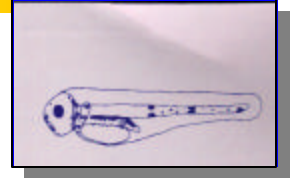


Vol 24: 2/3
2003

E L H S Newsletter
A F S.
October

stages



Inside this issue:

President's Message

President's Message P. 1

Masthead and other officers P.2

New positions open P. 3
27th LFC Awards P.3

Art Kendall retires P.4
Poster Award Winners P.4

Successful Larval id course P.6
27 LFC Business Minutes P. 7

Regional News" P. 8
to 9

Impressions of 27th LFC P10-
New papers and books P11

Upcoming Events

28th Annual Larval Fish
Conference. Clemson U
May 23-27, 2004

Jisely@clemson.edu

4th World Fisheries Congr
Vancouver, BC, Canada
May 2-6, 2004

www.worldfisheries2004.org

AFS 134th mtg Madison,
WI. Aug 21-26, 2004

Betsy Fritz:
bfritz@fisheries.org 21-

Wow! If you didn't make the meeting in Santa Cruz, you missed a great one! The program was timely and the invited speakers pointed the direction for the future of our science. The accommodations and venue were superb, and the hospitality of local committee made us all feel welcome and important. The welcome social on campus was a great start to the conference, the bbq at the lab was great, and the closing banquet at Monterey Aquarium were events we will all remember for a long time.

On behalf of the Early Life History Section, I thank Churchill Grimes and the rest of the volunteers for hosting the 27th Annual Larval Fish Conference. Congratulations and thank you again for doing such a fantastic job.

I also would like to thank Art Kendall and the other instructors of the Larval Fish ID course. By all measures, it was a resounding success. Well-trained students are the foundation for future science and we all thank you for taking the time to pass on your expertise to the next generation.

Other news from Santa Cruz... We actually had a forum at the business meeting and were able to take care of some important and overdue Section business. As you know, we were behind on our elections. We were able to put a slate of officers together for consideration at the meeting and took advantage of the quorum by holding elections. Congratulations to Howard Browman, our new president elect, and Bruce Comyns, our new secretary elect. Both were elected by ballot during the business meeting. I also thank Joe Brown for accepting a nomination for president elect, and Kathy Lang for agreeing to continue to serve as treasurer. For those of you disappointed in the lack of prior notice, or who are feeling disenfranchised by not being offered a chance to exercise your right to vote, I apologize, and ask that

The Masthead

President: Jeff Isley

Lehotsky Hall, AFW, Clemson U.,

SC 29634 (803) 656-1265

jisely@clemson.edu

Secretary Richard McBride

Fish Biol FL-DEP, 100 8th Ave SE,

St. Petersburg, FL 33701-5095

(813) 896

richard.mcbride@fwc.state.fl.us

Treasurer: Kathy Lang

NOAA/NMFS, 166 Water Street,

Woods Hole, MA 02543. (508) 495-2237

kathy.lang@noaa.gov

Editor of Stages: Perce Powles

**Trent University, Peterborough, ON
K9J 7B8**

(705) 743-6479 is also my fax.

pmpowles@allstream.net

Other Officers

ELHS Webmaster: Jim Rice

jim_rice@ncsu.edu

Historian: Robert Hoyt -has stepped down

Searching for a replacement

Regional Representatives

Northcentral Region: Bruce Comyns

bruce.comyns@usm.edu

Northeast Region: Tom "Motz" Grothues

grothues@ahab.rutgers.edu

Southeastern: Tom Lankford

lankford@uncwil.edu

Western: Dan Margulies

dmargulies@iattc.ucsd.edu

Pacific Rim: Iain Suthers

I.Suthers@unsw.edu.au

Chairs and members of standing committees, and ad-hoc committees are listed on our web page: <http://www2.ncsu.edu/elhs/index.html>

President's Message (con'd)

that you contact me directly and quickly. We will need to hold elections again by next May and I'm looking for dedicated volunteers like you to fill vacancies on the nominating committee and our next ballot.

Speaking of next year... I will be hosting the **28th Annual Larval Fish Conference in Clemson, South Carolina, USA, Next May 23 - 27, 2004.** A formal announcement and call for papers will appear on our web site and also in the next newsletter. Local arrangements are coming along nicely, but I will happily accept any help with setting up the program. Give me a call or drop me a line if you would like to get more involved.

See you in Clemson or before.

Jeff Isely

New Positions Open

We would like to thank **Bob Hoyt** for his many years of volunteering to this Section as Historian. Bob, a past President, (see Stages, Vol 1, 2001)now wishes to step down and pursue other activities in his retirement. We wish him the best, and thanks for all your past work, Bob. It is much appreciated by us early life history types, and was an essential part in keeping this Section organized. Anyone interested in this voluntary position, please contact our President, Jeff Isley.

News from Santa Cruz 27th LFC

Student travel grants

As our President has already mentioned in his message to us, we had a great meeting in Santa Cruz. To start things off, some students were happy to receive travel grants to help them get there. These happy people were:

Bridget S. Green

Department of Marine Biology and Aquaculture
James Cook University, Australia
Ms. Green presented two oral papers and a poster. Her presentations were: "Variation in size at hatching in marine fishes has maternal and environmental origins" , "Temperature induced plasticity influences whether bigger is really better", and ;, and "Cost-effective method of preparing larval fish otoliths for reading using enzyme digestion and staining" .(Poster)
and

Steven P. Searcy

Department of Marine, Earth, and Atmospheric Sciences, North Carolina State University, USA
Mr. Searcy presented a paper entitled: "Flushed down the river: consequences of freshwater runoff to nursery habitat use of early juvenile Atlantic croaker".

We thank **Jeff Buckel**, who is in charge of Student Travel Grants, for his work in perusing applications and , making the decisions, and for all his work.
Thanks Jeff

Best Student paper and poster presentation

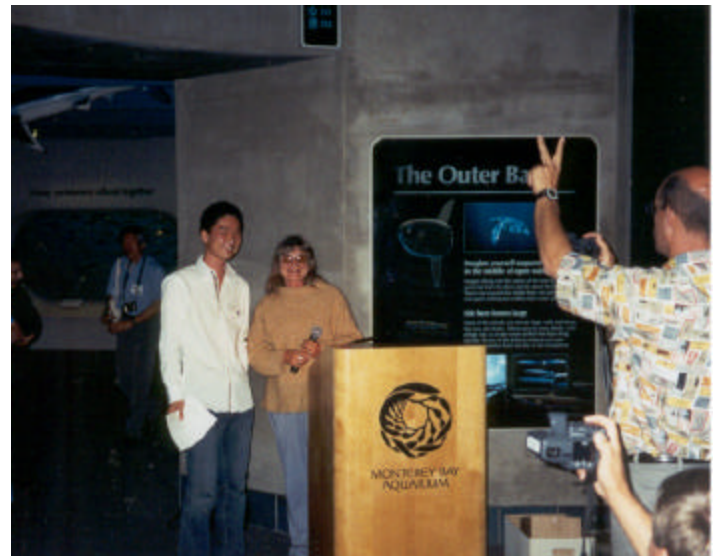
Sally Richardson Award///

The winner of the SR award was:

Shinnosuke Nakayama for his presentation: "Development of schooling behavior in chub mackerel, *Scomber japonicus*, with emphasis on dietary condition and social transfer". co-authors : **R. Masuda and M Tanaka**, from Kitashirakawa-Oiwakecho, Sakyo, Kyoto Japan

(Grace did pretty well with the pronunciation—at first sight too!)

