ONCORHYNCHUS

Newsletter of the Alaska Chapter, American Fisheries Society

Vol. XXVI **Summer 2006** **No. 3**

In this issue:

The processing vessel Alaskan Venturer.

Alaska Protein Recovery

Nearly half of the 800 million pounds of salmon harvested in Alaskan waters each year is ground and discharged back into near shore marine ecosystems. Disposal of this waste not only costs the seafood industry money, but also creates regulatory problems, as environmental and regulatory groups seek ways to eliminate solid waste marine discharges. The increase in waste disposal compliance costs comes at a bad time for the salmon industry, as salmon prices, long depressed by cheap imports of farmed salmon, have created Alaska salmon industry sustainability questions.

In May 2003, Alaska businessman Sandro Lane launched Alaska Protein Recovery (APR) to create ways to convert seafood processing waste, the so-called by-products, into valuable fish oil, protein meal, and minerals. Lane obtained a master's in fishery science from University of Alaska, Juneau in 1983 and is the founder of Taku Fisheries/Smokeries, a Juneau based seafood processing company.

Seafood by-products.

APR was created to develop and produce high value marine bio-nutrients from salmon industry by-products. While wild salmon are very nutritious, only about half of the nutritional value of the salmon is recovered, the other half, consisting of heads, tails, frames, and viscera, contains much of the value. However, this half is considered waste and gets treated as garbage. Shamefully, it ends up being ground and dumped back into the sea. The world is short in supply of quality marine proteins and oils. This shortage puts increasing pressure on the oceans' forage fish stocks, the raw material for fish meal and fish oil production. The growth in aquaculture has had a tremendous impact on the demand for fish proteins and oil, and correspondingly, on the world's forage fish stocks.

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The President's Column

Scott Maclean

Scott Maclean, AFS Alaska Chapter President

Have you heard of "didymo"? I learned of didymo—short for the diatom *Didymosphenia geminate*—while attending the Western Division AFS conference in Bozeman, Montana. Imagine a sheepskin with really long hair, super-saturated with water, sodden and sloppy. Then imagine that sheepskin spreading and wrapping itself tightly around every stone in the bed of a productive salmon or trout stream. 'Long sheets of toilet paper in the stream' is another description of what a didymo outbreak looks like. Dramatic reductions in fish abundance are related to outbreaks of didymo. It is native to North America but nobody knows why it has undergone explosive population growth in some streams. Although many questions remain, fellow scientists have figured a few things out. Didymo can tolerate a variety of temperatures and water chemistries, but tends to do well in wide streams, with a stable riverbed and flow, exposed to lots of sunlight. Didymo is thought to have been transported around the globe on the felt soles of people's waders and is commonly found in flow-regulated rivers and streams. Have you seen it in Alaska?

The didymo problem is just one of many tidbits I picked up while attending the WDAFS conference. The workshop "Study Design and Applied Statistics for Fisheries Biologists" was particularly helpful in providing guidance on developing sampling designs for collecting legally defensible baseline data. I found the panel discussion on "Water in the West" frightening and illuminating; water allocations for agricultural, industrial, and domestic uses have exceeded availability. In other words, groundwater and surface waters have been over-allocated, often without regard to aquatic resources. Today, there is a push to integrate consideration of ground and surface water use with development plans. Finally, regulatory agencies are acknowledging the need to consider all aquatic organisms, species, watersheds, and hydrology as well as the connectivity of these resources. This situation is an excellent example of how we are "trapped in the ignorance of our own generation" (Stephen Jay Gould).

