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Jim Reynolds Moves to South Pacific

Jim Reynolds

Dr. Jim Reynolds has accepted an invitation to serve a 27-month assignment, starting September 2003, as a Peace Corps Volunteer in the Fiji Islands, South Pacific. He will work in the area of marine conservation and education, with an emphasis on coral reefs and other coastal resources. Jim will begin duties with a 3-month training program in the capital city Suva.

He has been an emeritus faculty member of the University of Alaska Fairbanks since 2001,

and has been teaching and consulting on fisheries issues for various public and private organizations. Jim is a Past President and former



Historian for the Alaska Chapter. He has a web site at www.mosquitonet.com/~jimreynolds and can be reached at ffjbr@uaf.edu while in Fiji. ☺



Doctoral student Aaron Baldwin collecting shrimp from eelgrass. Inset photo by Michelle Harper.

Energy Linkages:

Eelgrass to Shrimp to Juvenile Rockfish?

Tom Shirley

The eelgrass shrimp *Hippolyte clarki* is probably the most abundant shallow-water caridean in southeastern Alaska. Beds of the eelgrass *Zostera* and the kelp *Macrocystis* may contain hundreds of these shrimp per square meter. The importance of these shrimp in the ecology of eelgrass and kelp beds is unknown but probably significant. In a study conducted by Mike Byerly (ADF&G Homer), the eelgrass shrimp was the predominate prey of juvenile rockfish in eelgrass in Sitka Sound. A study of a Korean rockfish *Sebastes inermis* found that it fed upon a wide range of shrimps, including *Hippolyte* spp.

Despite the abundance and possible significance as prey species for commercially important rockfishes, little is known about the eelgrass shrimp. Virtually nothing has been written about it since its initial discovery in 1951. The basic life history, sexual system, prey items, and predators other than juvenile rockfish species, remain largely unknown. The reported size of males and females suggest partial or complete protandry but do not rule out gonochory (having separate sexes). All three sexual systems have been recorded within the genus *Hippolyte*. Also unknown is the pattern of brood production during the reproductive season, an important component of the life history of caridean shrimps.

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The President's Column

Carol Kerklvit

This is the end of the summer and my last President's Column. I was honored to join forces and work with a variety of people who are extremely skilled, dedicated, and intelligent individuals. Thank you.

Before I became involved in the Chapter I was somewhat intimidated by my own perceptions of this organization. These perceptions soon dissolved when I began to participate. Your involvement in our Chapter can be big or small. It is your choice and in my experience, worthwhile.

In our jobs, creativity and boundaries are often restricted by our job description. In AFS, boundaries are much less defined. For example, how often in the work place can a student, an entry-level biologist, an experienced biologist, and a renowned biologist work side by side and share information. I have this kind of interaction at our annual meetings and within our committees. Desire and willingness are all it takes to become involved.

As evidence at our annual meetings, I have seen entry-level biologists give impressive presentations; higher-level biologists be invigorated by the enthusiasm of interested students; and colleagues gain new outlooks and even new career directions from one another. I have seen all professional levels pulling up their sleeves to move tables, run errands, and help where they can. Besides our annual meetings, there are also silent supporters of our organization e.g. the editor of this newsletter, committee chairs, the web master, etc. These are but a few examples that immediately come to mind. I know there are many more.

I see our Chapter as an opportunity for all members to "paint outside the lines" and shine. Previously unknown or untapped skills are revealed through our chapter. All different levels of biological skills and education are represented in our Chapter, and we all can benefit from this open and varied organization. I know I have.

This Chapter is dynamic because of membership involvement. I am continuously awed by the undaunted dedication of those of you who year after year take on leadership roles in this organization. I am also optimistic for the future of our organization when I see the caliber of our new members. Again, thank you for the opportunity to serve as your president. ☺



Energy Linkages, Continued from Page 1

Doctoral student Aaron Baldwin is studying the eelgrass shrimp for his dissertation research at the Juneau Center, School of Fisheries and Ocean Sciences, University of Alaska Fairbanks. Aaron thinks that these shrimp may be a keystone species acting as a crucial link in transferring energy from eelgrass production to juvenile fishes, such as rockfish. Ecologically similar but unrelated grass shrimps of the genus *Palaemonetes* are essential trophic links between epiphytic growth in eelgrass beds and higher trophic levels, most notably several commercially important fish species. In Europe, the Caribbean Sea, and Korea, shrimps of the genus *Hippolyte* are herbivores that feed largely by scraping algae from the blades of eelgrass.

Aaron's study will occur principally in Sitka Sound, where he will collect samples from eelgrass and kelp every two weeks for a year. Some shrimp will be returned to laboratory cultures, where he will be able to study their reproductive biology. He will also collect and examine the stomach contents of possible predators to construct a food web. Aaron plans to sample other sites, such as Katchemak Bay, to compare latitudinal differences in their life histories and densities. If his research is successful, he will supply a nearly complete story of the shrimp's life history, including growth rates, mortality, sex ratios, and their importance in energy transfer from eelgrass to higher trophic levels. Studying shrimp is not a new undertaking for Aaron, as he recently completed his Masters thesis on the growth and reproductive biology of a different shrimp species in the Gulf of Mexico (Baldwin, A. B., and R. T. Bauer 2003. Growth, mortality, and sex change in the hermaphroditic shrimp *Lysemata wurdemanni* (Decapoda: Hippolytidae). *Marine Biology* 143: 157-166). ☺

New AFS Books

Mysteries from the Yukon:

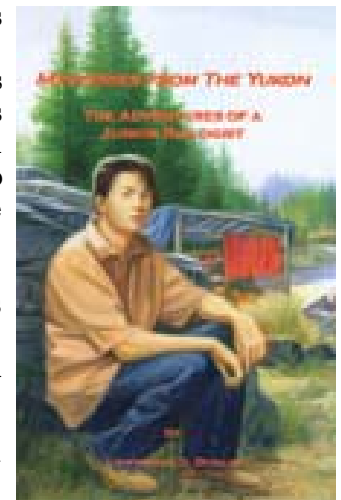
The Adventures of a Junior Biologist

by Lawrence S. Buklis

Searching for lost gold from the Klondike, chasing thieves in a blinding snowstorm, plunging through raging waters on a hydropower project gone wrong—three fast-paced adventures await readers in grades 5 through 9.

Through the experiences of a fisheries biologist and his family on the legendary Yukon River, these adventures help feed the dream: Could this be me?