Honorable mention went to: **Jessica Miller** "Evidence for limited larval dispersal in black rockfish (*Sebastes melanops*): implications for population structure and marine reserve design". Co-author **A.L. Shanks** from Oregon Institute of Marine Biology and **Steven Searcy** for "Flushed down the river: Consequences of freshwater runoff to nursery habitat using early juvenile Atlantic croaker. Co-author **D.B.Eggleston** from Department of Marine, Earth and Atmospheric Sciences, North Carolina State University.



Grace **Klein McPhee**, (left elbow on podium) our congenial chair of the Sally Richardson Award Committee, with our winner, **Shinnosuke Nakayama**. (centre). In the foreground, who else but our inimitable President, **Jeff Isely**?

Arthur Wayne Kendall Jr. Retires (almost)

Arthur Wayne Kendall, Jr., Task Leader of Recruitment Processes and Head of Fisheries Oceanography cooperative Investigations (FOCI) at the NOAA/ National Marine Fisheries Service's, Alaska Fisheries Science Center, retired on January 3, 2001 after more than 30 years of service beginning with the U.S. Bureau of Commercial Fisheries in 1966. Shortly before Art's retirement from Federal Service, Art was cajoled into running for President of the Early Life History Section. He was elected and served our section as President from July, 2000 until July 2002. A long term affiliate member of the section, Art joined up with the American Fisheries Society in order to serve as an officer of the section, and serve well he did! Art was born on March 20, 1941 in Washington, D.C. His love of nature, including observing and hunting wildlife, has always been an important part of his life. He knew when he was in high school what he wanted to do for a career — biology. Always determined, perhaps his strongest trait is his dedication to whatever course he embarked upon. While at the University of Maryland pursuing biology, Art worked for several summers assisting the curator of fishes, Dr. Frank Schwartz, at the Chesapeake Biological Laboratory in Solomons. He graduated with honors in zoology (with an aquatic option) from the University of Maryland at 22. He then traveled to the Northwest to attend the University of Washington where he worked under the direction of Dr. Tom English. Art's fieldwork included numerous trips to the beach at Golden Gardens, often at night to seine for juvenile fishes. He received his M.S. in Biological Oceanography in 1966 at the age of 25. That summer, Art took on the adventure of a lifetime. He sailed on the R. V. Anton Brun for the National Science Foundation, working on feeding habits of demersal fish off the west coast of South America. In October, he traveled to Sandy Hook, New Jersey, to take a position with the U.S. Bureau of Commercial Fisheries and take up

work on systematics and distribution of the larval fishes of the Middle Atlantic Bight. There he developed life-long friendships and professional relationships with Wally Smith, Mike Fahay, Pete Berrienand John Sibunka who formed the core of the Marine Monitoring and Assessment Program (MARMAP) Ichthyoplankton Group. Lionel Walford, then Director of the Sandy Hook Laboratory, also influenced Art's thinking on fisheries oceanography and how to get it done while working for government; though that would come to serve Art in later years. Several years later, in part because of Walford's influence, Art decided to continue his studies and pursue a Ph.D., at the Scripps Institution of Oceanography, where he had the opportunity to be the first graduate student of Elbert Ahlstrom, perhaps the father of larval fish taxonomy in the United States. Another member of his graduate committee, Dr. Richard Rosenblatt of Scripps, co-chaired Art's committee. In 1971, Art participated in the now famous larval fish training course taught by "Ahlie" and Geoff Moser at the LaJolla Laboratory of the Southwest Fisheries Science Center of the National Marine Fisheries Service NMFS). Art's experiences in La Jolla were to have a major impact on his career. Among the many students in the class was Jean Dunn who had recently been charged with initiating an ichthyoplankton program in the Subarctic Pacific. After the course, Art returned to Sandy Hook and worked on his dissertation and, in 1977, received his Ph.D. in Oceanography. Soon after, he was lured to Seattle by Jean Dunn to interview for a job to lead the small ichthyoplankton Hexagrammidae. By early 1980, Art had negotiated a joint cooperative venture between the Northwest and Alaska Fisheries Center (NWAFC), now the Alaska Fisheries Science Center, in Seattle and the Soviet Pacific Research Institute (TINRO) in Vladivostok. They agreed on ten research cruises to document patterns in occurrence, distribution, and abundance of ichthyoplankton in coastal waters of the Northeast Pacific. These were the first large-scale surveys to be carried out in this region.



Art Kendall signs off with the Early Life History Section at the 27th Annual Larval Fish Conference in Bergen, Norway.

In 1982, Art was invited to join a very elite group of larval fish taxonomists as a member of the steering and editorial committee for the E. H. Ahlstrom memorial symposium and book. As a former student of Ahlstrom, he was recognized by this honor as one of the leading larval fish taxonomists in the world. He worked with Geoff Moser, Bill Richards, Mike Fahay, Dan Cohen, and the late Sally Richardson to develop an outline for the symposium and book and invite potential contributors. He chaired a session and presented three papers during the Ahlstrom Memorial Symposium held in 1983. He served on the editorial board for the monumental symposium volume, *Ontogeny and Systematics of Fishes*, published in 1984. He later received a U.S. Dept. of Commerce Silver Medal Award for his contributions toward producing and editing this volume. In 1980, a large spawning population of walleye pollock, which led to a large fishery, was discovered in Shelikof Strait. This important discovery shaped Art's career for the next 20 years. The small ichthyoplankton group expanded with Art in the lead. Art designed and led a series of ichthyoplankton surveys from 1981-1985 to locate the early life history stages of walleye pollock and describe their distribution and

abundance patterns. These vital data provided baseline information needed to launch FOCI. The intent of this program was to foster a collaboration between physical oceanographers, biological oceanographers, and fisheries biologists to provide NOAA with research fisheries oceanography. Art was already the program manager of the Recruitment Processes Task; new scientists were added in 1987 to form FOCI and both groups were combined under one umbrella with Art as the director.

