STAGES

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

Volume 30, Number 2 | Lee A. Fuiman, Editor | June 2009

Inside this issue

Larval Fish Conference: A Big Event

This year, the 33rd annual Larval Fish Conference will meet as part of the Joint Meeting of Ichthyologists and Herpetologists, July 22-27, 2009 at the Hilton Hotel in Portland, Oregon. It will be a bonanza for fish- and herp-minded people. Participating organizations include: the American Society of Ichthyologists and Herpetologists, the American Elasmobranch Society, Society for the Study of Reptiles and Amphibians, Herpetologists League, Herpetological Conservation and Biology, Society for Northwestern Vertebrate Biology, and of course, our Early Life History Section of the American Fisheries Society.

Doug Markle is the local host for the Larval Fish Conference. Highlights of the meeting will include a plenary session (July 23), a workshop entitled "Population Connectivity in Warm and Cold Marine Waters: Are the Perceived Differences Real?" (July 23-24), a special session entitled "Hypoxia and Fish Early-Life Stages: A Comparison between Human-Enriched and Upwelling-Driven Systems" (July 26), a special session entitled "Condition and Feeding Success" (July 26), and an ELHS social (July 26). The Larval Fish Conference will conclude on July 26, one day prior to the Joint Meeting of Ichthyologists and Herpetologists.

A list of presentations for the Larval Fish Conference begins on page 8 of this issue of *STAGES*. Doug reminds ELHS members to bring donations for our raffle with them when they come to the meeting. §

ELHS Back Then

5 years ago: New online home for Larval Fish Conferences established (www.larvalfishcon.org).

10 years ago: 23rd LFC (Beaufort, NC for second time) honors the scientific contributions of John Blaxter. 143 registrants, 13 counrties

15 years ago: Annual dues for newsletter subscribers increases to $10.

20 years ago: Fred Binkowski steps down after 10 years as newsletter editor; Tom Simon takes over.

25 years ago: Section membership at 365 AFS members and 40 affiliate members.

30 years ago: Third LFC held at Western Kentucky University with 73 participants.

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

October 2, 2009

President's Message

I have been involved with the Early Life History Section (ELHS) since the early 1990's. I remember my first Larval Fish Conference (LFC) in Rhode Island and have enjoyed many since. Although the LFC is intended to be fully self-supporting, the Section typically holds its annual business meeting at the LFC (more on this later).

My early memories of these Business Meetings include - in addition to several colorful exchanges - an ongoing discussion of how to spend monies from the ever growing ELHS general fund. The Sally Leonard Richardson Award (given annually at the LFC for the best student paper) was shored up. Student Travel Grants to the LFC were started. The John H. S. Blaxter Award (given annually at the LFC for the best student poster) was established and a specific account set up to mirror the Sally Richardson Award. The Elbert H. Ahlstrom Lifetime Achievement Award was started and Dr. William Richards will be honored with the award at the upcoming LFC. Books were partially supported with Section funds. The ELHS contributed to LFC's to make sure that the meetings happened; sometimes the Section was paid back and sometimes not. The point is that the Section has used the funds available to support a wide range of activities that support the Section's goals, which are, to paraphrase from our bylaws: exchanging ideas, educating others about the importance of early life stages, supporting research and teaching collections, and working on critical gaps in our knowledge.

After years of work, I can proudly report that the Section has spent most of the general fund. (There will be more details in the upcoming Treasurer's report that will be discussed at the Business Meeting). Although we were successful in dealing with our excess money issues, having no money raises other issues. There are good activities that cannot be supported. There will be no Student Travel Grants to the LFC this year. Also, two worthwhile requests were turned down: support for an LFC workshop and the publication resulting from the upcoming otolith symposium.

The question I am asking myself is whether there is a happy medium between an overflowing

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News from the Regions

Southern Region

Claire Paris

From: Jeff Govoni, National Ocean Service, Center for Coastal Fisheries and Habitat Research, Beaufort, North Carolina

Leptocephali feeding

A ancillary study of the feeding of eel leptocephali in the northern Gulf of Mexico, conducted by Jeff Govoni has revealed a previously unrecognized food source for the late pre-metamorphic and metamorphic leptocephalus stages of the worm eels, *Myrophis* (Family Ophichthidae). Feeding by elopomorph leptocephali has long been controversial, but recent evidence has indicated that leptocephali do actively feed. In this work, leptocephali of the worm eels collected in the northern Gulf of Mexico had many large protists in their alimentary canals. Estimates of the physiological energetics of worm eels indicate that large aloricate ciliates and other large protozoans could potentially provide appreciable energy to these leptocephali toward the end of the premetamorphic and metamorphic stages. Aloricate ciliates and large protozoans can account for approximately 71% of the energy in the aliminetary canal at any moment during day or night. This contribution can be substantial, given the low energy requirements of metamorphosing leptocephali. Global ocean warming will likely force a shift in oceanic food webs. A shift away from large protozoans and ciliates toward smaller mixotrophic protozoans is possible. Disruption of these food webs could further compromise survival of leptocephali. §

European Region

Audrey Geffen

From: Meri Härmä, Finnish Game and Fisheries Research Institute, Helsinki, Finland

Meri Härmä (Meri.Harma@rktl.fi) has been evaluating the potential effects of climate change on reproductive areas used by roach in the Baltic. The initial results reported at the LFC in Kiel in 2008 have been followed by a publication (see below). This study is part of a larger program to map spawning grounds and larval areas in the coastal regions of Finland. The area is home to an interesting mix of species, including Baltic herring (*Clupea harengus membras*), pike (*Esox lucius*), cyprinid fishes, perch (*Perca fluviatilis*), pikeperch (*Sander lucioperca*), and garfish (*Belone belone*). Many of the areas contain reed beds and the sampling strategy is challenging. The program is nicely described and well illustrated on the Institute's website: www.rktl.fi/english/fish/environment_of_fish/coastal_reproduction_areas.

Harma, M., Lappalainen, A., and Urho, L. 2008. Reproduction areas of roach (*Rutilus rutilus*) in the northern Baltic Sea: Potential effects of climate change. *Canadian Journal of Fisheries and Aquatic Sciences* 65:2678–2688.