This book (stock number: 550.46) is 217 pages and costs \$21 or \$15 for AFS members. The book can be ordered online at the website: www.fisheries.org/cgi-bin/hazel-cgi/hazel.cgi or by phone: 770-442-9742. ☺



ONCORHYNCHUS

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Alaska Chapter's Internet Home Page Address

<http://www.fisheries.org/afs-ak/>

2003 Alaska Chapter Annual Conference Ecological and Sociological Linkages in Fisheries

Tim Joyce

The 2003 Alaska Chapter Annual Conference will be from Nov. 4 – 6 in Fairbanks at the Wedgewood Resort. The resort has given us a great room rate of \$60/day for our conference. If you plan to share a room there is a \$5.00 charge for each additional person with a maximum of four persons in a suite. Only a limited number of rooms were reserved for our conference and these rates cannot be guaranteed after October 13. Make your reservations now to lock in these great rates. You can make reservations by calling 800-528-4916. The operator will answer Fountainhead Hotels and you need to tell them you want the Wedgewood. When making reservations explain that you are attending the AFS conference or you can give them the Group Code of **AFS1133**. This rate does not apply when making reservation online so you need to call. The hotel has a free shuttle from the airport, but if you need to rent a car, Affordable Car Rental and AVIS have offered us discounted rates. State employees have a contract award with Budget car rental and will need to rent through that agency. See the Alaska Chapter Web Site for details.

If you plan to attend the conference you should register now to take advantage of the discounted rate for early registration by members. You can register by mailing a registration form to Alaska Chapter of AFS, c/o Sara Case, 1300 College Road, Fairbanks, Alaska 99701-1599, or fax the form to her at 907-456-2259. If you download the registration form from the Chapter web site, you can e-mail it to Sara at sara_case@fishgame.state.ak.us. Credit card registration will again be available this year. See the registration form for more details.

An excellent selection of Continuing Education courses is being offered this year. The GIS courses will be

taught on **Saturday and Sunday prior** to the conference at the University of Alaska, Fairbanks computer lab. Limited space is available and students will be accepted on a first come first serve basis. Register now to insure your inclusion in the class. The instructor, Michael Porter, taught these courses at the Parent Society meeting in Quebec City with great success. The other classes will be held on Monday, November 3.

If you are bringing a friend or spouse, or if you have time in your travel don't forget to check out some of the other events that are going on in Fairbanks at the same time. There is the Imani Winds Musical Group "Classics with an exciting, new twist" on November 2, and the Athabaskan Old Time Fiddling Festival, November 5-8. November 6-9 is the Yukon Title Curling Classic. The Museum will do special tours for groups and they do have an ichthyologist on the staff. Tours are also available at the Fort Knox mine, Alaska's largest operating gold mine, at a discounted rate. If you are interested in any tours contact me by email at tljoyce@fs.fed.us.

Alaska Airlines is offering a 10% discount for travelers to Fairbanks to attend the Alaska Chapter conference. Those of you wishing to make your reservations in advance please tell your travel agent or ticket agent that your fare basis is CMR6358. This will allow a 10 % discount on all published excursion fares and fares booked in "Y" or "F" inventory to Fairbanks for the AFS conference. Travel dates for these fares must be between October 31 and November 9, 2003.

The last call for papers was announced in August. At the time of this writing, some room was still available in the Poster Session. Contact the session chair, Steve Fried at stephen_fried@fws.gov or 907-768-3824, immediately if you would like to present a poster this year. ☺

Sessions and Presentations Planned for the Alaska Chapter Annual Conference

Plenary Speaker

Thermal Dynamic Interactions Within an Ecosystem

Lionel Johnson, PhD

Routine investigations on the fisheries potential of previously unexploited lakes in Arctic Canada revealed interesting and unexpected features. The dominant and relatively abundant populations of Arctic char *Salvelinus alpinus*, lake trout *S. namaycush* or lake whitefish *Coregonus clupeaformis* exhibited length-frequency distributions contrary to expectations. The majority of the fish were relatively uniform in size although of varying age, with the greatest spread of age in the modal length class. Over the years, it was found that the same configuration was maintained indefinitely. Similar configurations were also found in the literature in various autonomous ecosystems in all parts of the world, both aquatic and terrestrial, indicating that the underlying

formative processes are universal. This configuration of long-term stability, large size, uniformity in size, great age, and a low level of juvenile stock, can be interpreted in thermodynamic terms as one of least mass-specific energy dissipation or least mass-specific entropy production: i.e. the greatest accumulation of energy in the biomass, given the energy available and the physiological constraints prevailing. This is equivalent to a state of most action, where action is defined as a combination of energy and time. This is contrary to the otherwise universal Principle of Least Action (or the path of least resistance), which governs the transfer of energy in normal physical situations. If the principle of least action is universal then it must also operate in the biological world but at a subliminal level, evident only when change occurs over evolutionary time. Thus it is hypothesized that these two forces, evident in opposing trends to most and

least action, create a dialectic as they move toward dynamic equilibrium, out of which emerge ecological structure and evolutionary change. The imperfect nature of the symmetrical state allows for change. In the short term (ecological time - a period of no change), the trend to most action dominates system behavior, whereas over evolutionary time the trend to least action predominates. Any viable genetic change will either increase or decrease the action (energy x time), but the chances are somewhat greater that any specific change will result in more rapid energy flux (decreased action) are greater than those resulting in a decline in energy flux. Thus over evolutionary time the system is ratcheted up to faster energy throughput and greater complexity.

This concept of a dialectic involving two forces, each of which dominates system behavior in different timeframes, provides insight into many of the recognized properties of ecosystems such as encapsulated in the notions of r- and K-selection, hierarchy development, succession and climax, the Production/Biomass Ratio (P/B), stability and diversity.

In its present state the theory is unlikely to provide concrete assistance in management situations, but I believe it is a powerful tool guiding our philosophical approach to ecosystem management.

Biographical sketch – Lionel Johnson

Lionel was born in England in August 1924 in a small place called Linslade, north of London. He lived most of his life in northern England. His early years of school were in the steel town of Sheffield.

At the age of 18, he joined, as it then was, His Majesty's Royal Navy. He was assigned to a M.T.B. (PT) flotilla in the English Channel. In 1945, he was shipped to the Mediterranean; shortly thereafter, the war ended and he returned to U.K.

He enrolled at the University of Leeds in 1947. He later applied for and was awarded an agricultural scholarship to go to Cambridge University to do an agricultural science course, under the aegis of the British Colonial Service.

In 1950, he went to Trinidad in the West Indies as an agronomist dealing with the improvement of local crops and the introduction of new ones. This lasted until 1955 when he was offered an appointment with the Department of Agriculture in Mauritius in the Indian Ocean, in charge of agricultural research, so he and his wife went to Mauritius. One of his most interesting projects there was an attempt to integrate fish farming with crops and stock.

Four years later he returned to U.K. where he returned to school in pursuit of his PhD.

