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Predators, prey and lipids: a new approach to ecosystem studies.

The end of fishing? Scientists grow fish in lab

WorldCatch News Network

Fish pieces have been grown in a laboratory for the first time by U.S. scientists who used a growth factor to transform small chunks of fish flesh into larger portions.

The technique, which uses a nutrient-rich serum taken from the blood of unborn calves, could eventually allow meat and fish to be artificially grown in industrial quantities, reducing the need for the slaughter of animals.

The artificial fish has been produced by researchers at Touro College in New York as part of a NASA-funded project to find cheap and viable ways of growing nutritious food for long-distance space travel. 🗨️

Lipids and Life History Studies: New Approaches

Ron Heintz and Bonita Nelson

More and more fishery scientists are turning to chemistry to gain insights into trophic relationships and the life history of fishes. For example, at the Auke Bay Laboratory we are combining calorimetry, proximate, lipid class, and fatty acid analyses to evaluate the nutritional dependencies of freshwater fauna on adult salmon carcasses, understand the decline of Steller sea lion populations, characterize the early life history of forage fish, describe shark diets, and separate herring stocks.

We are combining these methods to examine the energetic content of fish and how that energy is allocated. Calorimetry provides a crude estimate of the energy content of organisms, while proximate analysis allows for estimates of how that energy is partitioned between protein and lipid. However, lipids serve as an energy reservoirs and as structural elements. Lipid class analysis identifies the proportions of lipid devoted to each of these functions. By also examining the fatty acid composition of these lipids we can examine trophic relationships.

For example, we are using differences in the fatty acid composition of marine and freshwater fish to trace the transfer of fatty acids from adult salmon carcasses into freshwater residents. Our data indicate that marine-derived lipids may be as important to riparian food webs as marine-derived nitrogen and phosphorous.

The proximate composition and fatty acid content of sea lion prey is being used to evaluate a potential cause of the decline of Steller sea lions. The leading hypothesis for the decline relates to regional differences in prey quality. Our laboratory is evaluating seasonal variation in the quality and abundance of sea lion prey in southeastern Alaska. These data will be compared with those collected by the University of Alaska in Kodiak

Continued on page 2

Mark your calendars!
October 22-24, 2002
2002 Annual Conference
of the AFS Chapter
Alyeska Prince Hotel
Girdwood, Alaska

Life Membership

Tim Joyce

Life is a long time; at least one can hope that it is. So, when the AFS made an effort to recruit life members many years ago, I decided to take them up on the offer. I figured that I would probably live longer than the 12 to 13 years it would take for annual dues to equal the same dollar value. Well, my bet paid off as I am still around and I have a paid up AFS membership. Looking back, it was one of the best investments I ever made. I no longer have to remember to renew my annual membership, and it also seemed easier to part with my hard earned cash once rather than doing each year.

Life membership is still offered by the AFS and, as a fisheries professional, it may be time to consider the benefits of accepting this offer. Life membership currently costs \$1,737. This fee includes one journal of your choice and a subscription to *Fisheries*. It takes about 15 years to make up the dues and journal fees at the current rates, but a life member never will see any dues increase. It is still a bargain to be able to lock in those rates for the rest of your life, especially given that future membership rates are likely to increase.

The limiting factor of becoming a life member is paying the up front cost. I remember the choice I had to make, I could be a life member of AFS or take a trip to a warmer climate in the winter. My field of interest was coldwater fisheries and I could not find much colder water than what was in Alaska. So, it was a hard choice to make while living in Alaska. However, I enjoyed what I was doing, and the AFS provided a way for me to stay informed on new developments and issues relevant to me as a fisheries professional with their publications and meetings. I skipped the trip south and bought the life membership.

