



# STAGES

Newsletter of the  
**Early Life History Section**  
of the American Fisheries Society

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Lee A. Fuiman, Editor

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## ELHS Back Then

- 5 years ago:** To celebrate the Section's 25<sup>th</sup> anniversary, *Stages* gets a face-lift.
- 10 years ago:** *ELHS Past* President, Bob Werner retires from State University of New York College of Environmental Science and Forestry.
- 15 years ago:** Bob Hoyt appointed as first Historian/Archivist for Section.
- 20 years ago:** Reuben Lasker, keynote speaker at 10<sup>th</sup> LFC in Miami, passed away.
- 25 years ago:** Darrel Snyder organized 7<sup>th</sup> LFC at Colorado State University with 130 registrants, 67 papers, 14 posters, 4 workshops.

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

**May 2, 2008**

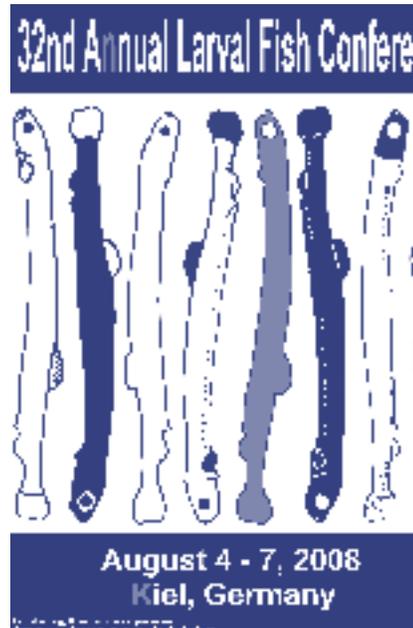
## Call for Abstracts 32<sup>nd</sup> Annual Larval Fish Conference, Kiel, Germany

The 32<sup>nd</sup> annual Larval Fish Conference will be held 4-7 August, 2008 in Kiel, Germany. Registration and abstract submission for LFC2008 is now open at [www.larvalfishcon.org](http://www.larvalfishcon.org). Abstracts will be accepted from 1 February, 2008 for the contributed paper session and the following theme sessions:

- Larval ecology linked to physical processes
- Aquaculture and stock enhancement of early life stages
- Early life history strategies of fish and cephalopods
- Larval fish and cephalopod taxonomy
- Developmental fish physiology: Exploring new frontiers in larval biology
- Databases and tools on early life stages

Abstracts must be submitted via [www.larvalfishcon.org](http://www.larvalfishcon.org). Details about registration, abstract submission, and the conference in general are available at [www.larvalfishcon.org](http://www.larvalfishcon.org). The deadline for submitting abstracts is April 6, 2008. Please pass the word on to others! Looking forward to seeing you all in Kiel!

— Catriona Clemmesen §



## President's Message



Greetings fellow ELHS members. I hope that your 2007 closed out well for you, and it was spent with family and friends. You have my best wishes for a peaceful and productive 2008!

In this issue I will address three themes. First, here is an update on our annual Larval Fish Conferences (LFCs). Plans are well underway for our 32<sup>nd</sup> annual LFC. Our host, Catriona Clemmesen (Leibniz Institute for Marine Sciences, Kiel, Germany) and her support committees have been busy with all aspects of hosting such an event – programs, social events, logistics, accommodations, travel, sponsorships. Everyone who has ever hosted an LFC or like conference knows the extent of behind-the-scenes activities that go into making the conference a reality. Knowing Catriona as I do, I also expect that she

will have everything in order and will welcome all of us to Kiel with a smile and open arms.

From discussion with Catriona, and looking over the LFC website ([www.larvalfishcon.org](http://www.larvalfishcon.org)), I am impressed by the extent of participation in the organizing committees and the scope of this year's conference themes. Regarding the overall LFC schedule, following a social on the eve of the LFC (3 August 2008), we will have four days of presentations. I note that beyond four days of talks, our hosts have scheduled a poster social, a field trip / barbeque and, on the last evening, a conference banquet.

The theme sessions for this year's core scientific contributions at the LFC are broad and intriguing. I support our hosts' intentions of promoting comparative themes between fishes and invertebrates, especially cephalopods. One session on 'Larval ecology linked to physical processes' (organized by Voss, Hinrichsen, and

...continued on p. 11

## News from the Regions



### European Region

**Audrey Geffen**

The most important news, of course, from the European Region is the upcoming LFC2008 - 32<sup>nd</sup> annual Larval Fish Conference, which will be held in Kiel Germany during 4 - 7 August, organised by Dr. Catriona Clemmesen. Earlier in the summer the 8<sup>th</sup> Larval Biology Symposium will be held 6-11 July 2008 in Lisbon ([ipimar-iniap.ipimar.pt/larval](http://ipimar-iniap.ipimar.pt/larval)). Although this is normally a forum dominated by marine invertebrate research, it is an opportunity for good scientific exchange and added insights. There is a special session/symposium on "Molecular and geochemical markers for assessing larval dispersal," which may be particularly relevant to those interested in connectivity and dispersal.

This newsletter issue highlights research activities from two groups, in Germany and the Czech Republic:

PD Dr. Ralf Thiel and his group at the Zoological Museum Hamburg in Germany are working on diverse aspects of fish biology and ecology:

[www.biologie.uni-hamburg.de/zim/ichthy/forsch.html](http://www.biologie.uni-hamburg.de/zim/ichthy/forsch.html)

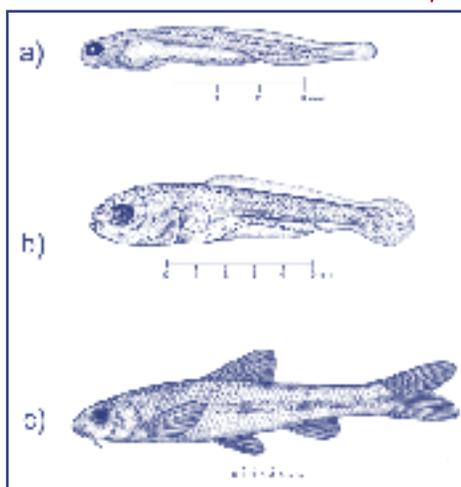
Their research activities on early life history stages of fish include both taxonomic and ecological studies. Dr Thiel reports on two projects:

**Taxonomy and Morphology of Selected Groups and Developmental Stages of Ostarioclupeomorpha and Percomorpha**

(research team: Neri Josten, Monika Hänel, Ralf Thiel)

Ostarioclupeomorpha and Percomorpha comprise together about two thirds of all known recent fish species worldwide and have populated almost all aquatic habitats. Especially, information on their early life stages is still incomplete. The newly hatched larvae, from the yolk-sac stage and preflexion stage to flexion and postflexion or juvenile stage exhibit a variety of changes in their ecology and as well in meristic and morphometric features. For instance, morphological features of fish larvae, e.g., body shape, larval pigmentation, number and position of fins, number of fin rays, alimentary canal, position of anal opening, spines and

*continued on p. 4*



*Fig. 1. Different developmental stages of selected cyprinids a) yolk-sac stage of *Rutilus rutilus* (Linnaeus, 1758); b) flexion stage of *Cyprinus carpio* Linnaeus, 1758; c) juvenile stage of *Romanogobio belingi* (Slastenenko, 1934). © Monika Hänel*



### North Central Region

**Jim Garvey**

*From: Greg Wanner, Great Plains Fish and Wildlife Management Assistance Office, Pierre, South Dakota*

I just wanted to quickly update you on an early life history research project that is planned to begin in April 2008. The proposed research is being initiated on the Niobrara River in north central Nebraska. The Niobrara River is a major tributary to the Missouri River in a recovery priority management area (RPMA 3) for the endangered pallid sturgeon. Knowledge of the fisheries resources in this river is lacking. 39 miles upstream from the confluence with the Missouri River is Spencer Dam, which completely cuts off over 300 miles of riverine habitat for native fish species. Additionally, a new threat coming to the Niobrara River is the over-appropriation of river water for irrigating agricultural lands. Instream flows in the Niobrara River may be reduced to levels that are unsustainable for fish populations at some or all life-history stages.