It was then he met Dr. Winifred Frost at the British Freshwater Biological Association, Laboratory on Lake Windermere. Dr. W. E. Frost was one of the founders of British freshwater fisheries research and one of her specialties was Arctic char *Salvelinus alpinus*. He spent two and a half years working on the habits and food consumption of Northern Pike *Esox lucius*, and absorbing what he could about Arctic char from Dr. Scott. In 1960, he applied for a position with the then Fisheries Research Board of Canada to work with the Arctic Unit working out of Montreal.

He worked for three years on the limnology and fish populations of Great Bear Lake. At the end of the three-year study in 1967, the Freshwater Institute was being planned in Winnipeg and he accepted a job of looking after the fisheries section. After a big reorganization in 1973, Lionel reverted back to the position of Arctic char biologist.

During a sabbatical year (1973) in France at the Station d'Hydrobiologie lacustre at Thonon-les-bains, the germ of an idea began to sprout and eventually became the theme for his book. While in France he reviewed the data from a survey of large undisturbed lakes in northern Canada, carried out by the Arctic Unit in the summer of 1959. The extraordinary thing that emerged was that the fish populations, lake trout, lake whitefish or Arctic char, all showed the majority of the catch in a relatively narrow size range irrespective of age, and, in addition, the catch from a wide range of mesh sizes showed essentially the same length-frequency distribution. These results were rather disquieting, as it appeared at first sight that a large number of cohorts were missing.

After returning from France, he established a small research station at Nauyuk Lake on the Kent Peninsula to work on anadromous Arctic char. Nauyuk Lake proved to be an ideal location for char work because of a natural segregation of spawning and non-spawning fish, so that total numbers could be precisely determined. These lakes proved excellent living laboratories, functioning as virtually living computers.

From that time on, life has been a continuing attempt to put things together in what Lionel believes is a coherent explanation of the forces governing ecology and evolution. He officially retired in 1989, but continued to work at the puzzle of energy flow through the ecosystem and to attend conferences as well as getting the occasional consulting job, all of which he claims is a great deterrent to accelerated ageing. ☹

Cultural Diversity Committee Report

Jerry Berg, Chair

The purpose of the cultural diversity travel award is to encourage participation in the fisheries field by minorities and women. The committee awarded two travel awards last year for two entry level biologists to attend the Alaska Chapter meeting in Girdwood. Our 2002 recipients were Karen Pletnikoff and Jodi Neil.

The Chapter will be soliciting applications again this year to fund an entry level Alaskan Native or other minority to attend the Alaska Chapter meeting in Fairbanks, November 4-6, 2003.

Applications are available by calling Jerry Berg at 907-786-3876 or email Jerry_Berg@fws.gov. The deadline to submit applications is **October 17, 2003.** ☹

Alaska Chapter Annual Conference Sessions

Please note that the titles and speakers listed may change as the sessions and presentations are finalized.

Session Title: Recent Advances in Marine Biology

Session Chair: Dan Urban, Alaska Department of Fish and Game, e-mail: dan_urban@fishgame.state.ak.us or phone: (907) 486-1849.

Speakers:

Peter van Tamelen: Climatic effects on crab discard mortality and implications for fisheries management.

Franz Mueter: Recruitment of pelagic and demersal fishes in the Gulf of Alaska in relation to coastal freshwater discharge.

David Barnard: Determining size at maturity for snow crab using a finite mixture model.

Kirsten Gravel: Reproductive dynamic and life history of snow crab in the eastern Bering Sea – an overview.

Olav A. Ormseth and Brenda L. Norcross: Linking maternal attributes and reproductive potential in Pacific cod.

William Bechtol: Sharks: Scourge or opportunity.

Gregg Rosenkranz: Spatial analysis of scallop video stock assessment data.

Session Title: Marine Habitat

Session Chair: Alisa Abookire, National Marine Fisheries Service, e-mail: alisa.abookire@noaa.gov or phone: (907) 481-1735.

Speakers:

Alisa Abookire: Habitat characteristics of newly settled Pacific cod.

Dan Urban: Hydroacoustics as a marine habitat mapping tool.

Judy Hamilton: Kelp bed variability and fish population dynamics in Alaska.

Andy Seitz: Identifying spawning behavior in Pacific halibut, *Hippoglossus stenolepis*, using electronic tags.

Sue Saupe: Shorezone mapping methods and capabilities.

Margaret F. Merritt: Interrelationships between coastal watersheds and marine and terrestrial environments: the GEM program plan for synthesizing information.

Session Title: Aquatic Invaders in Alaska

Session Co-Chairs: Denny Lassuy, Ph.D. Regional Invasives Coordinator, U.S. Fish and Wildlife Service, 1011 E. Tudor Road, Anchorage, AK 99503, e-mail: denny_lassuy@fws.gov or Phone: (907) 786-3813, Fax: (907) 786-3350.

Bob Piorkowski, Ph.D., Invasive Species Program Coordinator Alaska Department of Fish and Game-CF, Box 25526, Juneau, Alaska 99802, e-mail: bob_piorkowski@fishgame.state.ak.us, Phone: (907) 465-6109.

Speakers:

Robert Piorkowski: Invasive species and you – Implementing the Alaska aquatic nuisance species management plan.

Denny Lassuy – New Zealand mudsnails.

Bob Benda – Ballast water & latest treatments in general.

Gary Sonnevill – Ozonation of ballast water with an Alaskan example.

Jim Seeb – Atlantic salmon colonization risk.

Mark Gamblin – Overview of the exotic pike infestation on the peninsula.

Bob Piorkowski – The potential for a green crab problem in Alaska.

Mike Wiedmer – Western native fish project.

Session Title: Managing Salmon Populations for Sustained Yield in Large Riverine Systems Throughout the Pacific Northwest: Who's Fooling Who?

Session Chair: Charlie Swanton, Alaska Department of Fish and Game, e-mail: Charles_Swanton@fishgame.state.ak.us or phone: (907) 459-7225.

Speakers:

Dan Bergstrom/Tracy Lingnau: Subsistence and commercial salmon fishery management for the Yukon River.

Craig Whitmore/Bob Lafferty: Subsistence, commercial and sport salmon fishery management for the Kuskokwim River.

Dan Ashe/Tom Taube: Subsistence, commercial and sport salmon fishery management for the Copper River.

Kathleen Jensen: The utility of mark-recapture data for in season salmon management on the Taku, Stikine, and Alsek Rivers.

Panel discussion follows presentations.

Habitat Protection and Habitat Restoration: Complementary Approaches to Sustainable Fisheries

Session Chair: Cecil Rich, Alaska Department of Fish and Game, Habitat and Restoration Division, e-mail: cecil_rich@fishgame.state.ak.us or phone: (907) 267-2122.

Speakers:

Kerry Howard: Role and responsibilities of the new office of Habitat Management and Permitting.

