



*Inside this issue*

*President's Message* ..... 1

*News from the Regions* ..... 2

*Section Officers* ..... 2

*Upcoming Events* ..... 5

*People* ..... 7

*Publications* ..... 8

*Recent Events* ..... 9

*Editor's Ramblings* ..... 11

## 2006 Larval Fish Conference in Lake Placid, New York

Planning for the 30<sup>th</sup> Annual Larval Fish Conference is progressing. The meeting will be held as a symposium during the American Fisheries Society annual meeting in Lake Placid, New York, September 10-14, 2006. The abstract deadline has passed and a preliminary schedule has been developed and passed on to AFS. There are about 100 talks and about 40 posters scheduled for the Larval Fish Conference.

The LFC will be held at the Lake Placid Hilton which is about a 10-minute walk from the main AFS venue. Joanne Lyczkowski-Shultz will start off the Larval Fish Conference on Monday after lunch with her keynote talk: "The Role of Eggs and Larvae in Fishery Resource Assessments." This will be followed by two other talks in the plenary session, before the conference is split into two concurrent sessions. There is no overall meeting theme, but talks have been grouped by topic as best as possible. A large number of students are participating, which bodes well for the future of the Larval Fish Conferences and Early Life History Section. Most of the social events will be part of the AFS meeting, but an afternoon poster session and morning student award presentation are planned. The meeting will end on Thursday afternoon.

*...continued on p. 10*

### ELHS Back Then

- 5 years ago: Past President, Bob Hoyt retired from Western Kentucky University.*
- 10 years ago: Section by-laws amended to make ELHS the official sponsor of the LFCs.*
- 15 years ago: 15<sup>th</sup> LFC held at University of Southern California.*
- 20 years ago: Sally L. Richardson passes away on May 15 while traveling to the 10<sup>th</sup> LFC in Miami.*
- 25 years ago: Section membership at 311, ranking it 6<sup>th</sup> of the 9 AFS sections after only 1.5 years.*

## President's Message



This is my last contribution to STAGES as President of the Section. As you already know, Chris Chambers will take over as President during the Section's Business Meeting, which will be held in September at the Larval Fish Conference. To ensure a smooth transition, Chris and I have already begun communicating over Section business.

Here is a somewhat abbreviated version of my usual status report.

Section business has gone smoothly during my tenure. I am pleased to be able to report that most of the initiatives that were on our agenda have either been completed or are underway.

**Annual Larval Fish Conferences.** Over 130 abstracts were submitted for presentation at 29<sup>th</sup> LFC in Barcelona! The 31<sup>st</sup> LFC is

set for St. John's, Newfoundland, 9-12 July 2007. The 32<sup>nd</sup> LFC is tentatively set for Kiel, Germany in 2008 and we have several hosting offers out through 2011. Visit [www.larvalfishcon.org](http://www.larvalfishcon.org) for the details, as they become available!

**Online balloting for the election of Section officers.** The ELHS, and other AFS Sections, have asked the parent Society about the possibility of using their online balloting system to elect Section officers. This would eliminate the need for us to implement something ourselves.

If you are interested in serving as an ELHS officer, or would like to nominate someone, please contact Chris Chambers (Chair, AFS-ELHS Nominations and Mail-Ballot Committee) at: [chris.chambers@noaa.gov](mailto:chris.chambers@noaa.gov). Specifically, within the next 12-18 months, the Section will need a Secretary-Elect,

*...continued on p. 11*

*Deadline for material to be included in the next issue of Stages:*

**September 5,  
2006**

## News from the Regions



### North Central Region

**Jim Garvey**

*From: Jessica Rettig, Vertebrate Ecology Lab, Denison University*

The lab at Denison University in central Ohio focuses on fish ecology in small ponds (0.5-2.0 ha). In particular, we quantify seasonal patterns of abundance for larval bluegill sunfish (*Lepomis macrochirus*) and attempt to determine the mechanisms contributing to the patterns we observe. Thus we look at how zooplankton community structure and abundance vary across the larval open-water season, as well as how factors such as temperature and oxygen vary. The lab is also interested in exploring how seasonal patterns of larval abundance vary among years. For small pond ecosystems it is not clear if larval fish populations experience similar patterns among years in the timing of peak densities or in overall larval abundance and small ponds may be subject to greater among-year variation than is generally observed in larger ecosystems such as lakes and reservoirs. Recently, we also have begun a project quantifying nesting activity by bluegill males and plan to link this activity to the dynamics

of open-water larvae. Our first field season for this project resulted in marking over 500 possible nesting sites and conducting twice weekly snorkeling surveys to record the status of each potential nest site. From June through August, there were several peaks in nesting activity, with 10-16% of possible nests being used during a peak (i.e., eggs or hatchlings, and a male present). On most survey dates at least some nests were actively used for eggs or hatchlings. Our next step will be to compare the pattern of nesting activity with that for larval abundance in the limnetic zone.

*From: Rob Colombo and Jim Garvey, Fisheries and Illinois Aquaculture Center, Southern Illinois University*

#### Harvest impact on shovelnose sturgeon reproductive success in the upper Mississippi River

With the recent ban on importation of sturgeon from the Caspian region into the US, fishing pressure on shovelnose sturgeon in the Missouri and Mississippi River systems is clearly increasing. Our group has recently completed an analysis of recruitment dynamics of shovelnose sturgeon in the reach of the upper Mississippi River extending from the confluence of the Missouri River to the confluence of the Ohio River. We have found a strong negative relationship between the

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### Western Region

**Dan Margulies**

*From: Russ Vetter, NOAA Fisheries, Southwest Fisheries Science Center.*

SWFSC scientists in collaboration with Robert Humphreys and the NMFS, Pacific Islands Fisheries Science Center (PIFSC) have been conducting an ongoing series of cruises to study billfish spawning off the Kona Coast of the Big Island of Hawaii. Little was known about billfish spawning because eggs were generally not identifiable. Previously, we had developed a method of shipboard molecular identification of billfishes of the Istiophoridae and Xiphiidae (Hyde et al. *Mar. Ecol. Prog. Ser.* 2005). The main goal of the study has been to describe temporal and spatial patterns of spawning and the oceanographic conditions that make Kona a spawning hot spot. However, the PIFSC and Bob have also attempted to make full use of our encounters with these rare and interesting billfish larvae by promoting ancillary research projects.