From: Mohamed Abu-El-Regal the National Institute of Oceanography & Fisheries, Hurghada, Egypt

At the other salinity extreme, Mohamed Abu-El-Regal (m_abuelregal@yahoo.com) reports on studies of Red Sea fish larvae conducted by the National Institute of Oceanography & Fisheries, Hurghada, Egypt.

Almost nothing was known about the early stages of the Red Sea reef fishes before the middle of the nineteenth century, although Red Sea fishes have been extensively studied for many years. We started to study the early stages of reef fishes in 1996 in Sharm El-Sheikh – Gulf of Aqaba aiming to identify the larval fishes to the lowest taxonomic level. It was also proposed to study the seasonal and regional distribution of these stages near the coral reef. As it was the first time such studies were conducted in this area we have had a lot of sampling and identification problems. However, by the end of the study period (1996-1999) we obtained a good picture of the larval stages of the reef fishes in the area. Larvae of 32 fish families representing 70 different fish taxa were identified, described and illustrated with a camera lucida. Abundance of larvae and information about the seasonal and regional variation in larval abundance and diversity was also given. Most reef fishes in the area spawn in the warmer months of the year from May to August as indicated by the high larval abundances in this period.

In 2005, we proposed to study another area on the Egyptian Red Sea coast that extends more than 1,000 km. This time the study on the larval fishes was carried out in Hurghada. In addition to identification,

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Section Officers

HELP US UPDATE OUR RECORDS...

Verify your email and postal address with our Secretary.

Northeast Region

Mark Wuenschel

From: Mike Fahay, somewhere in Maine

Larval Fish Workshop in Tokyo

Japanese research vessels made extensive collections of fish larvae in warm seas, worldwide, from the 1950s through the 1980s. The focus of several workers at the Far Seas Fisheries Research Laboratory (including Drs. Shoji Ueyanagi and Yasuo Nishikawa) was squarely on tuna and billfish larvae in these collections. The "other" taxa in these 8,000 lots of unsorted samples were recently transferred to the care of Keiichi Matsuura of the National Museum of Nature and Science, Tokyo. Dr. Matsuura arranged for increased curatorial space for this valuable collection, and organized a Larval Fish Workshop to begin preliminary sorting of the material. In attendance for the 2-week workshop were Dave Johnson, Ann Matarese and Mike Fahay from the U.S., Jeff Leis from Australia, and Tom Trnski from New Zealand. Attending from Japan were Muneo Okiyama and eight other researchers, as well as 16 students and post-docs. It was evident from the students' rapt attention and diligence that larval fish studies are alive and well...at least in Japan.

The material is remarkably well-preserved and the larvae of 139 families were identified and separated from the original lots. This was a first-step in organizing the collection and making it available to researchers in the future. One day was also devoted to an informal symposium where participants gave talks on a wide variety of topics, ranging from 15 minutes to a 1-hour gab-fest by Dave Johnson. Nocturnal activities following each day's workshop featured incredible culinary offerings at local pubs, including copious quantities of beer and sake.

From: Tim Targett, University of Delaware

A recent publication:

Brady, D.C., T.E. Targett, and D.M. Tuzzolino. 2009. Behavioral responses of juvenile weakfish (*Cynoscion regalis*) to diel-cycling hypoxia: swimming speed, angular correlation, expected displacement, and effects of hypoxia acclimation. *Canadian Journal of Fisheries and Aquatic Sciences* 66(3):415-424.

§

Western Region

Dan Margulies

From: James Hobbs, Interdisciplinary Center for ICP-MS, University of California - Davis

Trans-generational Marking of an Endangered Fish: An Attempt to Alleviate Research Impacts on Take in the State Water Projects.

The delta smelt *Hypomesus transpacificus* (Figure 1), endemic to the San Francisco Bay-Delta has recently been provisionally up-listed from federally threatened to endangered status (OCAP Biological Opinion USFWS 2008). New restrictions on freshwater exports to minimize the mortality associated with export activities

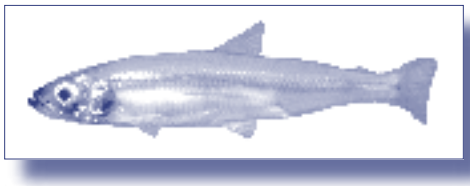

Figure 1. Adult delta smelt Hypomesus transpacificus *(65 mm fork length).*

was required in the new biological opinion from the US Fish and Wildlife Service. A multiagency programmatic effort co-funded by the CALFED Science Program and the Interagency Ecological Program to use a mark–recapture study of adult reproductive stage delta smelt to assess the efficacy of fish screens to protect fish was halted to due potential increase in take of progeny from the experiment. To alleviate any potential complications with artificially increased take of juvenile delta smelt during the spring 2009 season, a means by which the progeny of experiment fish can be rapidly identified so that pumping rates and take could be managed real-time was needed

For years, fishery biologists have used elevated strontium concentrations in natal regions of otoliths to determine the life-history type of the mothers, e.g. steelhead trout (Zimmerman 2005). The chemical composition of the water a fish occupies can be incorporated into the otolith. Thus, if fish reside in water masses with different chemical compositions, those properties will be reflected in otolith composition (Campana 1999; Bath et al. 2000; Kraus and Secor 2004; Zimmerman 2005). Past research has demonstrated that, due to the greater concentration of strontium present in sea water compared with most river systems, otolith strontium concentrations are greater during seawater residence (Secor et al. 1995; Secor et al. 2001; Kraus and Secor 2004). Therefore, otolith strontium (Sr/Ca ratio) can often be used to discriminate between freshwater and estuarine/ocean residence in diadromous fishes.