As a supervisor of between 25-30 scientists, Art was celebrated for his "loose management" style, a mode of personnel management learned from Walford. Art gave his scientists a long lead to pursue their research and to excel. His oversight was marked by an irreproachable sense of fairness to all. The success of this style is reflected by the productivity of his group, with over 200 scientific papers, book chapters, and reports published by FOCI biologists between 1985 to 2000. Art's sense of fairness registered in his insistence that whoever did the work should get full credit. While the focus of FOCI was walleye pollock, Art pursued research in rockfish (Scorpaeniform) phylogeny and larval taxonomy and sablefish early life history. Art also became a historian of fisheries oceanography. Art made major contributions in each of these areas. He received the NMFS Outstanding Publication Award in 1987 for his contribution on sablefish. He is a longstanding member of the American Society of Ichthyologists and Herpetologists, the American Institute of Fishery Research Biologists and the Early Life History Section of the American Fisheries Society. Stepping down as President of the Section constitutes yet another step toward retirement.

Even so, Art is not through yet; he currently serves as an Affiliate Professor of Fisheries at the University of Washington where he lectures on the early life history of fishes and is collaborating on a textbook with Dr. Bruce Miller. Art's dedication to cause and his unflagging sense of

fairness was evident in his service to the Early Life History Section. The Section thanks you for your service to our profession and to our organization. Enjoy more hunting and fishing, and muddy parties at your cabin on the Skagit River. ! See you at the future LFCs , we hope!

Thanks for this tribute go to:

Ann Matarese and Jeff Govoni (with contributions by Kevin Bailey and Jeff Na

A new wrinkle was added to the 27th lfc this year, with the addition of an award

Santa Cruz Meeting—New wrinkle is added to format

For the first time in its history, we had an award for the “best poster presentation”. First, we want to thank **Chris Donohoe** and his committee for their efforts, and I know it was no easy task, in judging the posters. The inaugural winner was **Dariusz Fey** and his colleagues from the Beaufort Lab (Gretchen Martin, James Morris, and Jon Hare) for their poster entitled: “Effect of otolith type and preparation techniques on age estimation of larval and juvenile spot (*Leiostomus xanthurus*).” Runner ups were **Chris Chambers** (with colleagues D. Witting, D. Cerino, and L Wirgin), for their poster: “A comparison of PCB-induced early life-stage toxicity in two populations of Atlantic tomcod, *Microgadus tomcod*.” Honorable mention went to **Morgan Busby**, Rachel Cartwright, and Jeffrey Dazen fo their poster: “Richardson and Washington’s Cottoid A (globby) revisited” for their skill in making celebrities out of Blobby and Globby



Shown above is Dariusz Fey receiving the “Best poster award” from Chris Donohoe, at the banquet of the 27th Larval Fish Conference, Monterey Aquarium, August, 2003.

Larval fish identification course follows the 27th Larval Fish Conference by Art Kendall

A 3-day practical course on identification of eggs and larvae of fishes was held on 25-27 August 2003, following the Annual Larval Fish Conference in Santa Cruz, California. The course was organized by Art Kendall and 11 instructors (Jeff Leis, Debbie Blood, Morgan Busby, Mike Fahay, Ann Matarese, Barbara Sumida-MacCall, Bill Watson, Denise Drass, Darrel Snyder, and Dave Ambrose) presented demonstration specimens and taught about larval identification in their areas of taxonomic expertise. Sherri Charter and Geoff Moser prepared material for the course syllabus but were unable to attend the course. The course was attended by 23 students from around the world (US [9 states], Germany, Russia, South Africa, Philippines, Mexico, and Australia). A course syllabus (over 400 pages long!!) was prepared by the instructors and given to each student

The class in Santa Cruz was offered 20 years, almost to the day, after the famous “Ahlstrom Symposium”. The first half day of the course covered techniques of egg and larval identification. The remainder of the course was divided into half day sessions and devoted to instruction and hand-on microscopic examination of eggs and larvae of various groups of fishes. For each of these sessions, the experts gave short introductions to the groups (taxa) covered in that session, and then the students had the opportunity to examine representatives of the groups under microscopes. A different series of larvae was at each microscope, and the students moved from scope to scope to examine all representative larvae for that session. Twenty microscopes were used, so series of 20 different taxa were examined during each session. The focus was on identification at the ordinal level. Marine and freshwater fishes from around the world were included. Time was also available during the laboratory portions of the course for examination of problem specimens that the students brought with them.

Editor's Note: by all accounts, the course was a resounding success, and we thank Art and all his instructors for their work and dedication. So much for rumors of your retirement, Art!!

Minutes of the 27th LFC Business Meeting, Santa Cruz, August 2003

2003 Business Meeting of the Early Life History Section
27th Annual Larval Fish Conference, Santa Cruz, CA

Attendance (J. Isely, presiding)

The meeting was called to order at 17:00 pm on 8/21/03. There was a sufficient number of full members for a quorum.

I. Approval of minutes

Minutes for the 2002 business meeting were published in a recent article of Stages and no further comments were made.

II. Treasurer's Report (J. Isely reporting for K. Lang)

Expenses accrued during 2002-2003 year including printing and mailing of Stages, plaques, and grants for student travel to the annual meeting. Income was generated via membership dues, interest, and publication sales. The section is in solid financial position with a current balance of approximately \$29,000. The Sally Richardson award endowment has a current balance of approximately \$12,000. The treasurer's report will be published on the web. A special thank you of appreciation was extended to Kathy Lang for her continuing contribution as our treasurer.

III. Committee reports

A. Standing Committees

Nomination and mail ballot (J. Isely)

Officer candidates were announced for President (Howard Browman and Joe Brown), Secretary (Bruce Comyns, unopposed), and Treasurer (Kathy Lang, unopposed). New nominations were requested but none were recommended from the floor. A ballot was handed out to full members for voting. The results approved Howard Browman, Bruce Comyns, and Kathy Lang for their respective positions.

2. Time and Place (J. Isely)

The **2004 annual meeting** will take place **May 23-27 in Clemson, SC**. Jeff Isely presented a thorough and entertaining synopsis of the meeting venue, scientific program, and special events. A website will be announced soon to provide further details. **Maria Hlar-Oliver has also developed a proposal to sponsor the 2005 meeting, to be held in July in Barcelona, Spain.** No other proposals have been submitted at this time.

3. Sally Richardson Award (Grace Klein-MacPhee reporting)

This award program is running smoothly.