When I became a life member, it seemed like a lot of money to me, but now I can reflect on all the benefits I received and it was a very good deal. I sometimes ponder on how the AFS benefits from life memberships. I have concluded that the AFS not only got the tangible working capital from the initial investment, but they also received a variety of intangible assets. Commitment to AFS values is certainly one of the intangibles. A society is only as strong as its members and a broader membership provides greater expertise to guide the society. Life members are also like a fixed asset that will always be there. Obtaining a life membership reinforces your long-term commitment to the AFS goals and to the fisheries profession. Think about it, life is a long time. Throughout your career and into retirement, you will always have your AFS journal and *Fisheries* to keep your mind sharp and you won't have to pay for it. ☺

ONCORHYNCHUS

Oncorhynchus is the quarterly newsletter of the Alaska Chapter of the American Fisheries Society. Material in this newsletter may be reprinted from *AFS Diary* and *Western Division*.

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Membership Report - Dues - Dues -Dues !!!

The Chapter has 336 members as of April 1, 2002. Memberships include 229 active, 53 life, 7 retired, 40 student, and 9 young professionals. Fifteen of these members live outside Alaska in 11 different states or provinces, and pay Chapter dues to receive the newsletter. Thirty-two institutions, offices, and fisheries newsletters receive complimentary copies of the newsletter. A total of 287 of the AFS members are up-to-date on their Chapter dues (paid through 2002), leaving a remainder of 49 **delinquent** on their Chapter dues.

A total of 117 members have only paid their Parent Society dues through 2001. In addition a total of 28 LIFE members of the AFS are not up-to-date in their Chapter dues. These **delinquent** members have been sent this newsletter as one more reminder to please renew, and will be dropped from the member roles soon.

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

2097 A 0201

the last four digits on the first line of the mailing label indicate your Dues Paid Through 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 2001. **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 02, then PLEASE BRING YOUR CHAPTER DUES UP TO DATE (see the membership application form 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.

Lipids and Life History Studies, Continued from page 1

to contrast the availability of nutritional resources in an area where sea lions are declining with that of an unaffected area.

By collecting these data seasonally, we are also beginning to identify critical periods in the life history of forage fish. For example, we examined seasonal variation in the lipid content of young-of-the-year sandlance. These data showed that metamorphosing sandlance depleted their energy reserves, despite foraging. This suggests a vulnerable period for sandlance and indicates specific factors that are likely to affect their recruitment.

In addition to straight ahead examinations of nutrition; lipids analyses offer many other exciting opportunities. For example, our laboratory is attempting to use fatty acid analysis to discriminate the diets of sleeper sharks and individual herring from different herring stocks. Thus, these methods can provide us with more than information on energy flow and the allocation of energy. The chemical composition of organisms provides us with a rich informational resource, and only our imaginations prevent us from fully exploiting it. ☺

Meetings and Events

International Congress on the Biology of Fish

The International Congress on the Biology of Fish sponsored by the AFS Physiology Section will be held in Vancouver, Canada, July 22-26, 2002 and consists of over 20 Symposia on a variety of topics. All the details about the Congress, including tradeshow information and special deals for students, can be found on the website: www.fishbiologycongress.org.

Organization of Wildlife Planners Conference

The Alaska Department of Fish & Game is hosting the 24th Annual Conference and Meeting of the Organization of Wildlife Planners (OWP), May 18-22, 2002, in Seward. The conference theme is "Fostering Partnerships and Public Involvement," and the program will explore all aspects of collaborative approaches to public involvement in fish and wildlife management, from partnerships to resolution of specific conflicts about how wildlife should be managed. Also being offered is a 2-day pre-conference training workshop entitled "Building Agreement on Natural Resources and Public Policy" on May 16-17. Both the conference and the training workshop are open to natural resource professionals, and constitute a unique learning opportunity. For more information, contact Bill Romberg, ADF&G Sport Fish Division in Anchorage (267-2366) or go to www.owpweb.org and click on the "2002 Meeting" button.

