

## House Finance Subcommittee on Fisheries

### Testimony of

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Chairman Rep. Thomas and other Representatives of the House Finance Subcommittee on Fisheries, it is my honor to be able to testify before you this evening. My name is Dr. Gordon Kruse and I am the President's Professor of Fisheries at the School of Fisheries and Ocean Sciences (SFOS), University of Alaska Fairbanks (UAF).

I was asked to speak to you to provide a brief overview of UAF's programs on fisheries and marine mammal research, including an overview of our budget and partnerships with the Alaska Department of Fish and Game. In addition to this written testimony, I have provided color photocopies of my presentation slides, as well as the fall 2009 edition of our SFOS newsletter that features some recent highlights of fisheries research, teaching, and service to the State of Alaska.

### **Facilities**

SFOS faculty members serve Alaskans in 12 locations around the state. Primary facilities include the **O'Neill Building** on the West Ridge of the campus in Fairbanks, which houses the SFOS administration, oceanography, marine science, and about half of the fisheries program. The **Alaska SeaLife Center** and **Seward Marine Center** in Seward includes a number of marine mammal and seabird research, education and outreach programs. It will also become the homeport for the **Sikuliaq** (pronounced "see-KOO-lee-auk", an Inupiaq name meaning "young sea ice" or "young sea ice that is safe to walk on"). The Sikuliaq is a 254-foot oceanographic research ship that will be one of the most advanced university research vessels in the world, capable of breaking ice up to 2.5 feet thick. The **Fishery Industrial Technology Center** in Kodiak includes laboratories for seafood research, chemistry, biochemistry and microbiology. The **Kasitsna Bay Laboratory** near Seldovia on the Kenai Peninsula is owned by NOAA's [National Centers for Coastal Ocean Science \(NCCOS\)](#) and is operated in partnership by NCCOS and SFOS (UAF). Finally, the new **Lena Point Facility** in Juneau dedicated in April 2009, which houses most of the UAF marine

fisheries program on a campus next to NOAA's Ted Stevens Marine Research Institute.

## **SFOS Divisions**

The SFOS program includes seven divisions:

- Institute of Marine Science – conducts oceanographic and marine biological research mainly in the subarctic Pacific and Arctic waters; offers M.S. and Ph.D. degrees
- Fisheries Division – conducts fisheries research on freshwater, anadromous and marine species from Southeast Alaska to the Arctic; offers B.A., B.S., M.S., and Ph.D. degrees
- Fishery Industrial Technology Center – conducts research and development of harvesting and processing technology, processing seafood quality and safety, marketing, and collaborative ecosystems research
- Alaska Sea Grant – part of a national Sea Grant network that funds marine research, provides education and extension services, and distributes information about Alaska's seas and coasts
- Marine Advisory Program – provides information, technical assistance and workforce development opportunities linking science with community needs to solve resource questions
- Seward Marine Center – an experimental facility that supports research vessel operations, shore-based fishery and marine science research and educational resources
- Global Undersea Research Unit/Kasitsna Bay Lab – GURU emphasizes seafloor research in marine biology and geology through management of Kasitsna Bay Lab and as a regional center of NOAA's Undersea Research Program

Collectively, these programs conduct research throughout Alaska the Gulf of Alaska, Aleutian Islands, Bering Sea, and Arctic Ocean.

## **Fisheries and Marine Mammal Research Topics**

A diverse cadre of faculty, students, researchers and technicians conduct research on a wide variety of fisheries and marine mammal research topics. Fisheries research supports conservation and sustained use of Alaska's subsistence, sport and commercial fisheries. Freshwater and anadromous fish research includes the ecology, habitats, population dynamics, genetics, and management of Arctic grayling, sheefish, burbot, whitefishes, Pacific salmon, rainbow trout; Arctic char; Dolly Varden.

Marine fisheries research covers similar research topics as freshwater fisheries research, in addition to fisheries oceanography and seafood science. Marine

species studied by UAF scientists include Pacific halibut, rockfishes, sablefish, walleye pollock (largest commercial fishery in the U.S.), Pacific cod, herring, crabs, shrimps, and other invertebrates.

Marine mammal research includes studies of physiology, behavior, movements, ecology, contaminants, diseases, population trends, reproductive success, and fisheries interactions. Most marine mammal research at UAF focuses on Steller sea lions, several species of seals, whales, and seabirds (e.g., harlequin ducks, Steller's and common eiders).

It is not possible to summarize the vast diversity of research being conducted on fisheries and marine mammals by researchers at UAF in a short testimony. So, I provide a cursory overview of just four examples in attempt to portray the diversity of research being conducted. **Dr. Amanda Rosenberger** and M.S. graduate student, **Kevin Foley** are conducting a study on the ecology of juvenile salmon in the Matanuska-Susitna Basin to inform conservation and restoration practices. They are collaborating with Jon Gherkin and Doug McBride of the U.S. Fish and Wildlife Service (USFWS) in a project funded by USFWS. The work is part of a "Mat-Su Basin Salmon Habitat Partnership" involving 40 partners, including five state agencies (ADF&G, DNR, DOT, DEC, DCCED), four federal agencies (USFWS, USDA Forest Service, USGS, US Corps of Engineers), Native Alaskans (e.g., Chickaloon Village Traditional Council), businesses (e.g., ConocoPhillips), landowners, and non-profit organizations.