4. Student Travel Grants (Mark Wuenschel reporting)

Jeff Buckel took on the task of reviewing student proposals for travel funding for the Bergen meeting. Two students (B. Green and S. Searcy)

Minutes of 27th Meeting (con'd)

received travel funds via the Section to attend this meeting.

5. Publications

Howard Browman provided an update on the LFC2003 symposium volume. It is going very well and he plans to have free copies available for interested parties. Jeff Govoni also announced good progress on the special symposium volume that he is working on, which also originates from talks at the LFC2003 meeting.

A. Ad Hoc Committees

1. Lifetime Achievement Award (Jeff Isely)

The guidelines for an Ahlstrom Award have been circulated previously and were reviewed here by Jeff Isely. This review was followed by a motion from Jeff to accept the award terms. Ed Houde made a friendly amendment to modify the language on 'carrying forward' nominations; he suggested to limit this to 1 year, which was also a recent change to the Sette Award (Marine Fisheries Section). The original motion with the amendment were seconded and approved by a voice vote.

IV. Old business

A. Historian position. It was reported that this position is open for any members that are interested.

V. New business

Perce Powles asked if anyone was having trouble downloading STAGES; no problems were noted.

VI. Adjournment

The meeting was adjourned at 17:40.

Please take note: our new President elect, is Howard Browman. Congratulations, Howard.! We look forward to your leadership and ideas for the future. Joe Brown, we thank you for your willingness to stand for President of this Section as well. Who knows what the future holds?!

Regional News Southeast Region, Tom Lankford reporting

Invasion of the Indo-Pacific lionfish By Paula E. Whitfield, Jon Hare, and Matt Kimball
NOAA Beaufort Laboratory, NC

Summary of the Invasion

Lionfish (*Pterois volitans* and *P. miles*) are native to the sub-tropical and tropical regions of the Indian and Pacific oceans and the Red Sea. This species contains long venomous spines, is a top-predator, with few if any predators of its own. It came as a great surprise to researchers at the NOAA Beaufort Laboratory when the Indo-Pacific lionfish was first reported in August 2000 on two shipwrecks 97 km apart off the Coast of North Carolina, known as the 'Grave Yard of the Atlantic'. At first we thought, "it had to be a mistake", but then very reputable observers were making these reports and after all this fish is probably one of the most recognizable of all the coral reef fishes. It has a beautiful maroon and white striped coloration pattern, fan like, pectoral fins and long dorsal spines that stand out much like a lions mane.

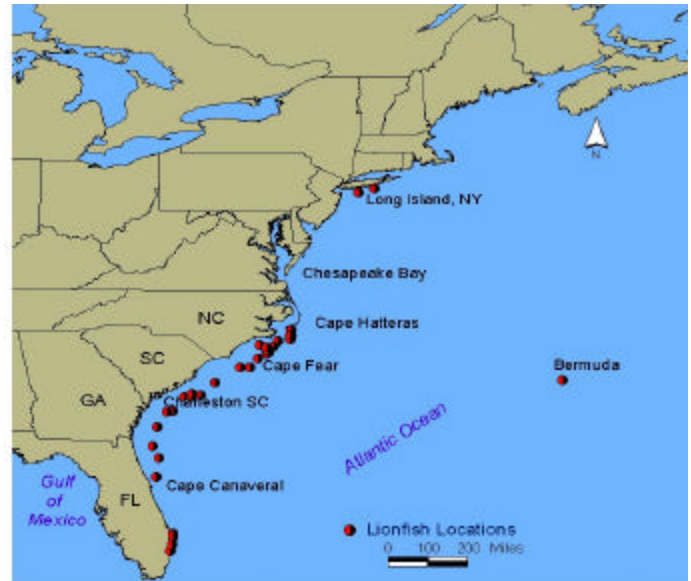
After we verified several lionfish sightings during the summer of 2001, NOAA issued a press release to warn the public of the potential threat of this venomous species. Many more reports came flooding in from divers all along the east coast with the majority of the sightings beginning in the summer of 2000 and 2001. Only one location had reports of lionfish that stemmed back earlier; lionfish had been spotted off the coast of south Florida since 1994. Since the initial reports in August 2000 lionfish have been documented from south Florida to Cape Hatteras NC and Bermuda. Juvenile lionfish (< 2.5 cm) have also been collected as far north as Long Island NY, as recently as August 2003. The observations of both adult and juvenile lionfish have become more numerous each year suggesting an increase in lionfish abundance. The increase in the spatial distribution and number of lionfish combined with the collection of juveniles strongly suggests that lionfish, apparently for the first time, are established along the U.S. continental shelf from south Florida to Cape Hatteras, N.C.

The next question was; how did they get introduced? After examining many possible vectors for marine fish introductions, we found that all of the available information suggested lionfish were introduced through aquarium releases, probably off the Florida coast. Lionfish are popular in the saltwater aquarium trade and imported in high quantities in Florida. Because the eggs and larvae are pelagic, subsequent dispersal northward is easily facilitated by the Gulf Stream current. Further, there has been a documented case of an accidental lionfish introduction during Hurricane Andrew. Finally, after 100 years of ballast water movement, the usual vector for marine invertebrate introductions, there are no known instances of a Pacific marine fish becoming established in Atlantic waters by this method.

Approach and Methodology:

Thus far we have published two peer-reviewed manuscripts on the invasion. The first manuscript documents the occurrence of lionfish along the east coast (Whitfield et al. 2002) and the second is an integrated assessment of the lionfish invasion. The intent of the integrated assessment was to collate existing research and assess what is known, to forecast future ecosystem impacts, and provide information managers can use to develop options for future action. We have also conducted laboratory studies examining lionfish thermal tolerances; a probable limiting factor in the distribution of lionfish along the southeast shelf. Results of these laboratory thermal tolerance studies suggest that over-wintering by lionfish along the southeast shelf will be limited to the north at Cape Hatteras NC, a natural zoogeographic boundary controlled by temperature and their inshore distribution will be limited by the 12° isotherm.

Unfortunately, our ability to predict future lionfish population abundance and the effects of lionfish on the ecosystem is still greatly hindered by a lack of knowledge. Therefore, the next step in our research is to increase our understanding of the status and risk posed by the lionfish invasion. Our three main research goals are; 1) establish a baseline of population abundance for lionfish and native fish communities to determine population status, 2) characterize the ecological role of lionfish to determine the risk associated with their presence; 3)



evaluate lionfish thermal tolerances to predict geographic distribution; and 4) establish a pro-active public outreach policy to encourage public participation in lionfish reporting and raise awareness regarding invasive species. All of this information will be essential to determine if the lionfish population is growing and to gain an understanding of the potential impact of lionfish on native communities.