On a recent cruise (4/24-5/02/06) we tested a microrespirometry system developed by Anders Bang and Peter

*continued on p. 3*

## Section Officers

### President

Howard I. Browman  
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*Western Region...cont'd from p. 2*

Grønkjær of the Institute of Biological Sciences, University of Aarhus, Denmark and Unisense S/A, Aarhus, Denmark. Oxygen consumption is one of the best and oldest measurements of whole animal metabolic rate and can be used to explore any number of topics, from individual genetic variance in growth rate to the possible effects of climate change. The use of oxygen consumption for the study of eggs and yolk-sac larvae has been limited by the technical limits of polarographic oxygen electrodes and the simple difficulties of manipulating tiny, rapidly developing organisms in small chambers. For species such as billfishes, whose eggs cannot be spawned in the laboratory, the problems are compounded by the unpredictable and low availability of field-caught eggs, the variance in egg stage, and the short study times for working with developing eggs and larvae.

The system developed by Peter Grønkjær's Lab has two main advantages: 1) the electrode, with a tip diameter of 400-600  $\mu\text{m}$ , has a very low rate of intrinsic  $\text{O}_2$  consumption and low drift allowing accurate measurements of single eggs, and 2) the electrode can be moved from chamber to chamber so that multiple eggs can be measured at the same time. Using this system we were able to obtain the first oxygen consumption measurements of eggs and larvae of swordfish, and the eggs of shortbill spearfish. Since billfish eggs from a single tow are often in a similar developmental stage, the advantages of working concurrently on up to eight eggs rather than working sequentially was clear given the rapid developmental rates. Further studies are planned.

Peter also accompanied SWFSC scientist Eric Lynn on a recent coast-wide sardine survey and was able to use eggs retrieved from bongo net tows to obtain shipboard measurements of sardine and anchovy eggs at three temperatures. The long-term goal is to determine if, and to what extent, various putative stocks of sardine eggs spawned off Baja Mexico, southern California, and central California have intrinsic genetic differences in metabolism and potentially different effects of temperature on metabolism and developmental rate. §



## Southern Region

Claire Paris

*From: University of Miami, Rosenstiel School of Marine and Atmospheric Science*

Over the last several years, the Cowen lab has been focusing on three areas of work: early life history of billfish, larval dispersal-mediated population connectivity, and new methodologies for larval fish studies. In these pursuits, there has been considerable interaction with Su Sponaugle's lab and Claire Paris, as well as a suite of colleagues across institutions and agencies. A full listing (and pdf files) of publications and more detailed overview of activities is available at our lab web site ([www.rsmas.miami.edu/groups/larval-fish](http://www.rsmas.miami.edu/groups/larval-fish)).

The billfish ELH work has included several studies on distribution (Serafy et al. 2003, Prince et al. 2005), growth (sailfish: Luthy et al. 2005a, Blue marlin: Sponaugle et al. 2005), and molecular ID techniques using RFLPs (Luthy et al. 2005b). From these initial studies, we have extended the scope of our work to include a more extensive time series study in the Straits of Florida to determine spawning location, spawning biomass, and larval billfish trophic role. These specific studies are the focus of dissertation research by Dave Richardson and Joel Llopiz. Dave Richardson (working with Jeff van Wye and Amy Miyake) has also developed a high-throughput sequencing method for rapidly identifying large numbers of istiophorid and scombrid larvae (Richardson et al. in review).

The population connectivity work has taken a strong modeling approach with the able modeling expertise of Claire Paris and Ashwanth Srinivasan. Building on years of empirical field data with respect to larval bio-physical interactions, our modeling emphasis has been on identifying the scales over which larval dispersal is typically contributing young recruits to local and adjacent populations of reef fish within the geographically and oceanographically

complex Caribbean Sea. We have developed insights into the larval dispersal process (e.g. how vertical movements by larvae can significantly reduce the dispersal kernel) that has resulted in a hypothetical, Caribbean-wide estimation of the spatial extent of dispersal and resulting population connectivity. A suite of publications have resulted from this work thus far (Cowen et al. 2000, 2002, 2006; Paris et al. 2004).

An empirical test of population connectivity within the Caribbean was undertaken by recent PhD graduate, John Purcell, using microsatellites. He found significant isolation-by-distance evidence of limited ecological dispersal that are consistent with the model output, albeit more complex data results and interpretations are also forthcoming. PhD student, Johnathan Kool, is expanding on the bio-physical model by incorporating a genetic exchange model for more extensive hypothesis-generating capabilities relevant to the genetic consequences of population connectivity. Martha Hauff, our newest PhD student will be linking offshore and onshore larval studies to processes contributing larval mortality and dispersal, providing field testing of model hypotheses.

In addition to the advanced molecular techniques (mentioned above) used to expand our tools for larval identification, we have been developing two separate larval sampling techniques. In the first, we combined two different sized MOCNESS nets into a single sampling unit to enable simultaneous sampling of larval fish (including larger fast swimming billfish) and their prey (Guigand et al. 2005). We are also developing an In Situ Ichthyoplankton Imaging System (ISIIS) that enables us to obtain high resolution images of larvae in situ at sampling speeds and volumes sufficient to quantify the fine spatial and vertical distributions.