**Dr. Gordon Kruse** and M.S. graduate student, **Naoki Tojo**, completed a project on the migration and spawning timing of Pacific herring in northern Bristol Bay (Togiak). This collaborative project with ADF&G was funded by Alaska Sea Grant (ASG) and the North Pacific Research Board (NPRB). The project contained two parts. In the first part, the monthly bycatch of herring in Bering Sea groundfish trawl fisheries was analyzed in a geographic information system to understand the amazing 2,100 km migration of herring from north of the Pribilof Islands (winter) to coastal areas of northern Bristol Bay (spring) to the Alaska Peninsula (summer) and Aleutian Islands (fall) and back. In the second part, we found that the timing of spring spawning migrations was advanced by warmer sea surface temperatures and reduced sea ice. A new spawning timing model predicts the timing of arrival of herring for spawning, which is critical information to ADF&G managers and the commercial fishing industry, as the first herring to return are the largest females with the most valuable roe on which economic profitability depends.

Two examples are provided of marine mammal and fisheries interactions. In the first, Marine Advisory Program (MAP) staff (**Kate Wynne**, **Sunny Rice**, **Brianna Witteveen**) are working in collaboration with the Petersburg gillnet fleet and Kodiak seine fleet to identify potential acoustic or other means to deter whale entanglements in fishing nets. The work is funded by NPRB. In the second, **Dr. Ginny Eckert**, MAP agent **Sunny Rice**, and ADF&G employee, **Zac Hoyt**, are

assessing sea otter population sizes and consumption rates of commercially important prey species in central Southeast Alaska. The project is funded by ASG and involves collaboration with the Southeast Alaska Dive Fisheries Association, Petersburg Vessel Owners Association, Petersburg Marine Mammal Center, and USFWS.

## **SFOS Program and Budget Overview**

As of spring 2010, the SFOS program includes 270 employees, including 65 faculty, 126 graduate students, and 55 undergraduate students. The program includes 16 MAP agents in 12 coastal communities. You may have heard that MAP is requesting funding for FY11, which would represent a commitment by the University to a MAP office in six communities/regions of the state that are currently funded solely by short-term grants. The affected communities are **Cordova, Nome, Dillingham, Unalaska, Petersburg, and Kodiak.**

SFOS receives about \$10 million in funds from the State of Alaska to support teaching, administration, and service to Alaska. On average, SFOS scientists have extended this value with grants averaging about \$15 million annually to conduct fishery, marine mammal, and oceanographic research in Alaska. Approximately 2/3 of this research funding comes from various federal sources: USDA, US Department of Interior, National Oceanic and Atmospheric Administration (NOAA), National Science Foundation (NSF), and other federal sources. About 28% of the research funding comes from corporate or other private sources. Only 4.5% comes from state and local government sources.

## **Funding and Partnerships with ADF&G**

Of the 4.5% from state and local government sources, ADF&G provided \$230,000 for research in FY 09. This was somewhat lower than the recent peak of \$300,000 provided in FY 07. The funding amount by ADF&G amounted to 1.6% of the SFOS \$14 million research budget in FY 09.

There are several vehicles used by ADF&G to fund fisheries and marine mammal research by SFOS. The first is a **Reimbursable Services Agreement (RSA)** whereby ADF&G and UAF enter into an agreement for UAF to conduct research for ADF&G under contract. An example of this was a RSA provided to me and a graduate student (Nathan Soboleff, M.S. student) to analyze the association between declines in Steller sea lions and state-managed commercial fisheries. The RSA funded the student's tuition and stipend, some compensation for my time, and miscellaneous project costs.

A second, newly formalized approach is the **ADF&G Graduate Studies Program**, which articulates the circumstances by which an ADF&G employee may go back to school to receive a graduate degree. At the start of each fiscal year, the ADF&G Division of Administration will collect up to \$70,000 from all

divisions to create a reserve fund to fund no more than two graduate students per year. Under this new plan, I accepted a new graduate student (Aaren Ellsworth, M.S. student from ADF&G – Kodiak) in spring 2010 to work on development of a stock assessment model for the Kodiak stock of northern shrimp as a precursor to revision of the fishery management plan for this species.

