



ONCORHYNCHUS

Newsletter of the Alaska Chapter, American Fisheries Society
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Lebbeus grandimus, the candy stripe shrimp. Photo by Jared Guthridge.

The Alaska SeaLife Center Aquariums at Fourteen

Richard Hocking

The richness of life in the Gulf of Alaska is deserving of presentation in a public aquarium on the very edge of the Pacific Ocean in our vast region. Raising awareness, appreciation, and understanding of our natural resources is an essential purpose for the Alaska SeaLife Center in Seward, Alaska, and our aquarium branch of the operation is tasked with marine plant, invertebrate, and fish display. A small department of dedicated aquarists has worked for the last 14 years to provide visitors with a varied array of "underwater windows" to the sea.

Aquarium displays of Alaska marine animals have been at the core of the research and educational mission at the Alaska SeaLife Center from the outset of design and engineering in the early 1990's. While research space still occupies the most

area in this facility, a substantial share of building space is dedicated to interpretive exhibits using live-specimen display aquariums. Early plans envisioned a single floor of live-exhibit aquariums including large seabird and marine mammal displays with smaller aquariums hosting fishes and invertebrates. Late in the design phase we added aquariums on a second floor, providing a richer viewing experience. At the May 1998 grand opening, we unveiled nine aquatic exhibits using 17 tanks; we've since added three more exhibits with seven tanks. Currently, 24 aquariums, ranging from 10 to 3,500 gallons, await the visitor, while a 95,000 gallon diving seabird habitat is shared among the avian population and a variety of fish species. These are backed up by an array of 50

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Trent Sutton, AFS Alaska Chapter President.

The President's Corner

Trent Sutton

Summer appears to be over or, at the very least, it is making a strong attempt to get out of town and head south for the winter. And speaking of getting out of town, I wanted to take this opportunity to encourage you to get out of town and head to Kodiak for our annual Chapter meeting. But, if you live in Kodiak, hang around that week as I am sure that you will not be disappointed. For the most part, the final arrangements for the meeting have been completed and it is shaping up to be a good one. President-Elect Mark Wipfli and his Program and Arrangements Committees have put together a packed week of continuing education courses, presentation and poster symposia, socials, and tours of the area. So don't forget to register for the meeting and book your trip! Please see the relevant items in this newsletter and go to the Chapter webpage (<http://www.afs-alaska.org/annual-meetings/2011-2>) for a complete set of details on the meeting.

At the annual meeting of the American Fisheries Society in Minnesota last month, the Bristol Bay resolution from the Western Division of AFS (WD-AFS) was passed by the AFS Governing Board. The process from here on out is that the resolution will first get published in a future issue of Fisheries. At that point, there will be a 30-day online comment period during

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Alaska SeaLife Center, continued

multi-purpose holding tanks in behind-the-scenes service areas.

Themes for the displays have remained focused on aquatic life from Alaska and from habitats familiar to many visitors – tidepools, kelp forests, nearshore reefs, harbor areas, and deeper oceans. Alaska is washed by two oceans and three seas, depending on how you sort them. Although some of the Center's collection derives from the Bering Sea, most specimens represent the northern Gulf of Alaska and Kenai Peninsula coastline, largely due to our location and budget limitations. We're now beginning to create specialty exhibits that explore a particular species or group of species, while a future emphasis will be placed on themes such as environmental change, the seafood industry, and fishery research. And, remember those 50 holding tanks? They can be used to support fish research requiring live holding and rearing.

The live collection by 2012 has grown to consist of over 100 invertebrate and 82 fish species. The total aquarium population grows annually, largely through natural reproduction within the open-water systems and natural recruitment through our incoming water, augmented through targeted specimen collection by aquarium staff in the field. Not surprisingly, a variety of valued specimens, including spot shrimp, rockfish, sea anemones, and an occasional octopus, enter the building on their own.

Connecting our building to Resurrection Bay, twin seawater intake lines extend 275 feet deep and 800 feet offshore to provide a reliable water supply. We enjoy stable year-round salinity and dissolved oxygen with temperatures ranging from a 3° C in late spring to 10° C in fall. Additionally, natural freshwater is pumped continuously from a nearby low elevation water table.

The Alaska SeaLife Center operates essentially open system aquariums and holding pools, meaning new water flows in at all times and is balanced by water draining away. Obvious advantages include constant flushing of animal metabolic wastes out of the systems and providing natural environmental needs to the creatures. Every aquarium and holding tank has ample available turnover of new seawater or freshwater, although the rates are

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The President's Corner, continued

which anyone can provide additional information, statements of support or refute, etc., followed by a 30-day voting period. Because this resolution has broad implications for Alaska, I highly encourage the membership to review it, provide comments if you are so inclined, and (most importantly) vote when that opportunity arises.

This is it, my last column as your Chapter President. I would like to thank the Executive Committee members over the past three years

for all of their support, advice, guidance, and mentoring. I would also like to thank the Chapter membership for all of their efforts – this chapter would not exist without all of your hard work and dedication.

Finally, I would like to thank the students, the future of our profession, for serving as a constant source of inspiration. That is all for now – happy hunting (or harvesting) and I hope to see you in Kodiak in October. 🐟

Alaska SeaLife Center, continued

adjusted according to the tank volumes and the temperatures needs of the specimens. Maintaining cool water temperatures without dependence on expensive chilling equipment depends on keeping the water flowing – a basic task for both aquarists and our life support technical staff. Again, another huge benefit is natural recruitment of sea life into the aquariums through the open water systems. Aside from the continuous input of new water, our display aquariums incorporate features familiar to home aquarists including mechanical filtration, recirculation pumps, ultraviolet (UV) sterilizers for the recirculating water, and fluorescent, metal halide, and LED illumination.