Now it is also possible to trans-generationally mark the progeny of mothers by direct exposure of the mother in water or injection into the peritoneal cavity to elevate element concentrations or create unique isotopes signatures in progeny otolith primordial (Thorrold et al. 2002, Shippentower 2007). In this study we examined three groups of anesthetized fish, chosen based on external examination of reproductive stage, and respectively injected with: 1 cm^3 per 500 g wet mass of an isotonic saline solution (~1% salinity as control), 1 cm^3 per 500 g wet mass of low (15 g/L treatment) and 1 cm^3 per 500 g wet mass of high (30 g/L treatment) of strontium chloride hexahydrate. In vitro fertilization was accomplished through manual expression of gametes in a subset of the fish from each treatment. Embryos will incubate in flow-through, column-style incubators. Upon hatching, larvae were moved to 70-L black tanks and reared at the University of California - Davis, Fish

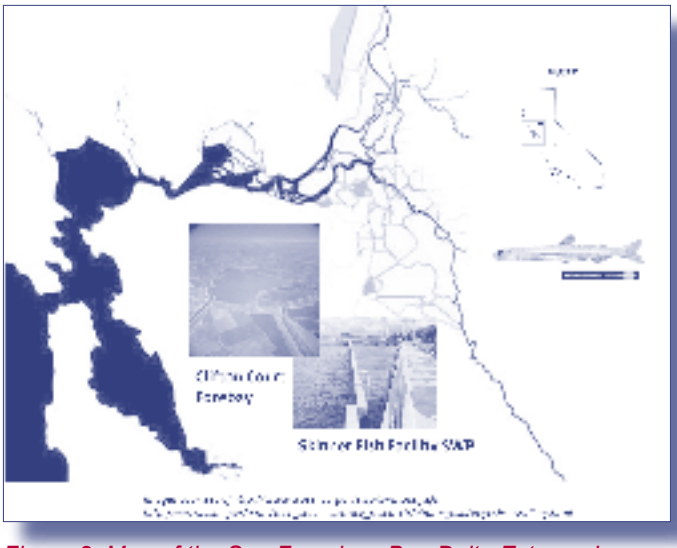

Figure 2. Map of the San Francisco Bay-Delta Estuary. Images of Clifton Court Forebay and the Skinner Fish Facility located in the south delta, and an image of a 27mm delta smelt collected at the Federal fish salvage facility.

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Western Region...cont'd from p. 3

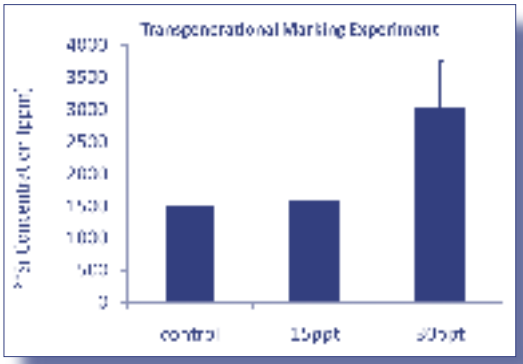

Figure 3. Plot of mean ± 3 sigma SE 88Sr concentrations from 20 individual fish from each of three treatments (control 1% saline solution, a low Sr dose 15ppt or g/L and high Sr dose 30ppt or g/L).

Conservation and Culture Laboratory for about 3 months to an approximate size of 15-20 mm standard length

Elemental concentrations of strontium were analyzed with laser ablation-inductively coupled plasma mass spectrometry (LA-ICP-MS) (Agilent 7200a quadrapole ICP-MS, coupled with a Nd:Yag, New Wave, UP 213 laser ablation) at the UC Davis Interdisciplinary Center for Plasma Mass Spectrometry (see the website for a list of services at icpms.ucdavis.edu). Spots near the core of the otoliths are quantified at a spot diameter of 20 mm, with the laser pulsing at 5 Hz, for a dwell time of 30 seconds. Data are collected in a time-resolve mode for a total of 90 seconds. Background gas signal is collected for 30 seconds prior to the sample signal. The isotope of interest ^{88}Sr, was background corrected, ratioed to an internal standard (^{45}Ca), and standardized using NIST 612 glass standard (National Institute of Standards and Technology- U.S. Department of Commerce).

The high dose of strontium (30 g/L) exhibited significantly elevated concentrations of ^{88}Sr relative to the low dose (15 g/L) and the saline control ($n = 20$ per treatment) (one-way ANOVA, $F_{2,58} = 54.96$, $P < 0.01$). The low dose was not significantly different from the control and thus not an appropriate dose for transgenerational marking. In a previous study we determined that the Sr/Ca ratio of wild larval delta smelt could be used to identify the natal origins. Wild larvae from Sacramento River and San Joaquin Rivers exhibited a natal strontium concentration (1200-1800 ppm; Sr/Ca 1.5-2.2 mmol/mol), which was similar to the control treatment in the present study (Hobbs et al. 2007). Therefore, the 2-fold increase in ^{88}Sr concentration in the high dose treatment will provide a unique mark that will allow our research team to effectively determine the origin (hatchery/wild). The next phase of this research will examine the ^{88}Sr concentration in otoliths from fish collected in the State Water Project Skinner Fish Facility on a near real-time (<24h) basis to determine if transgenerationally marked progeny from the Calfed-IEP project examining screening efficiency indeed artificially increased take at the State Water Project.

Bath, G.E., S.R. Thorrold, C.M. Jones, S.E. Campana, J.W. McLaren, and J.W.H. Lam (2000) Strontium and barium uptake in aragonitic otoliths of marine fish. *Geochimica Cosmochimica Acta* 64:1705-1714.

Campana, S.E. (1999) Chemistry and composition of fish otoliths: Pathways, mechanisms, and applications. *Marine Ecology Progress Series* 188:263-297.

Campana, S.E., and C.M. Jones (1992) Analysis of otolith microstructure data, p. 73-100. In Stevenson, D.K., and S.E. Campana [Eds.] *Otolith microstructure examination and analysis*. Canadian Special Publication of Fisheries and Aquatic Sciences.

Hobbs, J.A., W.A. Bennett, J.E. Burton and M.A. Gras. (2007). Classification of larval and adult delta smelt to nursery areas by use of trace elemental fingerprinting. *Transactions of the American Fisheries Society*. 136:518-527.

Kraus, R.T., and D.H. Secor (2004) Incorporation of strontium into otoliths of an estuarine fish. *Journal of Experimental Marine Biology and Ecology* 302:85-106.

Schroder, S.L., C.M. Knudsen, and E.C. Volk. 1995. Marking salmon fry with strontium chloride solutions. *Canadian Journal of Fisheries and Aquatic Sciences*. 52:1141-1149.

Secor, D.H., A. Henderson-Arzapalo, and P.M. Piccoli (1995) Can otolith microchemistry chart patterns of migration and habitat utilization in anadromous fishes? *Journal of Experimental Marine Biology and Ecology* 192:15-33.

Secor, D.H., J.A. Rooker, E. Zlokovitz, and V.S. Zdanowicz (2001) Identification of riverine, estuarine, and coastal contingents of Hudson River striped bass based upon otolith elemental fingerprints. *Marine Ecology Progress Series* 211:245-253.

