

THE TRIBUTARY

A Newsletter of the Western Division,
American Fisheries Society



American Fisheries Society
Western Division

Volume 15, No. 1/December 1989

THE PRESIDENT'S CORNER

We owe Pat Dwyer our thanks for an excellent job as president. I especially enjoyed working with Pat and I learned a great deal from him. Pat and I attended the society's annual conference in Anchorage. The meeting was at a wonderful facility, included diverse and interesting technical sessions as well as fun social hours. The Alaska chapter did an extraordinary job organizing the conference and they should be commended for their efforts. The division's annual meeting is shaping up nicely thanks to Dave Burns and all his assistants. We hope to see you all at Sun Valley.

I want to urge the membership to contact the officers with any suggestions, complaints or any issues that are on your mind. Without your input our ability to be an active and vital organization will fail. In this vein I will be requesting that each chapter write a "What's Up" column for the upcoming issue of *The Tributary*. I expect to be hearing from you. Happy holidays.

Cay Collette Goude, President

GREETINGS FROM THE PAST

My year as president went very quickly. I was glad to get to meet so many of the fishery people working in the Western Division and the whole Society. It was indeed an honor to be able to serve as president last year. Please give Cay Goude all the support you gave me; she will do a great job for all of us.

There are some topics which came up at the Western Division Annual Business Meeting and Retreat last July in Seattle which should come to your attention.

- The decision was made to not meet with WAFWA in 1991 as they will be meeting outside of the western division. This is for 1991 only. Don Chase has been appointed Time and Place Committee Chair for the 1991 meeting.

- WDAFS/WAFWA relation was discussed. Glenn Phillips has been appointed committee chair to look into this and make a recommendation to the EXCOM.

- The subject of splitting the Western Division was brought up and a committee was appointed to look into the pros and cons of this proposal. Susan Martin is the Chair. She will be making her committee recommendations to the EXCOM.

- The Western Division responded to a request for financial support by the World Fisheries Congress Steering Committee by donating \$2,000 after a favorable vote at the business meeting.

- The Western Division membership voted to donate \$500 to Natural Resources Legal Defense Fund to help support water issues in California.

- After discussion and revision, a resolution was passed which supports the past fish disease inspection procedures and responsibilities and recommends that funding be allocated to continue. This resolution has been sent to a wide variety of people and responses to date are in support of the issue.

Thank you to all of the committee chairs and everyone else who helped me so much last year.

Pat Dwyer, Immediate Past President

The Tributary is distributed to 3000 WDAFS members and exists as a forum to present fisheries-related information. As the editor, I cannot accomplish this goal unless YOU participate! The WDAFS will publish three editions of **The Tributary** in 1990. Deadlines for submission of articles for **The Tributary** are February 15 (for the Winter issue), May 20 (for the Spring issue) and October 15 (for the Fall issue). If you have information you would like included in **The Tributary**, send it to:

ROGER W. OVINK, TRIBUTARY EDITOR

P.O. Box 428
Corvallis, Oregon 97339

SOCIETY NEWS

1989 ANNUAL MEETING HIGHLIGHTS

504 members attended the annual banquet and heard President Bob White, Alaska Chapter, president Tom Kron and others present a series of Society awards. There was no banquet speaker and the activities went quite smoothly. The awards and winners are as follows: Best paper in Transactions – D.W. Chapman, Best Paper in North American Journal of Fisheries Management – H.L. Raymond, Distinguished Service Award – Dr. Reeve Bailey, Award for Excellence in Fisheries Education – Dr. Saul Saila, AFS Award of Excellence – Dr. John Cairns, Jr., J. Frances Allen Scholarship – Susan Sogard.

UPCOMING ANNUAL MEETING NEWS

The Oregon chapter won out in spirited competition with the Bonneville Chapter to host the 1993 annual meeting. Seattle also came in with a fine and carefully documented proposal. We thank Time and Place Committee chairman Bob Gray for his thorough work. The 1990 meeting will be in Pittsburg, PA; the 1991 meeting in San Antonio, TX; the 1992 meeting in Rapid City, SD; and the 1993 meeting in Portland, OR. Enthusiasm is high in each city.

CLEAN LAKES CLEARINGHOUSE

The Clean Lakes Clearinghouse has been developed by the EPA to identify technical information on lake management, restoration and protection. The objectives of the clearinghouse are to establish a core of technical literature on lakes and to make the information available.

This service is available now. Please refer to page 10 for more detailed information.

ATTA BOY RANDY

Words of praise from the boss are always appreciated so we're sure that 1989 AFS meeting general chairman Randy Bailey took great satisfaction from Fish and Wildlife Service director Turner's recent letter which read: "Congratulations on what is already being heralded as the most outstanding annual meeting that the American Fisheries Society has had. "I have been told that not only was it the largest in attendance and in the number of professional papers presented, but it was also the best organized down to the smallest

detail. I commend you for the outstanding job you did as the Program and General Chairman. The meeting's success reflects the hard work, dedication, and leadership that you provided. Additionally, it reflects well on the Fish and Wildlife Service and supports my desire to enhance professionalism within the Service."