The degree of river-born silt ever present in the north end of Resurrection Bay requires mechanical filtration in our larger aquariums. To remove silt and improve visual clarity, these aquariums have sand or other media filters with an auxiliary pump in the circulation loop. Though the need for biological filtration is minimal due to the open water systems, we manage some holding tanks differently by adding new, incoming seawater at a low flow. These low flow systems are augmented through sponge or other biological filter media and aeration. This approach is particularly useful for conditioning newly collected animals from warm, summer surface waters to the cooler conditions at the Alaska SeaLife Center.



Variegated snailfish. Photo by Richard Hocking.

Our incoming seawater is not sterilized prior to distribution in the building. In some exhibit aquariums we pre-treat the water with UV sterilization. Even so, along with the previously mentioned input of organisms that add natural vitality to our underwater scenery comes a recognized disease risk. Our UV sterilization also assists in controlling algal growth in the water and to retard disease organism entry. Ozone is used to control coliform bacteria in the recirculating seawater of the large seabird and marine mammal displays. Ozone also is used to treat all effluent water discharged from the building into the bay, as required by state water quality laws.

Aquarium lighting is evolving here as everywhere else. The original high intensity metal halide lamps installed here have been tempered by adding color enhancing fluorescent fixtures over the years. Now, the rapid and expanding availability of LED lamps reveals exciting new ways to brighten the

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Alaska SeaLife Center, continued underwater view at low operating cost and high energy efficiency.

So what sort of fish or invertebrate gets to be front stage here at Alaska SeaLife Center? Our aquarium staff really feel rewarded when a new or rarely seen sea creature comes in with the water or turns up in a collection dive, a fish trap, or a beach seine. Many of our aquarists are attracted by the opportunity to work with new, rare, or “care unknown” species. For instance, a visitor here will encounter at least half a dozen fish species on view nowhere else in the world. Although Alaska hosts many North Pacific species ranging as far south as California, our region also embraces the northern extensions of several fish families. Species with Asian and arctic centers of abundance also live in the North Gulf of Alaska and access to this unique marine life offers us tremendous possibilities as future exhibit plans unfold.

Some familiar fishes from the west coast of the North Pacific share space with some signature species from Alaska waters. We have a diverse representation of rockfish, including some less commonly seen, deep-dwelling species that arrived via the seawater intake, avoiding air bladder expansion by ascending the system slowly. Pacific cod and walleye pollock, representing the commercial value of their fisheries to our state, also do well. Greenlings, with lingcod the most generally recognized, are represented along with lesser known Alaska relatives like masked greenlings a common denizen of our area. Salmon gained a dedicated exhibit in a 2007 update of our second floor with large, new aquariums featuring major life stages in both fresh and salt water for cohos and other species. Of course, wolf eels are popular with just about everybody.

However, there are also some unusual families and species represented here that have become visitor favorites. The large variegated snailfish, prowfish, and giant wrymouth rival one another



Yellow Irish lord, a species common throughout Alaska. Photo by Richard Hocking.

for visitors' attention. We currently display several lesser-known North Pacific species including crested sculpin, yellow Irish lord, and saffron cod. Our smaller aquariums display juvenile fishes, including local rockfish, sculpins, and greenlings, and pricklebacks.

Collecting juvenile fishes is proving to be a reliable way to build our collection. Young-of-the-year and age-1 fishes are turning up in surprising places, including riding along with drifting jellyfish. A plankton net haul yields larval and early juveniles of some species that thrive in the rich zooplankton soup that we can access. Furthermore, juvenile fish grown in the Center make an early transition to eating frozen food, which seems to curtail some internal parasites found in wild-caught adult fish.

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Alaska SeaLife Center, continued

Invertebrates don't lack for attention here, either. A favorite sea creature in visitor polls is the giant Pacific octopus. Probing around their aquarium, sitting still and changing shape and color when approached, or perhaps even gently touched on a private tour during a behind-the-scenes Octopus Encounter, these animals can profoundly attract and affect a receptive visitor. We also find that sea anemones, basket stars, king crabs, and any mass spawning event grab folks' attention. Even parasitic and commensal organisms (which we don't shy away from acknowledging) fascinate people, suggesting perhaps a thematic lode to mine in the future!

Outside influence on the live collection here also brings in the scientific and fisheries management community. Beyond a permitting standpoint in governing the location, means, and numbers of specimens collected, the Alaska Department of Fish and Game (ADF&G) has also facilitated access to deep water fauna through invitations to accompany department trawl surveys in Kachemak Bay. Similarly, aquarium staff have worked with National Marine Fisheries Service researchers to collect information on the fecundity and development of Atka mackerel and several skate species. Collaborations on short term projects with researchers from various agencies as well as the University of Alaska and other schools have

also encouraged an expanding and diversifying collection. For example, a new exhibit to display several skate species at different developmental stages is planned for next year.

We also have a valued relationship with ADF&G's pathology division for diagnosing and treating unusual medical issues over the years. However, Center aquarists treat most medical cases. For parasitic events, our typical response is to isolate a fish in a treatment tank and reduce the salinity using natural freshwater; a simple treatment likely consistent with natural conditions available to wild populations. Having an on-site veterinary team and outside advisors provides exceptional diagnostic backup, and fearless surgical talents have achieved some remarkable success stories.

Overall, the future looks bright in an era of growing interest in arctic and sub-arctic environments in this country. Alaska SeaLife Center's aquarists are eager to see how much more we can help our supporting public, partnering agencies, and schools learn and appreciate our aquatic environment.

Richard Hocking is Aquarium Curator at Alaska SeaLife Center, where he began working in 1997. He received a Zoology degree from the University of Washington in 1978 and has previously worked at public aquariums in the Pacific Northwest and for the Washington Department of Fisheries and Wildlife.



Some of the holding tanks used to support fish research. Photo by Richard Hocking.