Alaska Society of American Foresters (SAF) and Alaska Chapter of the Wildlife Society (TWS) Joint Meeting

This joint meeting will be held May 2-4, 2002, at the Wood Center, University of Alaska, Fairbanks. The meeting theme, Coordinating Forestry and Wildlife Management at the Landscape Level, describes the need for the forestry and wildlife professions to work together in resource planning and management beyond the stand scale. We have invited speakers from several organizations and regions of Alaska to help define challenges and opportunities so managers can discuss practical issues for implementing projects at the landscape level. Statewide perspectives are being sought, although discussion will likely focus on how this topic applies specifically to the Tanana Valley in the Interior.

Abstracts for oral presentations (TWS only) or posters are due by April 15, 2002 and should be submitted electronically as Word documents or text files (preferably via e-mail as an attached file) to: Tony Gasbarro, Alaska Cooperative Extension Service, P.O. Box 756180, University of Alaska, Fairbanks, Alaska, 99775-6180, tgasbarro@hotmail.com. Registration information and the full meeting agenda can be found on society websites at <http://mercury.bio.uaf.edu/ak-tws/> or <http://nrm.salrm.uaf.edu/~jfox/saf.html>. Full-time students will be admitted free for all technical sessions and are encouraged to participate.

AFS Western Division Meeting

The 2002 Annual Meeting of the Western Division of AFS (WDAFS) will be held April 27 to May 1, 2002 in Spokane, Washington. The conference, entitled "Toward Ecosystem-Based Management: Breaking Down the

Barriers in the Columbia River Basin and Beyond", will provide a major international forum for exchanging information and engaging in technical debates on a variety of issues related to the management of fisheries, aquatic, and riparian resources in the Columbia River Basin and elsewhere in western North America.

The agenda for this 5-day conference will include nearly 100 plenary, technical, and work groups sessions, so there will be something for everyone (see www.fisheries.org/wdf for a complete list of the sessions that will be convened at the conference).

Fishing and Benthic Habitats 2002 Symposium

A symposium, Effects of Fishing Activities on Benthic Habitats: Linking Geology, Biology, Socioeconomics, and Management will be held in Tampa, Florida, November 12-14, 2002.

Help ensure sustainable fisheries and healthy, diverse ecosystems by advancing the scientific knowledge available to resource managers to evaluate and appropriately manage fishing activities that affect benthic habitat.

Details about the symposium can be found on the web site: <http://walrus.wr.usgs.gov/bh2002/index.html>.

International Symposium on GIS and Spatial Analyses in Fishery and Aquatic Sciences

This is the first announcement and call for papers of the Second International Symposium on GIS and Spatial Analyses in Fishery and Aquatic Sciences at the University of Sussex, Brighton, UK, September 3-6, 2002. The primary objectives of the Symposium are to:

- highlight developments and applications of GIS/Spatial analyses in fishery and aquatic sciences,
- exchange ideas and information, and
- suggest further improvements, techniques and applications of GIS/Spatial analyses.

The Symposium will cover spatial analyses using GIS or GIS related topics in fishery and aquatic sciences. Within this there are three main categories: marine related subjects, freshwater/inland/blackish-water related subjects, and other subjects. Deadline for normal registration (\$150) and submission of abstracts is June 15. Visit the web for more information: <http://www.esl.co.jp/Sympo/sympo11.htm>.

20th Lowell Wakefield Fisheries Symposium: Genetics of Subpolar Fish and Invertebrates

The International Symposium on Genetics of Subpolar Fish and Invertebrates will be held in Juneau, Alaska, May 29-31, 2002. The goal of the genetics symposium is to bring together geneticists and fishery resource managers to share recent research advances, synthesize new findings, and discuss future research avenues on fish and invertebrates in subpolar regions.

This meeting will be the 20th Lowell Wakefield Fisheries Symposium and will build upon the information reported in the 1993 International Symposium on Genetics of Subarctic Fish and Shellfish. Proceedings of that meeting were published



in 1994 as Supplement 1 to Volume 51 of the Canadian Journal of Fisheries and Aquatic Sciences. The proceedings of the 2002 symposium will be published as a dedicated issue of the journal *Environmental Biology of Fishes*, by Kluwer Academic Publishers.