Northeast Region - Motz Grothues

. **Allen Curry**, Research Unit
University of New Brunswick, Fredericton, NB.
racurry@unb.ca,

Presently, I have 2 new students working on early life history questions. Eric Chernoff (MSc) is examining the incubation period, timing of emergence, and first summer growth of brook trout (*Salvelinus fontinalis*) in search of differences between resident and anadromous progeny. His question is, are their differential growth rates between the forms that leads to anadromy? It is a combination of field observations and experimental stream channel work with trout from the Miramichi River, New Brunswick.

Jennifer Shaw (MSc) is studying the

growth of larval smelt (*Osmerus mordax*) in Lake Utopia, New Brunswick. Within the smelt complex of the lake, we have identified normal, giant, and dwarf forms separated by spawning period and streams and with some limited evidence of genetic differences among the ecotypes. Her question is similar to Eric's, is there a growth difference in the larval through first summer periods that is related to the separation of ecotypes.

I have a third project examining the stable isotope signature of newly emerged brook trout to determine their maternal parentage, i.e., either resident or anadromous. This is part of our ongoing studies of the actual contributions of anadromous individuals to populations.

From Bruce Collette:

NMFS Systematics Laboratory, Washington, DC

, I have written ELH sections on the Belontiidae, Hemiramphidae, and Scomberesocidae for Bill Richards' book on ELH of western central North Atlantic fishes. The scomberesocid chapter (written with Dave Hardy) has been published as SEFSC Tech Memo-505. A section on Batrachoididae is in progress. All the completed sections are viewable at URL: <http://www4.cookman.edu/NOAA>

Trent University, ON.

Karen Hunter successfully defended her Masters Thesis on the population dynamics and reproductive potential of mummichogs in two habitats of the salt marsh: pools and creeks. The research was carried out at the field station of Rutgers University, where Ken Abel offered his generous support, and served on her committee... The thesis was supervised by Mike Fox of Trent, who supported the project through an NSERC grant. Perce Powles and Mike Berrill were the other committee members.

Impressions of the 27th LFC
By Perce Powles (editor)

A very successful meeting was convened by Churchill Grimes, Susan Sogard, and a large committee of helpers from the NOAA Laboratory and University at Santa Cruz, CA. The setting was rugged, but picturesque on the 2,000 -acre campus above the city. Small deer grazed calmly on the lawns of the residences and Colleges, where the meetings were held. Although we did not stay on campus, I am told the food was good too!

The meeting got off to a good start with the inimitable, astute, yet amicable style of our keynote speaker, Ed Houde. His talk, based on the Stock-Recruitment concept, gave us all food for thought, and led well into studies which followed.

The themes were varied, but the main concept was based on recruitment questions. My impressions were that we had three strong sectors represented at this meeting, and contributions from all three were well received. We had the regional studies well represented, with review papers on state of stocks in nearby San Francisco Bay; invited papers on dispersal, genetics and otolith-applied studies; and a strong field of contributed papers, all relating quite specifically to early life history studies. One of the more shocking papers presented was on the effects of the Power Plant at Diablo Canyon (Michael Thomas), which gulps in 2.5 billion gallons of seawater per day, resulting in huge larval fish mortality.

The socials were well organized, and varied, enabling delegates to renew old acquaintances, and make new ones. We even had a chance to sample local drama with the outdoor presentation of Shakespeare's *Comedy of Errors* presented under the redwood trees on campus. An unforgettable experience for us.

Another impression I had, was that we had a very good international component, and that is a real sign of success, as far as I am concerned. We had fish biologists from many countries of Europe, and also China, Japan, Australia, and Egypt, to name a few.

Both coasts of North America were also well represented.

Next year we look forward to South Carolina, and the following year to Spain. Please keep your eye on the website for announcements.
PMP (ed)

Presentations Related to the Early Life History of Fishes

Made at the Annual Meeting of the American Society of Ichthyologists and Herpetologists

June 2003, Manaus, Brazil

Courtesy of Lee Fuiman, who attended meeting

BRITZ, RALF; HOFFMANN, MATTHIAS

(RB) Division of Fishes, National Museum of Natural History, Smithsonian Institution, Washington D.C. 20560, USA; (MH, RB) Lehrstuhl fuer Spezielle Zoologie, Universitaet Tuebingen, Auf der Morgenstelle 28, 72076 Tuebingen, Germany

Ontogeny and homology of the neural complex of the Weberian apparatus in otostei (Teleostei)

BROWN, CHRIS; GELSLEICHTER, JIM; MCCOMB, D. MICHELLE

(CB, DMM) Florida International University, Dept. Marine Biology, Dept. Biological Sciences, North Miami, FL, 33181, USA; (JG) Mote Marine Laboratory, Center For Shark Research, 1600 Ken Thompson Parkway, Sarasota, FL, 34236, USA

Maternal investment of thyroid hormones in the embryonic bonnethead shark, *Sphyrna tiburo*

CARRERA-FERNANDEZ, MARIBEL; GALVAN-MAGAÑA, FELIPE; CEBALLOSVAZQUEZ, B. PATRICIA

Centro Interdisciplinario de Ciencias Marinas, Depto. Pesquerías y Biología Marina, Av. Instituto Politécnico Nacional S/N, Col. Playa Palo de Sta. Rita, La Paz, Baja California Sur, México

Reproduction of blue shark, *Prionace glauca*, in the western coast of Baja California Sur, Mexico [includes information on embryos]

COLE, K.S.; SUNDARESAN, A.; PELLIS, N.; GREEN, S.M.

(KSC) Department of Biology, University of Louisiana at Lafayette, P.O. Box 42451, Lafayette, LA 70504; (AS) Universities Space Research Association, Division of Space Life Sciences, 3600 Bay Area Blvd., Houston, TX

77058; (NP) Chief, Biological Systems Office, NASA-Johnson Space Center, 2101 Nasa Road 1, Mail code: SJ, Houston, TX 77058-3696; (SMG) Department of Biology, University of Louisiana at Lafayette, P.O. Box 42451, Lafayette, LA 70504

Developmental abnormalities in brain morphology and skeletal configuration in a simulated altered gravity environment in the cypriniform fish, *Rivulus marmoratus*

CORBINO, JEFFREY M.; CASHNER, ROBERT C.

University of New Orleans, Dept. of Biological Sciences, 2000 Lakeshore Dr., New Orleans, LA, 70148, USA

Habitat dependent ontogeny of *Brevoortia patronus* in an oligohaline estuary

CROW, KAREN D.