2012 Annual Meeting of the AFS Alaska Chapter “Ecosystem, Fishery, and Food Sustainability in a Changing World”

Mark Wipfli

The 39th annual meeting of the Alaska Chapter of the American Fisheries Society will be held October 21-26, 2012 in Kodiak at the Kodiak Convention Center. Continuing education workshops and organized tours will be held on the first three days of the meeting (October 21–23) and a welcome social will be held Tuesday evening (October 23) at the NOAA facility and the Kodiak Seafood and Marine Science Center. The keynote address and plenary session will be Wednesday morning covering issues of fisheries sustainability and food security, followed by concurrent oral sessions, with the poster session and social that evening. Thursday and Friday will be dedicated to concurrent special and contributed sessions throughout the days, with the banquet Thursday evening along with entertainment and a live auction. The meeting will end Friday afternoon.

The meeting theme is exemplified through 18 special sessions, contributed oral sessions and a poster session, and a long list of pre- and post-meeting activities and tours. Be sure to come to the Chapter meeting early this year to take advantage of reduced-rate fishing charters and tours, lodging deals, and loads of local pre-meeting outdoor and community activities being planned. Besides charter fishing, there are wildlife viewing and sightseeing tours, a windmill farm, the local brewery, seafood processors, boat harbors, hiking, kayaking, and hunting. We encourage arriving early in case of weather delays, to avoid missing meetings and events. Please visit <http://www.afs-alaska.org/annual-meetings/2011-2> for more information.

- Marine Ecosystem Dynamics and Sustainable Fisheries
- Recent Advances in Marine Biology
- Crab Fisheries, Biology, and Ecology
- Fish and Aquatic Ecology
- Alaska Seafood Processing, Quality, and Marketing: Challenges and Advances
- Marketing Sustainability of Alaskan Salmon Fisheries
- Fish, Food Security, and Health: Supporting Local Communities through Supporting Local Fisheries
- Ensuring Subsistence Fisheries through Partnerships
- Challenges and Opportunities in a Transdisciplinary World: Working at the Intersection of Social and Natural Sciences in Fisheries
- Hatchery Programs in Alaska: Reviewing the Old, Evaluating the New
- Bering Cisco Research in Response to a New Commercial Fishery
- Aquatic Invasive Species Threats to Alaska’s Fisheries and Aquatic Resources
- Physical, Biological, and Human Factors Affecting Fishes on the North Slope of Alaska
- Elasmobranchs in Alaska
- Understanding Fish Movement
- Nutrients and Food Webs in Lake and Stream Ecosystems
- Water Temperatures in Alaska Freshwater Habitats

Alaska Fish Photo Contest

The U.S. Fish and Wildlife Service is now accepting submissions for its second annual Alaska Fish Photo Contest! We need your help taking great photos that can be used in educational materials to celebrate the diversity of Alaska’s native fishes, their seasonal movements and behavior, and their importance to people and ecosystems in Alaska

and beyond. The 2012 photo submission themes include “Fish Doing Fishy Things; What a Girl (Fish) Wants; Fish for the Future; and Unique Alaska.” Entries for the 2012 contest must be postmarked by November 1, 2012 Contest details, rules and entry form at: http://alaska.fws.gov/fisheries/fish/contest_photo.htm.

Continuing Education

We have three continuing education workshops associated with our annual meeting. Both workshops have enrollment caps, so hurry and sign up today!! Detailed descriptions of the workshops are available on the Alaska Chapter website (<http://www.afs-alaska.org/>). For additional information, or to provide suggestions, contact Tammy Hoem Neher (tdhoem@alaska.edu, c: 299-6389).

Hands-on Fish Counting with DIDSON Sonar **Instructor: Mary Beth Loewen, ADF&G**

This one-day workshop involves hands-on work with the DIDSON sonar in the Buskin River. The morning session allows participants to operate the system in the local river (be weather savvy if you are considering this workshop!!); the afternoon session allows participants to work through examples from previous projects and work with and interpret data.

Aircraft Survival Training **Instructor ASTC Charley Fowler, USGC**

This one-day workshop, to be held at the U.S. Coast Guard A/S Kodiak Survival Shop, will cover topics related to survival from aircraft stranding or crashes. These include: land survival, life-raft survival, crash survival, and aircraft egress. Participants need to bring a swim suit for this activity and will need to sign a release statement for activities in the facility pool.

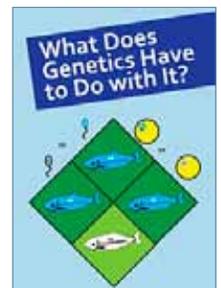
Introduction to Scientific Sampling and Scientific Writing with Statistics; October 21–22 **Instructor: Dr. Hal Geiger, St. Hubert Research Group**

This two-day course provides an overview of sampling and statistics with an emphasis on writing. We will review the basic terms, concepts, and conventions of modern sampling. Using real world examples, we will examine why random sampling, and its many variations, are so widely accepted, and we will take a brief look at probability and the logic behind statistical inference. The final course section will review the basic elements of technical writing, including uses of equations, hypothesis tests, and figures and tables to support the logic required for effective scientific communication. This course is introductory and intended for students wanting a brief review or introduction to sampling inference, statistics, and writing. ?

What Does Genetics Have To Do With It?

Anthony J. Gharrett, ISBN: 978-1-56612-136-1

University of Alaska Fairbanks fish geneticist, Tony Gharrett, has spent his prolific career exploring how Alaska's most commercially important fish species, salmon, is affected by natural and human-induced genetic changes. Now he has summarized his knowledge in this free online publication series. With writing laced with wry humor and written for high school level and above science readers, Gharrett reviews basic Mendelian genetics, describes the role genetics plays in fisheries conservation and management, and hits the lowlights of how Columbia River salmon populations were profoundly affected by dams. Gharrett dispassionately outlines the pros and cons of salmon hatchery practices, the real and potential effects that genetically modified organisms may have on naturally occurring populations, and how Mother Nature may be involved in transgenics, the moving of genes from one organism to another. Gharrett will continue to expand this online publication. ?



