. "What we can show is that there were dramatic changes in salmon populations long before humans entered the picture in any appreciable way. The lesson here is that salmon runs are very sensitive to changes in their environment, Smol said. Researchers also found evidence of low salmon runs lasting hundreds of years. One of the most stark salmon busts occurred from 100 BC to 800 AD. "Salmon runs at the time of Christ were far lower than anything we have seen up through modern times," said researcher Irene Gregory-Eaves, a co-author of the study and graduate student at Queens University. There were perhaps only a few hundred thousand salmon returning to those lakes at that time instead of the millions of salmon we see in later

periods." Finney said the increase in salmon abundance that occurred beginning in 1200 AD was most likely caused by a change in climate that triggered glacial advance in Alaska and brought drought conditions to the Midwest, which led to more favorable conditions for salmon in the North Pacific. The researchers also found evidence that while salmon runs flourished in Alaska, other fish species declined in waters farther south. The finding lends support to the belief that fish stocks in Alaska rise and fall in trends opposite to those of species along the U.S. west coast. Their research was funded by the National Science Foundation, the Alaska Sea Grant Program at the University of Alaska Fairbanks, and the National Oceanic and Atmospheric Administration's Auke Bay Laboratory in Juneau, Alaska. The scientists also say their data supports the belief that salmon upswings influenced the development of Alaska's coastal Native cultures. Finney said evidence found at archeological sites on Kodiak Island shows the island's indigenous groups further developed fishing gear and began using salmon more frequently from 800 AD through 1200 AD, a time when salmon were more abundant. "One of our ideas was that since Native people along the coast depended on salmon, changes in salmon influenced cultural changes," Finney said. "These abrupt changes in salmon abundance coincide with archeological evidence. In times of low abundance they depended more on marine mammals. In times of high abundance, the archeological evidence shows a stark increase in reliance on salmon." Smol says understanding how the environment affected salmon runs of the past may help researchers predict how salmon may respond to future climate shifts. "These records give us a glimpse into how salmon might do in future global warming because there are other periods in the past, at least in Alaska, that were as warm or warmer than today," Smol said. The study's scientists aren't new to the study of ancient salmon runs. Two years ago, the team published in the journal *Science* the results of sediment core analysis of salmon runs going back some three hundred years. That work demonstrated the reliance of freshwater ecosystems on nutrients released by decomposing salmon. Their next project is to reconstruct salmon runs going back to the end of the last major ice age, some 15,000 years ago, a time when salmon are thought to have colonized North Pacific watersheds as glaciers retreated.



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

SFOS News



Publications

Kruse, G.H., N. Bez, A. Booth, M.W. Dorn, S. Hills, R.N. Lipcius, D. Pelletier, C. Roy, S.J. Smith, and D. Witherell, editors. 2001. Spatial processes and management of marine populations. University of Alaska Sea Grant, **AK-SG-01-02**.

Zheng, J. and G.H. Kruse. 2001. Spatial distribution and recruitment patterns of snow crabs in the eastern Bering Sea. *In* Kruse, G.H. and nine other editors. 2001. Spatial processes and management of marine populations. University of Alaska Sea Grant, **AK-SG-01-02**: 233–255.



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.

M. Baskaran, G-H Hong, S. Dayton, J. Bodkin, and J.J. Kelley. Temporal variations of natural and anthropogenic radionuclides in sea otter skull tissue of the North Pacific Ocean. *In press in* Journal of Environmental Radioactivity.

Hoberg, M. K. and H. Feder. 2002. The Macrobenthos of Sites within Prince William Sound, Alaska, Prior to the *Exxon Valdez* Oil Spill. *Internat. Rev. Hydrobiol.* **87**:25–45.

Jewett, S.C., T.A. Dean, B.R. Woodin, M.K. Hoberg, & J.J. Stegeman. 2002. Exposure to hydrocarbons ten years after the *Exxon Valdez* oil spill: evidence from cytochrome P4501A expression and biliary FACs in nearshore demersal fishes. *Marine Environmental Research* **54**(1):21–48.

Editor's Corner: Got News?

Special thanks to the contributors of the material used in this newsletter.

Kathy Carter

SFOS Academic Services, SFOS/UAF

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/EO employer and educational institution.