The research that I am proposing to begin in April 2008 will be the first targeted survey for pallid sturgeon in the Niobrara River downstream of Spencer Dam, Nebraska. Additionally this research when completed, will be most comprehensive fish community assessment in that river to date. Research

*continued on p. 10*

## Section Officers

### President

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**HELP US  
UPDATE OUR  
RECORDS...**

*Verify your email and  
postal address with our  
Secretary.*



## Pacific Rim Region

Iain Suthers

*From Jeff Leis, Australian  
Museum, Sydney*

### Study of orientation of fish larvae in the pelagic environment

Jeff Leis (Australian Museum) and Claire Paris (University of Miami) are collaborating to study the orientation of fish larvae in the Great Barrier Reef near Lizard Island Research Station with support from the Hermon Slade Foundation ([www.hermonslade.org.au/projects/HSF\\_07\\_13/hsf\\_07\\_13.html](http://www.hermonslade.org.au/projects/HSF_07_13/hsf_07_13.html)). Their project, "How baby fish find a home: Orientation by reef-fish larvae in the pelagic environment" is funded for 3 years. A synopsis follows.

One of the most important questions in marine biology today is: what are the spatial scales over which animals populations are connected by larval dispersal? Answering this question is essential for theoretical understanding of population dynamics in marine systems, for effective management of fisheries, conservation of marine biodiversity, including design and operation of marine protected areas, and for predicting effects of climate change on marine systems. The vast majority of bottom-associated (demersal), bony fishes have a pelagic larval stage subject to dispersal in open water over a pelagic larval duration of days to weeks. Thus, it is the pelagic larval stage, not the demersal adult stage, that sets the spatial scale for population connectivity and for the geographic size of fish populations. As a result, unlike terrestrial vertebrate populations, marine fish populations are generally considered open, with young potentially derived from distant sources and with management scaled accordingly. However, we now know marine fish populations are often demographically structured at modest spatial scales implying that demographically-relevant dispersal may also operate at such scales. The focus of our research is how the larvae behaviourally interact with the blue-water environment to influence dispersal outcomes. In other words, how do baby fish (i.e., larvae) find a reef home after days to weeks in a relatively featureless blue-water environment.

Based on cold water species, until recently, it was assumed that fish larvae were so small and had such limited behavioural capabilities, that they could have no significant influence on dispersal by

currents. Recent work has shown, however, that fish larvae can swim at speeds similar to currents for long periods of time. Speed without orientation abilities is unlikely to influence dispersal other than to increase diffusion. So, orientation is important in determining the extent to which fish larvae might be able to influence dispersal. Jeff Leis' previous work on the Great Barrier Reef shows that fish larvae can orientate with some precision in apparently featureless blue-water, pelagic environments: larvae of some species consistently swim to the south, whereas other species swim away from shore during daylight. Understanding how larvae orient is key to understanding how the biophysical process of larval dispersal actually takes place. Investigation of orientation must take place in the ocean to avoid being misled by lab artifacts. Until now, this has been done by direct observation by divers, leaving open the question of bias that the presence of divers might introduce. Plus, observations by divers are restricted by depth, time, and light limitations. Claire Paris, working in Florida has now developed a floating chamber that can be set adrift with larvae inside, and their behaviour recorded remotely at any time or depth. Paris and Leis will directly compare their methods for the study of orientation of fish larvae at Lizard Island Research Station (Great Barrier Reef). The team will also study the influence of visual and auditory cues on orientation of fish larvae in the ocean using Paris' innovative approach. Lizard Island is ideal due to the availability of large numbers of larvae of many species in the summer, relatively calm waters, an ability to work on both sides of the island, and the extensive work already done there by Leis.

For further reading:

Cowen, R.K., C.B. Paris, et al. (2006). Scaling of connectivity in marine populations. *Science* 311:522-527.

Leis, J.M. (2006) Are larvae of demersal fishes plankton or nekton? *Advances in Marine Biology* 51:59-141

Recent publications on fish larvae from the Australian Museum:

Baldwin, C.C. and J.M. Leis 2007. *Rainfordia opercularis*, a liopropomin serranid (Teleostei: Serranidae: Epinephelinae: Liopropomini): Corroborative evidence from settlement-stage larvae. *Ichthyological Research* 54:193-197.

Leis, J.M., Hay, A.C., Lockett, M.M., Chen, J.-P., and Fang, L.-S. 2007. Ontogeny of swimming speed in larvae of pelagic-spawning, tropical, marine fishes. *Marine Ecology Progress Series* 349:257-269.



## Northeast Region

Mark Wuenschel

*From: Mark Wuenschel*

I have accepted a position with the National Marine Fisheries Service, Population Biology Branch, located at the Northeast Fisheries Science Center in Woods Hole, Massachusetts. I will continue to serve as Northeast Regional Representative for STAGES. My new address (starting February 19<sup>th</sup>) will be:

NOAA NMFS NEFSC  
Woods Hole Laboratory  
166 Water Street  
Woods Hole, MA 02543  
Email: [mark.wuenschel@noaa.gov](mailto:mark.wuenschel@noaa.gov)

*From: Mark Sullivan, Richard  
Stockton College of New  
Jersey, Marine Science  
Program, Pomona, New Jersey*

The American eel (*Anguilla rostrata*) is a critical component of coastal New Jersey ecosystems and an important source of bait for recreational fishers, yet the species appears to be declining over portions of its North American range. Recently, the causes of this decline have been the focus of a U.S. Fish and Wildlife Service review, a stock assessment by the Atlantic States Marine Fisheries Commission and a U.S. Endangered Species Act petition. Although not currently warranting endangered status, this catadromous species faces an array of threats during its extended freshwater residency before migrating back to the Sargasso Sea to spawn. Recent New Jersey Sea Grant funded work, in collaboration with the Rutgers University Marine Field Station (KW Able), has made progress testing the potential mechanisms of this decline relative to the first year of estuarine residency. Using long-term ichthyoplankton datasets and expanded local sampling for later stage elvers, this work strongly suggests that within-year and between-year patterns of ingress are driven by local environmental conditions rather than larger trends manifested in the adult stock.