Global Progress in Ecosystem-Based Fisheries Management

G.H. Kruse, H.I. Browman, K.L. Cochrane, D. Evans, G.S. Jamieson, P.A. Livingston, D. Woodby, and C.I. Zhang (editors). **Alaska Sea Grant Pub. no.: AK-SG-12-01PDF, ISBN: 978-1-56612-166-8.**

Eighteen peer-reviewed papers and a conference summary compile this proceedings from the 26th Lowell Wakefield Fisheries Symposium, Ecosystems 2010: Global Progress on Ecosystem-Based Fisheries Management. The articles evaluate global progress toward EBFM by reviewing regional case studies, new analytical tools, and practical approaches to future progress; and offer advice for implementing EBFM. ?



Student Subunit Happenings

Thomas Farrugia, Student Subunit Representative

Our AFS students had a busy summer! Many of us made great headway on our research through field or lab work, and we've had a great deal of defenses as well! In Fairbanks, Martin Schuster (M.S. Marine Biology Candidate) defended his thesis "Kelp forests and barren grounds: Phlorotannin production and holdfast community structure in the Aleutian dragon kelp, *Eularia fistulosa*;" Ph.D. Fisheries Candidate Tammy Hoem-Neher defended her dissertation "The influence of estuarine habitats on expression of life history characteristics of coho salmon smolts in South central Alaska;" M.S. Fisheries Candidate Justin Leon defended his thesis "Freshwater growth and recruitment of Yukon and Kuskokwim River chinook salmon: A retrospective growth analysis;" and M.S. Fisheries Candidate Michelle Gutsch defended her thesis "Identification and characterization of juvenile coho salmon (*Oncorhynchus kisutch*) overwintering in the Anchor River watershed, Alaska."

In Juneau, M.S. Fisheries Candidate Rachael Wadsworth defended her thesis "Incorporating stakeholder input into research priorities for the Aleutian Islands;" M.S. Fisheries Candidate Christopher Manhard defended his thesis "A test of local adaptation in hybridized pink salmon (*Oncorhynchus gorbuscha*);" and M.S. Fisheries Candidate Wesley Strasburger defended his thesis "Feeding ecology of larval and juvenile walleye pollock (*Theragra chalcogramma*) and Pacific cod (*Gadus macrocephalus*) in the outtheastern Bering Sea."

Congratulations as well to our graduating class: Uinnip Ahgeak (B.S. Fisheries Science), Kevin Fraley (B.S. Fisheries Science), Thomas Foster (B.S. Fisheries Science), Abbey Jackson (B.S. Fisheries Science), Michael Lunde (B.S. Fisheries Science), Allison Martin (B.S. Fisheries Science), Tyler Ray (B.S. Fisheries Science), Mark Setzer (B.A. Fisheries Science), and Lorelei Smith (B.S. Fisheries Science).

In addition, we are extremely pleased to welcome



Graduate student Thomas Farrugia awaits retrieval of a bottom trawl to start sampling during an ADFG survey in Kamishak Bay, June 2012.

new graduate students (advisors in parentheses) in Fairbanks and Juneau! Welcome to Fairbanks to Lauren Bell (Dr. Iken), Julia Dissen (Dr. Hardy), Brandon Hassett (Dr. Gradinger), Bryce Mecum (Drs. Adkison and Quinn), Betsy McCracken (Dr. Sutton), Kimberly Powell (Dr. Konar), Tanja Schollmeier (Dr. Iken), Carlos Serratos (Dr. Bluhm), Courtney Shuert (Dr. Mellish), Leah Sloan (Dr. Hardy), Anna Szymanski (Dr. Gradinger), Sarah Traiger (Dr. Konar). In Juneau, we welcome Maggie Chan (Dr. Beaudreau), Elizabeth Figus (Dr. Criddle), Sonia Ibarra (Dr. Eckert), Karson Coutre (Dr. Beaudreau), Noel Sme (Dr. Gharrett), Kari Fenske (Dr. Quinn), and Piyashi DebRoy (Dr. Criddle).

The AFS Alaska Chapter students will be playing a big role at the upcoming Alaska AFS Annual Meeting in Kodiak, volunteering to make the meeting run smoothly and successfully. The students would like to thank the Alaska Chapter of AFS for providing travel funding for 25 students to attend the meeting! 🐻

ONCORHYNCHUS

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Deadline for materials for the winter issue of *Oncorhynchus* is Dec. 10.

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It Is Written In Their Genes

It's amazing that a group of red king crabs collectively carry with them their history over the past few thousand years. Stew Grant and Wei Cheng at the genetics laboratory at ADF&G recently completed a study of mitochondrial DNA and nuclear single nucleotide polymorphisms (SNPs) to better understand the population structure of red king crab for management.

The results of the study recently appeared in the journal *Evolutionary Applications* (Grant, W.S., and W. Cheng. 2012. Incorporating deep and shallow components of genetic structure into the management of Alaskan red king crab (*Evolutionary Applications* doi:10.1111/j.1752-4571.2012.00260.x). The SNPs, and to an extent mtDNA, showed that populations in the western Gulf of Alaska and Bristol Bay are genetically very similar to one another. This suggests that larval dispersals in currents link populations with one another. In strong contrast, populations in the fjords of Southeast Alaska are different from one another, indicating that these crabs are isolated in the bays. These populations also have low levels of genetic diversity and merit particular attention when managing harvests.