A highlight of the WDAFS meeting was hearing Phil Pister, the executive secretary of the Desert Fishes Council, talk during the Plenary Session. Several of you may have heard him talk at our 2002 Chapter meeting in Girdwood. Following work by Aldo Leopold, Phil emphasized habitat integrity as the foundation of healthy ecosystems. However, our unsustainable society is increasingly being diminished by the rapid reduction in habitat integrity. One example presented was the rapid population growth and water consumption of Las Vegas, where 275,000 people lived in 1970 compared to about 2 million today. Aquatic habitat and resources are being jeopardized by the increasing demands for water. What next? Now is the greatest period of ecological literacy! Our generation should be more aware of the ecological implications of their actions than any previous generation. Get involved. You have special knowledge. You have an informed point of view. Let your government know that you want it to protect and conserve our fishery and aquatic resources.

In conclusion, I felt the conference was very worth while and I am grateful to the Chapter membership and my office for the opportunity to have attended this important meeting. The WDAFS conference is an example of the high quality annual meetings that continue to be the cornerstone of the Society. These meetings provide an opportunity for the diverse group of people that define themselves as "Fisheries Professionals" to share information about the spectrum of management and research relating to the conservation and utilization of aquatic resources. Providing this forum and opportunity to develop our profession remains a vital role of the Chapters, Divisions, and the Parent Society. I encourage you all to attend the 33rd Alaska Chapter meeting scheduled for November 13–16, 2006 in Fairbanks—pass the word on to colleagues too. For more information, see the enclosed final call for papers and the website at *www.fisheries.org/afs-ak/meetings/2006/meet2006.htm.*

Writing Workshop

Hamachan Hamazaki

Instructor Judd Monroe will offer the ever-popular technical writing workshop the week prior to the annual Alaska Chapter conference November 9–13 in Fairbanks. To register or for more information please contact Continuing Education Committee Chair Toshihide 'Hamachan' Hamazaki at *hamachan_hamazaki@fishgame.state.ak.us,* or (907) 267-2158.

ONCORHYNCHUS

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Deadline for materials for the fall issue of Oncorhynchus is Sept. 10.

Alaska Chapter's Internet Home Page Address
http://www.fisheries.org/afs-ak/

A reminder that applications for the Cultural Diversity Travel Award to attend the 2006 annual meeting are due October 13, 2006.
See the website at *http://www.fisheries.org/afs-ak/awards_scholarships.htm*
for award guidelines and application form.

Alaska Protein Recovery, Continued

From left to right–salmon flour, hydrolysate, salmon bone, salmon oil, dried sarcoplasmic proteins, dried myofibrillar proteins.

The salmon farming industry has been reaping profits from by-products since its beginning. Salmon farmers in Chile and Norway may even auction their waste to animal feed and nutraceutical companies. In the case of farmed salmon, we may ask, what is the by-product, the cheap fillets we see at the stores, or the soluble and insoluble proteins, Omega-3 oils, and calcium powder made from the waste? In fact, by-product sales may help to explain why farmed salmon are so much cheaper in the US than Alaska salmon.

Using a unique bio-tech process, APR produces a hydrolyzed salmon protein concentrate, called simply hydrolysate, and salmon oil. The "waste" is very fresh and has been handled in accordance with USFDA food grade regulations. Get over the image of rotting, stinking fish heads and guts and start thinking of usable clean raw material with a significant value. This process is more similar to pulp grade wood in a logging operation, or juice apples and oranges in the fruit industry.

APR's salmon hydrolysate production occurs on a one-of-a-kind, state-of-the-art, computer-controlled, mobile fish processing plant, which is housed on a 260 by 60 ft barge, the Alaskan Venturer (A/V). The plant can process up to 150–200 metric tons of salmon by-products daily. Salmon oil is extracted at an early stage of the hydrolytic process in a "cold-pressed, extra-virgin" way, just like olive oil. The end product of the process is a concentrated dark brown, viscous liquid called "salmon hydrolysate" that has both the odor and taste of fresh seafood and the consistency of chocolate pudding. The hydrolysate can be sold as a liquid or dried into a fine flour-like powder. The powder can be sold directly into agricultural feed markets, as well as aqua feed and pet food markets, much like fish meal is today. The concentrate can be sold in organic fertilizer markets as well as feed markets. But possibly the greatest potential use and value for these salmon products is as human dietary supplements.