Shippentower, G.E. (2007) Development of a Progeny Marker for Steelhead. Master's thesis, Oregon State University.

Thorrold, S.R., G.P. Jones, M.E. Hellberg, R.S. Burton, S.E. Swearer, J.E. Neigel, S.G. Morgan and R.R. Warner (2002). Quantifying larval retention and connectivity in marine populations with artificial and natural markers. *Bulletin of Marine Science*. 70(1) Suppl. 291-208.

Zimmerman, C.E. (2005) Relationship of otolith strontium-to-calcium ratios and salinity: Experimental validation for juvenile salmonids. *Canadian Journal of Fisheries and Aquatic Sciences* 62:88-97. §

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

which formed the main task, we tried to answer some other questions about the distribution of fish larvae near the coral reef in the area. Although many theories have been proposed to explain the dispersal and distribution patterns of the early life history stages, the major controlling effects were yet to be determined. We tried to find out which factors were most important in causing the larval fish to follow a particular pattern of distribution. Many factors were examined including the exposure and the distance from the shore. It was found that larvae in the exposed offshore sites were more diverse than that in the sheltered inshore sites. Most larvae in the sheltered sites were large and in postflexion stages, whereas larvae in the exposed sites were small and in preflexion stages (Fig.1).

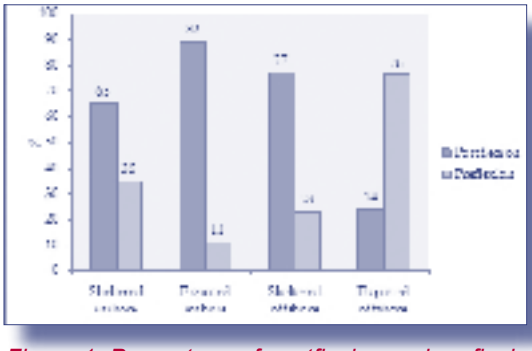

Figure 1. Percentage of postflexion and preflexion larvae at different sites

The influence of some ecological features of the adult fishes, the spawning modes of the adults, the depth and the habitat from which the adults came were also investigated. The adult spawning mode was the main factor influencing the distribution of the larvae between inshore and offshore sites. There were two larval fish assemblages; the nearshore assemblages were composed mainly of larvae that hatch from demersal spawners, and the offshore pattern is formed mainly of larvae that hatch from pelagic eggs. The most abundant demersal spawners in the inshore area included Atherinidae, Blenniidae, Gobiidae and Clupeidae, whereas the most abundant in the offshore area were Acanthuridae and Holocentridae. Some coral reef fish larvae such as Scaridae, Pomacanthidae, Acanthuridae, and Tetraodontidae were completely absent from the inshore area, although their adults are very common.

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

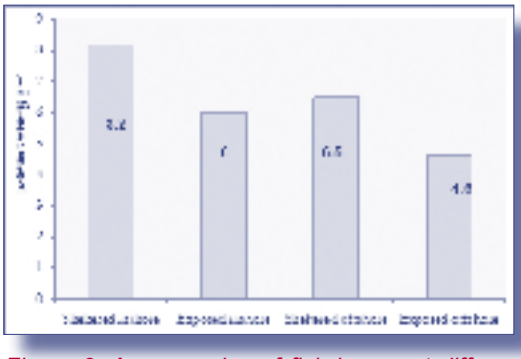

Figure 2. Average size of fish larvae at different sites

Although these two studies on the larval fishes in the Egyptian Red Sea have identified larvae of about 50 fish families, there is still much to do. Of the 1,249 species recorded in the Red Sea, larvae of less than 100 species were identified.

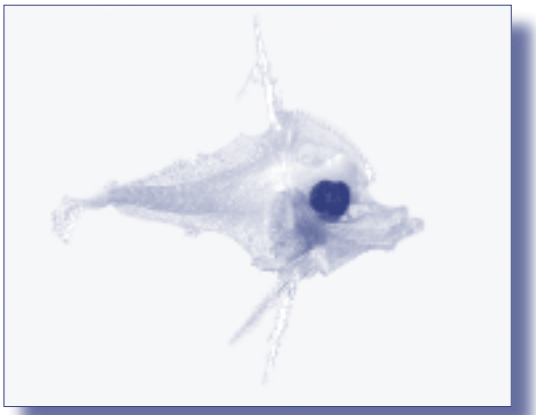

Figure 3. Acanthurid larva (may be Naso species, Hurghada, July 2005- plankton net).

The larvae that were restricted to the offshore sites included:

Priacanthus hamrur, Sargocentron sp. Scaridae, Acanthuridae, *Benthosema pterotum, Pomacentrus* sp. 3, *Centropyge multispinis,* Lutjanidae 1, Lutjanidae 2 Microdesmidae, *Myripristis murdjan, Naso* sp. (Fig. 3), *Paracaesio sordidus,* Callionymidae, Engraulidae, *Epinephelus* sp., *Pseudoanthias* sp., Tetraodontidae, Mugilidae, and Synodontidae.

The larvae which were restricted to the inshore sites included:

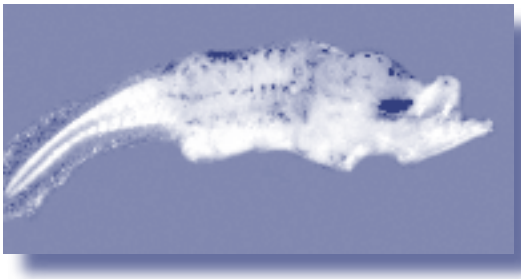

Figure 4. Pomacanthid larva (Hurghada, August, 2005, plankton net).

Abudefduf saxatilis, Acanthopagrus bifasciatus, Apogon taeniatus, Cheilodipterus quinquineatus, Diodon hystix, Fistularia commersoni, Gerres oyena, Haemulidae, *Hyporhamphus gamberur,* Labridae, *Ostraciion cubicus, Petroscirtes ancylodon, Pempheris vanicolensis, Platybelone argalus, Pomacentrus* sp. 1, *Pomacentrus* sp. 2, Syngnathidae, *Trachinotus* sp., and Tripterygiidae. §

President's messge...cont'd from p. 1

and a threadbare general fund? The answer I come to is that there has to be and I view this as a major task for me and the remainder of the Executive Committee in the coming year.