During this critical period, American eel juveniles are exposed to a recent addition to New Jersey estuaries – the invasive swim bladder parasite, *Anguillicola crassus*. Native to Asia, but first reported in North America in the 1990s, this nematode is contracted when an eel consumes a host carrying its early stage juveniles. Within

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*continued on p. 10*



## Western Region

Dan Margulies

From: Janet Duffy-Anderson, NOAA-NMFS Alaska Fisheries Science Center, Seattle, Washington

### Early life history of Greenland halibut (*Reinhardtius hippoglossoides*) in the eastern Bering Sea

Dongwha Sohn<sup>1</sup>, Lorenzo Ciannelli<sup>1</sup>, Janet Duffy-Anderson<sup>2</sup>, Ann Matarese<sup>2</sup>, and Kevin Bailey<sup>2</sup>

<sup>1</sup>College of Oceanic and Atmospheric Sciences, Oregon State University, Corvallis, OR 97331-5503, U.S.A. E-mail: dsohn@coas.oregonstate.edu

<sup>2</sup>National Oceanic and Atmospheric Administration, National Marine Fisheries Service, Alaska Fisheries Science Center, 7600 Sand Point Way NE, Seattle, WA 98115-6349, U.S.A.

Researchers from the Ecosystems and Fisheries Oceanography Coordinated Investigations (EcoFOCI) Program at the Alaska Fisheries Science Center (AFSC) and at Oregon State University have teamed up to examine transport pathways from spawning to potential nursery locations of Greenland halibut (GH) eggs and larvae in the eastern Bering Sea (EBS). At one time, Greenland halibut (*Reinhardtius hippoglossoides*) supported a commercial fishery in the Bering Sea, but catches have declined significantly since the 1970s. The reasons for the strong decline of GH in the EBS are unknown, and this project seeks to determine whether recent dramatic atmospheric and hydrographic changes in the EBS may have affected patterns of larval transport, dispersal and survival of the early life history stages.

This ongoing project assesses GH (1) spawning locations, (2) egg and larval drift pathways, (3) egg buoyancy, (4) larval and juvenile feeding and growth patterns, and (5) vertical egg distribution. To investigate the geographic distribution (horizontal, vertical) and drift pathways of GH larvae and early-juveniles in the EBS, we are using historical ichthyoplankton and juvenile groundfish survey data collected by scientists at the AFSC. Ichthyoplankton data (1982-2005) were collected using three different gear types, including 60-cm bongo nets (60BON), a modified beam trawl (MBT), which is towed in the midwater to collect

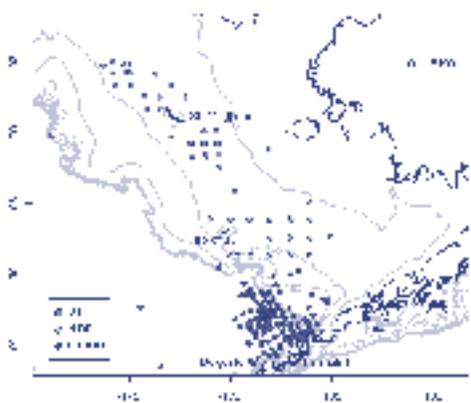


Fig. 1. Distribution of Greenland halibut early life stages

late stage larvae, and a multiple opening/closing net environmental sampling system (MOCNESS). Groundfish survey data (1982-2006) were collected by bottom trawl (BT). Early stage GH larvae appeared off the continental slope, mostly below 500 m, and seemed to drift northward during spring (Fig. 1). Highest larval abundances were observed in March. Larval lengths ranged from 8.8 mm to 24.4 mm SL during spring. Larvae from vertically stratified MOCNESS tows were found throughout the water column, but highest concentrations were noted at 45 m vertical depth (Fig 2.). This vertical distribution pattern suggests that adult GH spawn in very deep water (below 500 m) and eggs and larvae slowly rise after hatching. There may also be some degree of diel migration of larger larvae, probably associated with feeding opportunities. For MBT data, late stage GH larvae were mostly found on the middle EBS shelf (50 - 100 m), near the Pribilof Islands during summer. The length of GH larvae from MBT samples ranged from 18 mm to 54 mm SL. Early GH juveniles from BT data occurred on the middle shelf, near St. Matthew Island, during summer. The length of GH juveniles ranged from 60 mm to 100 mm SL.

Overall, data indicate that GH larvae in the EBS have a long duration in the plankton, and are subject to extended drift pathways. Larvae likely drift along the

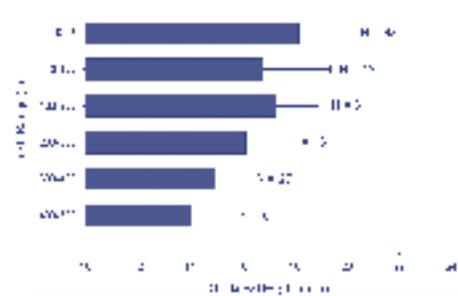


Fig. 2. Mean ( $\pm$ SE) standard length (mm) of early GH larvae collected from 10 - 530 m depth in the EBS from MOCNESS data (1992-1994).

continental shelf edge, eventually crossing from the slope to the shelf to settle as age-0s. Mechanisms of slope-shelf connectivity are still unknown, though the larvae could be physically influenced by the Aleutian North Slope Current and the Bering Slope Current. Transport of larvae from the slope to the shelf via flow through underwater canyons, as well as larval entrainment in eddies that propagate along the slope-shelf edge are also possible mechanisms. It is also likely that survival during early life stages is affected by changes in upper water current flow, direction, and speed (0 m to 45 m).

A 2008 research cruise in the Bering Sea during the GH spawning season will address additional questions regarding egg buoyancy properties, larval age (otoliths), and larval feeding dynamics. Maturity studies will also be conducted to determine length at maturity in the Bering Canyon region of the Bering Sea, and comparisons will be made to existing data on GH maturity in the North Pacific. §

### European Region...cont'd from p. 2

spinous ridges on head and operculum, change during larval development. Such variability makes fish larvae difficult to identify. Therefore, there is an ongoing great need for accurate taxonomic information on fish larvae of several groups. Actually we develop **Identification Keys For Fish Larvae** in European waters to fill parts of this gap in knowledge. The keys are based on different identification tables for different developmental stages of each of the relevant species."

### Mathematical Models for Habitat Use of Fish Species and their Life Stages

(research team: Renate Neumann, Dennis Eick, Dietmar Lill, Sven Oesmann, Ronny Weigelt, Ralf Thiel)

Only those fish species for which habitat use is known in detail can be effectively protected. Therefore, there is a great need to produce predictive models to relate biological (community, population, and individual) data to environmental factors - such that the development of methods to be used to help interpret and predict changes in aquatic environments and fish faunas. Since the 1980s habitat modelling has developed into a powerful tool to analyze the anthropological impact on the suitability of habitat especially for fishes and other aquatic organisms. Furthermore, there is a need to improve fauna-based evaluation indices for the European Water Framework Directive to perform ecological assessments of the aquatic habitats. Especially, the estimation of differences between the historical and actual status of the faunal compositions is

continued on p. 5



**Fig. 2. Pointabundance sampling by electrofishing along the shore of the Elbe River.**

**European Region...cont'd from p. 4**

difficult, because historical quantitative data of composition and density of fish fauna are scarce. However, habitat models are tools to predict faunal compositions, even under historical conditions, if the habitat preferences of the species and the most important environmental parameters of the habitats are known.