FROM THE PARENT SOCIETY

What percentage of fisheries biologists are AFS members? We are asked this question frequently and our best evidence is just over half. Recent figures from the Iowa DNR are instructive. Of 33 biologists, 21 are AFS members, 8 are "affiliated" only with the Iowa AFS Chapter and 4 are not involved. We're interested in similar information from other states if someone will send it to us.

VISIBILITY ACTION PLAN

On July 3, 1989 we met at the Kiana Lodge, Washington for our annual WDAFS ExCom Retreat. Our efforts were focused on developing methods of implementation for the WDAFS Visibility Action Plan-Phase 1, Public Awareness/Constituency Building. We were able to benefit and start from the outputs of the AFS ExCom Retreat in March, 1989 at Port Aransas, Texas. This gave us an excellent pool of ideas from which to develop methods that can be tailored to the Chapters and the Division.

1. Identify and rank constituencies

Traditional

Non-traditional

2. Prepare a Chapter Action Plan with specifics for interacting with each constituent group.

Reach out to future constituents

Focus on a few issues

Inventory Chapter ability and areas of expertise

3. Develop legislative network

Specific resource committees; e.g., riparian, estuarine

Develop consensus within Chapter on issues

Identify spokespersons (the best ones) who are free from agency representation

4. Public Education

Media

Establish a press liaison

Hold press conferences for critical issues

Invite media to annual meetings

Public

Speakers' bureau

Use existing agency PR resources

"Beat the AFS Drum"

Slide show/brochures

Attend trade shows

Sponsor public meetings on specific aquatic/fish issues

Formal Education

Chapter involvement in elementary education

5. Timely response to issues

Prepare briefing papers/position statements

Establish a rapid response mechanism

6. Increase agency support for employee participation

7. Develop a state Fishermen Involved in Saving Habitat (F.I.S.H.) program

CAL/NEVA CHAPTER AMENDMENT

The Cal/Neva Chapter is advocating a state constitutional amendment to depoliticize and increase professionalism in the California Fish and Game Commission. Their letter to Assemblyman Robert J. Campbell asserts that such action is needed to promote sound stewardship of the state's fish and wildlife resources. The resolution proposes that commissioners serve staggered six-year terms and that they be selected to represent nine interest areas: professional fish and wildlife, conservation organizations, conservation education, commercial fisheries, sport fishing, sport hunting, land use planning, private fish and wildlife and the public. For more information contact Mike Aceituno, Cal/Neva president-elect, 916/978-4613.

JOBSOURCE TERMINATED

The AFS contract with JOBSource will be terminated at the end of 1989 and alternative "in-house" employment service systems will be explored. Use of JOBSource by individuals has been lower than expected and, as a result, the present contracted cost is simply too high (\$150 per individual user).

Election Alert

WDAFS elections will be upon us all too soon. If you would like to run for office or would like to nominate someone for office, please contact Pat Dwyer, 27 Border Lane, Bozeman, MT 59715, 406/587-9265.

WESTERN DIVISION 1989-1990 BUDGET

Source	Budgeted
<i>Newsletter</i>	\$4,500.00
<i>Travel</i>	\$5,000.00
<i>Awards</i>	
Parent Society Raffle/Home Fund	500.00
ARCO Student Award	150.00
Riparian Challenge	200.00
<i>Committees</i>	500.00
<i>Other</i>	
World Fisheries Conference	2000.00
NRDC Lawsuit	250.00
Membership Drive	250.00
<i>Assessments</i>	
WAFWA Dues	150.00
<i>Administrative</i>	
Postage, etc.	200.00
Services (Banks, printing, etc.)	200.00



HAZ WASTE AND T&ES

The U.S. Fish and Wildlife Service has evaluated the effect of 109 chemical pesticide compounds on 164 federally listed threatened and endangered species. Aquatic species are included in the biological opinions requested by the Environmental Protection Agency in the agency's September 30, 1988, request for Section 7 (of the Endangered Species Act) consultation. As a result of the request the Service constructed an aquatic species/pesticide risk assessment model that considered species exposure, pesticide toxicity, secondary impacts from pesticides and special concerns. The model was then used to assess effects on target and non-target species to develop alternatives and to prescribe mitigation measures. The format of the 600-700 page report will be: 1) Assumptions; 2) Affects of pesticides on species; 3) Species profiles; 4) Maps or location descriptions (transmitted separately); and 5) Chemical data sheets—hazard data. The report should be of great value, not only for T&E species, but also for general evaluation of pesticide effects on aquatic systems. As a result of the study and report EPA will need to significantly change its pesticide labeling program—23 percent of the species/pesticide combinations resulted in a jeopardy opinion.