Oral presentations are divided into the following sessions:
Molecular genetics and phylogenetics
Genetic variability

Aquaculture genetics

Genetic structure of populations

For further information visit the Alaska Sea Grant web site: <http://www.uaf.edu/seagrant/Conferences/genetics-reg.html> or contact the Symposium Coordinator, Sherri Pristash, University of Alaska Sea Grant, PO Box 755040 Fairbanks, Alaska 99775-5040 or phone: 907-474-6701 or fax 907-474-6285 or e-mail: fyconf@uaf.edu.

Continuing Education Update

Jud Monroe's highly acclaimed Scientific / Technical Writing Workshop was recently held in Juneau. This was the third chapter-sponsored 'traveling' workshop in the last year. Tentatively, the series will be repeated in 2004 or 2005. The following two Continuing Education workshops will be offered at the 2002 Chapter Conference:

Using Remote Video Technology in Fisheries/Wildlife Research Applications

Ted Otis (ADF&G Homer) and Dave Daum (USFWS Fairbanks) are coordinating a workshop on the rapidly expanding use of remote video technology in research and education. Just starting to use this technology? Then THIS WORKSHOP IS FOR YOU!

Already an advanced user? Then you'll likely want to attend the planned feature presentations by industry experts. The workshop is still in development (so volunteer to help!), but the tentative schedule follows. The morning session will describe existing remote video projects for monitoring both fish and wildlife resources in a variety of settings. The session will emphasize system design, operation, and maintenance details and provide an opportunity to seek the advice of experienced users.

Dual sessions will cover freshwater and marine applications: (freshwater) video integrated counting towers, fish weirs, and fish wheels; (marine) using remote video to

determine the efficiency of various gear types (e.g., scallop dredge, otter trawl), and to monitor/assess marine organisms such as sea cucumbers, scallops, sea birds, and sea lions.

The afternoon session will feature presentations by industry experts familiar with the latest equipment and software for improving the performance of existing video systems. Planned topics for the afternoon session include: system design (analog vs. digital), remote power generation, microwave/satellite transmission of images, and image recognition/video review software. Equipment displays and industry tables are also planned.

Using Telemetry to Study Aquatic Systems

John Eiler (NMFS, Auke Bay Lab) will present a half-day workshop on telemetry methods and applications. Telemetry has become a powerful tool for studying animals in aquatic systems.

Recent advances in electronics and telecommunications are providing new approaches and techniques for collecting information needed to address research and management objectives. However, it is often a challenge to keep up with the available technology.

Participants will gain a basic understanding of telemetry and its capabilities for studying aquatic animals. The course will provide an overview of telemetry, including a brief history of its development, basic concepts, equipment and methods, and applications in aquatic systems.

2005 Parent Society Meeting

Cindy Hartmann

Planning for the 2005 meeting has begun. The theme Barb Knuth, AFS 2nd Vice President, is considering is: "Dissolving Boundaries Across Jurisdictions, Disciplines and Cultures." This is a theme that should be highly relevant in Alaska. The meeting is scheduled for Sept. 11 - 16, 2005.

The Alaska Chapter will be hosting the meeting in Anchorage. We have started lining up the various committees that will be needed and are recruiting committee chairs and helpers. The following list outlines the types of committees we will need:

Accommodations and Hotel Coordination	Communications
Audio Visual Aids/Coordination	Exhibits and Displays
Banquet, Social Activities, and Entertainment	Printing
Budget, Finance and Fund-raising	
Child Care	
Egan Center Coordination	
Hospitality (companion program)	
Photography	
Program Committee Representative	

Publicity and Media Relations	Raffle
Registration	Signs
Spawning Run	Students
Trade Show	Welcoming and Protocol
Tours, Transportation, and Information	
Pre and Post Meeting Tours, Vacations, Fishing & Hunting Opportunities	

If you are a normal person you don't know what your life will be like in September 2005 and you may be quite hesitant to commit to being involved in working on something that far into the future. However, it's only 3 1/2 years away and those years will pass by quickly.