The difference between traditional fish meal and hydrolyzed salmon meal is that in fish meal production, you apply high heat to ground fish waste to break oil free from the flesh. The super-heated waste is mechanically pressed to separate the solids from the liquids. The solids are cooked at high heat and milled into a powder. The liquid phase is sent to a centrifuge where oil and water are separated. High heat is used in order to maximize the separation of oil from the liquid. The de-oiled liquid, which is 30% soluble protein, is discarded. The soluble, sarcoplasmic proteins are highly nutritious and quite valuable, as they are the easiest proteins to absorb and therefore provide the most nutrition using the least amount of energy. This property is critical for animals without fully developed digestive systems (i.e. infants, weanling pigs, calves, etc.) or adults with compromised digestive tracts.

Hydrolyzed salmon protein concentrate (hydrolysate).

Unlike fish meal production, APR's hydrolysis process uses natural enzymes to break long-chain proteins into smaller and easier to absorb polypeptides. Soluble proteins are never separated out and this gives salmon hydrolysate a more complete protein composition than fish meal which lacks the soluble protein. In addition, the operating temperatures for the hydrolysate production are below 55° C. The low temperature process protects the proteins from thermal degradation. Hydrolyzed fish protein is nutritionally better balanced, easier to digest, less energy consuming, and more integral than fish meal. Hydrolysate will outperform fish meal when used as a feed. "The proof is in the pudding," Lane jokes, as he explains that *in vivo* testing with piglets, chicks, and larval shrimp is underway at various universities and research labs, testing his efforts and theories.

The A/V has processed 16 million pounds of seafood by-products in its first three seasons, operating in Excursion Inlet, Petersburg and Sitka and will process again in 2006.

Final Call for Papers, Alaska Chapter Annual Conference: "Partnering with Change, 21st Century Aquatic Ecology in Alaska"

Jamal Moss

The 33rd annual meeting of the American Fisheries Society, Alaska Chapter will be held at the Wedgewood Resort located in Fairbanks, Alaska November 13–16. A block of 65 rooms have been reserved at a nightly rate of $70 for up to 2 persons, with an additional $10 charge for each additional person up to a total of 4 persons. However, only 30 of the 65 rooms will be available on November 11th, with the remaining rooms becoming available on the 12th. Please note that this discounted room rate is only applicable for reservations made over the phone (800 528-4916 or 907 452-1442), referencing the reservation code: AFS1106, and will not be honored using the online reservation system. Last, but not least, a ½-day trip to the Chena Hot Springs is scheduled for Friday November 17. Round trip transportation, soak-pass, and tour of the Ice Hotel/Museum and Stoli Bar is $65 with 48-hour advanced purchase, or $70 without. Cross-country skiing ($7 daily rental) and nature trail walks are also available at Chena Hot Springs.

Our banquet speaker is Ronnie Greer, an acclaimed char biologist from Scotland, who will share his personal research and give an overview of fisheries biology in Scotland. Francis Weise and Bill Wilson are our plenary speakers, and Jim Reynolds will show a 45-minute video entitled "Training community members to monitor their fishing grounds in the Fiji Islands." Specific sessions and corresponding session leaders are as follows:

Session Title: Alaskan Estuaries

Session Chair: Nicola Hilgruber (907) 796-6288, *ffnh@uaf.edu.*

Estuaries are the sites of interaction between the rivers and the sea. Consequently, estuaries are characterized by strong physical gradients that influence the structure of the composition of species residing in them. In addition to resident species, estuaries provide important temporary spawning, nursery, migratory, and over-wintering habitat for a diverse array of taxa. Estuaries are also frequently the site of intense interaction between humans and the environment and human disturbances are often most pronounced in these bodies of water. In spite of the tremendous importance of these nearshore areas, only little is known of the ecology of Alaskan estuaries.