Douglas Vincent-Lang: How the Department of Fish and Game will continue to ensure sustainability of Alaska's fish and wildlife resources.

Jim Zelenak: The role of the Fish and Wildlife Service in conserving wetlands in northern Alaska.

Jeff Davis: Does restoration fill the regulatory gaps?

Elaine Mayer: The bridges of North Pole and Salcha; An overview of habitat conservation in Alaska.

Frances Mann: An overview of habitat conservation in Alaska.

Kent Patrick-Riley: Water quality protection programs of the Department of Environmental Conservation.

Jon Kurland: The role of the National Marine Fisheries Service in conserving habitats to support sustainable fisheries.

Erika Green-Phillips: The role of NOAA Fisheries in the restoration of Alaska's coastal habitats to benefit fisheries resources.

Session: Fisheries Monitoring Partnerships with Tribal and Rural Organizations

Session Chair: Steve Klein, Chief, Fisheries Information Services, Office of Subsistence Management, U.S. Fish and Wildlife Service, 3601 C Street, Suite 1030, Anchorage, AK 99503, e-mail: steve_klein@fws.gov or phone: (907) 786-3605.

Speakers:

Beth Spangler: Partners for fisheries monitoring program.

Erin Hiebert: Spawning new scientists along the Kuskokwim: Outreach with science camps for Kuskokwim youth.

Kimberly Elkin and Valli Peterson: Expanding rural fisheries involvement.

Erica McCall: Tradition shines through - Subsistence-style fish wheel use in the Copper River chinook salmon monitoring project.

Katherine L. Reedy – Maschner and Herbert D. G. Maschner: Salmon, traditional geographies, and indigenous commercial economies on the western Alaska Peninsula.

John K. Wenberg, David Wiswar and Catherine Moncrieff: Phenotypic characterization of chinook salmon in the Yukon River.

Judy Ramos and Rachel Mason: Tlingit traditional knowledge and clan management of sockeye salmon in Dry Bay, southeast Alaska.

Karen M. Dunmall and Timothy Kroeker: Pikmiktalik River salmon enumeration project.

Michael Kelly, Karen Stickman, Ray RaLonde and Dan Bogan: Native American Fish and Wildlife Society water quality and aquatic environment workshops.

Jan Conitz: Capacity building with tribal technicians in fisheries research in southeast Alaska.

Session Title: Spatial Analysis and GIS, How It Can Be Applied to Fisheries Management

Session Chair: Samantha Greenwood, U.S. Forest Service, P.O. Box 280, Cordova, AK 99574, email: sgreenwood@fs.fed.us or phone: (907) 424-4740.

Speakers:

Ted Otis: Using GIS to improve access to archived aerial and vessel survey data: The Kamishak Bay herring data synthesis project.

Gordon Reeves: Using GIS to get the big picture, an example from the Oregon Coast Range.

Samantha Greenwood: Quantifying habitat change in beaver ponds using low level digital photos, GPS and Arcview.

Scott H. Maclean, James E. Finn, and Christian E. Zimmerman: Investigations of hydrological processes on chum salmon incubation habitat quality using small-scale spatial analysis and potential large-scale applications.

Christian E. Torgersen, Robert E. Gresswell, Douglas S. Bateman, and David Hockman-Wert: Pattern detection in stream networks: Quantifying spatial variability in fish distribution.

Session Title: Carrying Capacity for Salmon in Marine Habitats

Session Chair: Alex Wertheimer, National Marine Fisheries Service, Auke Bay Laboratory, 11305 Glacier Highway, Juneau, AK 99801, e-mail: Alex.Wertheimer@noaa.gov or phone: (907) 789-6040.

Speakers:

Joe Orsi: Hatchery and wild stock interactions of juvenile chum salmon in marine waters of southeastern Alaska: a bioenergetics approach.

Steve Reifentuhl: Large scale enhancement in Alaska: Ecological interactions and implications.

Alex Wertheimer: Relationship of size at return with environmental variation, large-scale enhancement, and productivity of pink salmon in Prince William Sound, Alaska.

Jamal Moss: An approach to quantifying trophic interactions and energetics of juvenile pink salmon in the Gulf of Alaska and Prince William Sound.

Doug Eggers: Is the North Pacific Ocean carrying capacity for Pacific salmon limited?

Ed Farley: Distribution, migration, and relative abundance of juvenile salmon in the eastern Bering Sea.

Alex Wertheimer: Do Asian pink salmon affect survival of Bristol Bay sockeye?

Panel discussion follows presentations.

Session Title: Suburban Development in the Riparian Zone

Session Chair: Tom Paragi, Alaska Department of Fish and Game, Division of Wildlife Conservation, 1300 College Road, Fairbanks, 99701, e-mail: tom_paragi@fishgame.state.ak.us or phone: (907) 459-7327.

Speakers:

Eric Taylor, Regional Refuge Biologist, U.S. Fish and Wildlife Service, Anchorage, and Nick Hughes, Assistant Professor, School of Fisheries and Ocean Science, University of Alaska, Fairbanks: Fisheries and wildlife professions.

J. Chris Maisch: Forestry profession, Northern Regional Forester, Alaska Department of Natural Resources, Fairbanks.

Christy Everette: Wetlands permitting - Regulatory specialist, U.S. Army Corp of Engineers, Fairbanks.

Amy Ash: Water quality permitting, Northern/Interior Nonpoint Source Coordinator, Alaska Department of Environmental Conservation, Fairbanks (alternate: Kent Patrick-Riley, Nonpoint Source Program Section Leader, ADEC, Anchorage).

Frances Mann: Habitat permitting, Supervisory Fish and Wildlife Biologist, U.S. Fish and Wildlife Service, Anchorage.

(TBA): Real Estate appraisal, Alaska Association of Realtors.

Panel discussion follows presentations.

Session Title: Contributed Paper

Session Chair: Bill Smoker, Division of Fisheries, UAF School of Fisheries & Ocean Sciences, Juneau, Alaska, e-mail: Bill.Smoker@uaf.edu or phone: (907) 465-6441.

Speakers:

Steve Fleischman: A Bayesian age-structured stock recruit analysis in WinBUGS.

Suzann G. Speckman, John F. Piatt, Carolina Minte-Vera, and Julia K. Parrish: Bottom-up forcing across trophic levels in a subarctic estuary.

Mason D. Bryant, Mark Lukey and Richard Aho: Using stationary antenna to detect movement of small salmonids with PIT tags in remote small high gradient streams in southeast Alaska.

Kim Hastings: Natural mechanisms of isolation: Salmonids and uplift in southeastern Alaska.

Julie M. Meka: Physiological response of wild rainbow trout to angling: Impact of angling duration, fish size and temperature.

Xinxian Zhang, Steve Heintl, and Harold J. Geiger: Two approaches to the observer calibration problem.