I invite you to get involved now. Attend a Local Arrangements Committee Meeting on Friday, April 19th. The Committee will meet in Anchorage at the USGS building at 1011 East Tudor Road in Room 152, from 2 - 4 PM. If you are interested in being involved, but you can't attend the meeting or for additional information contact Cindy Hartmann at 586-7585 or e-mail cindy.hartmann@noaa.gov. Thanks. I hope to see you on April 19th.

Chapter Annual Conference First Call for Papers: Applied Research in Managing Alaska's Fisheries

Carol Kerkvliet

Mark your calendars for October 22-24 to meet in Girdwood at the Alyeska Prince Hotel for the 2002 Annual Conference of the AFS Chapter. I hope the earlier date this year will allow more people to attend the conference. We have some exciting sessions being developed and continuing education courses planned by Joel Reynolds. Start thinking now about presenting your work at one of these sessions.

Remember this is your conference so if you have ideas for a session please contact Carol Kerkvliet, Alaska Department of Fish and Game; e-mail: carol_kerkvliet@fishgame.state.ak.us or phone: 267-2379.

Session Title: Identifying True Carrying Capacity in Anadromous Salmonid Ecosystems

Session Chair: Eric Knudsen, PhD. Chief, Marine and Freshwater Ecology Branch, Alaska Biological Science Center, USGS, Biological Resources Division, 1011 East Tudor Rd. - MS 701, Anchorage, AK 99503. E-mail: eric_knudsen@usgs.gov or phone: 786-3842, Fax: 786-3636.

Description: Salmon managers are often at a loss to explain to the public and themselves why runs are in decline, why predictive models are inaccurate, and what can be done to remedy these problems. Many questions surround estimation of appropriate biological escapement goals because traditional modeling and predictive tools only work in some cases. The need for additional research on life history-based, ecosystem approaches to understanding the productive capacity of salmon populations is underscored by recent findings. For example, the important roles played by marine-derived nutrients in freshwater ecosystems, potential survival bottlenecks in the early marine stage, and ocean feeding and competition are increasingly implicated as critical to overall productivity.

Evidence is mounting that a grasp of the true production potential is the key element missing from analytical approaches to managing salmon. This session will bring together scientists and managers who are focusing on both empirical studies and simulations aimed at improving goal estimation of salmon biological escapement, run size prediction, and sustainable harvest strategies. Topics may include, for example:

- Historic evidence of carrying capacity
- Why spawner-recruit models may or may not work
- Alternative modeling techniques
- The effects of nutrient loading on future production
- Determining salmon carrying capacity
- Interactions between ocean and freshwater productivity
- Interactions among potential survival bottlenecks

The goal of this session is to identify the highest priority research required to advance science for maximizing salmon production and healthy aquatic ecosystems. Each participant will be asked to make his/her top recommendations. The session will end with an open discussion to help identify additional recommendations, all

of which will be summarized and distributed to AFS members, agencies, and other interested organizations.

Session Title: Twenty-Eight Years of Private, Non-Profit Hatcheries in Alaska: What Have We Learned about Hatchery-Wild Stock Interactions?

Session Chair: Chris Habicht, Alaska Department of Fish and Game, e-mail: chris_habicht@fishgame.state.ak.us or phone: 267-2169.