This session invites contributions that will increase our understanding of Alaskan estuaries. We encourage papers that focus on estuarine ecology, including among others research on species composition, temporal and spatial patterns of abundance, feeding ecology, energetic patterns, and growth. We also welcome contributions on human impact on estuaries.

Session Title: Behavioral ecology

Session Chair: Nicholas Hughes (907) 474-7177, *ffnfh@uaf.edu.*

Behavioral ecology is the study of the way an animal's ecology and evolutionary history shape its behavior. Historically the development of behavioral ecology began with foraging theory, but it has now grown to cover a broader field, including habitat selection, indirect effects of predation risk, the way individual behavior translates into population dynamics, and even cognitive ecology. Wildlife biologists have been quicker to realize the value of this relatively new field than have fisheries biologists and I hope this session will illustrate the value of using ideas from behavioral ecology to "think like a fish." While open to any paper on behavioral ecology, this session will focus on innovative ways in which an understanding of behavioral ecology can provide information useful to fisheries scientists. Such topics might include: the way an understanding of the behavioral ecology of migration can help in acoustical stock assessment, how an understanding of the behavioral ecology of fish distribution can help in forecasting the effects of environmental conditions on population dynamics, and how an understanding of multi-trophic level games can help explain fish distribution and system productivity. Prospective presenters should contact Nick Hughes.

Session Title: Aquatic Education

Session Chairs: Bonita Nelson (907) 789-6071, *Bonita.Nelson@noaa.gov*; and Eric Anderson (907) 459-7350, *Erik_Anderson@fishgame.state.ak.us.*

Public outreach is beginning to figure prominently in science plans and agency operations, because it provides the public and policy makers with scientific information they can use to make rational decisions about natural resources. Most resource science is derived from public funds, so it is our responsibility to share the information we gain with the public in a meaningful and accessible way. Outreach can take a variety of forms, from classroom presentations, to websites, to participation in science fairs. As agencies begin to value outreach, there is a greater need to developing these programs. Successful development depends on the competencies and interests of the people who will be involved in a program. The goals of this session are to explore the range of outreach programs currently underway in Alaska, provide scientists involved in outreach with a forum for exploring new ideas and techniques, and allow those involved in outreach to get to know each other.

Session Title: Marine Ecology

Session Chair: Kyle Hebert (907) 465-4228, *kyle_hebert@fishgame.state.ak.us.*

We are pleased to announce that this year there will again be a session dedicated to marine ecology. This session is intended to provide a forum to present a wide spectrum of research results involving individual species, assemblages, trophic levels, or their interactions in marine ecosystems. Contributions may include subjects that relate to pelagic, benthic, offshore, nearshore, or intertidal systems. Suggested topics include, but are not limited to: life history, population ecology, stock assessment and effects of fisheries on marine systems. Reports of research within or adjacent to Alaska's waters are particularly encouraged. If you have material that is appropriate for the session and have interest in presenting at the 2006 AFS Alaska Chapter Annual Meeting, please submit an abstract to Kyle Hebert, Alaska Department of Fish and Game, P.O. Box 110024, Juneau, Alaska, 99811-0024.

Session Title: Alaskan Commercial Shellfish Fisheries

Session Chair: Gretchen Bishop (907) 465-4269, *gretchen_bishop@fishgame.state.ak.us.*

Commercial shellfish fisheries in Alaska and elsewhere have proved vulnerable to serial depletion or stock declines, often due to unexplained recruitment failures. In some cases, it appears that ecosystem processes have in effect "trumped the hand" of apparently successful management programs. Furthermore, the biologists who manage and assess these

First Recipient of the Molly Ahlgren Award

Hal Geiger

Sheldon Jackson College selected the first recipient of the Chapter's Molly Ahlgren Scholarship Award on April 22, Founder's Day at the College. The award went to Sonya Weihl, a junior majoring in marine biology. Sonya is from Muskegon, Michigan, and she came to Sheldon Jackson in 2003. For her senior project she plans to study shrimp behavior. Following her time in Sitka, she would like to conduct graduate work in marine biology at a university yet to be determined. Prof. Keith Cox, Molly's successor at Sheldon Jackson, made the presentation and read some short remarks on behalf of the Chapter, prepared by Hal Geiger, the Chapter's past president. Obviously, congratulations to Sonya, and warmest wishes from the Chapter.