The analysis of mtDNA sequences further showed that red king crabs are divided into three major evolutionary groups: Asia, western Gulf of Alaska, and Southeast Alaska. The differences between these groups arose because of isolation in ice age refuges. Asian red king crab had the highest genetic diversity and deepest lineages, making them the 'mitochondrial Eves' of red king crabs. The use of genetic markers to distinguish populations has become an essential tool for helping to manage the harvests of wild populations. ?



Stew Grant (ADF&G) with a red king crab study specimen.

Alaska Chapter Seeks Membership Database Manager

The AFS Alaska Chapter is seeking someone to manage the Chapter membership database. This is a great opportunity to serve the Alaska Chapter and the professional society supporting Alaska's fisheries. Primary duties for this position are: to coordinate with the Parent Society office to maintain the Chapter membership list; and to maintain the distribution list for the Chapter's email list, the essential method of information exchange for our Chapter. This position is currently occupied by Allen Bingham who has offered to work with an interested individual to provide a transition period. Anyone potentially interested in fulfilling these responsibilities can direct questions to Allen Bingham (allen.bingham@alaska.gov) or Chapter Vice President Phil Loring (ploring@alaska.edu). ?

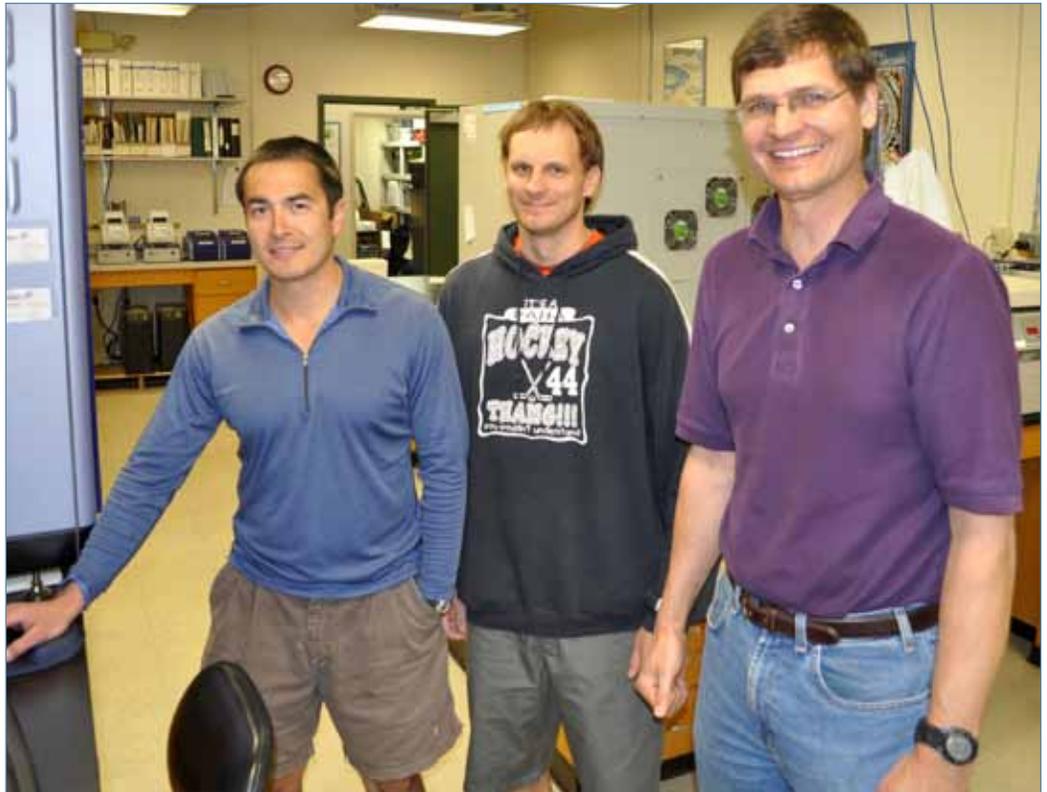
Applied Genetics in Western Alaska

Stew Grant

The Gene Conservation Lab at the Alaska Department of Fish & Game (ADF&G) is in the final phase of the Western Alaska Salmon Stock Identification Project (WASSIP). This project was funded to better understand the population compositions of sockeye and chum salmon in local harvests. Sockeye salmon are most valuable in the commercial catches, and chum salmon are most important in the subsistence fisheries of Western Alaska. In many villages, salmon make up 50% or more of subsistence harvests, and sockeye salmon support harvests worth at least \$100 million. Subsistence harvesters, however, have

been facing declining catches in recent years and have been asking whether distant commercial fisheries might be intercepting their migratory salmon. The intent of ADFG is to better estimate the numbers of fish returning to each stock, so that stock-recruit curves can be estimated.

Chris Habicht (ADF&G) said, "About the only way to trace the origins of wild migratory fish is to use naturally occurring molecular markers encoded in DNA." The WASSIP is supported chiefly by the State of Alaska to use single nucleotide polymorphisms (SNPs) as population markers to estimate the origins of salmon. Tyler Dann (ADF&G) pointed out, "The sampling effort was the largest ever for a single project on salmon; WASSIP is like a team sport." Fish were sampled across 3,000 miles of coastline along Western Alaska from the Chignik area to Point Hope over four years from 2006 to 2009. The sampling of the subsistence and commercial fisheries could not have been accomplished over such a large area if it had not been for dozens of people in the field who clipped fins for genetic analysis.



Geneticists (l-r) Tyler Dann, Nick Decovich, and Chris Habicht of the ADF&G Gene Conservation Lab.

Outside of efforts to sample human populations for genetic variation, this is one of the world's largest initiatives to assess the stocks of any species. Bill Templin (ADF&G) noted that, "The group was helped along by a panel of experts from the University of Alaska, Fairbanks, the University of Washington, and NOAA Fisheries." Another panel consisting of stakeholders in Western Alaska also played a core role in setting the scope and direction of the project.