Description: This session focuses on the state of knowledge concerning the effects, or lack of effects, of hatchery stocks on wild stocks in Alaska. In 1974, the state legislature passed a bill to allow private, non-profit (PNP) hatcheries to release salmon for the primary purpose of augmenting commercial fishery harvests. Since that time, new hatcheries were built by PNP associations and all but two of the 23 hatcheries built by the state were either closed or production passed on to PNP associations. Today, three federal hatcheries, two state hatcheries, and 31 PNP hatcheries operate in the state. Ninety-nine percent of the 1.5 billion fish released from Alaska hatcheries into the ocean come from the PNP hatcheries. This session is intended to bring differing perspectives on the potential ecological, genetic, harvest, and disease effects of these ocean-released fish on wild stocks.

Session Title: Current Applications of Mark-Recapture Methods in Fisheries Assessment and Management in Alaska.

Session Chair: Pat Hansen, Alaska Department of Fish and Game, e-mail: pat_hansen@fishgame.state.ak.us or phone: 267-2441.

Description: Mark-recapture methods have become increasingly important in fisheries stock assessment and management decisions. A carefully designed (and executed) mark-recapture study can provide detailed quantitative information on abundance, as well as natural mortality, recruitment, and exploitation rates. This session will address current applications of mark-recapture methods to fisheries assessment and management in Alaska. Papers are invited that relate to the various applications of mark-recapture methods, including those that deal with specific problems such as gear selectivity, tag loss, tagging mortality, and movement.

Session Title: Telemetry in Alaska.

Session Chair: John Eiler, National Marine Fisheries Service, e-mail: john.eiler@noaa.gov or phone: 789-6033.

Description: Telemetry has been used since the early 1960s to collect information on aquatic species. Recent advances in electronics and equipment development are providing new opportunities to better understand and manage these resources. In addition to improved receiving systems that have substantially increased data collection capabilities, miniaturization of electronic components has made it possible to study juvenile fish and smaller species.

Advances in telecommunication and data processing also make it possible to access, summarize and present telemetry data in more usable forms. Combined, these technologies are providing powerful tools capable of addressing research and management needs. A variety of aquatic species in Alaska are being studied with telemetry. This session will provide a forum to discuss technical aspects, on-going research, and new information obtained with this technique.

Session Title: Human Nature, Human Influences-Is Alaska Really Different

Session Chair: Dave Cannon, US Fish and Wildlife Service, e-mail: dave_cannon@fws.gov or phone: 543-3151.

Description: By many people's standards, Alaska is quite different from the lower 48, especially considering its sparse population and abundant natural resources. However, fisheries around the world, including Alaska's fisheries, are under immense or increasing pressure from human activities. As resource managers, we're expected to use adaptive management strategies, but unfortunately, we're dealing with a relatively non-adaptive, or slow to adapt society. It appears that as the human population increases and encroachment expands, there is a progression of events (and attitudes) which are the consequence of human nature, which often result in pressures on natural resources. Given the influence of human beings, the lag time associated with "adaptive management" and environmental uncertainty, one might ask if scientific knowledge and management can keep pace to ensure sustainability. The intent of this presentation is to generate thought about the future of Alaska's natural resources and to reflect on how human influence may hinder long term sustainability of our resources.

Marine Protected Areas

Session Chair: Katherine Rowell, e-mail: Kathyr@gci.net or phone: 243-7370.

Description: President Clinton signed an executive order in May 2000, later endorsed by the Bush administration, which directed NOAA and the Department of the Interior to specifically oversee the development of a national system of Marine Protected Areas (MPA's) in conjunction with other Federal, state, and territorial agencies. The Federal Register under Executive Order #13158 defines MPA as "any area of the marine environment that has been reserved by Federal, State, territorial, tribal or local laws or regulations to provide lasting protection for part or all of the natural, cultural resources therein." This broad definition could include national marine sanctuaries, national seashores and parks, critical habitat areas, national

estuarine research areas, and fishery management zones of which most had been established when the executive order was signed. The timing and scope of the directive coincides with the current concern and action towards the protection of the marine environment on an international scale.