Sonya Weihl receives the 1st Molly Ahlgren Award from Professor Keith Cox.

Juneau Subunit Hosts Student Symposium

Katie Palof

It was a beautiful April day in Juneau when Katie Palof, president of the Juneau student subunit of the AFS Alaska Chapter, opened the 10th Annual Student Symposium at the University of Alaska Southeast campus on April 5th, 2006. Subunit advisor Dr. Milo Adkison provided opening remarks, this was followed by student presentations in front of a 40-member audience comprised of university staff, various government agencies, and other students. Presentation topics included: spatial assessment models for Bering Sea Walleye pollock, hydroacoustic data as a relative index to Prince William Sound disease models, genetic structure of Pacific ocean perch, seasonal variation of nitrogen pools in two red algal species, interaction between commercial fishing and Walleye pollock, embryonic development of Atka mackerel, and early life history of eulachon from Berners Bay. This year's best student presenter was Jared Guthridge with his presentation on "Embryonic development and the effect of temperature on hatch time for Atka mackerel." The symposium is intended as an opportunity for students to present results of their theses and other projects in front of an informal crowd of peers. Appreciation is extended to the fisheries professionals that agreed to evaluate the student presentations! For additional information, contact Katie Palof at *ftkjp@uaf.edu.*

Juneau Student sub-unit president, Katie Palof, presents "Best Presentation" winner, Jared Guthridge, with his plaque.

Alaska Chapter Annual Conference, Continued

fisheries often find themselves in data limited situations. In this session we will focus on the challenges of developing management and stock assessment methods for shellfish fisheries which are resilient to dynamic ecosystems and data poor situations.

Session Title: Preserving Fish Habitat in the 21st Century

Session Chair: Lawrence Peltz (907) 271-1332, *lawrence.peltz@noaa.gov.*

Fish habitat in Alaska will be subject to a variety of increasing pressures as Alaska continues to grow in the 21st Century. This session will look at a wide range of habitat issues. The primary sources of increasing pressures on the habitat will be examined. Mechanisms currently in place to protect fish habitat will be briefly summarized. Potential partnerships that may help preserve and restore habitat will be presented.

Session Title: Contributed Papers

Session Chair: Hal Geiger (907) 465-4257, *hal_geiger@fishgame.state.ak.us.*

Presenters with topics that do not fit the subject matter of the other sessions are encouraged to submit their abstracts to this session.

A Reminder

Nominations for Meritorious Service Award,
Chapter Service Award, and
Almost Darwin Awards must be submitted
by July 31, 2006 to be considered for this calendar year.
For the award nomination form, see the website at
http://www.fisheries.org/afs-ak/awards_scholarships.htm

Committee Reports

Awards, Fisheries Education and Communication, and Cultural Diversity committee reports have already been published in Oncorhynchus issues 26(1), and 2 respectively; the remainder of the 2005 committee reports follow here.

Electronic Communication

Allen Bingham, Committee Chair

This committee was established at the 1995 annual Chapter meeting in Wasilla. Its main purpose is to maintain and keep current the Alaska Chapter web site.

During the past few years the web site has essentially just been maintained (i.e., no new improvements). The web site was successfully used to conduct on-line e-balloting for the elections in the past, and is expected to be used for that purpose annually. Each newsletter that has been put out during this past year has been made available on our web site in Adobe Acrobat (pdf) format; and information about training courses and meetings of not only the Chapter but also the Parent Society and the Western Division have been posted.