"The project isn't over," stated Nick Decovich, "but we have already developed ways of looking at SNP data that haven't been developed before, and this will be one of the major byproducts of the study." The success of the project has truly been a team effort. At the end of the long day, the results of this large study should provide solid estimates of the stock origins of fish in the commercial and subsistence fisheries. This deeper understanding of migratory patterns and population structure in Western Alaska will help to provide information for the management of salmon populations and to lead to sustainable harvests of salmon. ?

Call for Yukon Panel R&E Fund Conceptual Proposals

The Yukon River Panel, whose members are representatives from the United States and Canada, anticipates up to U.S. \$1.2 million may be available to fund on-going, multi-year project commitments, and new projects in 2013, consistent with the goals and principals of the Restoration & Enhancement (R&E) Fund. The panel's "Budget Priorities Framework 2007" for the R&E Fund provides guidance for allocating funds among competing proposals to ensure that priority management needs related to the restoration and enhancement of Yukon River salmon stocks and their habitats are addressed. Each year the Yukon River Panel derives near-term priorities from the 2007 Framework and issues an annual Call for Project Concepts to elicit corresponding project proposals. It is unlikely that funding will be available for projects that address purposes outside the identified near-term priorities. The Panel uses a two-stage submission and review process and will accept preliminary, stage-one applications with ideas and concepts submitted by private, non-profit, or public sector applicants until midnight on Sunday, October 14th, 2012. Proposal forms and supporting materials for the 2013 Call for Conceptual Proposals may be found at <http://www.yukonriverpanel.com/>. Questions or points of clarification should be directed to the Fund Manager, Angus Mackay at phone 604-684-8081, or e-mail Mackay@psc.org.

2013 Call for Chapter Award Nominations

Theresa Tanner and Kenneth Gates

The Alaska Chapter is currently soliciting nominations for the Meritorious Service Award (MSA), the Chapter Service Award (CSA), the Almost Darwin Award, and the Wally Noerenberg Award for Fishery Excellence. We encourage all members to consider deserving individuals and to submit nominations for these awards. Please use the form at <http://www.afs-alaska.org/awards-scholarships> to make your nominations. Award presentations from this call for nominations will occur at the 2013 Annual Meeting. **NOMINATIONS MUST BE SUBMITTED BY JANUARY 31, 2013.**

Nominations for the MSA can be based on an outstanding contribution in any area of Alaska fisheries, including research, management, education, planning, industry, and policy development. Nominations do not have to come from AFS members, nor do nominees need to be active members. The contribution or accomplishment of the candidate must be recent and not the result of many years of effort; recognition of career-long contributions is more appropriate for the Wally Noerenberg Award. The Awards Committee will select winners based on strength of the nomination and the accomplishment.

The CSA was established to award outstanding service to the Alaska Chapter of the American Fisheries Society. These candidates should have been involved in some or all of the following activities: active participation in standing or ad hoc committees; made important contributions to advance the current

objectives, long-term goals or stature of the Chapter and fisheries professionals; contributed a significant amount of time to Chapter activities; improved public awareness of the Alaska Chapter and Chapter activities; encouraged development of students as fisheries professionals through recruitment and involvement as Chapter members; and recruited fisheries professionals as Chapter members. Submit MSA and CSA award nominations and letters of support for nominations to Theresa Tanner, USFWS, 605 W 4th Ave., Rm G-61; Anchorage, 99501, 271-1799, theresa_tanner@fws.gov.

The Almost Darwin Award recognizes the most humorous and outrageous fisheries faux pas of any fisheries professional committed within the last calendar year. Please include a photo of proof along with the story. Submit award nomination stories and photos to Theresa Tanner at the above address.

The Wally Noerenberg Award for Fishery Excellence, the highest award of the Alaska Chapter, is bestowed as a special honor on individuals who have made great and outstanding contributions to Alaska fisheries. This award was established in 1981 by resolution of the membership. The membership has also set, by resolution, specific guidelines for the Wally Noerenberg Award Committee. Nominee contributions may include scientific research; technological development; species and habitat management; innovations in harvesting, processing, or marketing; academic and fishery education; or involvement in national

Continued on next page

Award Nominations, continued

and international affairs affecting Alaska fisheries. Submit Wally Noerenberg Award nominations and letters of support for nominations to Ken Gates, USFWS, Kenai Fish and Wildlife Field Office, 43655 K-Beach Road, Soldotna, AK 99669, 260-0126, kenneth_gates@fws.gov.

Rewarding excellence is an enjoyable but challenging task and finding judges is a challenge

too. If you would like to help out, the Chapter is soliciting members for the Awards Committee. If you are interested in being a part of this committee, please contact Theresa Tanner at theresa_tanner@fws.gov or 271-1799.

The application form for the 2013 Chapter awards is available online at: <http://www.afs-alaska.org/awards-scholarships>.

Developing a Chinook Salmon Research Action Plan for the Arctic-Yukon-Kuskokwim Region

Joseph Spaeder, Research Coordinator, Arctic-Yukon-Kuskokwim Sustainable Salmon Initiative

The Arctic-Yukon-Kuskokwim (AYK) region has experienced devastating declines of Chinook salmon over the past decade, resulting in widespread commercial fishing closures and restricted subsistence harvests. These declines have caused nutritional, economic, and cultural hardships for thousands of residents in the region. To better understand the causes and prevent further decline, the Arctic-Yukon-Kuskokwim Sustainable Salmon Initiative (AYK SSI) research program convened an Expert Panel beginning in Fall 2011 to develop an "AYK SSI Chinook Salmon Research Action Plan." The purpose of the Expert Panel was to: (1) review and synthesize information; (2) identify which variables and processes are the most likely causes of AYK Chinook salmon declines; and (3) identify key hypotheses and develop more detailed recommendations for future research on these population declines. Objectives 1 and 2 have been completed. Pursuant to Objective 3, the panel identified seven working hypotheses describing, or associated with, a set of, driver(s) with plausible connections to Chinook declines.