One step is to disentangle the finances of the ELHS and the LFC. For the past several meetings, the Section has acted as a middleman for the LFC between credit card charges made on the LFC website and the local committee. While convenient for the local committee, this has made managing the Section finances difficult and I applaud Betsy Laban our Treasurer for patiently working through the morass. Staring with the 2009 meeting and hopefully into the future, the LFC will be fully self-supporting. "Up-front funds" can be provided by the Section, monies generated by an LFC beyond expenses, including repayment of "up-front funds," are contributed to the Section, but the finances of the LFC and ELHS should be kept separate.

A second step is to generate a clear policy on the funding of the Sally Richardson Award. The award has its own account. Money is raised at the LFC through a raffle – I won a very nice book at the raffle in Sandy Hook in 2001. Typically the raffle brings in more money than the award pays out so the amount of money in the account has been growing. At the 2008 Business Meeting we had a "constructive exchange" on what the financial goals of this account should be – we didn't come to an answer, but I think we identified the issues. After the meeting, the ExCom formed an Ad Hoc Committee to consider the future of the Sally Richardson

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Correction

On page 7 of the previous issue of *SAGES* (volume 30, issue 1), the report on the behavioral effects of low levels of thiamine in salmonine alevins neglected to mention that the work was done by Jeff Allen. This was my fault and I thank Ed Roseman for pointing out the error to me. The work should have been described as follows:

"Recent behavioral studies of salmonine alevins conducted by Jeff Allen, a fishery biologist at the GLSC, suggest that sublethal, long term effects (concerning both prey capture and predator avoidance) are associated with low levels of thiamine. An examination of altered brain histomorphology between thiamine replete and depleted alevins may provide a possible explanation for this altered behavior. The objective of this study is to develop a method to quantify morphological differences of the brain between thiamine-deficient and thiamine-replete swim-up lake trout. 3-D models of alevin lake trout brains are generated using plastic embedded, serial sections that permit high-resolution analysis. The models are constructed using 1-micron-thick sections taken every 10 microns. These 3-D models can then be examined to estimate volumetric and morphological relationships between the two groups of lake trout. 3-D reconstructions may also be applied to specific organs of other larval species to approach various questions, including the effects of contaminants."

My apologiest to Jeff.

– Lee Fuiman, Editor

Upcoming Events

33rd Larval Fish Conference Presentation Schedule

Thursday, July23, 2009

8:30 a.m. – 12:00 p.m. Plenary Session (Grand Ballroom I)

ELHS/LFC CONNECTIVITY SYMPOSIUM I (Grand Ballroom I) Moderator: R WARNER

1:30 p.m. Introduction

1:45 p.m. Philip Munday

Ocean Temperature, Global Warming And Population Connectivity Of Tropical Marine Fishes

2:00 p.m. Susan Sogard

Temperature Effects on Early Pelagic Stages of Warm Temperate Fish Species and Consequences for Connectivity Patterns

2:15 p.m. Ione Hunt von Herbing

Connectivity and Conservation Physiology in Cold-Oceans

2:30 p.m. Jelle Atema, Gabriele Gerlach, Vanessa Miller-Sims, Jana Deppermann, Julia Halverson, Michael Kingsford

Olfactory Imprinting Can Lead to Small Scale Population Structure

2:45 p.m. Robert Cowen, Su Sponaugle, Joel Llopiz

Perception Versus Reality: Does Larval Biology Differ with Latitude?

ELHS/LFC CONNECTIVITY SYMPOSIUM I (Grand Ballroom I) Moderator: J CASELLE

3:30 p.m. Jeffrey Leis

How Do Biogeography and Study Species Influence Connectivity?

3:45 p.m. Alan Shanks

Pelagic Larval Duration and Dispersal Distance

4:00 p.m. Russ Vetter

Darwin's Hammer: Larval Mortality and Population Persistence in an In-Temperate World

4:15 p.m. Ian Bradbury, Sophie Huber, Brent Higgins, Sharen Bowman, Ian Paterson, Paul Snelgrove, David Hardie, Jeffery Hutchings, Paul Bentzen

Ocean Temperature Determines Dispersal Potential and Adaptive Connectivity in a North Temperate Marine Fish

4:30 p.m. Michael Miller

Perspectives on the Population Connectivity of Tropical Diadromous Fishes

4:45 p.m. Robert McDowall

Diadromy, Recruitment, Expatrial Dispersal and Colonisation in the Fish Faunas of Island Streams

5:00 p.m. Discussion

Friday, July 24, 2009

ELHS/LFC CONNECTIVITY SYMPOSIUM II (Galleria South) Moderator: J LEIS

8:00 a.m. Jonathan Hare

Population Connectivity and Temperate Nursery Habitats: Are Estuaries and Seagrasses So Special?

8:15 a.m. Geoffrey Jones

Dispersal of Coral Reef Fish Larvae: Scales of Self-recruitment and Connectivity

8:30 a.m. Claire B Paris, Jean-Olivier Irisson, Jelle Atema, Michael Kingsford, Gabriele Gerlach, Cedric M Guigand

In-situ Response of Pelagic Coral Reef Fish Larvae to Reef Odor

8:45 a.m. Stephen Swearer

Does Landscape Context Influence the Magnitude of Connectivity in Marine Metapopulations?

9:00 a.m. Ivan Nagelkerken

Intermediate Habitat Use by Post-Settlement Tropical Coastal Fishes

9:15 a.m. Jennifer Caselle, Robert Warner

Tropical vs. Temperate Differences in Dispersal: An MPA Perspective

ELHS/LFC CONNECTIVITY (Galleria South) Moderator: R WARNER

10:00 a.m. Discussion

10:15 a.m. Jeffrey Shima, Stephen Swearer

Demographic Connectivity in a Temperate Reef Fish Metapopulation: The Critical Role of the Dispersal Matrix

10:30 a.m. Scott Holt, Greg Stunz

Effects of Re-Opening a Tidal Inlet on Fish and Crustacean Recruitment into the Laguna Madre, Texas

10:45 a.m. John Hyde, Carol Kimbrell, Eric Lynn

Examination of Population Connectivity in Sardine (*Sardinops sagax caeruleus*) in the North East Pacific using Microsatellite Markers

11:00 a.m. Lu Guan, John Dower, Skip McKinnell

Quantifying Mesoscale Patterns of Spatiotemporal Variability in the Ichthyoplankton Community of the Strait of Georgia

11:15 a.m. Geoffrey Cook

Population Connectivity of a Temperate Rocky Reef Pomacentrid: How do Temperate Damsels Compare?