BEAVERS COME TO THE RESCUE

Even if they are the esteemed dam builders of the natural world, beavers don't always get a lot of respect. The aquatic rodents have been blamed for everything from felling valuable trees to causing giardiasis, or "beaver fever," in drinking water. In Grand City, Missouri, however, beavers have achieved the status of heroes after helping maintain the town's water supply through the grueling drought of 1988 that extended into this year.

Toward the end of 1987, just as rains began getting fewer and farther between, beavers began building dams on the Grand River upstream from Grant City. As beaver dams have a way of doing with just sticks and mud, water from the dwindling stream built up into a fairly sizable pond. As the dry times wore on, town residents began giving the beavers credit for holding back the river and maintaining groundwater levels. Even while wells in Redding, Iowa, located just eight miles north, went dry and the National Guard was hauling water to other towns, Grant city's wells maintained their daily supply of some 140,000 gallons for a thousand or so residents.

Without the handiwork of the beavers, the Grand River would likely have been just another parched streambed, maintains Ronnie Force, Grant City's water superintendent.

SUPREME COURT UPHOLDS PROTECTION FOR TROUT

The California State Supreme Court has rejected an appeal by the Los Angeles Department of Water and Power to review a Sacramento Appellate Court decision won by California Trout in January which requires the state to recall and reissue water licenses held by L.A. Water and Power Department and to condition the licenses so they provide sufficient streamflows to keep trout in good condition in Rush Creek, Walker Creek, Parker Creek and Lee Vining Creek, all tributaries to Mono Lake In Mono County.

The unanimous ruling in California Trout Inc. v. State Water Resources Control Board ends nearly 50 years of illegal draining of the streams by Los Angeles and bodes well for similar circumstances in other parts of the state where fishery needs have been disregarded and public trust values thus destroyed. CalTrout's volunteer legal counsel, Vice President Barrett McInerney, estimates the decision will cost \$15.6 million annually for replacement power and water. In recognition for his key role in winning this most important development in the tangled history of California water

law over the last sixty years, CalTrout has bestowed to Barrett McInerney the Roderick Haig-Brown Award. For more information contact California Trout, 870 Market Street, #859, San Francisco, CA 97102.

CALIFORNIA CHINOOK ENDANGERED

A sweeping about-face decision placing the decimated winter-run chinook salmon on California's endangered species list sent ripples, some of them potentially expensive, up the Sacramento River's length.

The winter salmon, which has tumbled from about 130,000 fish to a mere 550 in 30 years, is the only salmon protected by the California Endangered Species Act. Salmon do not have federal protection.

State endangered-species status "brings into play a number of fairly powerful tools under the Act," said Cindy Deacon Williams, president-elect of the the Cal/Neve chapter of the American Fisheries Society, which sued the U.S. government to obtain federal protection.

The 3-0 vote by the Fish and Game Commission, the policy arm of the Department of Fish and Game, directed department biologists to immediately begin assessing the effect projects planned along the 373-mile Sacramento will have on fisheries. Plans for hydroelectric power plants and levee improvement are among the projects to be examined.

Biologists stated that only 550 fish, a number so low that supporters said commissioners had little choice but to vote for the listing, will reach spawning grounds between the Red Bluff Diversion Dam and Keswick Dam above Redding this year. The low return pushes the fish dangerously close to extinction in California. The count is below the expected 6969 adult fish, and stunningly lower than the 2,000 estimated in the last three spawning runs. The commission had cited the stable population in previously denying the listing.

The endangered-species status could force direct changes by the bureau through the American Fishery Society's federal lawsuit, pending before the 9th U.S. Court of appeals in Sacramento.

If the suit becomes successful under the weight of California's action, the federal government may have to make multi-million dollar improvements to the Red Bluff and Shasta Dams.

SCIENTIFIC DEMANDS

A reawakened environmental concern in the world is putting new demands on scientists and federal agencies to do more than just measure pollution and

write regulations. "There is no scientific silver bullet" for stopping environmental damage going on at an accelerating pace, said Thomas Murphy in the keynote address to the International Wildlife Disease Association annual conference. Lacking that, science has focused on measuring pollutants and determining their health effects, he said. Dozens of carcinogens have been identified and measured in the environment. Now issues from acid rain to ozone depletion and species extinction have raised a higher level of concern over broad "unknown consequences," Murphy said. In the decade ahead, "ecological issues will eclipse health concerns as the leading (public) issue."

People will want science to provide and "intuitive" estimate of how human actions are changing the world. That will move scientists deeper into the decision process of nations worldwide as they decide how to address environmental problems. It also will put a premium on action. "If we don't act now" on problems such as the extinction of species, said Murphy, "we may be in a process of irreversible change." In Haiti and portions of Africa, deforestation has played a large role in climate changes. In Eastern Europe, heavy industrial pollution has rendered large areas uninhabitable. Science will be the key to controlling such problems as nations strive to get ahead of them before they become calamities. "The rates of change are such that if we can't take action in the next 10 to 15 years, we may not be able to go back and clean up many of these things," said Murphy after his address. Simply preserving the environment in many cases won't be enough, he said. Humans have touched so much of the globe that they can no longer look to small preserves to save nature.