University of California - Santa Cruz, Department of Ecology and Evolutionary Biology, Santa Cruz, CA 96064, USA

Hybridization, reproductive isolation, and speciation in three *Hexagrammos* fishes [includes survivorship and growth of hybrid larvae]

DE PINNA, MARIO; GRANDE, TERRY

(MDP) Museu de Zoologia da Universidade de Sao Paulo, Caixa Postal 42594, Sao Paulo-SP 04299-970, Brazil; (TG) Department of Biology, Loyola University, Chicago, 6525 North Sheridan Road, Chicago, IL 60626, USA

Morphological homologies among otostei, clupeomorphs and other lower teleosts [includes development of the anterior vertebrae and caudal fin]

FIGUEROA, DANIEL ENRIQUE; MACCHI, GUSTAVO

Laboratorio de Ictiología, Depto.Cs.Mar, FCEyN, Universidad Nacional de Mar del Plata, Funes 3350, Mar del Plata (7600), Argentina; Instituto Nacional de Investigación y Desarrollo Pesquero (INIDEP), CC175, Mar del Plata (7600), Argentina

The Western South Atlantic congrid eel *Bassanago albescens* (Barnard, 1923) [includes larval description]

FUIMAN, LEE A.; MC CARTHY, IAN D.; ALVAREZ, MARIA C.

University of Texas at Austin, Marine Science Institute, 750 Channel View Drive, Port Aransas, TX 78373, USA

Low levels of contaminants impair survival skills of Atlantic croaker (*Micropogonias undulatus*) larvae

GELSLEICHTER, JIM; SZABO, NANCY J.; MANIRE, C.A.; MORRIS, J.

(JG, CAM, JM) Elasmobranch Physiology and Environmental Biology Program, Center for Shark Research, Mote Marine Laboratory, Sarasota, FL 34236,

HANKS, JOSEPH; BELK, MARK C.

Brigham Young University, Dept. Integrative Biology,
Provo, UT, 84602, USA

Variation in drift patterns of endangered larval June suckers in the lower Provo River

HARTUP, WENDI W.; JOHNSTON, CAROL E.

Auburn University, Department of Fisheries and Allied Aquacultures, 203 Swingle Hall, Auburn University, AL 36849, USA

Assessing persistence of a rare darter species, *Etheostoma boshungi*, using population viability analysis models [includes survival rates for larvae and juveniles]

HERMES-SILVA, SAMARA; REYNALTE-TATAJE, DAVID; ZANIBONI-FILHO, EVOY

Laboratório de Biologia e Cultivo de Peixes de Água Doce (LAPAD)/CCA/UFSC, Rodovia SC 406 n° 3532, Armação, 88066-292, Florianópolis, SC, Brazil

Spatial and temporal distribution of ichthyoplankton in the upper Uruguay River

HORN, MICHAEL H.

Department of Biological Science, California State University Fullerton, 800 N. State College Blvd., Fullerton, CA, 92834-6850, USA

Biology of the northernmost *Brycon*: feeding and digestion in *B. guatemalensis* from Costa Rican rain forest streams [includes ontogeny of gut structure]

IBRAHIM, AHMED; SUMMERS, ADAM

University of California, Irvine Ecology & Evolutionary Biology, Irvine, CA 92697-2525, 195 Cornell, Irvine, CA 92612, USA

Bioenergetics of the little skate (*Raja erinacea*) [includes developmental stages]

JEFFERY, WILLIAM R.

University of Maryland, Department of Biology, College Park, MD 20742-4415, USA

The hypogean phenotype is controlled by pleiotrophic midline-signaling genes in the cavefish *Astyanax* [includes gene expression and eye development pathways]

JIMENEZ, LUZ F.; GODINHO, ALEXANDRE; PETRERE, MIGUEL

(LFJ) University of Antioquia, Institute of Biology, A.A. 1226, Colombia; (AG) University of Minas Gerais, Institute of Biological Sciences, Minas Gerais, Brasil; (MP) University of Rio Claro, Department of Ecology, Sao Paulo, Brasil

Ichthyoplankton distribution in Sao Francisco River, Brasil, South America

JOHNSON, G. DAVID; BRITZ, RALF

Division of Fishes, National Museum of Natural History, Smithsonian Institution, Washington, DC, 20560, USA

Leis' Conundrum and Goldschmidt's Monster, a brief "tale" of the Ocean Sunfishes: ontogeny and homology of the Clavus of *Ranzania laevis* (Teleostei: Tetraodontiformes: Molidae)

JORDAN, REBECCA C.; HOWE, DAVID; JUANES, FRANCIS

(RCJ) Princeton University, Department of Ecology and Evolutionary Biology, Princeton, NJ, 08544, USA; (DH, FJ) University of Massachusetts-Amherst, Department of Natural Resources Conservation, Amherst, MA 01003, USA

Feeding habits of age-0 striped bass, *Morone saxatilis* in the mid-Hudson River

LIMA, ÁLVARO C.; ARAUJO-LIMA, CARLOS A. R. M.

Instituto Nacional de Pesquisas da Amazônia, Coordenação de Pesquisas em Biologia Aquática, Manaus, AM, 69011-970, Brazil

Spawning migrations of characiform fishes in relation to water quality in rivers of the Amazon [includes ichthyoplankton surveys]

LINDSAY, JOSHUA B.

California State University, Northridge, Nearshore Marine Fish Research Program, Dept. of Biology, 18111 Nordhoff St., Northridge, CA, 91330-8303, USA

Temporal patterns in the settlement of cryptic reef fish

LUTHY, STACY A.; COWEN, ROBERT K.; SERAFY, JOSEPH E.; MCDOWELL, JAN R.

(SAL, RKC) University of Miami, Rosenstiel School of Marine and Atmospheric Science, 4600 Rickenbacker Causeway, Miami, FL 33149, USA; (JES) National Marine Fisheries Service, Southeast Fisheries Science Center, 75 Virginia Beach Drive, Miami, FL 33149, USA; (JRM) Virginia Institute of Marine Science, School of Marine Science, College of William and Mary, P.O. Box 1346, Gloucester Point, VA 23062, USA

Distinguishing larval sailfish, white marlin, and blue marlin from Western Atlantic waters

LYNCH, D. BRIAN; PEZOLD, FRANK

Museum of Natural History and Biology Department, University of Louisiana - Monroe, Monroe, LA, 71209, USA

Larval period duration of two species of *Stiphodon* (Teleostei: Gobiidae) from Pohnpei, Federated States of Micronesia