Kent Crabtree, Molly Kemp, and Leon Shaul: Aging validation for coho salmon using known-age specimens.

Andrew W. Piston, Steven C. Heintl, Timothy P. Zadina, and Harold J. Geiger: Rehabilitation of sockeye salmon runs at Hugh Smith Lake, southeast Alaska.

Steven C. Heintl, Timothy P. Zadina, Andrew J. McGregor, and Harold J. Geiger: Updated stock status of chum salmon in southeast Alaska.

Fred DeCicco: Direct validation of otolith ages in Arctic Grayling.

Erika R. Ammann: Agonistic behavior, social dominance, of *Oncorhynchus mykiss* from lake and stream parents; an evaluation of lacustrine refuges as a conservation strategy for threatened or endangered salmonids.

Session Title: Human Dimensions of Fisheries Management

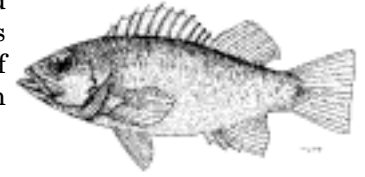
Session Chair: Martin Robards, University of Alaska, Anchorage, Department of Biology, 3211 Providence Drive, Anchorage, Alaska 99508, e-mail: mro@uaa.alaska.edu

Speakers:

Steve Langdon: Tlingit salmon concepts and practices: Implications for presence and productivity.

Phil Smith: Implementation of the subsistence halibut program in Alaska.

Melissa A. Robinson, Randy J. Brown and F. Stuart Chapin: Linking western and traditional ways of knowing as a basis for management of humpback whitefish in interior Alaska.



Poster Session

Session Chair: Stephen Fried, U.S. Fish and Wildlife Service, Office of Subsistence Management, e-mail: Stephen_fried@fws.gov or phone: (907) 786-3824. ☺

Continuing Education

Debby Burwen

There will be four short courses offered in conjunction with the 2003 AFS meeting in Fairbanks. The first course “**Basic GIS Techniques for Fish Biologists**” will be Saturday November 1, 8:00 AM - 5:00 PM at the University of Alaska, Fairbanks GIS lab. This course is designed to provide basic skills in using Geographic Information Systems (ArcGIS8.x) for fisheries biologists. The course will teach participants basic GIS skills using examples common to fisheries problems. These skills include importing a base map and other map layers; creating data tables and importing data from other sources; creating point, line, and polygon themes; an overview of map projections and map coordinate systems. Workshop topics will include:

- Maps, map coordinates, map projections.
- GIS, map layers / themes, layer types (point, line, polygon), and formats (vector, raster).
- Databases, spreadsheets, text files, geo-referencing data, adding and converting coordinates, record organization, exporting / importing data, and creating data tables.

We will also offer “**Advanced GIS techniques for Fish Biologists**” on Sunday November 2, 8:00 AM-5:00 PM at the University of Alaska, Fairbanks GIS lab. This course is planned to provide advanced skills in using GIS for analyzing fish communities. The course will consist of lecture, discussion, and specific exercises. Participants will be able to:

- Convert vector & raster formats.
- Use raster format for variable data, x,y,z coordinates, digital elevation models (DEMs), slope and path functions.
- Manipulate themes using intersect, union, and split functions.
- Import aerial / satellite photos, overlay DEMs.
- Create spatial analysis; analyze slope and gradients, proximity and nearness, movement and home range.
- Analyze geostatistics, correlation, and proximity.

The instructor for both courses is Michael Porter who taught the basic GIS class at the 2002 National AFS meeting and taught both basic and advanced courses in Quebec at the 2003 national AFS meeting. We are looking for someone with an ArcGIS background to help out with these courses (assist with Lab exercises). Please let me know if you are interested!

The third course is a “**Basic ACCESS 2000**” course. Kim Gray of the Alaska Computer Training Center will teach the course November 3, 9:00 AM-5:00 PM. This course will cover a number of practical skills in ACCESS including designing\creating\using databases, tables, forms, queries, and reports. You will need to bring your own laptop for this course.

The fourth course, “**Effective Communication with the Press and Public**” will be offered on November 3, 1:00 PM-5:00 PM. Lisa Olson, head of the Information and Education Section for Alaska Department of Fish and Game Sport Fish Division, will teach the course. This hands-on session is designed to help you understand the whole news release/media contact process, including writing effective news releases for even the most sensitive and complicated subjects, what the media is looking for in both content and format, and how to help let the media know the importance of your information. Lisa will also cover effective techniques for creating informational print and electronic publications such as trifold, posters, fact sheets and web pages. Participants will be given several issues, or may volunteer their own. We will then develop news releases and/or informational publications in the class.

Register for courses via the Pre-Registration Form for the 2003 Annual Conference of the Alaska Chapter of the American Fisheries Society as provided in this newsletter or as posted on-line at http://www.fisheries.org/afs/ak/meetings/2003/m2003_regis_frm.htm. Please contact Debby Burwen, debby_burwen@fishgame.state.ak.us, 267-2225, if you have any questions or if you can help out with our GIS courses. Also, I am always interested in hearing suggestions for future courses. ☺

Hutton Junior Fisheries Biology Program

Mentor Applications for 2004 are now being accepted. Don't miss this opportunity to share your expertise and help shape the fisheries biologist of the future! Mentor applications are available at www.fisheries.org/Hutton. For more information, email hutton@fisheries.org. ☺

Meetings and Events

Western Division of the American Fisheries Society

The 2004 Annual Meeting of the Western Division of the American Fisheries Society will be held in sunny Salt Lake City, Utah February 29 through March 4, 2004. The conference, entitled “Native Fish Management: Policies, Politics and Practicalities” is being co-hosted by the Colorado/Wyoming and Bonneville Chapters. The 10th Annual Whirling Disease Symposium will also be held in conjunction with the meeting. The final deadline for symposia proposals is October 1, 2003.

Symposia organizers will be responsible for recruiting some speakers, soliciting abstracts and submitting speaker's abstracts to the Program Committee Chair. Symposia proposals must include the following:

1. A brief but descriptive title.
2. Names, addresses, telephone and FAX numbers, and e-mail addresses for all organizers. Primary contact person responsible for organization must be clearly identified.
3. A brief (300 words or less) description of the topic and objective of the symposium.
4. Description of the proposed format; e.g., full-day session with 15 speakers followed by a 2-hr. panel discussion.
5. An identified moderator.
6. A list of anticipated audiovisual requirements and other facility requirements (special seating arrangements, panelist accommodations).