The Student Subunit web site is maintained as a portion of our site, and has continued to be maintained by the Electronics Communications Committee. Their web site address is: *http://www.fisheries.org/afs-ak/student.* The Student Subunit's web site includes postings of the officers, meetings, and special event announcements for active campus groups at the University of Alaska Anchorage (UAA), University of Alaska Southeast in Juneau (UAS), University of Alaska Fairbanks (UAF), and Sheldon Jackson College in Sitka.

The committee continued to maintain an email distribution list for most Chapter members with email addresses in the Chapter's membership database. The distribution list was used to successfully get the word out for Chapter activities such as the recent announcements for the 2005 Annual Conference.

The committee is interested in hearing what members would like to see on our web site. The web site address is: *http://www.fisheries.org/afs-ak* and the e-mail address for sending comment about, or a contribution to, the web site is: *allen_bingham@fishgame.state.ak.us.*

International Relations

Fred DeCicco

The primary duties of the International Relations Committee are to:

- Encourage and facilitate communication and exchange of ideas among Alaska Chapter members and members of the international fisheries community.
- Widen the program at Alaska Chapter meetings by facilitating the inclusion of a foreign speaker from an Arctic or sub-Arctic region of the world to discuss fisheries related issues, programs and problems from a different perspective.
- Encourage participation of Alaska Chapter members in fisheries conferences, exchanges, and projects occurring in other countries.
- Provide the President of the Alaska Chapter with an annual report of Committee membership, activities and accomplishments.

The committee is composed of the chair, Fred DeCicco, and members: Nick Hughes, Bill Hines, Mark Stopha, Vic Storoska, Ken Harper, Jack Piccolo, Lou Carufel, and Gordon Haas.

Nick Hughes facilitated the participation of several New Zealanders at the national meeting in Anchorage and continues to work cooperatively on drift feeding ecology of brown trout on the South Island of New Zealand. The committee has arranged for the banquet speaker for the 2006 annual meeting in Fairbanks. Ron Greer from Scotland will provide an entertaining talk covering environmental history in Scotland, and his passions for Arctic charr, Picts and Romans.

Membership

Scott Maclean and Allen Bingham

Once again, most of the credit for monitoring and promoting the Chapter's membership is due to Allen Bingham. Allen has provided the summary statistics for the annual Membership Committee's report.

The membership statistics for 2005 are very similar to those for the previous year. In 2005 membership increased by 20 members, or about 5%. There was an appreciable decrease in the life membership category in 2005; this mostly reflects a decrease in Chapter membership of some AFS life members, but is also due to some life members moving out of state.

Summary of AFS Alaska Chapter membership from 2001 to 2005

Members	Month and year of report				
	June 2001	Sept. 2002	May 2003	June 2004	June 2005
Active	318	278	254	267	288
Life	48	27	35	32	23
Retired	8	7	7	9	9
Student	51	50	51	54	60
Other	0	11	18	34	36
Total	**425**	**373**	**365**	**396**	**416**
Owe AFS parent dues	61	0	0	0	0
Recent delinquent	11	102	98	96	105
Owe chapter dues	88	11	18	20	10
# States besides Alaska with Alaska Chapter members	10	14	9	16	13

AFS Alaska Chapter

Annual Meeting

Fairbanks

November 13–16, 2006

Put this date on your calendar today!

Meetings and Events

ICBF7

July 18–22, 2006: The American Fisheries Society is a co-sponsor of the Seventh International Congress on the Biology of Fish. The congress will be held at St. John's, Newfoundland, Canada. For more information see *www.mun.ca/biology/icbf7* or contact Kurt Gamperl at *kgamperl@mun.ca,* or (709) 737-2692.