The Sponaugle lab is involved in several lines of research encompassing reef fish recruitment, bio-physical larval transport processes, population connectivity, and habitat-specific growth, condition, behavior, and selective survival of young reef fish. As new projects begin, old ones are winding down and results continue to

*continued on p. 4*

**North Central Region...cont'd from p. 2**  
 production of year classes and harvest intensity for three independent sampling years. This suggests that production of annual cohorts is linked to harvest rates, probably due to removal of gravid females by commercial fishers aggregated at spawning grounds. Abiotic factors such as temperature and discharge were unrelated to patterns of year-class strength. Harvest regulations have been limited to gear restrictions in the past. Although the border states including Missouri, Illinois, Kentucky, and Tennessee are exploring length limits and some seasonal limits on river sturgeon, our initial analysis of spawning potential ratio and crude yield models suggests that these preliminary regulations will be largely ineffectual in sustaining production of sturgeon recruits in the Upper Mississippi River. Although we have little information about the recruitment of the federally endangered pallid sturgeon in this system, evidence is mounting that this species is frequently harvested for eggs along with its congener, the shovelnose sturgeon. Given that this species is about 1% as numerically abundant as the shovelnose sturgeon, we suspect that its recruitment success may be more sensitive to harvest and that incidental harvest may be degrading natural reproduction. §

**Southern Region...cont'd from p. 3**

emerge: two recent examples are a paper in *Limnology and Oceanography* on the role of mesoscale frontal eddies in transporting larval to Florida Keys reefs (see [aslo.org/lo/toc/vol\\_50/issue\\_4/1033.pdf](http://aslo.org/lo/toc/vol_50/issue_4/1033.pdf) for free access) and a feature article on the influence of seasonal water temperature fluctuations on larval growth in Florida Keys cohorts of the bluehead wrasse (*Mar. Ecol. Prog. Ser.* 308:1-15). Early (2005) results of our age and growth efforts with billfish include: Sponaugle et al. (*J. Fish Biol.* 66: 822-835) and Luthy et al. (*Mar. Freshw. Res.* 56: 1027-1035). Other papers, including products of student research (below) are in various stages of production and publication:

Michelle Paddack (co-advised by Bob Cowen & Su Sponaugle) recently defended her dissertation on "Herbivorous coral reef fishes in a

changing ecosystem," which primarily examined older life-history stages, but included a chapter on recruitment and microhabitat selection by juvenile parrotfish. She is making a long northwestward trek to begin a 3-year postdoctoral position with Isabelle Côté and John Reynolds at Simon Fraser University, and Andrew Watkinson at the Centre for Ecology, Evolution and Conservation, University of East Anglia, Norwich, England.

Kirsten Grorud-Colvert also recently defended her dissertation on "Predation in marine reserves and its impact on the survival of newly-settled reef fishes." She examined the carryover effects of larval history on early juvenile survival in the bluehead wrasse, *Thalassoma bifasciatum*, over multiple seasons and years and found that selective mortality was not pervasive, but survivors frequently were of higher condition at settlement. Laboratory experiments using recruits of natural and artificially-created differences in condition demonstrated that high condition recruits swim better, take fewer risks by foraging less in the presence of a predator, and evade a predator threat at faster speeds. In the field, higher densities or biomass of large and small piscivores were found in marine reserves of the Florida Keys National Marine Sanctuary and mesocosm experiments demonstrated that these higher densities can lead to lower survival and condition-based selective mortality. Kirsten also examined patterns of larval supply and recruitment to marine reserves and non-reserves to further evaluate the impact of predators on population replenishment. She is currently in the process of preparing publications and seeking gainful postdoctoral employment.

Evan D'Alessandro completed an MS degree last year on "Patterns and processes of larval fish supply to the coral reefs of the Florida Keys." The study involved a grueling every-other-day light trap sampling program in the upper Florida Keys for six summer months and twice monthly sampling through the winter for two full years. Evan documented patterns of larval supply to reefs distributed alongshore and on-offshore and related temporal

patterns of supply to concurrently measured physical processes to examine mechanisms of larval delivery to reefs. Evan is now building upon some of this work and examining aspects of the life history of barracuda for his PhD program.

Klaus Huebert's dissertation research is focused on larval fish behavior. He is combining classic ichthyoplankton studies on vertical migration of larval fish off of the Florida Keys with ship-board experimental manipulations of wild-caught larvae. Klaus is examining the cues that larval fish use to orient vertically in the water column as well as horizontally navigate. He will be presenting his first results at this year's LFC.

Tauna Rankin is one year into her graduate work during which she plans to examine aspects of larval supply, recruitment, survival, and population connectivity of the bicolor damselfish, *Stegastes partitus*, in the Florida Keys.

After completing her MS degree, followed by a Knauss Sea Grant Fellowship in DC, Kelly Denit has taken a position in NMFS' Office of International Affairs. In her spare time, she continues to collaborate on the billfish aging work.

For additional information, please see our webpage ([www.rsmas.miami.edu/groups/reef-fish-ecology](http://www.rsmas.miami.edu/groups/reef-fish-ecology)), which will hopefully be updated sometime before the end of the decade, and feel free to contact any of us (email addresses are on our webpage).

**From: Ed Martino, University of Maryland Center for Environmental Sciences (UMCES)**

Several new research projects are underway in Ed Houde's group at the University of Maryland Center for Environmental Sciences (UMCES). The first is an NSF-funded multi-disciplinary project to evaluate the role of bio-physical mechanisms of survival of anadromous fishes during the larval stage in the Chesapeake Bay estuarine turbidity maximum (ETM). This project includes collaborative research with physical oceanographers who are

...continued on p. 10

## Estuary-Dependent Fish Symposium at AFS Meeting

Timothy Targett (University of Delaware), James Rice (North Carolina State University), and Mark Peterson (Gulf Coast Research Laboratory) have organized a symposium for the AFS annual meeting in Lake Placid. The symposium title is entitled: "Estuary-Dependent Fishes: Patterns and Processes of Environmental Influences on Nursery Habitat Quality." It will be held all day Thursday, Sept 14<sup>th</sup>, immediately following the Larval Fish Conference symposium. It can be considered a topical one-day extension of the Larval Fish Conference. See details on talks in the table below.