- Larval period duration of two species of *Stiphodon* (Teleostei: Gobiidae) from Pohnpei, Federated States of Micronesia** 159, Washington, D.C. 20013-7012, USA
Digital photography of living larvae of coral reef fishes of Belize
- MARQUEDA, ELISA A.**
CICIMAR-IPN, Laboratorio de Peces, Av. IPN s/n, Col. Playa Palo de Santa Rita, La Paz, Baja California Sur, 23096, México
Reproductive biology of Pacific angel shark *Squatina californica* at the South Western Gulf of California [includes embryonic stages]
- MCRAE, MARK; FITZSIMONS, J. MICHAEL**
Louisiana State University, Museum of Natural Science, 119 Foster Hall, Baton Rouge, LA, 70803, USA
Daily patterns in downstream migration of waterfall-climbing amphidromous gobies in Hawaii
- MEIJIDE, FERNANDO; LO NOSTRO, FABIANA; GUERRERO, GRACIELA**
Lab. Embriología Animal, Dpto. Biodiversidad y Biología Experimental, Facultad de Ciencias Exactas y Naturales, Universidad de Buenos Aires. Ciudad Universitaria, C1428EHA, Buenos Aires, Argentina
Development of the ovarian germinal epithelium in the cichlid fish, *Cichlasoma dimerus* (Teleostei, Perciformes) [includes larvae]
- MILLER, ERIC F.**
California State University, Northridge, Dept. Biology, Northridge, CA, 91330, USA
Initial protocols for the captive breeding of spotted sand bass (*Paralabrax maculatofasciatus*) in southern California [includes larvae]
- MIRACLE, ANN L.; WALSH, CATHY J.; ANDERSON, MICHELE K.; LITMAN, RONDA T., LITMAN, GARY W; ROTHENBERG, ELLEN V.; LUER, CARL A.**
(ALM, RTL; GWL) University of South Florida, Department of Pediatrics, Children's Research Institute, 140 Seventh Avenue South, St. Petersburg, FL 33701, USA; (CJW, CAL) Mote Marine Laboratory, Center for Shark Research, 1600 Ken Thompson Parkway, Sarasota, FL 34236, USA; (MKA, EVR) California Institute of Technology, Division of Biology 156-29, 1201 East California Boulevard, Pasadena, CA 91125, USA
Ontogenetic expression of lymphocyte-specific genes implicate unique lymphoid tissues in generating elasmobranch immune repertoire [includes embryonic and posthatching stages]
- MOUNTS, JULIE H.; BALDWIN, CAROLE C.; SMITH, DAVID G.**
Division of Fishes, National Museum of Natural History, Smithsonian Institution, P.O. Box 37012, NMNH, MRC
- PAXTON, JOHN R.; JOHNSON, G. DAVID**
(JRP) Australian Museum, 6 College St., Sydney, N.S.W. 2010, Australia; (GDJ) Division of Fishes, Smithsonian Institution, PO Box 37012, NMNH, Rm. WG-12, MRC 0159, Washington, DC 20013- 7012, USA
If tapetails and the hairyfish (Mirapinnidae) are larval whalefishes (Cetomimidae), bignose/mosaic-scale fishes (Megalomycteridae) should be male whalefishes
- PETRY, PAULO; ZUANON, JANSEN; RAPP PY-DANIEL, LUCIA H.; DE PINNA, MARIO**
(PP) Bio-Amazonia Conservation Intl., 13024 Main St., Leo, IN, 46765, USA; (JZ, LHRP) Instituto Nacional de Pesquisas da Amazonia, Coordenacao de Pesquisas em Biologia Aquatica, Alameda Cosme Ferreira 1756, Manaus, AM, 69083, Brazil; (MDP) Museu de Zoologia da USP, Caixa Postal 42594, São Paulo, SP, 04299-970, Brazil
On the discovery of a remarkable new family of fishes from the Amazon basin in Brazil [includes larvae]
- REYNALTE-TATAJE, DAVID; WEISS, LUCIANO A.; ODA, CARLOS E.; WEINGARTNER, MARCOS; ZANIBONI-FILHO, EVOY**
Laboratório de Biologia e Cultivo de Peixes de Água Doce (LAPAD)/CCA/UFSC, Rodovia SC 406 n° 3532, Armação, 88066-292, Florianópolis, SC, Brazil
Growth and survival of *Pimelodus maculatus* (Lacepede, 1803) larvae reared in different prey concentration
- ROCHA, LUIZ A.**
University of Florida, Dept. of Fisheries and Aquatic Sci., 7922 NW 71st Street, Gainesville, FL 32653, USA
Ecological speciation in tropical seas [includes larval dispersal and retention]
- ROMERO, ALDEMARO, GREEN, STEVEN M.; ROMERO, ANDREA; JEFFERY, WILLIAM R.; YAMAMOTO, YOSHIURI; LELONEK, MEGAN; STROPNICKY, KATY C.**
(AR, AR, MML, KCS) Macalester College, Environmental Studies Program, 1600 Grand Ave., St. Paul, MN, 55105-1899, USA; (SMG) University of Miami, Department of Biology, P.O. Box 249118, Coral Gables, FL, 33124, USA; (WRF, YY) University of Maryland, Department of Biology, College Park, MD, 20742, USA

Cave fish with induced eyes and retinotectal projections do not respond to light

RUIZ-CARUS, RAMON; GRIER, HARRY J.

(RRC) Facultad de Ciencias, Universidad Nacional Autónoma de México, México, D.F. 04510 (HJG) Smithsonian Institution, Division of Fishes, Washington, DC 20560-0109, USA (RRC & HJG) FWCF Florida Marine Research Institute, 100 Eighth Ave SE, St. Petersburg, FL 33701-5020, USA

The exotic armored catfishes (Loricariidae) and *Hoplosternum littorale* (Callichthyidae) in Florida, particularly in the Hillsborough River [includes larval development]

SAKAZAKI, MELODY S.; ROMERO, ALDEMARO

Macalester College, Environmental Studies Program, St. Paul, MN, 55105, USA

Young and unmoved: no responses to light among juvenile cave, surface, and hybrid *Astyanax fasciatus*

SARDIÑA, PAULA; LOPEZ CAZORLA, ANDREA C.

(PS) Museo Argentino de Ciencias Naturales "Bernardino Rivadavia", Lab. Planctología, Av. Angel Gallardo 470, C1405DJR Capital Federal, Argentina; and Instituto Argentino de Oceanografía, Camino La Carrindanga Km 7, 8000 Bahía Blanca, Argentina; (ACL) Universidad Nacional del Sur, Departamento de Biología, Bioquímica y Farmacia, San Juan 670, 8000 Bahía Blanca, Argentina

Ontogeny of diet changes in *Micropogonias furnieri* (Sciaenidae): foraging behaviour, jaw size and prey selection

SONG, JIAKUN; PARENTI, LYNNE R.

(JS, LRP) Division of Fishes, MRC159, NMNH Smithsonian Institution, Washington DC 20013-7012, USA; (JS) Dept. Biology, University of Maryland, College Park, MD 20742, USA

Hierarchies in development and phylogeny: morphological patterns of pelvic fins in teleost fishes

The American Fisheries Society (AFS) is pleased to announce its newest service - Fisheries InfoBase.