The third approach involves the **Alaska Cooperative Fish and Wildlife Unit (ACFWU)**. The unit is part of a nation-wide cooperative program to promote research and graduate student training in the ecology and management of fish, wildlife and their habitats. The unit has eight staff, two of which reside in SFOS. Most other staff reside in the Institute of Arctic Biology and work on wildlife and terrestrial ecology. The ACFWU represents a cooperative among ADF&G, USFWS, USGS, and UAF. Base funding in FY 08 totaled about \$1 million, of which about \$750,000 came from federal sources, about \$200,000 from the university (fund 1), and about \$90,000 from ADF&G. Another approximately \$3.2 million was secured by grants to fund fish and wildlife research. The ADF&G portion is provided by the Sport Fish Division and funds roughly three graduate students per year. The funding pays only for tuition and stipend; field research costs are paid directly by ADF&G and do not come to the university. An example of such a student is Christie Hendrich, whose M.S. thesis committee is co-chaired by Dr. Gordon Kruse and ACFWU leader, Dr. Joseph Margraf. Ms. Hendrich's project develops alternative escapement goals for the Unuk River (Misty Fjords National Monument, Southeast Alaska) Chinook salmon run using measures of available spawning habitats.

While the total amount of funding provided by ADF&G to SFOS for research is a small portion of the SFOS fisheries research budget, there are many other ways in which ADF&G and UAF/SFOS collaborate on research. As ADF&G funding is limited, SFOS faculty frequently prepare research proposals to extern granting agencies to conduct research in support of ADF&G programs. In such cases, ADF&G is often a close partner, providing non-monetary technical and logistical assistance. One example is the study of herring migration and spawning timing mentioned earlier. UAF obtained funding from NPRB and ASG. ADF&G provided historical data on advice, biological samples, fishery catches, and field logistics in Kodiak, Alaska. A second example was a study that a graduate student (Bill Bechtol, Ph.D.) and I conducted on the historical decline of red king crab off Kodiak Island. The work was funded by NPRB and ASG. Although no state funding was provided, ADF&G provided biological and fishery data and one ADF&G scientist participated as a member of the student's graduate committee. The ADF&G connections were even stronger, because the student was a retired ADF&G fish biologist, who now has started his own fisheries consulting company in Homer, Alaska, where he provides frequent contractual services to ADF&G.

## **Students**

SFOS offers M.S. and Ph.D. programs in marine biology, oceanography, seafood science and nutrition, and interdisciplinary studies. These same degrees are offered in fisheries, as well as a B.A. and B.S. in fisheries. In FY 10, there are 55 undergraduate fisheries students pursuing B.A. and B.S. degrees. Twenty-two percent of the current undergraduate fisheries students are Alaska Natives. Eight of the undergraduates were named to the Dean's, Chancellor's, or President's lists for fall 2009 (minimum GPA of 3.5). Presently, there are 126 graduate students in SFOS. These include 78 in fisheries (48 M.S., 30 Ph.D.), 16 in oceanography (5 M.S., 11 Ph.D.), and 32 in marine biology (18 M.S., 14 Ph.D.).

The 55 students in the undergraduate fisheries program are up from 17 undergraduates in FY 04. This recent success is largely attributable to a six-year grant from the **Rasmuson Foundation** awarded in January 2007. Further growth is planned. The target new undergraduate fisheries enrollment for fall 2010 is 30 new students. As of mid February, 26 undergraduate applications have been received for fall 2010; 16 are Alaska residents and 10 are non-residents. Also, of the 26 applications, 17 are first-time freshman and 9 are transfers. Of the 17 first-time freshmen, 12 are Alaska residents and 5 of the 12 are UA Scholars.

As part of program self-evaluation, SFOS makes a concerted effort to track the post-graduation employment of its fisheries graduates. Of the graduates, the largest percentage, **37%, work for ADF&G**. Another **20% work for the U.S. government in Alaska** (11% in NMFS-Auke Bay Laboratories and 9% in other federal agencies). Another 14% work in Alaska in other sectors, such as education and private business (both fisheries and non-fisheries). A grand total of 71% of our fisheries graduates are working in Alaska. The remaining 29% work in similar capacities in other states or countries.

As can be seen by the location of our fisheries graduates, ADF&G should care about our academic program as we are educating their future workforce. Notable UAF graduates include ADF&G commissioner, Denby Lloyd, Division of Commercial Fisheries Director, John Hilsinger, Sport Fish Division Director, Charlie Swanton, and Habitat Division Director, Craig Fleener.

On a personal note, I worked for ADF&G during 1985-2000, most of that time as head of the marine fisheries program for the Division of Commercial Fisheries. One of my leading motivations to accept a position with UAF in 2000 was the ability to help train the next generation of fishery scientists for ADG&G and NMFS. I have had four M.S. and Ph.D. students graduate so far; two of them work for ADF&G as fishery biologists, one works for SeaAlaska Corporation as a resource scientist, and one is attending a Ph.D. program in Japan. Of my eight current students, three have or are currently working for ADF&G, three work for NOAA (two of those for NMFS), and two do not have current agency affiliations, although they are studying state and federally managed species.

In summary, we are excited about our SFOS programs in fisheries and marine mammals, including our partnerships with ADF&G. I would be happy to answer any questions that you may have.

Thank you for your attention.

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