*AFS Symposium: Estuary-Dependent Fishes: Patterns and Processes of Environmental Influences on Nursery Habitat Quality*

The symposium has three purposes. First, speakers will present current results, techniques, and ideas on fish – habitat quality research using field, laboratory, and modeling approaches. Second, talks and discussion will address the question "Are there underlying principles, patterns, and approaches that can guide us toward development or refinement of a more process-oriented approach to understanding spatio-temporal variability in nursery habitat quality?" Third, we will discuss whether we can/should move toward development of more predictive power through focus on processes and modeling. All speakers will be asked to spend time at the end of their talk discussing their ideas on the second and third points above. The symposium will be followed by an informal gathering of speakers and interested attendees to further discuss these issues and EFH research in general.

Talk #	Authors' Names	Title of Presentation
1	Scott Holt, C. Brown & G. Holt	Temporal patterns of larval supply and settlement density in red drum - effects on apparent habitat quality
2	John Miller, C. Taylor, L. Pietrafesa & D. Dickey	Does interannual variability in currents equate to interannual variability in fish abundance and fate in NC estuaries?
3	John Manderson & B. Phelan	Phase synchrony of age-0 winter flounder recruitment and nursery habitat dynamics in the Mid-Atlantic Bight, USA
4	Jose Pereira, M. Plourde, P. Auster & E. Schultz	Distribution of winter flounder eggs among shallow water habitats in two harbors in Long Island Sound
5	Ken Able, G. Martin, J. Buckel, M. Sullivan & J. Hare	Larval supply to estuarine habitats: Plans/progress to develop a Coastal Collaboration on Recruitment (CCOR)
6	John Murt, P. Clarke & F. Juanes	Variation in winter estuarine habitat use by bluefish in northeastern Florida with implications for growth and condition
7	Ed Matheson, M. Greenwood, T. MacDonald & R. McMichael	Determining relationships between fish nursery habitat use and environmental variability in Florida's estuaries
8	Felicia Coleman, C. Koenig, A.-M. Eklund, J. Schull & J. Ueland	Mangroves as essential nursery habitat for goliath grouper
9	Richard Shaw, M. Caudill & B. Milan	Fisheries utilization of Louisiana marsh edges and flooded surfaces: Implications of possible global climatic change
10	Matt Nobriga, F. Feyrer, T. Sommer & M. Bryant	Long-term change in summertime habitat for pelagic fishes in the San Francisco Estuary
11	James Cowan	An overview of Mississippi River ecosystem effects on fish and fisheries, with discussion on the EFH paradigm
12	Perry Gayaldo, G. Whelan & M. Peterson	A new awakening for aquatic habitat: The National Fish Habitat Initiative - A look at its science and principles
13	Chet Rakocinski, M. Peterson, B. Comyns, G. Zapfe & G. Fulling	Do abiotic fluctuations drive the early growth of juvenile estuarine-dependent fishes?
14	Fred Scharf, J. Lanier, C. Stewart & W. Tayloe	Causes and consequences of variation in estuarine growth of juvenile red drum
15	Mike Weinstein & S. Litvin	Spatio-temporal use of the habitat mosaic in Delaware Bay: How young-of-year weakfish ( <i>Cynoscion regalis</i> ) get fat
16	Benjamin Ciotti & T. Targett	Spatiotemporal patterns in growth of juvenile plaice: Fine- to landscape-scale processes underlying nursery habitat quality
17	Ron Kneib	Landscape structure and the quality of nursery habitat in tidal marshes
18	Dennis Allen, V. Matthews, S. Luthy & K. Foley	Long-term dynamics of nekton use in intertidal basins: Influences of geomorphology, recruitment, and abiotic conditions
19	Kevin Craig, J. Rice & K. Rose	Modeling the effects of hypoxia on juvenile spot growth and survival in the Neuse River estuary, North Carolina
20	Richard Fulford & M. Peterson	Identifying critical habitat across multiple scales for estuarine-dependent fishes with a landscape modeling approach
21	Kenny Rose	Modeling of habitat quality: Insights into the soul or hi-tech regurgitation?

## Visit ELHS at the AFS Trade Show!

Not only will the Annual Larval Fish Conference be held with the American Fisheries Society (AFS) Annual Meeting this year, but the Early Life History Section (ELHS) – our official link to AFS – will have a booth at the AFS Trade Show. The ELHS booth will be staffed from Monday through Wednesday (September 11–13). We are brainstorming for ideas as to how to best promote our activities. So far, our ideas include: membership applications; description of student travel awards; description of awards competition;

promotion and contact information for upcoming Larval Fish Conferences and related meetings; copies of STAGES; select raffle items; display of publications associated with past Larval Fish Conferences and access information; books and advertisements for books by our members; other highlights (e.g., photos); map to Larval Fish Conference venue at Lake Placid and schedule of presentations. If you have other suggestions, please forward to [chambers@noaa.gov](mailto:chambers@noaa.gov). Stop by your booth! --*The Boothians*. §

### 2006 Flatfish Biology Conference

Individuals with an interest in flatfishes are invited to present their research or attend the Flatfish Biology Conference scheduled for November 29-30, 2006 at the Water's Edge Resort, located on Long Island Sound in Westbrook, CT. This meeting will be the tenth of its kind held since 1986 and each has attracted fisheries scientists throughout North America. The conference welcomes oral presentations and posters addressing all aspects of flatfish biology and ecology. The conference is co-sponsored by the Southern New England Chapter of the American Fisheries Society, National Marine Fisheries Service, and Dominion-Millstone Power Station. Registration is expected to be \$85 (\$65

for students). For additional information or to be placed on the mailing list, please contact Renee Mercaldo-Allen at [renee.mercaldo-allen@noaa.gov](mailto:renee.mercaldo-allen@noaa.gov) or NMFS, 212 Rogers Avenue, Milford, CT 06460 (203-882-6549). Conference information will also be available on the NMFS-Milford Laboratory website: [www.mi.nefsc.noaa.gov/flatfishbiologyworkshop.html](http://www.mi.nefsc.noaa.gov/flatfishbiologyworkshop.html). §