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Conference schedule...cont'd from p. 6

11:30 a.m. Philipp Neubauer, Jeffrey Shima, Steven Swearer

Sources and Patterns of Variation in Natal Otolith Trace Element Signatures: Experimental Insights and Statistical Considerations

ELHS/LFC CONNECTIVITY II (Galleria South) Moderator: J CASELLE

1:30 p.m. Daniel Cooper, Janet Duffy-Anderson, William Stockhausen, Phyllis Stabeno, Christina Jump

Northern Rock Sole (*Lepidopsetta polyxystra*) Connectivity between Larval and Juvenile Stages Along the Alaska Peninsula in Relation to Currents and Hydrography

1:45 p.m. Miriam Doyle

Contrasting Patterns of "Connectivity," and Associated Recruitment Processes, among Early Life History Dynamics of Selected Fish Species in the Gulf of Alaska

2:00 p.m. Ivan Mateo, Edward Durbin, Richard Appeldoorn, Aaron Adams, Richard Kingsley, Peter Swart, Francis Juanes

Variation in Otolith Microchemistry Fingerprints of French Grunt (*Haemulon flavolineatum*) and Schoolmaster (*Lutjanus apodus*) in Nursery Habitats in Puerto Rico and St. Croix (USVI)

2:15 p.m. Gabriele Gerlach, Jelle Atema, Michael Kingsford

Dynamic of the Genetic Structure Indicates Post-Settlement Selection

2:30 p.m. Michael Berumen, Serge Planes, Geoff Jones, Glenn Almany, Simon Thorrold

Connectivity and Self-recruitment of Coral Reef Fishes in a Marine Reserve Network in Kimbe Bay, Papua New Guinea

2:45 p.m. Joel Llopiz, Robert Cowen

Variable Trophic Strategies of Planktonic Coral Reef Fish Larvae: Shining Some Light into the 'Black Box' of Connectivity Research

3:00 p.m. J. Derek Hogan, Roger Thiessen, Peter Sale, Daniel Heath

Self-recruitment, Dispersal and Fluctuating Connectivity among Populations of a Coral Reef Fish

3:15 p.m. Mark Christie, Christopher Stallings, Darren Johnson, Mark Albins, Jim Beets, Brian Tissot, Stephen Thompson, Yanli Jia, Mark Hixon

Larval Retention and Population Connectivity in Two Coral-Reef Fishes

3:30 p.m. Klaus Huebert, Su Sponaugle, Robert Cowen

Effects of Vertical Migrations by Pelagic Reef Fish Larvae on Larval Transport

3:45 p.m. Su Sponaugle, Joel Llopiz, Lisa Havel, Tauna Rankin

Spatial Variation in Larval Growth and Gut Fullness in a Coral Reef Fish: Implications for Population Connectivity

4:00 p.m. Discussion

4:00-6:00 p.m. Poster Session I (Exhibit Hall)

Saturday, July 25, 2009

ELHS/LFC GENERAL ICHTHYOLOGY I (Broadway I & II) Moderator: LEE FUIMAN

8:00 a.m. Jeffrey Leis, Jean-Olivier Irisson, Claire Paris, Michelle Yerman

With a Little Help from your Friends: Group Navigation in Larval Reef Fish

8:15 a.m. Tauna Rankin, Su Sponaugle

Behavioral Basis for Selective Mortality in a Coral Reef Fish

8:30 a.m. Lee A. Fuiman, Mark Meekan, Mark McCormick

Behavioral Traits that Determine Mortality of Newly Settled Reef Fish Larvae

8:45 a.m. Evan D'Alessandro, Su Sponaugle

Spatio-Temporal Distribution and Growth of Larval Snapper (Lutjanidae) along a Transect across the Straits of Florida

9:00 a.m. Kyle Adamski, Jeffrey Buckel, Gretchen Bath-Martin, Chris Taylor, Kyle Shertzer

Developing an Index of Abundance for Gag Grouper in North Carolina: an Analysis of Larval and Juvenile Catch

9:15 a.m. Alfredo F. Ojanguren, Lee A. Fuiman

Developmental Plasticity of Antipredator Responses of Red Drum Larvae

ELHS/LFC GENERAL ICHTHYOLOGY II (Broadway I & II) Moderator: C GRIMES

10:00 a.m. Myron Peck, Marc Hufnagl, Mark Dickey-Collas, Richard Nash, Thomas Pohlmann

Climate-driven Changes in the Survival and Growth of Marine Fish: Individual-based Model Estimates for Larval Herring (*Clupea harengus*) in the North Sea

10:15 a.m. Katsumi Tsukamoto

Ontogenetic Change of Buoyancy in Eel Leptocephali: An Adaptation for Life in the Ocean Surface Layer

10:30 a.m. Thomas Hurst, Benjamin Laurel, Stephan Munch

Ontogenic, Thermal, and Cohort-specific Effects on Growth Rates of Early Life Stages of Pacific Cod

10:45 a.m. Ann C. Matarese, Morgan S. Busby, Deborah M. Blood

Identification of Larvae and Early Juveniles of Pricklebacks (Perciformes: Stichaeidae) in the Northeastern Pacific Ocean and Bering Sea

11:00 a.m. Dominique Robert, Stéphane Plourde, Martin Castonguay, Jeffrey A. Runge

Importance of Prey Field Definition for the Assessment of the Relationship Linking Year-Class Strength to Prey Availability during the Early Larval Stage of Marine Fish

...continued on p. 9

Publications

Available now: Manual of recommended practices for modelling physical – biological interactions during fish early life

Edited by Elizabeth W. North, Alejandro Gallego, and Pierre Petitgas, Jr.

ICES Cooperative Research Report No. 295. 111 pp. 2009. ISBN 978–87–7482–060–4.

This important collection contains chapters on:

Hydrodynamic models; Particle tracking; Biological processes; Adaptive sampling; Connectivity; Recruitment prediction; Looking to the future: Recommendations and research needs.