Alaska Chapter of the American Statistical Association

July 18–20, 2006: The Alaska Chapter of the American Statistical Association (ASA) will hold its annual meeting at Centennial Hall in downtown Juneau. This conference consists of a short course, and several sessions presented by ASA members. The short course will be taught by Drs. Jennifer Hoeting and Geof Givens. Both are professors of statistics at Colorado State University. They are co-authors of the book *Computational Statistics*. Software used in the class will be the statistical package R. R is a powerful, yet free software package, freely available for download from the internet. Check out the information on the AK Chapter ASA web-site at *http://www.amstat.org/chapters/Alaska/* or contact Randy Mullen at *randy_mullen@fishgame.state.ak.us*.

2006 Joint Statistical Meetings

August 6–10, 2006: The 2006 Joint Statistical Meetings (JSM) will be held in Seattle, WA. For information check out the JSM web-site at *http://www.amstat.org/meetings/jsm/2006*.

AFS 136th Annual Meeting

September 10–14, 2006: The Annual Meeting of the American Fisheries Society will be held in Lake Placid, New York. The theme of the meeting is "Fish in the Balance," and it will explore the interrelation between fish, aquatic habitats and man. Check out the meeting web site for more information at *http://www.afslakeplacid.org*.

3rd International Symposium on Stock Enhancement and Sea Ranching

September 18–21, 2006: The Third International Symposium on Stock Enhancement and Sea Ranching will be held in Seattle, Washington. Visit the website at *http://www.searanching.org* or contact *info@searanching.org*.

15th International Salmonid Conference

October 17–20, 2006: Sponsored by the AFS Fisheries Management Section, this meeting will be held Newcastle, UK. For more information see *http://www.associationofriverstrusts.org.uk/salmonid_conf/index.htm* or contact Arlin Rickard at *arlin@associationofriverstrusts.org.uk,* or 44 (0)1208 851369.

24th Lowell Wakefield Symposium

October 31–November 3, 2006: The 24th Lowell Wakefield Symposium entitled "Resiliency of Gadid Stocks to Fishing and Climate Change," will be held in Anchorage. For more information, visit the sea grant website at *http://www.uaf.edu/seagrant/Conferences/gadids/index.html* or contact the symposium coordinator Sherri Pristash at *fyconf@uaf.edu*.

PICES 15th Annual Meeting

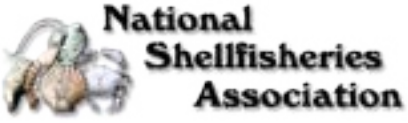
October 13–22, 2006: The PICES 15th Annual Meeting on Boundary current ecosystems will be held in Yokohama, Japan. The meeting is hosted by the Government of Japan, in cooperation with the Fisheries Research Agency, in coordination with the PICES Secretariat. The deadline for abstract submission is July 1, 2006. For more information, check the website at *http://www.pices.int/meetings/annual/PICES15/background.aspx*.

Western Society of Naturalists

November 9–12, 2006: The 87th Annual Meeting of WSN will be held in Redmond, WA. Visit the website at *http://www.wsn-online.org/index.html* for more information.

98th Annual NSA Meeting

February 26–March 2, 2007: The 98th Annual NSA Meeting will be held in conjunction with AQUA 07 in San Antonio, Texas. Abstracts are due August 25, 2006. For details, check out the meeting website at *http://www.was.org/meetings/ConferenceInfo.asp?MeetingCode=AQ2007*.



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Feel free to contact the Executive Committee members.

2006 AFS Membership Application

You can JOIN the AFS and the Alaska Chapter on-line (or by fax/phone), see *http://www.fisheries.org/html/membership/choicenew.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)**: $19.00 (Other than North America, $22.00)
❑ 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)

Journal Subscriptions (Optional)
❑ Transactions of the AFS[1] ❑ N.A. 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 of Aquaculture[2] ❑ Journal of Aquatic Animal Health[1]
❑ $38.00 Paper in North America ❑ $41.00 Paper other than N.A.
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