### 32<sup>nd</sup> Annual Larval Fish Conference

Catriona Clemmesen has confirmed that the University of Kiel (Germany) will present an offer to host 2008 Larval Fish Conference. Catriona will participate in the 2006 meeting and make her formal offer at the annual meeting of the ELHS Executive Committee. §

### Diadromous Fishes Symposium

A symposium on "*Challenges for Diadromous Fishes in a Dynamic Global Environment*" will be held in Halifax, Nova Scotia, Canada from 17 to 24 June 2007. This symposium will build upon the successful "*Common Strategies of Anadromous and Catadromous Fishes*" symposium of 1986 (AFS Symposium 1) but will have more emphasis on recent alterations to the aquatic environment and the effects that human activities have had on aquatic resources. Meeting information and contacts can be seen at [www.anacat.ca](http://www.anacat.ca) or by contacting Alex Haro, S.O. Conte Anadromous Fish Research Center, USGS, 1 Migratory Way, Turners Falls, MA 01376 or call (413)-863-3806. §

## Course Offering

### *Early Life History of Marine Fishes*

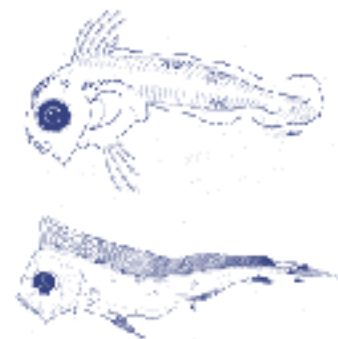
#### *A Graduate Course in Larval Fish Identification and Ecology*

- Date: 31 July - 15 August 2006
- 3 credits (graduate level)
- Application deadline 1 May 2006
- Costs: \$1,425 tuition, plus room/board for course duration (\$799)
- Professors John E. Olney (College of William & Mary) & Edward D. Houde (University of Maryland Center for Environmental Science)

This lecture and laboratory course offers a comprehensive view of the biology and taxonomy of early life stages of fishes. These stages, including pelagic eggs, larvae, and newly-transformed juveniles, are abundant and diverse components of aquatic ecosystems. Their small size, dynamic growth and mortality rates, and dependence on ambient environmental factors, including ocean physics, make these stages vulnerable to variability in climate and to stresses of anthropogenic origin. Level of reproductive success in teleosts, termed recruitment, is highly variable and largely dependent on variability in survival of these early life stages. Knowledge of their morphological development contributes to studies of phylogenetic relationships. Ontogenetic data serve to clarify the complex systematics of teleost fishes, the most diverse and largest class of vertebrates. Early life stages often have specialized

adaptations to insure survival in stressful habitats. In the laboratory, larvae of 130 families of teleostean fishes are examined and characters useful in identification are presented.

This is a graduate-level course for students with an interest in fish ecology, fisheries science, ichthyology and biological oceanography. It is presumed that students will have some experience and background in those disciplines. Prerequisites include an undergraduate degree in a biological discipline; permission of the instructors is required to be admitted to the course. No more than 15 students will be accepted. The lectures and laboratories will be held at the Marine Science Center of the University of New England. For further information, contact Dr. Olney ([olney@vims.edu](mailto:olney@vims.edu)) or Dr. Houde ([ehoude@cbl.umces.edu](mailto:ehoude@cbl.umces.edu)) or see our website: [www.vims.edu/adv/657](http://www.vims.edu/adv/657).



## New Southern Region Representative

Beginning this issue, Claire Paris will represent ELHS members and affiliates who live in the Southern Region. Welcome aboard Claire and, at the same time, thank to Tom Lankford who served as Southern Region Representative at least as long as I have been editor. I've asked Claire to provide some background about her career, and here is her reply:

"I first started to work on population dynamics of large pelagics in Senegal (West Africa) at the Institute of Research and Development (IRD) as undergraduate with a Biochemistry major at the University of Bordeaux (France). I quickly started focusing on the early life-history stages, which were largely ignored in the stock-recruitment relationship so widely used in fisheries, acquiring expertise in the taxonomy and ecology of larval fishes in the laboratory of Dr. William J. Richards at NOAA Fisheries Southeast Fisheries Science Center. I pursued my Ph.D. (Coastal Oceanography major) at the Marine Science Research Center of SUNY at Stony Brook under the direction of Dr. Robert K. Cowen, using traditional methods and innovative dynamical approaches to the study of larval ecology by developing larval transport models, based on empirical observations of physical-biological interactions. Dr. Cowen's laboratory moved to the University of Miami where I continued to work in a postdoctoral position investigating coral reef fish population connectivity in the Caribbean Sea. My current research has taken a more theoretical approach to the study of marine populations. I developed a state-of-the-art model of interactions between the seascape (i.e., pelagic environment and settlement habitat) and the early life-history stages to gain new insight on the biophysical processes that control the demographics of marine organisms. In parallel, I am exploring innovative techniques for in-situ study of the sensory envelope of fish larvae through ontogeny. My long-term interests are to investigate the interactions of anthropogenic and natural processes that drive rapid evolution in marine populations, with a constant emphasis on the early life-history stages."