**BUFI and FISTOB** - are two current research projects in which we analyse the habitat use, habitat shift, and biodiversity of fishes in typical shore habitats (groyne fields) of the Elbe River in Germany. Both projects are sponsored by the Federal Institute of Hydrology. The major aim of the projects is to develop new types of habitat models in which predictions are mainly based on detailed knowledge of habitat preferences of aquatic animals and their life stages. Discrimination and validation of those models are possible and are performed using receiver operating characteristic curves. To obtain accurate models, the habitat preferences of the species have to be estimated very carefully and for each of the species life-history stages. Input data for the models are abundances and occurrences of fish species and life stages obtained using point abundance sampling. Statistical models predicting the preference of fish fauna environmental relationships are developed based on multivariate



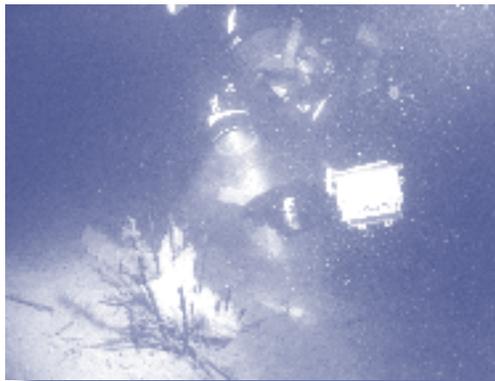
**Photo.1. Last testing of the equipment prior to submersion and monitoring of perch spawning.**

statistical methods, e.g. CCA, and logistic regressions.

RN Dr. Martin Cech reports from the Biology Centre of the Academy of Sciences of the Czech Republic ([www.hbu.cas.cz/fishecu](http://www.hbu.cas.cz/fishecu)) on a joint project on the early life history stages of perch, funded by the Grant Agency of the Czech Republic for the years 2006 – 2008. This is a large project combining expertise from three institutions: (1) Biology Centre of the Academy of Sciences of the Czech Republic (BC AS CR) - Institute of Hydrobiology, (2) Czech University of Agriculture in Prague, and (3) BC AS CR - Institute of Parasitology.

**Patterns and reasons of different pelagic behaviour of perch fry: Novel insight into the declared ecological plasticity of a species**

The project follows up the recent finding (Cech et al. 2005) that juvenile perch



**Photo.2. Monitoring the deposition of egg strands of perch (measuring the depth of deposition, temperature at which the eggs developed and evaluating the spawning substrate).**

(*Perca* spp.) are able to create sympatric ecological groups with different behaviour. The epipelagic perch fry (EPF) spent the whole 24 hours in the epilimnion whereas the bathypelagic perch fry (BPF) performed diel vertical migrations (DVMs), being in the epilimnion during the night and migrating into the cold hypolimnion during the day. The project aims on better definition of newly discovered groups, temporal and spatial patterns of their separation, reasons of sympatric existence of EPF and BPF, profitability and fate of individual strategies, cues of DVMs, predation pressure on pelagic perch fry, gradients in perch fry abundance, age and size distribution as well as perch egg strands deposition on the longitudinal profile of lakes and reservoirs. New approaches including more quantitative and extensive acoustic and net sampling, SCUBA diving, molecular genetics, histology and



**Photo.3. Sampling of perch larvae and juveniles using ichthyoplankton trawl (mouth opening 2 x 2 m, mesh- size 1 x 1.35 mm).**

parasitology are used. Grouping behaviour of juveniles of the close relative, zander (*Sander*) and ruffe (*Gymnocephalus*) is also investigated and the project is likely to bring new understanding into early behaviour of perciform fish.

**Related publications:**

Čech, M., Kratochvíl, M., Kubečka, J., Draščík, V. & Matěna, J. (2005). Diel vertical migrations of bathypelagic perch fry. *Journal of Fish Biology* 66, 685-702. doi: 10.1111/j.1095-8649.2005.00630.x

Čech, M. & Kubečka, J. (2006). Ontogenetic changes in the bathypelagic distribution of European perch fry *Perca fluviatilis* monitored by hydroacoustic methods. *Biologia, Bratislava* 61:211-219.

Čech, M., Kubečka, J., Frouzová, J., Draščík, V., Kratochvíl, M., Matěna, J. & Hejzlar J. (2007). Distribution of the bathypelagic perch fry layer along the longitudinal profile of two large canyon-shaped reservoirs. *Journal of Fish Biology* 70:141-154.

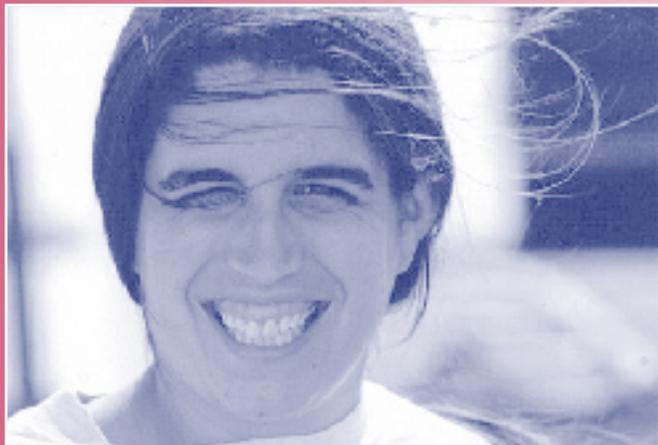
Čech, M., Kubečka, J., Frouzová, J., Draščík, V., Kratochvíl, M. & Jarošík, J. (2007). Impact of flood on distribution of bathypelagic perch fry layer along the longitudinal profile of large canyon-shaped reservoir. *Journal of Fish Biology* 70:1109-1119. §



**Photo.4. Sorting of the catch of juvenile perch and zander directly in the field.**

## People

### In Memoriam Stacy Moore Hagan, 1971 - 2007



Stacy had a brief but very productive, meaningful and inspiring career as a marine scientist. Before graduating from Stockton College, she began her experience at the Rutgers University Marine Field Station (RUMFS) in 1990. Subsequently, she became one of many technicians but she quickly distinguished herself with her hardworking, focused approach to any task set before her. This included field work ranging from ocean cruises to the muck and mire of buggy saltmarshes. During her career she mastered many field sampling approaches and always led the way despite unfavorable weather conditions, often at night and despite sampling in remote locations. At the same time, while working full time, she completed a M.S. (Graduate Program in Ecology and Evolution, Rutgers University). As is typical of her perseverance, the last chapter of her thesis, though long delayed, is now in press. While juggling her job, motherhood, and her studies, she also served as a mentor to numerous individuals, including summer interns, summer technicians, and volunteers ranging from high school students to retirees. She interacted well with all of these and became friends with most. Certainly, she gained their respect.

Eventually Stacy became the senior technician at RUMFS and took on many additional duties. Several of those were of special note. For example, for many years Stacy was responsible for the day-to-day, and over longer periods, organization of all field and laboratory technicians and helping graduate students accomplish their own research. At times during the summer, this meant keeping track of 20-30 individuals simultaneously. Stacy did this efficiently and effectively while keeping a good sense of perspective and maintaining her sense of humor in often trying conditions. Another important contribution was her mastery of data management. Stacy had no particular training in this area but over time, as the RUMFS data sets grew in diversity and volume, she realized that she had a particular propensity for data manipulation and

analysis. She became proficient at recording metadata and retaining its whereabouts. Often when I asked her to retrieve data from old, brief data collection efforts that no one had expressed interest in for years, she rolled her eyes but always delivered. Of ultimate importance, Stacy became a colleague to me and other RUMFS faculty, postdocs, graduate students, and collaborators from other institutions and this is how most will remember her...as a respected colleague.