In this process, the EPA may become more of an environmental management than policing agency, said Murphy. There already is "some shift away from the hard regulatory approach" going on in the agency, he said. That too, will put a higher priority on "top quality environmental science," he told the audience, "and a greater demand for ecological science information in general." *(Steve Jones, Corvallis Gazette Times)*

INFORMATION PLEASE . . .

Black bass-salmonid interactions information is being sought by Bill Bengueyfield, Global Fisheries Consultant, Ltd., 13069 Maine Drive, White Rock, BC Canada V4A 1E5, telephone (604) 531-9769. the information will be used by the British Columbia Ministry of Environment to assess the desirability of introducing smallmouth or largemouth bass in selected

waters of the Lower Mainland for sportfishing. Findings of the literature search will be shared with any interested persons.

COUNCIL APPROVES WILDLIFE RECOVERY ACTIONS

The Northwest Power Planning Council has approved a sweeping proposal designed to mitigate for damage done to wildlife by hydropower dams throughout the Columbia River Basin. The measure adopted by the Council constitutes one of the nation's largest efforts to protect and rebuild wildlife populations.

The Council's move means that federal and state agencies in the Pacific Northwest in the next decade will begin to redress the damage done to wildlife by 13 hydropower dams in the Columbia Basin since the 1930s. The current wildlife plans would cost approximately \$5 million a year over the next 10 years. If all of those costs were passed on to the region's electric ratepayers, that would translate into a 5-cent to 9-cent-a-month increase in the average residential electric bill.

The Council also adopted a process for dealing with other dams. If all the additional wildlife mitigation efforts that are under development were to be approved by the Council, the total cost could run \$10 million to \$12 million a year over the next decade.

For more information contact Peter Paquet or Dulcy Mahar at the Council's central office, 851 SW 6th St., Suite 1100, Portland, OR 97204, 1-800-222-3355 or 1-800-452-2324 in Oregon.

STERILE STEELHEAD MAY SAVE NATIVE FISH

Searching for a solution to problems caused by hatchery fish interbreeding with wild fish, the Oregon Department of Fish and Wildlife is trying to raise steelhead trout that cannot breed at all.

If an experiment begun this summer proves successful, fish managers may be able "to have our cake and eat it, too," said biologist Ken Kenaston of the agency's Fish Research Lab in Corvallis, Oregon.

Kenaston and biologist Kirk Schroeder are using 30,000 summer steelhead taken from the South Santiam hatchery at Foster Dam near Sweet Home for the project. The fish will be released next spring, and the scientists will see how many return to the hatchery two years later.

Hatchery fish can breed with wild fish, diluting or erasing their genetic makeup. The hatchery fish also can compete with wild fish for food, breeding grounds and rearing habitat, posing further risks to wild fish

survival.

The summer steelhead originate from Columbia River stocks widely used by the agency for hatchery fish production. They were introduced to the Santiam years ago to beef up that river's sports fishery, Kenaston said.

But the fish pose a genetic hazard to wild winter steelhead that are native to the South Santiam.

Under Oregon law, the agency must protect the river's wild fish from adverse hatchery effects. There are two ways to do that, Kenaston said.

"Either make the hatchery fish (genetically) similar to wild fish, or make them so radically different they don't breed (with wild fish) at all.

"If we can make a hatchery fish that comes back and contributes to the recreational fishery and doesn't affect wild fish, we may be able to have our cake and eat it, too," he said.

The fish used in the experiment were taken from the Foster hatchery in March and incubated at Oak Springs hatchery in Central Oregon. After hatching, biologists bathed the fry in a hormone solution to inhibit their sexual development. The fish were then fed a special diet containing testosterone, a sex hormone, to further inhibit their development.

Sterile hatchery steelhead may put an end to some problems, Kenaston said. But the research is in its first stages and poses some new questions. Sterilized fish may not follow the same migration pattern as their unsterilized counterparts, Kenaston said. Even if the sterile fish do return, they might cause problems if they reach natural spawning grounds. Wild females may not be able to tell the difference between sterile fish and sexually mature males, Kenaston said. If they team up with sterile fish, their eggs will be wasted. Or the sterilized fish may develop gonads during their long ocean stay, he said.

Even if the experiment works, Kenaston said, it will not be a cure-all for hatchery fish woes.

"The technique is there, but is it a technique we can use with steelhead? It may not be applicable everywhere."

Biologists in British Columbia have done some experiments with sterile coho salmon, but the results of that are not yet in. Oregon fish and wildlife biologists are also experimenting with sterilized rainbow trout, but that research program is also in its infancy.

