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 32nd 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), 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 Lee A. Fuiman, Editor)
News from the Regions

European Region

Audrey Geffen

The most important news, of course, from the European Region is the upcoming LFC2008 - 32nd 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 8th Larval Biology Symposium will be held 6-11 July 2008 in Lisbon (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

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

Ostarioclupemorpha 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

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

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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:


Recent publications on fish larvae from the Australian Museum:


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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). 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 protection 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
Early life history of Greenland halibut (Reinhardtius hippoglossoides) in the eastern Bering Sea

Dongwha Sohn¹, Lorenzo Ciannelli¹, Janet Duffy-Anderson², Ann Matarese³, and Kevin Bailey⁴

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²National 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 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 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. Maturation 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
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 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) 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

(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 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:**


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

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).

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

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

6th 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 6th 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.

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 to review the course syllabus and requirements for college credit or non-credit workshop participation.

8th Larval Biology Symposium

6-11 July 2008 — Lisbon, Portugal

The 8th 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

Pacific Region...continued from p. 3


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.

ELHS website: www.ncsu.edu/elhs
Pacific Region...continued from p. 7
damselfish (Pomacentrus amboinensis) with a summary of pomacentrid development. Journal of Fish Biology 71:569-584.
Dispersal and settlement at the Australian Museum

Tom Trnksí 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: ttrnks@ucklandmuseum.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.

In a clear demonstration of space-limited recruitment, larval fish biologist Amanda Hay (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 (Pagon 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 Rylah 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.

...continued on p. 9
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
Institute of Marine and Coastal Sciences: marine.rutgers.edu
Fish tracking project: stripetracker.org

or contact:

Dr. Kenneth W. Able, Director
Marine Field Station
Institute of Marine & Coastal Sciences
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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

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.nccsu.edu/elhs). For more information, please contact:

Dr. Ken Able, Chair,
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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 cannot 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 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 (≥8 inches, electrosiphoning 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 Pekogama River and Pekogama 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 Serriroverididae 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).


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

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.

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 2nd International Symposium on Diadromous Fishes in Halifax, Nova Scotia, Canada and the 19th 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.

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

...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 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) – 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.larvalfishconf.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).

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.

ELHS website: www.ncsu.edu/elhs
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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 $15 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.