Over her shortened career she was senior author or co-author on 17 peer-reviewed publications, 20+ presentations, and 3 technical reports. The technical reports may be some of her most important contributions because these provide much of the institutional memory for RUMFS. Most of her publications focused on the first year in the life of estuarine fishes, especially relative to understanding this part of their life history and fishes' response to marsh restoration. The topic of her thesis was pelagic fishes of estuaries. It is in the early life history of fishes that she has also contributed substantially to the first book that Mike Fahay and I published and she has been central to the one that we now have in the works. Although Stacy was not a member of the Early Life History Section, she attended and presented at many of the annual meetings.

For me, Stacy was the glue that held the Station together when funds were tight, weather did not cooperate, and our remote location forced us to deal with condemned bridges, impassable roads, and fear of loss of too much blood from greenhead flies and mosquitoes. Most recently, we resurrected an old plan to write a technical report on the "down-home" bars of the Mullica River – Great Bay watershed. She had already prepared the study site location map and organized our data from our interviews on the front porch of the bars (Stacy - I vow to finish this). Now all we need to do is increase our sample size. Fortunately, Stacy will be with us in spirit to complete this task.

Stacy died on 20 December 2007 at the age of 36 from complications associated with breast cancer. She is survived by Roland (whom many of you know) and their two children, Rutger (7) and Ryland (5). As was typical of Stacy, she requested that there be no flowers at her funeral ("leave the flowers in the ground") and instead requested monies be donated to an internship to enable Stockton College\* undergraduate students to spend the summer at RUMFS, which is what prepared Stacy to realize her dreams. §

— Kenneth W. Able

\*Donations may be submitted to the Stockton College Foundation; please indicate "In memory to Stacy Moore Hagan" and mail to: The Richard Stockton College Foundation, P.O. Box 195, Suite K-203, Pomona, NJ 08240.

## Upcoming Events

### 6<sup>th</sup> Annual Workshop on Physiology and Aquaculture of Pelagics with Emphasis on Reproduction and Early Developmental Stages of Yellowfin Tuna, *Thunnus albacares*

June 9-21, 2008 — Achotines Laboratory, Republic of Panama

The University Of Miami Rosenstiel School of Marine and Atmospheric Science (RSMAS) and the Inter-American Tropical Tuna Commission (IATCC) are organizing the 6<sup>th</sup> Annual Workshop on "Physiology and Aquaculture of Pelagics with Emphasis on Reproduction and Early Developmental Stages of Yellowfin Tuna." Number of participants is limited to six. The organizers and primary instructors are Dr. Daniel Benetti (RSMAS-UM), Dr. Daniel Margulies (IATTC), and Mr. Vernon Scholey (IATTC).

As in previous years, we anticipate the participation of researchers and professionals from several countries combining advanced technologies to improve methods for raising larval tuna and other species of marine fish. Participants will be assisted by a qualified technical staff and by graduate students from the University of Miami's Rosenstiel School of Marine and Atmospheric Science.

The workshop will be conducted at the world renowned Achotines Laboratory in Provincia de Los Santos, on the Pacific coast of the Republic of Panama.

The workshop will cover reproduction and larval development of pelagic fish species with a special focus on yellowfin tuna. Topics include physiology, biology, ecology, genetics, nutrition, and environmental issues related to aquaculture of pelagic fish species such as tuna, mahimahi, cobia, yellowfin kingfish, *Seriola* and other Carangidae. The workshop also covers capture, handling, transportation, maturation, spawning, larval husbandry, nursery and growout techniques of a variety of marine fish species. Participants will learn about the research projects being conducted by the IATTC with yellowfin tuna, *Thunnus albacares*, including spawning and larval rearing. RSMAS - University of Miami is participating in innovative research at the Achotines Laboratory as part of a collaborative agreement with the IATTC, and workshop attendees will have the opportunity to participate in ongoing joint efforts to capture, transfer, and establish broodstock populations of Indo-Pacific sailfish and wahoo.

The registration fee is \$2000.00 and includes accommodations and three local style meals a day at the Achotines Laboratory and transportation while in Panama. The registration fee does not cover accommodations in Panama City. §

For more information, please contact:

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### Great Lakes Ichthyoplankton Identification Workshop

June 22, 2008 — F.T. Stone Laboratory, Ohio

John Hageman announces his annual Great Lakes Ichthyoplankton Identification Workshop, offered by The Ohio State University's F.T. Stone Laboratory. The date this year is Sunday, June 22, 2008.

The workshop uses preserved specimens along with Auer (1982) to familiarize students, agency folks, and private consultant employees with common Great Lakes ichthyoplankton.

For additional information or to enroll, individuals should go to [stonelab.osu.edu](http://stonelab.osu.edu) to review the course syllabus and requirements for college credit or non-credit workshop participation. §

### 8<sup>th</sup> Larval Biology Symposium

6-11 July 2008 — Lisbon, Portugal

The 8<sup>th</sup> Larval Biology Symposium will be hosted by IPIMAR-Instituto Nacional de Recursos Biológicos and held on the campus of the Faculty of Sciences of the University of Lisbon. The conference aims to promote the exchange of information and enhance international research collaboration. The symposium programme will cover a wide range of research areas. Five symposia were chosen to give a more comprehensive, rather than specialized approach. The conference organizers encourage the participation of students, as well as professional researchers from Europe and all over the world.

The deadline for abstracts and registration is 30 March 2008. More information is available at: [ipimar-iniap.ipimar.pt/larval](http://ipimar-iniap.ipimar.pt/larval) §

#### Pacific Region...continued from p. 3

Leis, J.M. 2007. Behaviour as an input for modelling dispersal of fish larvae: behaviour, biogeography, hydrodynamics, ontogeny, physiology and phylogeny meet hydrography. *Marine Ecology Progress Series* 347:185-193.

Leis, J.M. 2007. Larval development in the lutjanid subfamily Lutjaninae (Pisces): the

genus *Macolor*. *Records of the Australian Museum* 59:1-8.

Leis, J.M., K.J. Wright, and R.N. Johnson. 2007. Behaviour that influences dispersal and connectivity in the small, young larvae of a reef fish. *Marine Biology* 153:103-117 DOI 10.1007/s00227-007-0794-x.

Murphy, B.F., J.M. Leis, and K.D. Kavanagh. 2007. Larval development of the Ambon

...continued on p. 8

**THIS WILL BE YOUR  
LAST ISSUE OF STAGES...**  
unless you've paid your 2008 dues.  
Check the expiration date on the  
mailing label of this issue.

## Publications

### Two Amazing Larval Fishes

Jeff Leis has some great photos of unusual fish larvae on the Australian Museum website. One is a larval pelican flounder and the other is a cusk. View these terrific photos at:

[www.amonline.net.au/fishes/fishfacts/fish/chascanopsetta.htm](http://www.amonline.net.au/fishes/fishfacts/fish/chascanopsetta.htm)  
[www.amonline.net.au/fishes/fishfacts/fish/brotulotaenia.htm](http://www.amonline.net.au/fishes/fishfacts/fish/brotulotaenia.htm)

### Other Recent Publications of Interest

*Early Development of Four Cyprinids Native to the Yangtze River, China.* Edited by D.C. Chapman. *U.S. Geological Survey Data Series* 239. 2006. accessible online at [pubs.usgs.gov/ds/2006/239](http://pubs.usgs.gov/ds/2006/239)

*Recent Advances in the Study of Fish Eggs and Larvae.* Edited by M. Pilar Olivar and J. Jeffrey Govoni. Published in *Scientia Marina*, Volume 70S2 Supplement 2. ISSN: 0214-8358. 2006.