(John Bragg, Pacific Coast News)

JOHN CARR RETIRES FROM SOUTHWEST FISHERIES CENTER

After 11 years as Deputy Director of the Southwest Fisheries Center in La Jolla, California, and 29 years in federal fisheries research, John F. Carr retired from the National Marine Fisheries Service (NMFS) on June 30. The NMFS Center conducts marine biological research and is part of the National Oceanic and Atmospheric Administration (NOAA). John Carr and his wife Claire live in Scripps Ranch near San Diego. On his retirement John plans to spend time in northern Michigan with family. He is also looking forward to visiting his native Smoky Mountains in spring—just in time to see the dogwoods bloom.

POLYCULTURE NEWS . . .

Research on salmon cultivation in the Pacific Northwest has produced a wide range of information on water and oxygen flow requirements, water quality needs, nutrition and disease prevention and treatment. It has also shown that environmental problems may arise from the discharge of effluent high in nutrients and organic matter.

The cultivation of any aquatic animal results in the production of nutrients due to excretion by the animals into the water. These nutrients control the amount of plant growth in most coastal marine ecosystems in temperate zones, and the plants in turn are consumed by grazing animals. When excess nutrients are added, however, such as the high inorganic nitrogen and phosphorus levels released by cultured salmon, plant growth increases and sometimes produces more plant material than the grazers can consume. The excess plant material then decomposes, depleting oxygen levels in the water, and limits the suitability of the water for many marine organisms.

Red macroalgae (valuable for their carrageenan and agar content, food, animal forage and/or bio-energy) have been found to remove virtually all of the inorganic nitrogen present in the effluent of an aquaculture facility. Cultivating macroalgae in a land based salmonid operation has two beneficial effects: 1) an additional crop is produced from a low technology, low maintenance enterprise, and 2) the effluent discharged into the surrounding marine environment is nutrient-free and non-polluting.

John-Eric Levin and William McNeil believe that this concept for growing red algae (*P. palmaria*) will appeal to commercial salmon farmers because of its low maintenance, low technology nature. New plants are easily produced by fragmentation, unlike other

macroalgal species that require control and laboratory support to guarantee a release of spores for subsequent crops. Their current stock began as a 100 g. sample and grew to 145 kg. in 12 months. During the time they have been growing the species, there has been no indication of senescence, and plants have even undergone natural reproduction with no evident degradation of mature thalli.

Applying this technique of *P. palmata* culture could create a polyculture that would fill an existing market void in the Pacific Northwest—in the wild, *Palmaria* grows mainly in Nova Scotia and is hand-harvested only at low spring fall tides—and give salmonid farmers as additional crop that is easy to start and maintain, and help diminish pollution in the marine environment. John-Eric M. Levin and William J. McNeil, Hatfield Marine Science Center, Newport, Oregon 97365.

WHITE HOUSE WATER CONFERENCE URGED

The National Water Alliance is urging President Bush to hold a White House Conference on Water Resources in 1991. The conference would "discuss key water resource issues facing the American people," including groundwater protection, wetlands protection, water supply, surface water quality, water resources, financing, water rights/transfers, pollution prevention and water conservation.

In a draft plan for the conference, the alliance recommends that six regional conferences be held in 1990 to obtain the views of state and local representatives. National conference attendees would include administration representatives, members of Congress, state and local government officials, business and community leaders, non-profit organizations, academic representatives, concerned citizens and various experts. The attendees would be determined through a delegate selection process.

Congressman Henry Novak of New York has introduced a House resolution urging President Bush to convene the conference. Senators Dennis DeConcini of Arizona and Dave Durenberger of Minnesota have introduced similar resolutions in the Senate.

FRESHWATER HATCHERY POLLUTION

A stringent review of water quality standards for fish culture facility effluent water is currently occurring around the country. The Michigan Department of Natural Resources is under a court order to reduce the phosphorus discharge of one of its larger fish hatcher-

ies but the phosphorus level requested is well below the level it is capable of achieving at its current fish production levels. Pennsylvania's Fish Commission is being threatened with a lawsuit for stream pollution from its fish culture effluents by an independent group. The Commission could face fines up to \$75,000 a day if the suit is filed and the charges are upheld. At a new State fish culture station in Vermont, data collection and research to obtain a state discharge permit have cost over \$500,000 to date. The facility will be required to have an \$800,000 tertiary treatment system.

The Environmental Protection Agency (EPA) has not promulgated industry-specific performance standards for fish culture. Aquaculture/fish culture is in a period of rapid expansion. Environmental agencies nationwide are attempting to respond without guidelines or standards. As a result, standards are often inconsistent and extremely stringent in an effort to ensure there will be no possibility of water quality violations. These stringent and sometimes unreasonable standards can and will preclude the development of the aquaculture industry. Vermont Fish and Wildlife, as a state agency using general fund monies, could afford \$500,000 for a discharge permit and \$800,000 for a tertiary treatment plant. As a department relying on license sales, the operation of this treatment system will still be restrictive. These costs, however, would be prohibitive for a private or commercial operator.