A preliminary inventory by National Marine Protected Areas Center lists 317 MPAs under Federal or joint Federal/State management in the United States of which 27 are in Alaska. The Alaskan MPA's are extremely varied, ranging from fishing areas to marine sanctuaries, and extend from southeast Alaska to the Bering/Chukchi Sea. Issues regarding MPA's in Alaskan waters are as diverse as their location and type of area. Topics for discussion are not limited to but may include biodiversity, multiple species management, multiple use issues, applied research, management conflicts, anthropological considerations, and economic impacts both on neighboring communities or constituents. This is an opportunity to provide information regarding any of these or related issues and an update of the information regarding MPA's presented during the 2000 Alaska Chapter meeting.

Contributed Paper Session

Session Chair: Harold Geiger, Alaska Department of Fish and Game, e-mail: hal_geiger@fishgame.state.ak.us or phone: 465-4257.

Description: Fisheries Biologists that have information to present but does not fit the subject matter of the other sessions are encouraged to submit their abstracts to this session.

Poster Session

Session Chair: Cecil Rich, Alaska Department of Fish and Game, e-mail: cecil_rich@fishgame.state.ak.us or phone: 267-2122. Fisheries Biologists that want to present their work with a poster should submit abstracts to this session.

Additional Sessions

The following sessions are planned but the topics are being developed. Please contact the following session chairs if you are interested in presenting your work or if you would like to provide your input into developing these topics:

North Pacific Fishery Management Council Process (point-counter-point)

Session Chair: Cathy Coon, North Pacific Fishery Management Council; e-mail: ftccc@aurora.alaska.edu, Cathy.Coon@noaa.gov, or phone: 271-2809.

Habitat Session

Session Chair: Bill Hauser, Alaska Department of Fish and Game; e-mail: bill_hauser@fishgame.state.ak.us or phone: 267-2172.

Instream Flow Reservation and Protection

Session Chair: Christopher Estes, Alaska Department of Fish and Game; e-mail: christopher_estes@fishgame.state.ak.us or phone: 267-2104.

Office of Subsistence Management Projects

Session Chair: Jerry Berg, US Fish and Wildlife Service; e-mail: jerry_berg@fws.gov or phone: 786-3876. 🐟

Articles for *Oncorhynchus* Wanted

Share your experiences
with Alaska Chapter members.

Please forward appropriate articles or news items to
John.Thedinga@noaa.gov.
Articles are due by June 10 for the next issue.

Tiny 'Frankenfish' to gauge effects of health hazards

AScribe Newswire-WorldCatch News Network

A University of Georgia researcher has patented a tiny, genetically engineered fish to help assess health hazards in the environment. Richard Winn, a toxicologist in UGA's Warnell School of Forest Resources, worked for five years to develop the transgenic fish, a guppie-sized Japanese medaka that carries a gene scientists can use to gauge the damaging effects of chemical contaminants on the body.

Fish are particularly sensitive indicators of contaminants in water and make ideal models for this type of research, said Winn. Beyond that, fish are finally being recognized for their comparative value as an animal model in environmental and biomedical research. Winn conducts his research in the new \$1.3 million Aquatic and Biotechnology and Environmental Laboratory completed in August 2001 in Whitehall Forest near the UGA campus. Funded by the Georgia Research Alliance, the lab includes toxicology laboratories for testing fish under highly controlled conditions.

After exposure of the fish to a chemical, researchers look for changes in the target gene's DNA. The research, supported by the National Institutes of Health, shows remarkably similar responses in fish when compared to studies in mice and rats. A small mutation in the DNA can have serious or even devastating effects, regardless of the species," said Winn. For example, one deviation in one DNA sequence could lead to something as serious as cancer. Fish are showing us that what critter you use as a model becomes less important than the questions you ask."

In a collaborative study with the Environmental Protection Agency, researchers are using Winn's fish to help determine whether the chemical byproducts created in the

disinfection of drinking water could cause cancer. After exposure to the byproducts for nine months, the fish are analyzed for genetic mutations on the target gene.