*Eggs and Larvae of North Sea Fishes.* P. Munk and Jørgen G. Nielsen. Published by Biofolia Press. ISBN 0849319161. 2005.

*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.

*Pacific Region...continued from p. 7*  
 damselfish (*Pomacentrus amboinensis*) with a summary of pomacentrid development. *Journal of Fish Biology* 71:569-584.

Wright, K.J., D.M. Higgs, A.J. Belanger and J.M. Leis (in press) Auditory and olfactory abilities of larvae of the Indo-Pacific coral trout *Plectropomus leopardus* (Pisces: Serranidae) at settlement. *Journal of Fish Biology*.

#### Dispersal and settlement at the Australian Museum

Tom Trnksi dispersed from the Australian Museum in May to settle in New Zealand as Curator of Marine Biology at the Auckland Museum. His new e-mail is: [ttrnski@aucklandmuseum.com](mailto:ttrnski@aucklandmuseum.com). Kelly Wright has reproduced (daughter Grace) and finished her PhD on the sensory abilities of fish larvae. Kelly and husband Rich Piola have also dispersed across the Tasman Sea, but to Nelson, New Zealand. Her e-mail is [k.piola@gmail.com](mailto:k.piola@gmail.com).

### Fishery Science to be Updated?

*Fishery Science: The Unique Contributions of Early Life Stages*, edited by Lee Fuiman and Bob Werner, was published in 2002. It is now almost out of print and the publisher is interested in a second edition. To begin planning, Lee would like suggestions from all researchers and educators who have read the book. How could the volume be improved? What new topics could be added? Which chapters were unnecessary or in need of improvement. Please send any comments or suggestions to [lee.fuiman@mail.utexas.edu](mailto:lee.fuiman@mail.utexas.edu). §

*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. §

In a clear demonstration of space-limited recruitment, larval fish biologist Amanda Hay ([www.amonline.net.au/FISHES/about/research/hay1.htm](http://www.amonline.net.au/FISHES/about/research/hay1.htm)) settled into Tom's vacated position at the Australian Museum. We welcome her appointment to a permanent position after many years on soft money.

#### From: Gregory Jenkins, Marine and Freshwater Fisheries Research Institute, Victoria, Australia

Paul Hamer and Greg Jenkins of MAFFRI have completed 3 years of sampling for snapper (*Pagrus auratus* - Sparidae) larvae in Port Phillip Bay. Results suggest that the high interannual variability in juvenile recruitment of this important recreational/commercial species is set at the early first-feeding stage. This research is crucial because related research has shown that Port Phillip Bay is the primary, if not the only, spawning/nursery area for the species in central/western Victoria (the so called "western stock"), The sampling will be

continuing for a further 4 years as part of a monitoring program for channel deepening of Port Phillip Bay for commercial shipping. We will be conducting related research on phytoplankton and zooplankton production to try and understand the causes for the success or otherwise of larval feeding and survival.

Research is currently underway in the Gippsland lakes on eggs and larvae of black bream (*Acanthopagrus butcheri* - Sparidae) as part of an Australian Research Council linkage grant to Jeremy Hindell (Arthur Rhyllah Institute), Greg Jenkins (MAFFRI), Steve Swearer (University of Melbourne), and Andrew Western (University of Melbourne). The black bream catch has declined dramatically in recent years, which has coincided with an extended period of drought in Victoria. Research is aimed at understanding the relationship between freshwater flows and recruitment of this important species. PhD students Joel Williams and Eleanor Gee have now undertaken a year of egg and larval sampling together with physical measurements.

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## Graduate Student and Postdoctoral Positions

Individuals with interests in the early life history and habitat quality of estuarine and marine fishes are invited to apply for postdoctoral (1) or graduate student (1) positions. The research will focus on fishes in the Jacques Cousteau National Estuarine Research Reserve at Mullica River – Great Bay in southern New Jersey and the adjacent ocean. It is anticipated that these activities will emphasize either 1) habitat use dynamics through ultrasonic tracking of fishes, 2) examination of larval supply through continued sampling and analysis of long-term databases, or 3) evaluation of the impacts of wind energy development on continental shelf fishes. As part of the postdoc's responsibilities, he/she will assist the Director in Marine Field Station related activities. Ability to work with a team of faculty, graduate students, undergraduate summer interns, and staff is an important qualification for both positions. The postdoc position is for one year beginning in 2008 and may be extended for an additional year(s). All post-doc applicants must have successfully completed all requirements for a Ph.D. degree. For information concerning these positions, please check out the following web pages:

Marine Field Station: [marine.rutgers.edu/rumfs](http://marine.rutgers.edu/rumfs)  
 Institute of Marine and Coastal Sciences: [marine.rutgers.edu](http://marine.rutgers.edu)  
 Fish tracking project: [stripertracker.org](http://stripertracker.org)

or contact:

Dr. Kenneth W. Able, Director  
 Marine Field Station  
 Institute of Marine & Coastal Sciences  
 Rutgers, The State University of New Jersey  
 800 c/o 132 Great Bay Blvd  
 Tuckerton, NJ 08087-2004  
 Phone: (609) 296-5260, Ext. 230 Fax: (609) 296-1024  
 email: [able@marine.rutgers.edu](mailto:able@marine.rutgers.edu)

### *Pacific Region...continued from p. 8*

Egg and larval sampling has also recently been initiated by Greg Jenkins, Paul Hamer, and Silvana Acevedo of MAFFRI off the Wonthaggi area of central Victoria as part of monitoring for a proposed desalination plant. The area is near the entrance to Western Port Bay and is hydrodynamically complex. Dr Kerry Black of ASR NZ is concurrently collecting detailed oceanographic measurements to underpin a hydrodynamic/dispersal model for the area. The project will represent the most temporally comprehensive sampling for fish eggs and larvae in coastal Victoria to date.

### *From Michael Miller, Ocean Research Institute, University of Tokyo*

A variety of studies on the leptocephalus larvae of freshwater and marine eels in the Indo-Pacific have been ongoing in Prof. Katsumi Tsukamoto's laboratory at the Ocean Research Institute of the University

of Tokyo in 2007 and into 2008. The results of a survey for anguillid leptocephali off west Sumatra were published that described the distribution of leptocephali in relation to oceanographic conditions (Aoyama et al. 2007) and the age and growth of the *Anguilla bicolor bicolor* leptocephali that were collected (Kuroki et al. 2007). Molecular genetic sequences were used to show that the leptocephali of *Conger myriaster* change from having little or no lateral pigment at smaller sizes, to having one row of lateral pigment when they recruit to coastal waters, which means that pigmentation alone can not be used to identify the larvae of this species (Ma et al. 2007). Collections of leptocephali in the East China Sea and along coastal Japan during fall and spring indicated that there appears to be seasonality of spawning of

## Postdoctoral Position

A postdoctoral position is available to work on dispersal of larval groundfishes in the Eastern Bering Sea. The main responsibilities of the position are to characterize seasonal, vertical, and horizontal distributions of fish eggs and larvae from a series of research cruises in 2008, 2009, and 2010, and to relate patterns to oceanographic forcing parameters. Results will be incorporated into a biophysical model of drift and transport. Opportunities for retrospective analyses of historical ichthyoplankton data are also available. Field work aboard oceanographic vessels in the Bering Sea is required. The post-doctoral position will be held through the University of Washington, School of Aquatic and Fishery Science, and the postdoc will be based at the adjacent NOAA/Alaska Fisheries Science Center in Seattle, WA, USA.