Claire made a great first impression on this editor by contributing reports from three labs, but it was difficult to feel a lot of sympathy for her hard work when she sent the following message:

*I am now in Moorea to sail on Saturday on the Alis R/ V (from IRD) for ichthyoplankton/ocnographic survey around an isolated island called Tetiaroa to test an optimization model for larval trajectories. I should be back in Miami on May 23.*

*Please let me know if you receive this time.*

*Warm regards,*

Claire

— Lee A. Fuiman §

## World Fisheries Congress

Doug Beard, John Casselman, and Howard Browman have been appointed as The American Fisheries Society's representatives to the 2008 WFC Program Committee. WFC2008 will be held 20-24 October 2008 in Yokohama, Japan (see [www.5thwfc2008.com](http://www.5thwfc2008.com)). All ELHS members have an interest in seeing to it that our subject area is well represented and visible at this

important meeting. Please let Doug, John, Howard, or any other member of the WFC Program Committee know if you have any suggestions for the program. Be proactive! §

## "Hurricane" John Sibunka to Retire

On September 1, 2006, John Sibunka, with the NMFS Northeast Fisheries Science Center's Howard Laboratory in Sandy Hook, New Jersey,

will retire after 39 of service as a larval fish biologist. This April, John made his last official sampling cruise on the *Albatross IV* for the annual spring bottom trawl survey. John is well known especially for two things – his work on bongo ichthyoplankton collections, and his acclaimed ability to attract bad weather and other minor misfortunes. The former has yielded a wealth of knowledge from more than 3500 sea-days; the latter has landed him the nickname "Hurricane John." Read Teri Frady's interview with John at [www.nefsc.noaa.gov/ffiles/checker](http://www.nefsc.noaa.gov/ffiles/checker). §

## Publications

### Eggs and larvae of North Sea fishes



**Available now: *Eggs and Larvae of North Sea Fishes.***

Peter Munk and Jørgen G. Nielsen

This book presents the early stages of about hundred common fishes in a standardized, illustrative layout, affording effective guidance to the investigation and identification of these stages.

Emphasis is put on the illustration by clear figures and on the precision of main diagnostic characters. Each species is presented in a standard two-paged format with description of development and corresponding figures of five characteristic stages; and with additional paragraphs which describe the adult characters and biology and specify the distinct characters of the larva. The series of identification sheets is introduced by a set of short, reviewing chapters, emphasizing the research history and methods, and the early stage morphology and ecology.

Due to their great importance in the plankton ecosystem and in fish stock replenishment, the fish eggs and larvae attract interest from a wide range of researchers. This book will be a valuable tool to the scientist and technician who need to make correct identification of collected fish larvae, and want additional information on the early development of the species.

- ISBN: 87-913-1924-2.
- Publication date: 2005.
- Number of pages: 224.
- Publisher: Biofolia Press.

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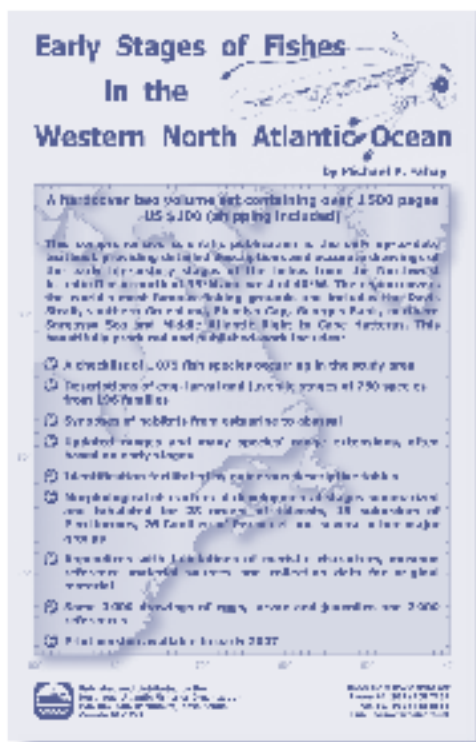
## New Ichthyoplankton Information Website

The new Northeast Pacific Ichthyoplankton Information System (IIS) has recently been completed and is now available online at: [access.afsc.noaa.gov/ichthyo](http://access.afsc.noaa.gov/ichthyo). This website is a consolidation of our larval fish guide and recently published distribution atlas, and provides access to data on the early life history (ELH) of fishes collected by the Recruitment Processes Program of the Alaska Fisheries Science Center.

The IIS functions in two modes, a taxonomic search and a character search. The taxonomic search allows users to view illustrations, meristics, information on ELH, and distribution and abundance maps. The character search helps you to identify an unknown specimen using meristic and pigment searches. In addition, the site presents useful interactive links to FishBase and LarvalBase, the University of Washington's Fish Collection, and other ELH sources. The IIS offers a complete bibliography of early life-history literature and provides the data used to make the distribution maps. Currently, data and maps are available for about one third of the taxa on the site.

In the future, the database will be available with an option for downloading the latest data files in PDF format. We welcome and encourage any questions or comments. Please contact any of the IIS team for this project: Debbie Blood, Ann Matarese, or Bill Rugen. §

**Available soon:**



## Proceedings of the 29<sup>th</sup> Annual Larval Fish Conference

Maria Pilar Olivar reports that the proceedings volume from last year's Larval Fish Conference in Barcelona will be published in *Scientia Marina* by the end of this year (2006). Editing is nearly complete; the last few manuscripts are undergoing revision at this time. The volume will be sent (free of charge) to all who registered for the 29<sup>th</sup> Larval Fish Conference. It is expected to contain 14 papers. §

## Price Reduction Announced

Bill Watson of the National Marine Fisheries Service La Jolla Laboratory advises that the price has been slashed in half for Geoff Moser's atlas:

Moser, H.G. (ed.). 1996. The early stages of fishes in the California Current region. CalCOFI Atlas 33, Allen Press. 1505 pp.

Originally available at \$140, it can now be purchased for \$70. Contact Linda Hardwick at 1-800-627-0629, extension 210. §

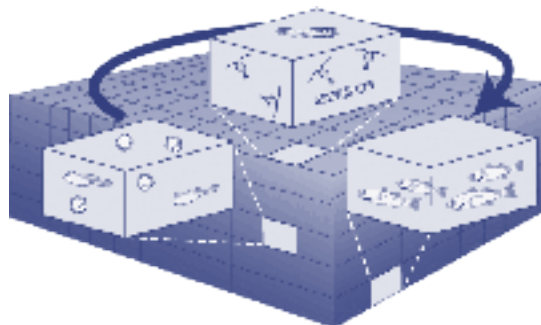


## WKAMF: A Larval Fish Modeling Workshop

The “Workshop on advancements in modelling physical-biological interactions in fish early-life history: recommended practices and future directions” (WKAMF) was held on April 3-5, 2006 in Nantes, France. It was a great success! The goal was to evaluate the present state and next steps in the developing field of modeling physical-biological interactions in the early life of fishes. The workshop focused on recent advances in coupled biological-physical models that incorporate predictions from three-dimensional circulation models to determine the transit of fish eggs and larvae from spawning to nursery areas. These coupled bio-physical models have been applied to gain new insight on how planktonic dispersal, growth and survival are mediated by physical and biological conditions and have contributed to enhanced understanding of fish population variability and stock structure.