The scientists are also testing the effectiveness of chemicals that claim to reduce mutations or prevent cancer, such as green tea. They're also investigating whether juveniles are more sensitive to chemical toxicants. Winn says preliminary studies shows that young, developing fish are far more susceptible than adults to genetic damage from exposure to chemical contaminants.

"The potential uses for the fish are endless," says Winn. "They are smaller, cheaper to keep and maintain, and we can use lots of them and replicate studies quickly." While zebrafish have enjoyed more attention, especially in developmental biology research, the transgenic Japanese medaka may finally be coming into its own. In a recent issue of the *Institute for Laboratory Animal Research Journal*, editor Michael Stroskopf points out that "while zebrafish researchers are enjoying improved funding, other fish models are receiving far less attention and funding support than they deserve."

Over the past several years, Winn has written and spoken widely about the value of fish for environmental hazard assessment, toxicology and biomedical research. "Toxicologists are the ultimate 'show me' scientists," says Winn, with a laugh. The fish models are showing us that many of the previous findings with rats were right on track. Fish are receiving greater attention for their ability to demonstrate the unifying principles across species lines that take animal studies truly valuable and applicable to human health." 🐟

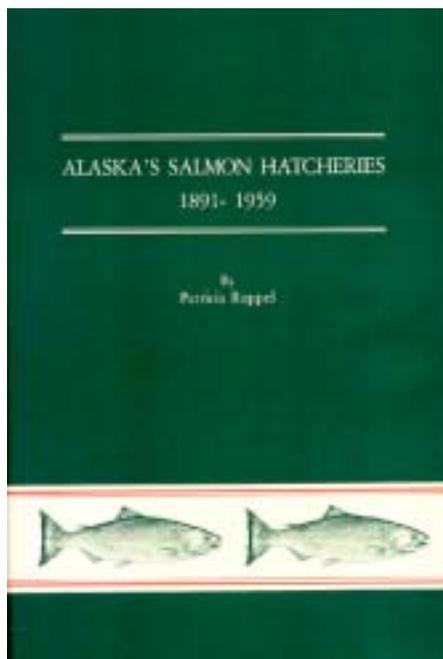
Anyone Interested in Salmon Hatcheries in Alaska?

Bill Heard

But of course you are; almost every person with any interest or concern in Alaska's salmon resources also has an interest in the current salmon hatchery program operating in several regions of the state.

Whether you are inclined to feel pro or con about contemporary hatcheries and their effects on fisheries, stocks, or societal issues, are you aware that the present system that began in the 1970s is the second period when Alaska was "blessed or degraded" with hatcheries? If you do not know about the first period of hatcheries in Alaska, the Alaska Chapter has a special deal for you.

Copies of the book "*Alaska's Salmon Hatcheries 1891-1959*" by Patricia Roppel are available **FREE** at the Auke Bay



Laboratory. This book is an Alaska Historical Commission Study in History and is an account of the early period of salmon hatcheries up to the time of statehood containing a wealth of information on early salmon fisheries and hatchery efforts in the state.

Patricia Roppel, a noted Alaska historian, has published several books and frequent articles on Alaska's past and has received numerous awards for her work including Alaska Historian of the Year.

If you would like a copy of this book call Bridget Goertzen: 789-6632, or e-mail: bridget.goertzen@noaa.gov, You may write: Auke Bay Laboratory, 11305 Glacier Hwy., Juneau, AK 99801. 🐟

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Feel free to contact the Executive Committee members.

2002 AFS Membership Application

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 Equivalent.

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)

* 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 AFS¹ N.A. Journal of Fisheries Management¹
 - \$38.00 Paper in North America \$43.00 Paper other than N.A.
 - \$25.00 E-Pub via WWW/Internet
- North American Journal Journal of Aquatic Animal Health¹
 - \$38.00 Paper in North America \$43.00 Paper other than N.A.
 - \$25.00 E-Pub via WWW/Internet

¹ Prices are for AFS members only ² Membership not required for subscription

** 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.