A more detailed description of the position is posted on the ELHS website ([www.ncsu.edu/elhs](http://www.ncsu.edu/elhs)). For more information, please contact:

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 NOAA/NMFS Alaska Fisheries Science Center  
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## Assistant Professor Position

The School of Environmental and Biological Sciences, New Jersey Agricultural Experiment Station, and the Department of Marine and Coastal Sciences at Rutgers University are seeking a Fisheries Oceanographer to join an existing faculty of 40, spanning biological, chemical, geological, and physical oceanography. This is a state-funded, tenure-track position in the Department of Marine and Coastal Sciences and carries full faculty benefits. Salary level will be commensurate with experience.

A more detailed description of the position is posted on the ELHS website ([www.ncsu.edu/elhs](http://www.ncsu.edu/elhs)). For more information, please contact:

Dr. Ken Able, Chair,  
 Fisheries Oceanography Search Committee  
 Rutgers University Marine Field Station  
 800 c/o 132 Great Bay Blvd  
 Tuckerton, New Jersey 08087  
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some species of marine eels, but that other more tropical species may have more prolonged spawning seasons (Minagawa et al. 2007). Analyses of the otolith increments of *Kaupichthys* leptocephali of the family Chlopsidae collected during a sampling survey around Sulawesi Island of Indonesia suggested that these tiny marine eels spawn during full moon periods based on the five larval age groups that were found (Lee et al. 2008). Manuscripts in press or ongoing studies on leptocephali in 2008 include distribution and species composition studies in the Kuroshio Extension region and the Indian Ocean, large-size *Ariosoma* leptocephali in the North Equatorial Current,

*...continued on p. 10*

**North Central Region...cont'd from p. 2** will include the use of fisheries techniques to capture adult, juvenile, and larval pallid sturgeon. Additionally, we will be able to describe entire fish community in this reach of the Niobrara River. Methods include drifting trammel nets that will target fish ( $\geq 8$  inches), electrofishing and seining that will target small-bodied fishes ( $< 12$  inches), and drift nets that will capture drifting juvenile fish, larval fish, and eggs. Sampling will be from April to September in 2008 and 2009.

Analyses will include seasonal and spatial relative abundance, size structure characteristics of the entire fish community, and describe habitat use of fishes in the Niobrara River. This research will be critical baseline data for river management decisions involving instream flows, fish bypass structures, and dam removal projects.

**From: Joel Hoffman, U.S. Environmental Protection Agency's Mid-Continent Ecology Research Division, Duluth, MN**

Joel Hoffman, a post-doctoral research associate is leading a 2-year research program to study food-web dynamics of fish larvae in Lake Superior south shore coastal tributaries. The research group will be using both stable isotopes and fatty-acid biomarkers in fish larvae to develop conceptual and quantitative models describing the flow of materials and nutrients from the land to fish that grow in the receiving water bodies. Due to their relatively fast response to environmental conditions (i.e. days to weeks), fish larvae could be used to test differences with respect to landscape character, time, or hydrology. As indicators, fish larvae could provide information on contributing sources (e.g. specific biomarkers reflect anthropogenic or terrestrial origins) and demonstrate population-level responses (e.g. nutritional status of early life stages).

The goal of the research is to advance our understanding of connections between coastal ecosystems and aquatic food webs in coastal ecosystems. This is critical to Great Lakes ecosystem restoration and necessary for successful ecosystem-based management. Indeed, an important aim of the study is to develop a conceptual framework for understanding coastal food webs within the context of the land-coast interface, across wetland type, landscape character, and time. The framework will link energy flow through ecosystems to production of higher trophic levels.

For example, river flow delivers terrestrial carbon from the watershed into rivers and coastal embayments, potentially providing energy to the food web. Similarly, seiches regularly deliver Great Lakes water into coastal ecosystems and presumably phytoplankton, potentially providing another energy source.

The study began in 2007 with weekly sampling of fish larvae in the St. Louis River system, a multi-watershed wetland-river system in the southwest corner of Lake Superior, including the St. Louis River mainstem (MN), the Pokegama River and Pokegama Bay (WI), and the Nemadji River and Allouez Bay (WI). Sampling took place from late April through early July. The study will continue in 2008 with weekly sampling in the Amnicon River (WI) and East and West Fish Creeks (WI), both of which flow into Lake Superior's Chequamegon Bay.

**From: Mike Wilson, Illinois Natural History Survey, Champaign, Illinois**

**Microhabitat and fish species associations among juvenile Asian carps (*Hypophthalmichthys* spp.) in the Illinois River.**

I am looking at dominant associations between habitat and the presence of juvenile Asian carps in the LaGrange Reach of the Illinois River. If such associations can be determined, it is my hope that the information can be used by researchers and fisheries managers and incorporated into their control efforts for these species throughout the region. §

**Pacific Region...continued from p. 10**

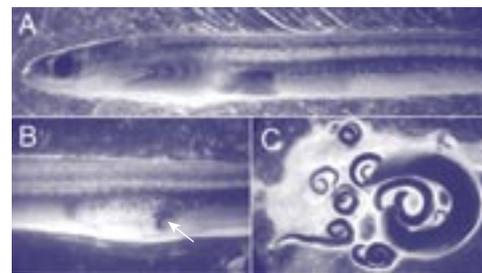
a study of the age and growth of anguillid leptocephali in the western South Pacific, molecular genetic studies of cryptic taxa of *Anguilla* and the congrid genus *Uroconger* (Ma et al. In press), and the species composition of leptocephali of the family Serrivomeridae in the Indo-Pacific. Some copies of the Miller and Tsukamoto (2004) book about leptocephali are still available, so if ELHS members would like a copy, contact Mike Miller (miller@ori.u-tokyo.ac.jp).

Aoyama J., S. Wouthuyzen, M.J. Miller, Y. Minegishi, G. Minagawa, M. Kuroki, S.R. Suharti, T. Kawakami, K.O. Sumardiharga, and K. Tsukamoto. 2007. Distribution of leptocephali of the freshwater eels, genus *Anguilla*, in the waters off west Sumatra in the Indian Ocean. *Environmental Biology of Fishes* 80:445-452.

Kuroki, M., J. Aoyama, S. Wouthuyzen, K. Sumardiharga, M.J. Miller, and K. Tsukamoto. 2007. Age and growth of *Anguilla bicolor bicolor* leptocephali in

**Northeast Region...continued from p. 3**

the confines of the swim bladder, mature *A. crassus* feed on the infected eel's blood supply and deposit eggs, which are rapidly flushed back into the estuarine environment. Acquisition of *A. crassus* during the first year of life has been implicated in the rapid spread of the parasite throughout Europe and shown to induce severe damage to swim bladder tissue which may compromise the migration of older individuals to the spawning grounds. As part of our current effort, a sub-sample of eels  $< 200$  mm TL from the Mullica River – Great Bay / Great Egg Harbor estuaries were analyzed for the presence of *A. crassus*. These preliminary results indicate a higher infection rate (~50 - 80%) than previously reported. Surprisingly, individuals  $< 80$  mm TL were infected, suggesting eels may acquire the parasite during the first year of estuarine residency as glass eels or pigmented elvers. Given this high prevalence of *A. crassus* in early stage individuals, the potential negative impact of infection on American eel biology is a cause for concern.