This set of hypotheses includes:

1. Has the long-term variation and recent declines in AYK Chinook salmon stocks been caused by density-dependent feedbacks in population dynamics (stock-recruitment relationships)?

2. Have changes in the suitability or productivity of the freshwater habitat used for spawning, rearing, and migration caused the declines in AYK Chinook salmon stocks?

3. Have changing ocean conditions (physical and biological) in the Bering Sea increased mortality of

Chinook salmon and contributed to the declines of AYK stocks?

4. Has human-caused forcing (such as through climate change or fishing) of marine ecological processes that support ocean growth and survival of Chinook salmon contributed to declines of AYK stocks?

5. Has marine fishery-caused mortality (bycatch) contributed significantly to the declines of AYK Chinook salmon stocks?

6. Have selective fishing and natural mortality altered the size, sex ratio, and composition of life history types, and therefore contributed to the declines of AYK Chinook salmon stocks?

7. Has adult mortality from pathogens during upstream migration contributed to the declines of AYK Chinook salmon stocks?

These hypotheses are not intended to be a list of all possible mechanisms, but rather a focused set that includes the most likely contributors to the decline. New analyses and new synthesis of information will be presented at the AYK SSI Chinook Outreach Workshop on December 10–11, 2012 in Anchorage, addressing a range of topics including: stock status, trends and evidence for decline of AYK Chinook salmon; statewide comparison of Chinook salmon productivity; contribution of freshwater habitat and early ocean mortality; and the effect of marine by-catch and disease on salmon stocks. The target delivery date for a final Chinook Research Action Plan is January 2013. This Plan will include a description of hypothesized drivers of decline and a prioritization of the hypotheses and key research questions under each hypothesis. For information, contact Karen Gillis, AYK SSI Program Manager, (907)-279-6519 x1 or karen.gillis@bsfaak.org.

Native Fish of Alaska Series #3 T-Shirt

Lisa Stuby

After three years, the blue Native Fish of Alaska Series #2 t-shirts printed in 2009 and depicting an Arctic grayling are nearly sold out with only a few medium and large shirts left. As a result, I have been working with Karen Lybrand, the artist who designed both the Series #2 and Series #1 (Chinook salmon) shirts, to incorporate one of the state's favorite crustaceans, the Alaska king crab, into a new Series #3 t-shirt. A vote at the 2010 Chapter meeting banquet in Juneau selected the Alaska king crab as the native Alaskan "fish" for the next series of t-shirts.

We are lucky that Karen found the time in her busy schedule to bring an idea to life. Her work has appeared at the Smithsonian, Miami Museum of Science, New York Hall of Science, and other venues. Karen has been a long-time collaborator with Ray Troll, doing the graphic design work (Ray did the artwork) on the "Creating a Fisheries Mosaic" poster for the 2005 National AFS meeting in Anchorage, and she also did much of the hand lettering on Raven's Brew labels and designed their über-popular Deadman's Reach chart bag (using Ray's artwork). Other work included developing designs of logos and/or t-shirts for the U.S. Coast Guard Observer program, the Coast Guard base in Kodiak, the Northwest Straits Derelict Gear Removal program (with input from Ray), the Sitka Sound Science Center, Oceans Alaska, and the 2012 Gustavus Adolphus Nobel Conference.

A limited printing of 200 commemorative Series #3 t-shirts will be available at the upcoming Alaska Chapter meeting in Kodiak



Back of the Native Fishes of Alaska Series #3 t-shirt.

during October 21-26, 2012. The t-shirt is black with the back depicting aspects of the Alaskan king crab life cycle and the Chapter logo on the front. Being 100% pre-shrunk cotton and machine washable, these shirts will make great gifts, and Christmas is just around the corner – hint, hint! Plus, ALL proceeds from Series #3 t-shirts will go to student travel to future Alaska Chapter meetings. So in addition to wearing something cool, you will be helping the future generation of fisheries professionals. All sizes are currently available, including 120 short-sleeved and 80 long-sleeved t-shirts. Costs will be \$25 for short-sleeved and \$30 for long-sleeved t-shirts, with shipping incurring an additional \$5 (more for international postage). People attending the upcoming Chapter meeting in Kodiak can avoid paying additional postage by purchasing shirts at the meeting. For those unable to attend this year's meeting, get a friend or co-worker to purchase the t-shirt for you. Ordering instructions can also be found on the AFS Alaska Chapter website at: <http://www.afs-alaska.org/online-order-form> under "Online Orders."

Meetings and Events

39th Annual Meeting of the American Fisheries Society Alaska Chapter



October 22–26, 2012: This meeting will be held in Kodiak, AK with the theme “Ecosystem, Fishery, and Food Sustainability in a Changing World.” The meeting chair and program contact is Mark Wipfli (mwipfli@alaska.edu).

Kodiak Fish Passage Workshop

October 23–24, 2012: This two-day classroom/field-based workshop takes place at the Kodiak National Wildlife Refuge Visitor Center. Contact Katrina Mueller for more information: katrina_mueller@fws.gov or (907) 786-3637.

Western Division of the American Fisheries Society Student Colloquium

November 1-3, 2012: This meeting will be held in Tucson, AZ. For more information, email uafishandwildlife@gmail.com.

AYK SSI Chinook Salmon Workshop to address declined AYK region populations

December 10–11, 2012 in Anchorage: This workshop will solicit new analyses and synthesis of information addressing declined AYK region Chinook salmon populations. For information, contact Karen Gillis, (907)279-6519 x 1 or karen.gillis@bsfaak.org.



Alaska Marine Science Symposium

January 21–25, 2013: This meeting will be held in Anchorage, AK. For more information, please visit <http://www.alaskamarinescience.org/>.