Appropriate standards for the fish culture industry must be set, starting with a thorough review of existing work including, but not limited to: effluent water quality of all types of fish culture stations, impacts of effluent water on receiving waters, existing treatment technology, etc. Areas that need additional investigation must be defined, such as: diets that result in reduced nutrient loading, feeding techniques which optimize food conversion, and other technologies (clarifier design, chemical addition, etc.) that improve hatchery effluent. A series of recommendations must be formulated to incorporate this information into existing and/or new facilities.

Finally, water quality standards must be established for the industry while identifying the technology necessary to meet those standards. The problem is international in scope and perhaps protocols can be developed for addressing the needs of the field.

Tom Wiggins, Fish Culture Operations Chief, Vermont

Department Fish & Wildlife.

(Note: To begin to address the Hatchery Effluent Issue discussed above, the Bioengineering Section will take the lead role for AFS by forming a steering committee chaired by President-Elect Dave Owsley.)

LAKE MICHIGAN SALMON DIEOFF A MYSTERY

According to the Center for the Great Lakes' *Great Lakes Reporter* (July/August 1989), thousands of Lake Michigan chinook salmon have mysteriously died off for the second summer in a row and fishery experts are at a loss to explain why. Up to 10,000 chinook died off last year, according to state estimates, with somewhat fewer washing up on beaches this year.

Researchers are baffled by the apparent cause of die-offs, a bacterial kidney disease (BKD) which has not previously been known to kill wild fish. Moreover, the problem has so far been limited to Lake Michigan, although "the same fish, from the same hatcheries, are stocked in Lake Huron," said Don Nelson, a fisheries biologist working on the problem for the Michigan Department of Natural Resources (MDNR). Other researchers speculate that depletion of the alewife population, on which the chinook depend for food, may be causing the die-off. Although a small number of coho salmon have also died off, the problem seems largely confined to chinook.

"One thing our pathologists are scratching their heads about is that these fish are not emaciated when they die," Nelson said. "That's a sign that they died very quickly."

The four states bordering Lake Michigan — Michigan, Wisconsin, Illinois and Indiana — "are working very closely together" on researching the problem, while officials in New York and Ontario "are also very interested in this situation," Nelson said.

MEETINGS, SEMINARS, SHORT COURSES & PUBLICATIONS

PACIFIC FISHERY BIOLOGISTS

The 52nd Annual Meeting of Pacific Fishery Biologists will be held March 29-31, 1990 at the Konocti Harbor Inn, Kelseyville, CA. An excellent program is being developed and a record 37 members will deteriorate into mossbacks at this meeting! For more information contact Phil Dunn, Jones & Stokes Associates, 1725 23rd St., Suite 100, Sacramento, CA 95816, 916/444-5638.

FIRST CALL FOR PAPERS

COMMUNICATIONS: ARE WE MAKING CONTACT?

The 1990 Annual Meeting of the American Fisheries Society, August 26-30, at the Pittsburgh Hilton, Pittsburgh, PA. The theme of the meeting is Communications: Are We Making Contact? Communication is a central function of our Society and a key component in the professional lives of our members. Yet the quality, if not the quantity, of our communications is frequently criticized. We are called upon to communicate with our peers, clientele, general public, politicians and other professionals. Our means of communication range from papers in our scientific journals to television video, but are we doing the best we can for the audiences we wish to reach? The 1990 annual meeting will not only be directed toward this self-examination, but as the annual oral communication vehicle of the Society, will also serve as the platform for the highest quality presentations we have ever given. Certainly, this should be our challenge!

The Society will encourage contributed papers, posters and symposia that are directed to the annual meeting theme. Since the purpose of our annual meeting is to communicate with other attendees, please do not feel constrained by the direct relationship of your possible contributed paper or symposia idea to the theme, but rather feel challenged to make your contribution the best you have ever presented!

SYMPOSIA AND WORKSHOPS

Proposals for symposia, organized contributed paper sessions and workshops are encouraged. All proposals must include a statement of purpose, brief description of the sessions, sponsorship (if any), tentative outline of paper titles, speakers (if known), relationship to the meeting theme (if direct) and time required. Typically, symposia/workshops will require one half day. Please include names, addresses and phone numbers of principal organizers. Proposals should be sent to Steve Rideout, Program Chairman, 1200 S. Arlington Ridge Rd. #205, Arlington, VA 22202 and must be received by December 8, 1989.

CONTRIBUTED PAPERS/POSTERS

Submission of papers/posters for presentation must be in the form of abstracts. Abstracts must clearly state the paper's objectives, principal results and conclusions in 200 words or less. Abstracts that only describe what will be presented, e.g., "study results will be

discussed" will not be considered. Abstracts must include the following: a succinct title; full name, address and telephone number of each author; and the text of the abstract. The speaker should be noted parenthetically. The following information must also be provided at the bottom of the abstract: type of presentation (paper or poster); whether slides will be shown (only 2x2 slides will be allowed); status of the principal author (student or non-student) at the time of abstract submission; and name, address and phone number of person to receive correspondence if different from information provided for the author(s). Please consider submitting your abstract through the Computer User Sections' electronic bulletin board 313/996-1456. For further information contact Anthony Frank 313/994-3331 or Steve Rideout 703/358-1718 (W); 703/271-0547 (H).