The following Symposia Sessions are being organized:

- Adaptive Management: In Practice and in Theory
- Aquaculture
- Coastal Cutthroat Trout
- Food Webs and Fish Carrying Capacity
- Impacts of Fire Management on Fisheries
- Instream Flows: Scientific Applications, Legal Considerations and Public Involvement
- Livestock Grazing Strategies for Healthy Aquatic Ecosystems
- Management of Resident Fish in the Columbia River Basin
- Research and Management of Western Native Inland Trout
- Reservoir Sampling and Management Strategies
- Science in the Public Arena: The How and Why of Scientific Decision-Making
- Subbasin Watershed Planning
- Tribal Programs to Protect Native Fish Populations
- Threats to Western Waters
- Western Native Fishes
- Whirling Disease

All proposals for symposia must be submitted electronically to david.zafft@wgf.state.wy.us. Additional information can be found at the web site www.wdafs.org/meet/2004/meet_2004.htm.

The Chapter officer elections will be held soon, and once again voting will be via a special issue of the newsletter published later this fall and via the Chapter web site.

Wild Trout VIII Symposium

The Wild Trout VIII Symposium will be held September 20-22, at the Old Faithful Inn in Yellowstone National Park. The theme of the Symposium is: “Working Together to Ensure the Future of Wild Trout”. The Program Committee is soliciting abstracts for presentations and posters related to the following topics:

- **Balancing Management of Native, Introduced, and Invasive Species.** How can we accommodate conflicting philosophies of managing for native species? What are the trade-offs between managing for native species and managing for introduced species with potentially more recreational value?
- **Watershed-scale Approaches to Enhancing Trout Habitat and Reducing Non-point Source Pollution.** What is the role of watershed associations and how are they funded? How might government help but not control? Where are the good case histories?
- **Communicating Fishery Science to the Public.** How well are agencies communicating and how might they do better? How effective is the media and what might government learn from them?
- **Regulations: Reality vs. Expectations.** How effective are regulations in protecting wild trout? How do we balance harvest with catch-and-release interests? How do anglers and guides influence regulation strategies?

Additional session topics may be added and at least one session will consist of contributed papers. Authors are encouraged to consult www.wildtrout8.com. Abstracts must be submitted electronically to Robert Carline by February 1, 2004. Authors of presentations chosen for inclusion in the symposium are expected to submit a complete manuscript of their paper by August 1, 2004. All papers will be published in a symposium proceeding. Abstracts for posters will be included in the symposium proceeding.

For additional information, contact the Program Committee Co-chairs, Robert Carline, U.S. Geological Survey, Merkle Laboratory, University Park, PA 16802, Phone: 814-865-4511, Fax: 814-863-4710, e-mail: rcarline@psu.edu or Jeffrey Dillon, Idaho Dept. Fish and Game, 3101 S. Power Line Rd, Nampa, ID 83686, Phone: 208-465-8465, Fax: 208-465-8467, e-mail: jdillon@idfg.state.id.us.

Estuaries and Change

Southern Cross University will host the next joint Estuarine and Coastal Sciences Association (ECSA) and Estuarine Research Federation (ERF) International Conference June 20–25, 2004 in Ballina, New South Wales, Australia. The aim of the conference is to bring together scientists and managers with an interest in estuaries and change. The conference theme “Response of tropical, temperate and polar estuaries to natural and anthropogenic changes” identifies that estuaries are subject to both natural and anthropogenic change and that both the forcings and responses may be different at different latitudes. To reflect these differences five international plenary speakers have been invited to address changes in each of the three latitudinal regions as well as to present a global overview. Deadline for abstract submission is February 22, 2004. For information e-mail Karen Hanna, khanna@scu.edu.au or visit www.scu.edu.au/ecsa37erf2004conference.

21st Lowell Wakefield Fisheries Symposium

This symposium will be held October 22–25, 2003 in Anchorage, Alaska. The theme of this symposium is Fisheries in Data-Limited Situations. The goal of this symposium is to bring together scientists, fishery managers, and policy makers to synthesize historical track records, share recent advances, and discuss future avenues for the management of newly developing and small-scale fisheries under data-limited situations.

The following is a preliminary list of the sessions:

- I. Case studies of fishery failures and successes
- II. Involvement of fishermen and use of local knowledge
- III. Stock assessment models
- IV. Stock assessment surveys and applications
- V. Indicators of stock health and productivity from limited sampling programs
- VI. Multispecies and ecosystem indicators and models
- VII. Precautionary management approaches

For more information contact Sherri Pristash, fyconf@uaf.edu.

The Third International Symposium on Fish Otolith Research and Application

The Third International Symposium on Fish Otolith Research and Application will be held from July 11-16, 2004 in Townsville, Queensland, Australia. This symposium will bring together leading scientists from around the world to present state-of-the-art and future directions of this increasingly important area of research and its application to contemporary fisheries assessment and management. This is the third in a series of international symposia over the past decade to accommodate the extra-ordinary rate of development in this field of research.

The themes of the symposium are: 1) Structure and function, 2) Chemistry and composition, 3) Age and growth estimation and validation, 4) Age estimation in deep sea and tropical environments, 5) Climate, ecology and population biology, 6) Statistics and modeling, 7) Stock assessment and fisheries management, 8) Quality control in ageing facilities and data processing and 9) Technological developments.

Abstracts must be submitted to the Symposium Event Manager by 30 September 2003. For more information e-mail the symposium manager at otolith2004@ozacom.com.au or visit the web site: <http://www.ozacom.com.au/fot04/>.

Conference on Marine Aquaculture: West Coast and Alaska Fishing Industry

The Pacific States Marine Fisheries Commission will be hosting a 3-day-long conference that will focus on economic and environmental impacts of aquaculture. The conference will take place November 17-19, 2003 at Bell International Conference Center in Seattle.

For more information visit the web site www.psmfc.org or call Sharon Perkins or Teresa Fairchild at 503-650-5400 or email: Mtg_WestCoastMarine@psmfc.org.

American Fisheries Society – First call for papers

The American Fisheries Society will convene its 134th Annual Meeting in Madison, Wisconsin August 22-26, 2004. The meeting's theme will be "The Gathering: Leopold's Legacy for Fisheries." The theme celebrates Wisconsin's name (which has been translated as "The gathering of the waters") and Wisconsin's celebrated ecologist Aldo Leopold. Your hosts invite you to gather with new friends on the Isthmus next summer to learn how Leopold's legacy has influenced the conservation of our aquatic resources.

The Program Committee invites proposals for symposia from individuals or groups. Topics should be related to the meeting theme or be of general interest to AFS members. To be considered for review, proposals must be submitted by December 22, 2003 and abstracts are due by February 23, 2004. Abstracts for contributed papers and posters must be received by January 19, 2004. See the September 2003 Issue of Fisheries for submission details.

Questions regarding symposia should be addressed to Tom Kwak: Twak@nscu.edu, questions regarding contributed paper sessions should be addressed to Bruce Vondracek: bnondrac@umn.edu and questions regarding the poster session should be addressed to Gerold Grant: gerold.grant@dnr.state.mn.us.