**(A) An American eel elver. (B) An adult *A. crassus* in situ (white arrow). (C) *A. crassus* dissected from a single eel host.**

Portions of this work formed the backbone for program distinction projects by Stockton College undergraduates Marcy Howland and Thomas Andersen, the results of which were presented at the 2<sup>nd</sup> International Symposium on Diadromous Fishes in Halifax, Nova Scotia, Canada and the 19<sup>th</sup> Estuarine Research Federation Conference in Providence, Rhode Island. Identifying the consequences of this parasite in New Jersey estuaries is a critical next step toward understanding linkages with possible declines in the adult stock and the topic of upcoming Sea Grant funded work. §

the eastern Indian Ocean. *Journal of Fish Biology* 70:538-550.

Lee, T.W., M.J. Miller, H.B. Hwang, S. Wouthuyzen, and K. Tsukamoto. 2008. Distribution and early life history of *Kaupichthys leptocephali* (family Chlopsidae) in the central Indonesian Seas. *Marine Biology* 153:285-295.

Ma, T., M.J. Miller, J. Aoyama, and K. Tsukamoto. 2007. Genetic identification of *Conger myriaster* leptocephali in the

**...continued on p. 11**

**President's Message...cont'd from p. 1**  
Peck) hopes to illuminate the patterns in, and physical processes responsible for, variations in population abundances of fishes and invertebrates. These are ongoing challenges for all of us who study population dynamics.

Stottrup and Trippel are organizing a session on 'Aquaculture and stock enhancement of early life stages.' Bravo! Many of our Section members use experimental methodologies that either focus on or require the rearing of early life stages of fishes in their studies. As such, we recognize the benefits of sharing experiences, methods, and results, whether the primary target audience of our work is other scientists and academicians or those who apply and implement our results for enhancing fish stocks or for commercial aquaculture.

There will be two sessions that explicitly consider biological similarities and differences among fishes and cephalopods, and in the ways that we study them. Piatkowski and Geffen will host a session on 'Early life history strategies' of these taxa. I for one appreciate the value of inferences by analogy that can occur when we systematically contrast two taxonomic groups in how they make a living, and in the factors that may

### **Pacific Region...continued from p. 11**

East China Sea region. *Fisheries Science* 73: 989–994.

Ma, T., M.J. Miller, J. Aoyama, G. Minagawa, J.G. Inoue, S. Watanabe, K. Tsukamoto. In press. Evidence of genetic differentiation in the genus *Uroconger* (Congridae) in the Indo-Pacific. *Aquatic Biology*.

Miller, M.J., and K. Tsukamoto. 2004. *An introduction to leptocephali: Biology and identification*. Ocean Research Institute, University of Tokyo, 96 pages.

Minagawa G., M.J. Miller, Y. Kimura, S. Watanabe, A. Shinoda, J. Aoyama, and K. Tsukamoto. 2007. Seasonal differences in catches of leptocephali in the East China Sea and Suruga Bay, Japan. *Estuarine, Coastal and Shelf Science* 71:730-740. §

have led to their divergences or convergences. A second theme will focus on how we go about our business of classifying organisms (i.e., taxonomy and systematics) by juxtaposing studies conducted on these two diverse and important taxa.

A theme that represents recent trends towards cross-disciplinary studies – specifically, 'Developmental fish physiology' – will be hosted by Hunt von Herbing. She and colleagues will discuss ways that a wide range of disciplines and data types might be used to better understand the 'how's' and 'why's' of the characteristically high mortality in larval fishes.

Lastly, Ueberschaer and Froese are organizing a theme session on 'Databases and tools on early life stages.' This theme is of importance to all of us who study the early life stages of fishes and wish to put our work in context (does that leave anyone out?). Beyond providing overviews of known databases, and calling for papers on new ones, this theme session's organizers hope to elicit papers that provide examples of implementation of these data stores, and identify key gaps in our knowledge base on early life stages.

To sum up, I see a lot to like in our trip to Kiel this August. Thanks in advance to Catriona et al. for making this possible!

Regarding future LFCs, I will briefly note that in 2009 our Section and the LFC is planning on participating with the Joint Meeting of the American Society of Ichthyologists and Herpetologists in Portland, Oregon (22-27 July 2009). In the years to follow we are hoping to finalize offers to meet in Miami, Florida in 2010 and Santa Barbara, California in 2011. The Section has approved the offer to meet in Bergen, Norway in 2012.

Since my last communication, in which I encouraged Section members to renew their memberships, we have had a healthy increase in renewals, especially among Affiliate members. This was due in part to our Section Secretary, Denice Drass,

contacting current and past Affiliates via email to remind and encourage them to renew. Thanks Denice. If you have not renewed yet you have three options:

1) Join or renew as a full Early Life History Section member and member of the American Fisheries Society (AFS) via the AFS web site ([www.fisheries.org/afs/membership.html](http://www.fisheries.org/afs/membership.html)) – don't forget to join our Early Life History Section as part of your AFS registration.

2) Join or renew as an Affiliate member of the Early Life History Section via the Larval Fish Conference website ([www.larvalfishcon.org/join\\_elhs.asp](http://www.larvalfishcon.org/join_elhs.asp)).

3) Join or renew as an Affiliate member of the Early Life History Section by sending a check for US\$15 to our Section Treasurer, Betsy Laban (see address on page 12).

Whichever membership option you choose, please join and do so early in the calendar year so that you can receive STAGES (all members) and our next officer ballot (full members only) – next topic.

Lastly, if you are a full Section member you have voting rights for our Section's elected officers. You will be receiving a ballot shortly for Secretary-Elect and President-Elect. The winners of these elections will assume their roles on the Executive Committee at our 2008 LFC in Kiel. They will then ascend to their duties as Secretary and President, respectively, at our 2010 LFC. For those who would like to serve our Section in the capacity of an appointed position or be considered as an elected officer, please contact me. If you are questioning whether or not you are qualified and needed, let me answer that with an immediate and strong affirmative to both questions. We need you! To see our list of positions and their responsibilities, see our Sections bylaws and rules at the Section website ([www.ncsu.edu/elhs/history.html](http://www.ncsu.edu/elhs/history.html)).

In closing, peace everyone. You will hear from me again in our June issue of STAGES. §

— R. Christopher Chambers

## Editor's Ramblings



### **Feast or Famine**

From my point of view, this issue of STAGES is a terrific one. Why would I say that? The answer is simple: content, and lots of it.

It would be a Herculean task for a single person to hold down a full-time job and to publish a 12-page newsletter three times per year. But, our Section figured it out long ago. We divide the work among many dedicated people. For each issue, I call on the help of six Regional Representatives and the Section President, Secretary, and Treasurer. The representatives canvass their regions for material of interest to our readers. The President provides a thoughtful message, and the Secretary and Treasurer are critical to the final production and distribution.

Even with all this help, we would not be able to fill an issue such as this one without contributions from you, our readers. This issue is so filled with information that I had to reduce the size of the print in order to fit everything in. That is just wonderful, and a change from the *content famine* we occasionally face. Many thanks to the entire production team and to those of you who responded when your Regional Representative asked for input. §

## 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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