The abstract should be sent to Steve Rideout, Program Chairman, 1200 S. Arlington Ridge Rd. #305, Arlington, VA 22202 and must be received by January 5, 1990. Authors wishing confirmation of receipt of their abstracts must provide a stamped, self-addressed envelope. Questions regarding the program or submission of materials should be directed to the program chairman at the above address or by telephone 703/358-1718 (W) or 703/271-0547 (H).

CALENDAR

February 26-28, 1990

Idaho Water Quality Conference. The conference will address the draft water quality management plan resulting from Idaho's statewide water quality assessment survey. For more information contact the Idaho Association of Soil Conservation Districts, 118 W. Franklin, Meridian, Idaho 83642.

March 16-21, 1990

55th North American Wildlife and Natural Resources Conference. Sheraton Denver tech Center Hotel, Denver, Colorado. For information contact L.L. Williamson, Wildlife Management Inst., 1101 14th St. NW, Suite 725, Washington, D.C. 20005, 202/371-1808.

March 27-31, 1990

International Symposium and Workshop on Creel and Angler Surveys in Fisheries Management. Doubletree Hotel at Houston International Airport, Texas. For information contact E.A. (Mac) McCune, Lake Management Services, P.O. Box 923, Richmond, TX 77469, 713/342-6018.

(continued on page 10)

WDAFS 1990 MEETING

The annual meeting is scheduled to be in Sun Valley, Idaho. Meeting dates are July 7-11, 1990 with an EXCOM retreat tentative on July 6. Mark your calendars NOW! Potential special sessions include aquaculture, aquatic diversity and ethics. Start developing your abstracts and mail them to—

Bob Gresswell, U.S. FWS, P.O. Box 184, Yellowstone N.P., WY 82190.

Abstracts must state clearly the study's objectives, principal results and conclusions, but are not to exceed 200 words. Presentations will be limited to 15 minutes, including questions. Slide projectors or large posters will be accepted visual aids. Overhead projectors will not be permitted.

TENTATIVE AGENDA

July 6
EXCOM Retreat at Redfish Lake Lodge

July 7
1-5 pm EXCOM Business Meeting

July 8
8 am-Noon AFS General Session
Noon-3 pm AFT Business Meeting/Luncheon
3-5 pm AFS General Session
6 pm-? Fun

July 9
8 am-Noon WAFWA/AFS Joint Keynote Session
1-5 pm AFS Concurrent Sessions of Contributed Papers
6 pm-? More Fun

July 10
8 am-Noon and 1-5 pm AFS Concurrent Sessions of Contributed Papers
6 pm-? Lots More Fun

July 11
8 am-? Wrap up

Sun Valley is surrounded by recreation opportunities with many lakes and great scenery. The Sawtooth National Recreation Area offers views of spectacular peaks and hiking or driving to alpine lakes. The Wood River and internationally famous Silver Creek are but a few of the fine fishing opportunities. Plan to attend!

March 29-30, 1990

Pacific Fishery Biologists 52nd annual meeting at the Konocti Harbor Inn in Kelseyville, California. Speakers from California, Oregon, Washington and British Columbia are scheduled for the program at one of the all-time favorite meeting locations after a much-needed, 12-year hiatus. The 1970 cohort of fisheries biologists was indeed a good one as a record of 37 members will deteriorate into mossbacks at this meeting! For more information or to submit ideas for session topics and speakers please contact Phil Dunn, President, at 916/444-5638, or Gene Geary, Program Coordinator at 415/866-5821.

Aug. 27-31, 1990

The 120th Annual Meeting of AFS. Pittsburgh Hilton, Pittsburgh, PA. For information contact Carl R. Sullivan, AFS, 5410 Grosvenor Ln., Suite 110, Bethesda, MD 20814-2199, 301/897-8616; FAX, 301/897-8096.

CLEAN LAKES CLEARINGHOUSE

WHAT IS THE CLEAN LAKES CLEARINGHOUSE?

The Clean Lakes Clearinghouse is an information resource on lake restoration, protection and management. The clearinghouse was initiated by the EPA's Clean Lakes Program to provide technical information to EPA/federal personnel, state and local lake managers/associations and researchers.

WHAT ARE THE SERVICES OF THE CLEAN LAKES CLEARINGHOUSE?

The Clean Lakes Clearinghouse provides a computerized database with abstracts and citations of technical material and information from journal articles, Clean Lakes Program reports, NALMS conference proceedings and government documents. It provides responses to requests for information on specific lake reports and bibliographies on "hot topics." And the clearinghouse provides user support for answering questions, troubleshooting and implementing changes to meet user needs.