Western Groundfish Conference

The 13th Western Groundfish Conference will be held Feb 9-13, 2004 in Victoria, B. C. This is the first call for papers and posters, and ideas for themes for the conference. The deadline for submission will be November 1, 2003. The program agenda will be available by December 1, 2003. Abstracts should be approximately 300 words, include principle authors, contact information, and submitted in a MS Word or Wordperfect file format. The conference will include plenary, poster sessions, and workgroup sessions organized by themes. The atmosphere will be informal to encourage presentation of ongoing research and sharing of ideas. Expected themes include stock assessment, survey methodology, fishery monitoring, ecosystem analysis, conservation, marine protected areas, habitat classification, and general fishery biology. Please mail or send the abstract for your poster or presentation, or your suggestion for a theme to: Kate Rutherford, Fisheries and Oceans, Canada, Pacific Biological Station, Nanaimo, B. C., V9T 6N7, Rutherfordka@pac.dfo-mpo.gc.ca. **Early Bird Registration must be received by Friday, December 12th, 2003.** Registrations received after December 12th will be processed at the higher rate. Registrations after Friday January 16, 2004 should be made to Keri Taylor by fax (250) 383-0103 or phone (250) 383-4535, e-mail: kerit@archipelago.ca.



Alaska Chapter Annual Registration Information

The Pre-Registration Form for the 2003 Annual Conference of the Alaska Chapter of the American Fisheries Society is provided as an insert to this newsletter and is also available on the Chapter's web site at: http://www.fisheries.org/afs-ak/meetings/2003/m2003_regis_frm.htm.

Please be aware of the following notes regarding registration:

- The 3-day registration fee includes entry into the Plenary Session and your choice of sessions, which follow for the rest of the conference. It also includes a buffet lunch at the Wedgewood for all 3 days as well as coffee and snacks during the breaks and entry into the welcoming reception on Monday evening, Nov. 3.
- Registration will entitle you to a program listing the sessions and abstracts from each presentation (distributed at the conference).
- Those that are only attending for one day can take advantage of the one day registration fee, which provides you with that day's presentations, the buffet lunch, coffee and snacks at breaks and a program.
- If you register prior to **October 18** you are entitled to a \$20 discount if you are a member of the American Fisheries Society (AFS), The Wildlife Society (TWS), or the Society of American Foresters (SAF). If you are not a member of one of those professional societies you will need to register as a nonmember. However, you can join (<http://www.fisheries.org/membership/memapp.shtml>) the AFS and the AK Chapter for \$86 and then take advantage of the \$20 discount if you do so prior to October 18.
- Student rates for membership apply only to Student members of AFS. Student membership rates for the Society and the Chapter total \$43. Similar to regular members, student members who register prior to October 18 receive a \$15 discount. Students who are not currently members of the Society can receive the discounted rates if they join

Allen Bingham

This issue of *Oncorhynchus* has been sent to a number of AFS or Chapter members who failed to renew their membership for 2003 as (1) an invitation to renew their membership and (2) to provide a one-time "bonus" issue of the newsletter to get the word out about this year's annual conference. If you choose not to renew your membership — this will be the last issue you receive!!!

Please check your mailing label to verify that your membership with the AFS and the Alaska Chapter is current. For example, if your label is:

2097 A 0200
Dolly Varden
1144 Salvelinus Lane
Fairbanks, AK 99702

In this example the last four digits on the first line of the mailing label indicate your Dues Paid Through

prior to October 18. Student members assisting with the meeting (i.e. registration, slide projector etc.) will have their registration fees waived. Contact Tim Joyce for details (tljoyce@fs.fed.us, 907-424-4747). Students who are not members of the AFS are required to pay the full non-member registration fee.

- Don't forget to buy your banquet ticket when you register. The banquet this year will be a plated dinner with your choice of halibut or prime rib. You must have registered for at least one day to buy a banquet ticket.
- Registration for the Continuing Education workshops is also included in the pre-registration form. SPACE IS LIMITED and is on a first-come-first served basis, so register as early as possible!
- Completed registration forms should be mailed, faxed, or e-mailed to: Alaska Chapter of AFS c/o Sara Case, 1300 College Road, Fairbanks, AK 99701-1599, FAX: (907) 456-2259, E-mail: sara_case@fishgame.state.ak.us **prior to October 27, 2003** (post-marked for mailed registration forms, time-stamped for faxed or e-mailed forms), after this date you should fill-out the form and bring it to the meeting to register (forms will however be available on-site for registration as well). Remember though that the discounted early registration rate-deadline is before October 18.
- **Registration fees** for the meeting, Continuing Education courses, and the banquet can be paid as follows:
 - **Check** - should be included with your mailed form.
 - **Purchase Orders** - include order number, Agency, Billing Contact Person – and their phone number.
 - **Credit Card (MasterCard and Visa only)** – Contact Ray Hander at ray_hander@fws.gov, phone: 907-456-0402, FAX: 907-456-0454 for procedures to follow for payment by Credit Card.

All PRE-REGISTRATION fees should be paid or otherwise arranged for payment prior to OCTOBER 27. ☺

Dues – Dues – Dues

information. The first two numbers indicate the year through which your Parent Society dues are current in this case 2002 (note that Life members are automatically coded as 9999, and non-Y2K compliant printed as 99, but the letter after their member number is L). The last two numbers indicate whether you are current in the Alaska Chapter of AFS. In this example, the member last paid in 2000. If your Chapter Dues are coded "33," this means (according to our records) that you've never paid Chapter Dues. If your last two numbers are not 03 or 04, then PLEASE BRING YOUR CHAPTER DUES UP TO DATE (see the membership application information on the back cover of the newsletter). Thank you for attending to this matter.

If your records indicate that our dues information for you appear to be incorrect, please contact Allen Bingham at (907) 267-2327 or Allen_Bingham@fishgame.state.ak.us ☺

Alaska Chapter American Fisheries Society¹ Annual Conference
November 4 - 6, 2003 Fairbanks, Alaska
PRE-Registration Form
 (After October 26 – Please REGISTER On-site)

Name: _____ **Affiliation:** _____

Address: _____

City: _____ **State:** _____ **Zip:** _____

Telephone: _____ **E-Mail:** _____

Registration Fee (Includes lunch) (Please indicate your choices)

Items	Amount		Subtotal
3-Day Registration	Registration Before Oct 18/ After Oct 17		
Member	AFS, SAF & TWS \$130.00/\$150.00	=	_____
Non-member ²	\$240.00	=	_____
Student Member ³	\$75.00/\$90.00	=	_____

1-Day Registration (Circle days)

Member	(T W Th) <u>\$50.00</u> x no. days	=	_____
Non-member ²	(T W Th) <u>\$80.00</u> x no. days	=	_____

80% refunds thru Oct. 26.