Fisheries InfoBase adds an additional 10 years (1988-1997) of our journal articles to the existing AFS online database (1998-current). AFS Journals Online contains electronic versions of the complete contents of the four AFS journals: Transactions of the American Fisheries Society, featuring papers

on basic fisheries science; North American Journal of Fisheries Management, covering management research, experiences, and recommendations;

North American Journal of Aquaculture (formerly the Progressive Fish-Culturist), providing guidance for those who breed and raise aquatic animals; and

Journal of Aquatic Animal Health, focusing on health maintenance and disease treatment

Fisheries InfoBase is available immediately as a separate subscription, running through December 2003. 2003 rates are \$15.00 for individual subscribers, and \$190.00 for libraries and institutions. (2004 rates will be \$25.00 for individuals and \$380.00 for libraries and institutions). You may search, access, and download all full-text articles from all four AFS journals from the years 1988-1997. You have unlimited access to the database during the term of your subscription. **Please go to http://www.fisheries.org/publications/afs_journal.shtml** for additional details and to subscribe.

Aaron Lerner Publications Manager
American Fisheries Society

4 NEW RELEASES FROM AFS: Order your copies now on these important subjects:

Common and Scientific Names of Aquatic Invertebrates from the United States and Canada: Cnidaria and Ctenophora, Second Edition

Stephen D. Cairns et al.

The purpose of this volume (an update to the first edition and now with a CD-ROM) is to provide a checklist of species and to recommend selected common names for North American Cnidaria and Ctenophora, thereby achieving uniformity and avoiding confusion in the nomenclature of their common names. In addition to stabilizing common name nomenclature, this list will heighten public awareness of the diversity and wide distribution of cnidarians in North America, help identify taxonomic groups in need of systematic revision, and serve as a preliminary guide to the literature required for the identification of species.

This text lists more than 1,300 taxa of jellyfishes, hydroids, corals, anemones, and comb jellies and sets the standard for vernacular names of the more widely known species. This book also includes an index, extensive references and bibliography, and annotated changes from the first edition.

Special Publication 28

115 pp., + 32 color photographs, paper, March 2003

Special Publication 28
115 pp., + 32 color photographs, paper, March 2003

Book and companion CD:

Stock number 510.28P ISBN 1-888569-39-5
List Price: \$39
AFS Member Price: \$27

CD only:

Stock number 703.12 ISBN 1-888569-45-X
List Price: \$34
AFS Member Price: \$23

T o o r d e r :

Online: www.fisheries.org/cgi-bin/hazel-cgi/hazel.cgi
Phone: (678) 366-1411, or Fax: (770) 442-9742
Email: afspubs@pbd.com

Strategies for Restoring River Ecosystems: Sources of Variability and Uncertainty in Natural and Managed Systems

Robert C. Wissmar and Peter A. Bisson, editors
Fisheries and natural resource managers and policymakers need more efficient procedures for identifying sources of variability in ecosystems (natural and managed) and assessing uncertainties of managing and making decisions for developing and implementing river restoration strategies. This book seeks to integrate perspectives on variability of physical and biological functions and concepts of uncertainty in natural and managed systems, into strategies for renewing and conserving river ecosystems. The book explores approaches to understanding and communicating the processes contributing to the variability of different types of river systems, and to assessing major sources of uncertainty in natural and managed river ecosystems.

276 pp., paper Stock Number: 550.44
List Price: \$69

AFS Member Price: \$48
ISBN 1-888569-46-8

To order:

Online: www.fisheries.org/cgi-bin/hazel-cgi/hazel.cgi
Phone: (678) 366-1411, or Fax: (770) 442-9742
Email: afspubs@pbd.com

A Guide to Sampling Freshwater Mussel Populations

David L. Strayer and David R. Smith
Assessing mussel populations accurately and efficiently requires knowledge of both statistical principles and mussel biology. The purpose of this guide is to provide practical advice to environmental professionals to help them choose sound designs and methods for assessing freshwater mussel populations. The authors critically review sampling designs and methods that might be useful for sampling freshwater mussel populations and offer exemplary designs to meet several common objectives. The guide is largely compiled from published works, although some new, unpublished material is included, and brings together into a coherent, compact

form the information needed to design mussel surveys and assessments.

AFS Monograph 8
110 pp., paper, June 2003
Stock Number: 520.08
List Price: \$55
AFS Member Price: \$38
ISBN 1-888569-50-6

T o o r d e r :

Online: www.fisheries.org/cgi-bin/hazel-cgi/hazel.cgi
Phone: (678) 366-1411, or Fax: (770) 442-9742
Email: afspubs@pbd.com

Mysteries from the Yukon: The Adventures of a Junior Biologist
Lawrence S. Buklis

Flowing through the heart of Alaska, the Yukon River is the scene for stories of mystery and adventure. Searching for lost gold from the Klondike, chasing thieves in a blinding snowstorm, plunging through raging waters on a hydropower project gone wrong-- three fast-paced adventures await readers in grades 5 through 9.

Mystery and adventure of another kind await as well. Have you ever dreamed of working in the great outdoors? To call it your job to work in places others can only hope to visit? Have you wanted to discover how natural systems work, to explore frontiers still to be found? Through the experiences of a fishery biologist and his family on the legendary Yukon, these adventures help feed the dream: could this be me?

217 pp., paper, June 2003 Stock Number: 550.46
List Price: \$21 AFS Member Price: \$15
ISBN 1-888569-52-2

T o o r d e r :

Online: www.fisheries.org/cgi-bin/hazel-cgi/hazel.cgi
Phone: (678) 366-1411, or Fax: (770) 442-9742
Email: afspubs@pbd.com

American Fisheries Society 134th Annual Meeting

Madison, WI, Canada
August 21-26, 2004
"

Pre-registration begins April 2004.

For more information on the meeting or to register online, please go to www.fisheries.org and click on "Annual Meeting"

4th World Fisheries Congress

Vancouver, BC CANADA
May 2 - 6, 2004

The Congress theme, "*Reconciling Fisheries with Conservation: The Challenge of Managing Aquatic Ecosystems*," will be addressed by a world class list of Keynote speakers, session topics, posters, limited presentations, round table discussions, forums, workshops and debates. Online Abstract Submittal for the Fourth World Fisheries Congress will open April 2003.

Please submit any articles, opinions,
on any area of early life history fish
studies to: Perce Powles,
pmpowles@allstream.com

Mark these daates on your calendar for next
summer:28th Larval Fish Conference,
Clemson University, SC
May 23-27, 2004
Send inquiries to: jisely@clemson.edu