Available for free download at www.ices.dk/products/cooperative.asp. §

Available now: Plankton. A Guide to Their Ecology and Monitoring for Water Quality

By Iain M. Suthers & David Rissik

Published by CSIRO Publishing, 272 pp. 2009. ISBN: 9780643090583. $49.95

Plankton serves as a wonderful tool for measuring water quality. Many local councils and water quality managers collect phytoplankton and zooplankton in response to the increasing incidence of algal (phytoplankton) blooms in rivers and estuaries, however, a lack of consistency and scientific rigor in the methodologies used often results in unresolved outcomes. While some guidelines have been developed for the collection and monitoring of freshwater algae (Algal Watch), there are differences between the methods and protocols used to sample estuaries and freshwater systems as well as those used to sample zooplankton.

This practical book gives an introduction to the biology and ecology of plankton and its use as a tool for monitoring water quality. It explores the ecology of plankton, its associated environmental and water quality issues, and its importance as an environmental indicator. A chapter on best practice in sampling and monitoring details how to design, implement and conduct meaningful phytoplankton and zooplankton monitoring programs in marine and freshwater habitats. It gives overviews of the major freshwater and coastal phytoplankton and zooplankton groups and outlines their associated environmental issues and the management implications. A select number of real-life case studies demonstrate the use of plankton for identifying and monitoring water quality issues.

Features:

- Explains the role of plankton in aquatic ecosystems and its usefulness as a water quality indicator
- Updates and details best practice in methodology for plankton sampling and monitoring programs
- Demonstrates how to analyse and interpret the results of sampling programs in terms of management strategies
- Brings together widely-scattered information on freshwater and coastal phytoplankton and zooplankton and provides a list of up-to-date references §

Available now: Early Life History of Marine Fishes

By Bruce S. Miller & Arthur W. Kendall, Jr.

Published by University of California Press. 2009.

The life cycles of fishes are complex and varied, and knowledge of the early life stages is important for understanding the biology, ecology, and evolution of fishes. In *Early Life History of Marine Fishes*, Bruce S. Miller and Arthur W. Kendall Jr., bring together in a single reference much of the research available and its application to fishery science — knowledge increasingly important because, for most fishes, adult populations are determined at the earliest stages of life. Clear and well written, this book offers expert guidance on how to collect and analyze larval fish data and on how this information is interpreted by applied fish biologists and fisheries managers.

Available at www.ucpress.edu/books/pages/9317.php with a 20% discount. §

Free California ELH Book

Copies of a *Guide to the Early Stages of Fishes in the California Current Region* are available free (with the cost of shipping). Order forms for the book can be found at www.allenpress.com/pdf/cofi/COFI_Form.pdf.

This is a comprehensive guide to the eggs, larvae and juveniles of fishes found in the California Current and adjoining regions, including shorefishes, oceanic, mildwater and deep-water benthic species. The introductory section includes background, methods, summaries of ordinal characters and suggestions on how to use the guide. The book includes chapters on 151 families of fishes in 25 orders. Also, includes information on taxonomy, zoogeography, morphology, and ecology of adults, spawning modes, general features of the eggs and larvae, and tables listing meristics and specimens used to describe ontogenetic stages of each species.

The book presents full treatments for more than 483 species consisting of two facing pages, the left page contains the description and the right page is a full plate of illustrations of ontogenetic stages. Each description page includes:

- A meristic table with range and usual counts for dorsal, anal, pectoral, pelvic, principal and procurrent caudal fin rays, precaudal and caudal vertebrae, plus counts for gill rakers and branchiostegal elements;
- General life-history information, including geographic range, habitat, spawning season, and early life-history pattern;
- Detailed information on early life-history stages, including diagnostic features of eggs and larvae, size at ontogenetic sequence, and pigmentation;
- A morphometric table for larvae, giving ranges and means of eight or more characters for six developmental stages from yolk-sac to juvenile;
- A list of references relevant to the described species.

Each plate of illustrations includes:

- Illustrations of preflexion, flexion and postflexion larvae for most species; eggs, yolk-sac larvae, transitional specimens, and juveniles when available; typically, each plate has 4-6 illustrations. §

Early Larval Fish Conference Proceedings Available Online

The ELHS-funded project to digitize the proceedings of the first five annual Larval Fish Conferences has been completed. Lee Fuiman arranged for The University of Texas Libraries to create searchable PDF files of the five conference proceedings from his personal copies of those documents. The University of Texas Libraries has now made those documents available to everyone through its Digital Repository at repositories.lib.utexas.edu/handle/2152/6. The files are also available on the ELHS website. §

Other Recent Publications

Fish Larval Physiology. R.N. Finn and B.G. Kapoor. Published by Science Publishers. ISBN: 1578083885. 2008.

Early Stages of Fishes in the Western North Atlantic Ocean: Davis Strait, Southern Greenland and Flemish Cap to Cape Hatteras. Michael P. Fahay. Published by North Atlantic Fisheries Organization.

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

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

Eggs and Larvae of North Sea Fishes. P. Munk and J.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.

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 J.J. 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. (2nd 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 26th Annual Larval Fish Conference. Edited by H.I. Browman and A.B. 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. §

Conference schedule...cont'd from p. 7

11:15 a.m. John Keane, Jeremy Lyle, Francisco Neira

EAC Variability and Spawning of Small Pelagic Fishes: Inferences from Larval Dynamics and Oceanography

11:30 a.m. David Richardson, Jonathan Hare

Does Haddock Egg Predation Decouple the Abundance of Atlantic Herring Larvae from Spawning Stock Biomass on Georges Bank?