WHAT KINDS OF INFORMATION DOES THE DATABASE PROVIDE?

The Database contains information on lake ecology, lake problems such as nutrients, acidification and toxic substances, lake management and protection, in-lake restoration techniques, watershed management, point/nonpoint sources of pollution, water quality assessment and modeling.

To get more information call Clean Lakes Clearinghouse User Support, 202/382-7111 or write to U.S. Environmental Protection Agency, Clean Lakes Program (WH-553), Washington, D.C. 20460.

**JOB OPPORTUNITIES,
VOLUNTEERS & OBITUARIES**

OBITUARY

Ernest Olavi Salo (1919-1989)

Born in Butte, Montana, Ernie Salo moved to Aberdeen, Washington as a child, where he graduated from Aberdeen High School and Grays Harbor College. He continued his education at the University of Washington, receiving a B.S. in Zoology in 1947 and a Ph.D. in Fisheries with a minor in Oceanography in 1955. Ernie began his professional career in 1950 as a marine biologist with the Washington Department of fisheries, became Resident Biologist of the Minter Creek Biological Station in 1951 and Assistant Supervisor, Washington State Salmon Hatcheries, 1953-1955. His classic Ph.D. Dissertation on artificial and natural production of coho salmon in the Minter Creek watershed of South Puget Sound was based on this work.

Ernie will be remembered in particular for his innovative leadership of a wide variety of comprehensive studies concerned with salmonid and estuarine ecology. His research emphases included effects of logging on fish resources, aquaculture of salmonids, estuarine studies and salmon ecology. The Ernst O. Salo Seminar Series was established in recognition of his contributions in the area of forestry-fisheries interactions by the College of Ocean and Fishery Sciences and the College of Forest resources.

In more recent years he continued to be active in research and just completed a chapter on chum salmon life history as a part of book on life histories of Pacific salmon. He started the "old Friends Luncheon" for retired fisheries friends. Ernie was a thoughtful person and colleagues and students will long cherish the memory of him as a caring friend and mentor and as a truly outstanding leader in the fisheries community. A Fisheries Research Institute memorial fund is being set up at the School of Fisheries, University of Washington, in his memory to provide scholarships to entering graduate students.

Application for 1990 Membership

please complete and mail with payment to:
American Fisheries Society
 5410 Grosvenor Lane, Suite 110
 Bethesda, Maryland 20814-2199

Date _____ Recommending Member _____

Name _____

Address _____

City _____

State/Providence _____ Zip _____

County _____ Membership Year* _____

If applicant is a student as defined below, the teacher signs here: _____

Name of institution where student is enrolled _____

Boni fide students of fisheries subjects are eligible for Student membership (six year maximum). Persons employed full-time not eligible. Teacher endorsement required (see above).

To complete the form, choose the appropriate statement:

ACTIVE INDIVIDUAL Membership*:

- Regular (\$42.00 (other than U.S., \$45.00)
- Student \$21.00 (other than U.S. \$23.00)
- Retired \$21.00 (other than U.S. \$23.00). Regular members upon retiring at age 65.

*Members receive bimonthly *FISHERIES* and annual Membership Directory. All memberships are for a calendar year. Unless requested otherwise, new member applications received January 1 through August 31 are processed for full membership that calendar year (back issues are sent). Those received September 1 or later, are processed for full membership beginning January 1 of the following year. Please be sure to indicate your preference.

Fish PRO Club Professionals Recruiting Others

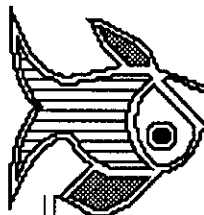
As a member of the American Fisheries Society, you recognize how important AFS is to you as a professional and how much the Society is doing to influence our profession, fisheries science and resource management. However, are you aware that only about one-half of the fisheries professionals in North America belong to AFS? Did you know approximately 30 percent of Chapter members *are not* members of the Society?

Therefore, the AFS Executive Committee has sanctioned the establishment of the AFS PRO Club — Professionals Recruiting Others. This incentive program will work in the following manner: once you have recruited a new individual, associate or library member for AFS, you are a new member of the current year's PRO Club. When you recruit ten members, you become a life member of the PRO Club and will receive a gold AFS PRO Club pin.

So share in the AFS experience — strengthen your professional society — join the AFS PROs!!!

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David C Burns
PO Box 1351
Mc Call ID 83638

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April 1991

Athens, Greece

Plan now to be a part of the first World Fisheries Congress to assess the state of the world's fisheries resources and promote scientific collaboration.

CONTACT:

World Fisheries Congress
5410 Grosvenor Lane, Suite 110
Bethesda, Maryland 20814
U.S.A.
Tel: (301) 897-8616 Fax: 301 897 8096

Co-sponsored by the American Fisheries Society, Asian Fisheries Society, and over 20 other organizations worldwide.