The workshop was designed to survey major components of bio-physical models of fish early life, address numerical techniques and validation issues, define recommended modeling practices, and identify future research needs. Several aspects of modeling fish early life history were addressed including: initial conditions (egg production, spawning location/time), small-scale processes (turbulence, feeding success), mesoscale transport processes (physics and larval behavior), and biological processes (development, growth, mortality, juvenile recruitment, metamorphosis, settlement).

There will be three modes of results dissemination from the workshop: a workshop report, joint submission of papers for a theme section in *Marine Ecology Progress Series*, and a “Manual of Recommended Practices for Modelling Physical-



Biological Interactions in Fish Early-Life History”. The report and manual will be made available at the WKAMF website ([northweb.hpl.umces.edu/wkamf/home.htm](http://northweb.hpl.umces.edu/wkamf/home.htm)). The website will be maintained to share information and advances related to modeling fish early life with the international research community. We hope that AFS ELH members will find it useful and would be willing to contribute to the developing website (e.g., links, job announcements, model test cases, and open-source code).

WKAMF was attended by 54 participants from 14 countries and was co-chaired by Alejandro Gallego (UK), Elizabeth North (USA) and Pierre Petitgas (France). WKAMF was held under the auspices of the International Council for the Exploration of the Sea (ICES) Working Group on Physical-Biological Interactions and the ICES Working Group on Recruitment Processes. It was hosted by the French Research Institute for Exploitation of the Sea (IFREMER) with support from IFREMER, US National Science Foundation, US National Marine Fisheries Service, UK Fisheries Research Services, and the University of Maryland Center for Environmental Science. It was endorsed by GLOBEC and Eur-Oceans. Many thanks to all involved! §

— Elizabeth North  
Horn Point Laboratory, University of Maryland

## Other Recent Publications of Interest

*Early Stages of Atlantic Fishes: An Identification Guide for the Western Central North Atlantic.* Edited by W.J. Richards. Published by CRC Press. ISBN 0849319161. 2005.

*Developmental Biology of Teleost Fishes.* Y.W. Kunz. Published by Springer Press. ISBN 1-4020-2996-9. 2004.

*Early Life History of Fishes in the San Francisco Estuary and Watershed.* Edited by F. Feyrer, L.R. Brown, R.L. Brown, and J.J. Orsi. Published by the American Fisheries Society. ISBN 1-888569-59-X. 2004.

*Freshwater Fishes of the Northeastern United States - A Field Guide.* R.G. Werner. Published by Syracuse University Press. ISBN 0815630204. 2004.

*The Development of Form and Function in Fishes and the Question of Larval Adaptation.* Edited by John Jeffrey Govoni. Published by the American Fisheries Society. ISBN 1-888569-58-1. 2004.

*The Larvae of Indo-Pacific Coastal Fishes: An Identification Guide to Marine Fish Larvae.* (2<sup>nd</sup> edition). J.M. Leis and B.M. Carson-Ewart. Published by Brill Academic Publishers. ISBN 90-04-13650-9. 2004.

*The Big Fish Bang. Proceedings of the 26<sup>th</sup> Annual Larval Fish Conference.* Edited by Howard I. Browman and Anne Berit Skiftesvik. Published by the Institute of Marine Research, Bergen, Norway. ISBN 82-7461-059-8. 2004.

*Reproductive Biology and Early Life History of Fishes in the Ohio River Drainage: Ictaluridae - Catfish and Madtoms, Volume III.* T.P. Simon and R. Wallus. Published by CRC Press. ISBN 0849319196. 2003.

*Fishery Science: The Unique Contributions of Early Life Stages.* Edited by Lee A. Fuiman and Robert G. Werner. Published by Blackwell Publishing. ISBN 0-632-05661-4. 2002.

## From the Larval Fish Conference Archive: A Photo from the Conference at Beaufort



*Sure, but which Larval Fish Conference at Beaufort? Old-timers with long memories will recall that Pivers Island twice served as the site of our conference. Which one is this? Do you want a more difficult challenge? How many people pictured here can you identify?*

### *Southern Region...cont'd from p. 4*

describing and modeling the upper Chesapeake Bay hydrography and with biological oceanographers who are evaluating the role of microbes and zooplankton in the transfer of energy to larval fishes. Doctoral student Ed Martino is analyzing the retention, distribution, and growth of larval fishes, especially anadromous striped bass and white perch, in the vicinity of the salt front and estuarine turbidity maximum, and will incorporate findings into a demographic model to explain

variability in year-class strength. Elizabeth North, an Assistant Professor at Horn Point Laboratory, continues her modeling research on larval fish dynamics in the ETM and, with Ed Houde and UMCES colleagues, is integrating hydrodynamic and particle-tracking models to explain how larvae are retained in the ETM and trophic transfer is enhanced.