No refunds after Oct. 26

Continuing Education Course (Please indicate your choices)

Workshops – Nov. 1, 2, and 3 **Before Oct. 18 Members/Non-members**
 (80 % refunds thru Oct.26. No refunds after Oct. 26) **After Oct. 17 (Members/Non-members)**

11/01	Basic GIS Techniques for Fish Biologists (Michael Porter)	\$150.00/200.00	=	_____
		(\$165.00/215.00)		_____
11/02	Advanced GIS Techniques for Fish Biologists (Michael Porter)	\$200.00/250.00	=	_____
		(\$215.00/265.00)		_____
11/03	Basic ACCESS 2000 (Kim Grey)	\$150.00/175.00	=	_____
		(\$165.00/190.00)		_____
11/03	Effective Communication with Press and Public (Lisa Olsen)	\$75.00/100.00	=	_____
PM		(\$90.00/115.00)		_____

Banquet – 11/05/2003

Halibut Dinner	No. persons (_____) x \$33.00	=	_____
Prime Beef Dinner	No. persons (_____) x \$33.00	=	_____

Total Enclosed

Checks payable to Alaska Chapter of AFS

Total to be billed (include agency, purchase order, and billing contact person)

Purchase Order Number (_____)

Please direct **Credit Card** questions to Ray Hander (**CC purchase available after Sept.20**)

Send completed form and payment to:

Alaska Chapter of AFS


c/o Sara Case

FAX: (907) 456-2259

1300 COLLEGE RD

E-mail: sara_case@fishgame.state.ak.us

Fairbanks, AK 99701-1599

Billing Questions – Contact Ray Hander (ray_hander@fws.gov, phone 907-456-0402, FAX  907-456-0454)

Meeting Questions – Contact Tim Joyce (tljoyce@fs.fed.us, 907-424-4747)

Continuing Education Questions – Contact Debby Burwen (debby_burwen@fishgame.state.ak.us, 907-267-2225)

¹ The Alaska Chapter of the American Fisheries Society is a non-profit organization (501 (c) (3)), Fed EIN number 23-7368960.

² Non-members may join AFS and the Chapter at time of registration and register at member's rate. If you choose to join and register at the same time, please mail this form along with a completed membership application along with the appropriate payments to Ray Hander (see address above).

³ Student members assisting with the meeting (i.e registration, slide projector etc) will have registration fees waived. Contact Tim Joyce for details (see address above). Student non-members are required to pay the full non-member registration fee.

Oncorhynchus

Allen Bingham

P.O. Box 221804

Anchorage, AK 99522-1804

RETURN REQUESTED - DO NOT FORWARD

2003 Alaska Chapter Officers

President Carol M. Kerkvliet, ADF&G/CF, 333 Raspberry Rd. Anchorage 99518-1599, Phone: 267-2379 (w), 248-3343 (h), Fax: 267-2442

President-Elect Tim Joyce, USFS, PO Box 280, Cordova 99574-0280, Phone: 424-4747, Fax: 424-7214, tjoyce@fs.fed.us

Vice President Molly Ahlgren, Sheldon Jackson College, 801 Lincoln Street, Sitka 99835-7699, Phone: 747-5255 Fax 747-5254, mahlgren@sj-alaska.edu

Treasurer Ray Hander, Fairbanks Fish and Wildlife Office, 101 12th Ave., Room 222, Box 17, Fairbanks 99701, Phone: 456-0402, Fax: 456-0454, ray_hander@fws.gov

Secretary Alisa Abookire, NMFS/NOAA, 301 Research Ct., Kodiak 99615-7400, Phone: 481-1735, Fax: 481-1703, Alisa.Abookire@noaa.gov

Past President David Wiswar, USFWS/FRO, 101 12th Ave., Box 17, Fairbanks 99701-6291, Phone: 456-0453, Fax: 456-0454, david_wiswar@fws.gov

Student Unit President Kristin Ciecziel, University of Alaska Fairbanks, Juneau Center for Fisheries & Ocean Sciences, Phone: 465-8572, K.Ciecziel@uaf.edu

Feel free to contact the Executive Committee members.

2004 AFS Membership Application

You can JOIN the AFS and the Alaska Chapter on-line (or by fax/phone), see <http://www.fisheries.org/membership/memapp.shtml> for details, or fill out the application form and process as noted below.

Print or type applicant's name in full

Address

City

State

Zip Code

Nation

Membership year*

Kindly make checks payable to American Fisheries Society in U.S. Currency or drawn on a U.S. bank.

Please mail to Allen Bingham P.O. Box 221804 Anchorage, AK 99522-1804

Professional recruiting others (PROCLUB)

If applicant is a student as defined below, the teacher endorsing him signs here.**

Name of institution where student is enrolled

Date

Please provide phone numbers for directory and Society use only:

Home _____ Work _____

Fax _____ Email _____

Employed by:

federal gov't. state/prov. gov't. industry academia self

Alaska Dues: \$10.00 Alaska Student Dues: \$5.00

Membership Dues (includes *Fisheries* and Membership Directory)

Regular (North America): \$76.00 (Other than North America, \$88.00)

Student (North America)**: \$38.00 (Other than North America, \$44.00)

Young Professional***: \$38.00

Retired (North America): (65 or over): \$38.00 (Other than North America \$44.00)

Life (All): \$1,737.00 (includes *Fisheries* and one other journal of choice)

¹ Prices are for AFS members only

² Membership not required for subscription

* New members accepted Jan. 1-Aug.31 are credited to full membership for that year. (Back issues of Journals are sent.) Members accepted Sept. 1-Dec. 31 credited to full membership as of next Jan. 1, unless requested otherwise. Membership on calendar year only.

Journal Subscriptions (Optional)

Transactions of the AFS ¹ NA. Journal of Fisheries Management ¹

\$43.00 Paper in North America \$48.00 Paper other than N.A.

\$25.00 E-Pub via WWW/Internet

North American Journal Journal of Aquatic Animal Health ¹

\$38.00 Paper in North America \$41.00 Paper other than N.A.

\$25.00 E-Pub via WWW/Internet

** Bona fide students of fisheries subjects are eligible for Student membership (limited to 6 years). Persons employed full-time not eligible. Teacher endorsement required (see above).

*** Within 3 years of graduation.

NOTE: Retired membership for Active members upon retiring at age 65.

Sustaining membership for commercial firms, conservation clubs, or others desiring to support the Society. Library Subscriptions include bimonthly *Transactions*, quarterly *North American Journal of Fisheries Management*, *Journal of Aquatic Animal Health*, quarterly *The Progressive Fish-Culturist*, bimonthly *Fisheries*, and Membership Directory.