Responses of Arctic Marine Ecosystems to Climate Change

March 26–29, 2013: This meeting will be held in Anchorage, Alaska. For more information, please visit <http://seagrant.uaf.edu/conferences/2013/wakefield-arctic-ecosystems/index.php>.



7th International Fisheries Observer and Monitoring Conference

April 8–12, 2013: This meeting will be held in the city of Viña del Mar, Chile. For more information, please visit www.ifomc.com.



Annual Meeting of the American Fisheries Society Western Division

April 15–18, 2013: This meeting will be held in Boise, ID. For more information, please visit <http://www.wdafs.org>.



International Conference on Engineering & Ecohydrology for Fish Passage

June 25–27, 2013: This meeting will be held at Oregon State University in Corvallis, OR. For more information please see: <http://fishpassage.ecs.umass.edu/Conference2012/>.



**AFS memberships
may be renewed online**
www.fisheries.org/afs/membership

Chapter Elections, Candidate Biographies

Jennifer Stahl, Vice President

I have always been a “fish” as my mother puts it, and somehow found my way into any body of water I could find near San Antonio, TX where I grew up. I first fell in love with the ocean as a child and began to understand the intricacies of this environment while taking summer courses in Port Aransas, TX as a student at the University of Texas in Austin.



After college I moved to the Texas coast in 1999 to work at a red drum and speckled trout marine hatchery as a technician. A year later, I had the opportunity to work in

fisheries as an observer aboard Hawaiian tuna longline vessels and then Gulf of Mexico shrimp trawlers. In 2002 I found my way to Alaska in order to expand my education and attended the UAF School of Fisheries in Juneau where I completed a master’s thesis on the maturity of pollock in the Bering Sea. In 2005 I began working with the Alaska Department of Fish & Game (ADF&G) with sport fish, tagging salmon smolts and participating in intertidal studies. For the past 6 years, I have worked as a groundfish research biologist for the ADF&G in Juneau.

As a groundfish biologist in Southeast Alaska, I have participated in surveys and research conducted to support fisheries management. I have helped to mark and tag up to 7,000 sablefish annually and sampled sablefish for marks in order to estimate abundance. After observing the ocean from a manned submersible, I analyzed data collected from the sub to estimate the density of yelloweye rockfish. I also used ArcGIS to perform data analysis, survey design, and habitat estimation, and I still manage to get my feet wet as an ADF&G scuba diver, surfer, and avid stand-up paddler. 🐟

Lee Ann Gardner, Chapter Treasurer

Lee Ann Gardner is an environmental consultant with more than 25 years experience in management of multidisciplinary environmental studies, compliance monitoring, and permitting. Ms. Gardner received a Bachelor of Science in Biological Sciences from the University of Alaska in 1978 and a Masters of Science in Fisheries with a minor in Statistics from Oregon State University in 1983. Prior to graduate school, she worked for the U.S. Fish and Wildlife Service, Western Alaska Ecological Services office in Anchorage, conducting permit reviews. She then worked for the National Marine Fisheries Service Laboratory in Kodiak, conducting groundfish assessment surveys in the Bering Sea, and shrimp assessment surveys along the Aleutian Chain and in the Kodiak Archipelago. Her Masters thesis, on stock separation of pink shrimp, evolved from this work experience.



Following graduate school, Ms. Gardner worked as an environmental consultant for ENSR Consulting and Engineering in Anchorage through 1995. During that time she managed a number of multidisciplinary environmental studies for government and industrial clients at a variety of locations in Alaska. Since 1996, Ms. Gardner has had her own consulting business in Chugiak, and continues to work for government and industrial clients. Her work projects are on the North Slope, and in western and southcentral Alaska. Being self-employed has also enabled her to devote more time to volunteer activities in professional and community organizations.

Ms. Gardner first joined the American Fisheries Society (AFS) while in graduate school in 1981. She began with intermittent attendance at Alaska Chapter annual meetings, progressing to serve

Continued on next page

Chapter Elections, Candidate Biographies , continued

as a member of the local organizing committee for both the 1998 Alaska Chapter meeting, and the 2005 Parent Society meeting. She has served previously as Chapter Secretary, and is currently Treasurer. If re-elected, Ms. Gardner hopes to continue streamlining the Chapter's financial accounts and working with the Molly Ahlgren Scholarship Committee and the Alaska Chapter Finance Committee.

Besides membership in the AFS, Ms. Gardner

is also a member of the National Association of Environmental Professionals, the Phi Kappa Phi honorary society, and is a NAUI Certified SCUBA Diver. She is a current board member of the Alaska Association of Environmental Professionals and serves as its Scholarship Chairperson. A life-long Alaskan, Ms. Gardner was born in Palmer and raised in Anchorage; she has lived in Chugiak since 1983 with her husband, and has two children now in college. ☺

Officer Ballot

For Chapter Vice President and Treasurer

Please cut and paste ballot into an email with subject "Vote" before October 23, 2012 and send to: audra.braser@alaska.gov.

Vice President:

___ Jennifer Stahl

___ Write-in _____

Treasurer:

___ Lee Ann Gardner

___ Write-in _____

2012 Alaska Chapter Officers

President

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Secretary

Nicky Szarzi, 34750 Greentree Way, Homer, AK 99603, Ph: 235-9713, njszarzi@alaska.net

Past President

Audra Brase, ADF&G/SF, 1300 College Road, Fairbanks 99701-1599; Wk: 459-7244, Fax: 459-7347, audra.braser@alaska.gov

Student Subunit Representative

Thomas Farrugia, University of Alaska Fairbanks, SFOS PO Box 757220, Fairbanks AK 99775, Ph: 474-7594, Fax: 474-7204, tfarrugia@alaska.edu

Feel free to contact the Executive Committee members