Houde's group also launched two projects to evaluate possible causes of the recent low levels of Chesapeake Bay menhaden recruitment. One study is funded by the Atlantic States Marine Fisheries Commission and Maryland DNR and is determining ingress, distribution, growth, and feeding ecology of menhaden larvae at the mouth of the bay and young-of-the-year juveniles in the bay and its tributaries. Post-doc Sukgeun Jung is modeling growth of young menhaden and new graduate student Carlos Lo-

zano will undertake research on menhaden larvae. The other component of the menhaden research is funded by the NOAA Chesapeake Bay Office and involves collaboration with biological oceanographers to determine how bottom-up control may affect menhaden recruitment, especially the roles of variable primary production and water quality that act on late-stage larvae and YOY juveniles in the estuary. In that project, post-doc Eric Annis is evaluating the importance of phytoplankton, its floral composition, and overall levels of primary production on survival of larval- and juvenile-stage menhaden. §

### *2006 LFC...cont'd from p. 1*

Registration and lodging information can be found on the AFS website: [www.afslakeplacid.org](http://www.afslakeplacid.org); rates are cheaper before August 4, so please register early. You are welcome to attend, even if you are not presenting. Please contact Jon Hare ([jon.hare@noaa.gov](mailto:jon.hare@noaa.gov)) if you have any questions. §

— Jon Hare

**Are you reading  
someone else's issue  
of STAGES?**

*Join ELHS and receive your own copy of  
the newsletter three times per year.*

*See page 12 for details.*

*President's Message...cont'd from p. 1*

Treasurer-Elect and President-Elect. Please consider serving!

**ELHS promotional poster and pamphlet.** Copies of the Section's poster (at right and at: [www2.ncsu.edu/elhs](http://www2.ncsu.edu/elhs)) are available from ELHS Secretary Bruce Comyns ([bruce.comyns@usm.edu](mailto:bruce.comyns@usm.edu)). An updated promotional pamphlet for the Section is being prepared. Please contact Bruce if you have any suggestions for the pamphlet's content. Both the poster and the pamphlet will be available at the 2006 LFC in Lake Placid.

**Archive of early LFC proceedings.** We have been investigating the possibility of having the heritage archive of early LFC proceedings (the first five conferences) scanned into digital documents for posting to our website. This is a dossier that incoming President Chris Chambers will be taking up.

**Membership recruitment.** All current Full and Affiliate Members are urged to

assist us in recruiting new members. Make our websites known to your students and colleagues and circulate the new pamphlets and posters when you go to other conferences. If you are an AFS member with an interest in the early life stages of fishes, be sure to join the Section! To facilitate Affiliate Membership, the secure payment area of the LFC website is available. New and renewing Affiliate Members can pay their dues by credit card at: [www.larvalfishcon.org/join\\_elhs.asp](http://www.larvalfishcon.org/join_elhs.asp)

In closing, I wish to thank a devoted core group of Section members who, year after year, donate their time and energy to the Section. I am grateful for the assistance extended to me by Section Treasurers Kathy Lang and Betsy Laban, and Section Secretaries Richard McBride and Bruce Comyns. During my Presidency, the following friends and colleagues were always available with information, guidance, advice and assistance: Jeff Govoni, Jeff Isely, Darrel Snyder, Anne Berit



Skiftesvik, Lee Fuiman, and Chris Chambers. Many thanks to all of you.

It has been an honour to serve the Section and I look forward to many more years of association. §  
— Howard I. Browman

## Editor's Ramblings



### *Larval Fish Conference in Upstate New York*

Those of you who know the northeastern part of the United States at all will find my comments uninformative and unnecessary. My ramblings in this issue are for readers who have not visited Upstate New York.

Having spent three wonderful years being trained in fishery science in upstate New York, I have some experience in that part of the country. In the 28 years since I left there, I have lived in several different parts of the United States and in Britain, and one thing I learned is that it is a common perception that "New York" means New York City to most people. While "the city" has a lot of appeal for those seeking culture and nightlife, it's not really known for its natural beauty (with apologies to Central Park). But Upstate New York is an entirely different world that should not be missed. And you have a perfect excuse to go - this year's Larval Fish Conference is being held in Lake Placid!

Lake Placid is located in the Adirondack Mountains, a very scenic location. Getting there by car, on the New York State Thruway might be one of the most pleasant drives you'll ever take. And, the fall colors in that part of the country are spectacular. If you have time to explore more of Upstate New York, a trip westward to the Finger Lakes region is a must. Pleistocene glaciation created a series of long, narrow lakes that run North-South in the central part of the state, leaving hanging valleys, gorges, and waterfalls within their watersheds.

I know this sounds like promotional material from the New York State tourist bureau. Honestly, I am not getting a kick-back from the conference convenors, New York State, or anyone. My intention is to encourage readers to attend this year's Larval Fish Conference. As I said at the start, a lot of people have the wrong idea about New York and I would hate to learn that anyone decided not to go because they didn't want to attend a meeting in a big city.

Besides, as we get older, we tend to reminisce. That's what I'm doing. The difference between you and me is, I have a place to publish my thoughts and I'm using it.

**REMINDER**  
*Deadline for sending materials to include in the next issue of STAGES:*  
**September 5, 2006**

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## Newsletter Production Team

**Stages** is published in February, June, and October each year. It is assembled by the Newsletter Editor with contributions from several Regional Representatives and other individuals. Please send any articles, announcements, or information of interest to Early Life History Section members or affiliates to your local Regional Representative or to the Editor.

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## Join ELHS

Membership in ELHS is open to all persons or organizations interested in furthering ELHS objectives, regardless of membership in the American Fisheries Society (AFS). If you are an AFS member, simply add ELHS membership when you pay your Society dues.

Affiliate membership is open to persons or organizations who are not members of AFS. Affiliate members are encouraged to participate in Section meetings, committee work, and other activities, but they cannot vote on official Section matters, run for or hold an elected office, or chair standing committees. All members receive **STAGES**.

To become an affiliate member, go to <https://www.larvalfishcon.org/ELHSAffiliate/affiliate-triage.asp> or mail your name, institutional affiliation (if appropriate), mailing address, telephone and fax numbers, e-mail address, and dues (US \$10 per year) for the current and/or upcoming year(s) to the ELHS Treasurer (see page 2).

Please specify the membership year(s) for which you are paying dues. Make checks or money orders payable to "AFS-ELHS."

**Remember to check the mailing label for your membership expiration date and renew, if necessary.**

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