11:45 a.m. Churchill Grimes, Edward Houde, Daniel Margulies

The Role of Oceanographic Features in the Reproductive Strategies of Some Scombrid Fishes

12:00 p.m. John E. Olney, G. David Johnson
Larvae of zeiform fishes

ELHS/LFC ECOLOGY I (Broadway I & II)
Moderator: W EKAU

1:30 p.m. Londi Tomaro, Jessica Miller

Survival of Mid-upper Columbia River Spring Chinook Salmon: The effects of Size and Growth during Migration

1:45 p.m. Yuichi Fukunishi, Reiji Masuda, Dominique Robert, Yoh Yamashita

Comparison of UV-B Tolerance among Wild and Hatchery-reared Juveniles in Black Sea Bream (*Acanthopagrus schlegeli*) and Red Sea Bream (*Pagrus major*)

2:00 p.m. Alan Shanks, Catherine Pfister

Annual Recruitment of Three Species of Tidepool Fishes is Driven by Variation in Springtime Coastal Hydrodynamics

2:15 p.m. Jenna Krug, Mark Steele

A Test for Correlated Recruitment of Predator and Prey Species of Kelp Forest Fishes

2:30 p.m. Rita Borges, João V. Medeiros, Ester A. Serrão, Emanuel J. Gonçalves

Tidal and Vertical Distribution of Nearshore Fish Larval Assemblages at a Temperate Rocky Shore

2:45 p.m. Gerardo Aceves-Medina, Ricardo Palomares-García, Jaime Gómez-Gutiérrez, Carlos Robinson, Ricardo Javier Saldierna-Martínez

Multivariate Characterization of Spawning and Larval Environment of Small Pelagic Fishes in the Gulf of California

3:00 p.m. Ana Faria, Alfredo Ojanguren, Lee Fuiman, Emanuel Gonçalves

Ontogeny of Swimming Behavior of Two Temperate Reef Fishes, *Lepadogaster lepadogaster* and *Lepadogaster purpurea* (Gobiesocidae)

3:15 p.m. Emilio A. Inda-Diaz, Laura Sanchez-Velasco, Miguel F. Lavin

Three-dimensional Distribution of Fish Larvae Around a Surface Front in the Gulf of California

3:30 p.m. Frank Hernandez Jr, Sean Powers, William Graham

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Conference schedule...cont'd from p. 9

Jellyfish Predation on Ichthyoplankton in the Northern Gulf of Mexico: Estimating the Impact on Recruitment and Fisheries

4:00-6:00 p.m. Poster Session II (Exhibit Hall)

Sunday, July 26, 2009

ELHS/LFC HYPOXIA (Broadway I & II) Moderator: L CIANNELLI/D BREITBURG

8:00 a.m. Lorenzo Ciannelli, Denise Breitburg

Hypoxia and Fish Early-life Stages: A Comparison between Human-enriched and Upwelling-driven Systems

8:30 a.m. Angela Johnson, Lorenzo Ciannelli

Effects of Hypoxia on Ichthyoplankton and Micronekton Communities Off the Oregon and Washington Coasts

8:45 a.m. Lanora Lang, Frank Hernandez, Jr., Jonathan Hare, John Govoni

The Effects of Hypoxia on the Vertical Distribution of Larval Fishes in the Northern Gulf of Mexico

9:00 a.m. Vivian Buehler, Vera Maria Almeida-Val, Adalberto Val

Hypoxia in a Changing World - What Can we Learn from Amazon Fishes

9:15 a.m. Kevin Craig

Developing Mechanistic Links Between Hypoxia and Juvenile Finfish Bycatch in the Gulf of Mexico

9:30 a.m. Werner Ekau, Anja Kreiner, Stefanie Bröhl
A Change in the Larval Fish Community of the Northern Benguela Induced by the Extension of the Oxygen Minimum Layer

ELHS/LFC ECOLOGY II (Broadway I & II) Moderator: S ACEVEDO

10:00 a.m. Mari Kuroki, Jun Aoyama, Michael Miller, Katsumi Tsukamoto

The Role of the Leptocephalus Larva in the Evolution of Anguillid Oceanic Migrations

10:15 a.m. Elvira Morote, M. Pilar Olivar, Leonardo Castro, Fernando Villate, Ibon Uriarte

Feeding Ecology of Two Hake Larvae: *Merluccius merluccius* from NW Mediterranean and *Merluccius gayi* from Central Chile. Ontogeny versus Environmental conditions

10:30 a.m. Benjamin Laurel, Thomas Hurst, Lorenzo Ciannelli

An Experimental Examination of Temperature Interactions in the 'Oscillation-control' and 'Match-mismatch' Hypothesis for Pacific Cod Larvae

10:45 a.m. Philip Munday, Jennifer Donelson, Danielle Dixson

Ocean Acidification Affects Larval Growth and Olfactory Discrimination of a Marine Fish

11:00 a.m. Shin Nakayama, Kenneth Rose, Lee Fuiman

Intraspecific Competition among Early Life Stages and the Optimal Spawning Strategy of Red Drum

11:15 a.m. Andrew Eller, Nicola Hillgruber, Lisa Eisner

Abundance and Distribution of Larval Eulachon (*Thaleichthys pacificus*) in Berners Bay, Alaska in Relation to Physical Factors

11:30 a.m. Emanuel Gonçalves, Rita Borges

Interannual Fluctuations in the Structure of Temperate Reef-Fish Larval Assemblages at the Arrábida Marine Park

ELHS/LFC ECOLOGY II/CONDITION (Broadway I & II) Moderator: L COPEMAN/B LAUREL

1:30 p.m. Silvana Acevedo, Greg P. Jenkins, Julia Kent

The Vertical and Horizontal Distribution of Fish Larvae in Central Bass Strait, South-Eastern Australia

1:45 p.m. Ashwin Sreenivasan, Ron Heintz, Thomas Hurst

Differences between Observed Growth and a Physiological Growth Index (RNA/DNA Ratio) in Larval Pacific Cod (*Gadus macrocephalus*) and Walleye Pollock (*Theragra chalcogramma*) at Different Temperatures

2:00 p.m. Ron Heintz, Nicola Hillgruber, Elizabeth Siddon

Growth and Energy Allocation in Larval Pollock (*Theragra chalcogramma*) from the Bering Sea

2:15 p.m. David Stormer, Francis Juanes

Cohort Structure, Growth, and Condition of Juvenile Bluefish *Pomatomus saltatrix*in the Hudson River Estuary, New York

2:30 p.m. Kelton McMahon, Marilyn Fogel, Travis Elsdon, Simon Thorrold

Patterns in Carbon Isotope Fractionation of Amino Acids Between Diet and Consumer in a Model Fish Species

2:45 p.m. Darren Johnson, Mark Christie, Jessica Moye, Mark Hixon

Quantifying Genetic and Environmental Variation in Larval Quality for a Marine Fish

3:00 p.m. Michael Davis

Reflex Impairment is an Index for Larval and Juvenile Fish Vitality and Mortality Potential

3:15 p.m. Louise Copeman, Christopher Parrish, Robert Gregory

Increased Terrestrial Dietary Input and Decreased Lipid Storage in Juvenile Cod (*Gadus morhua*) during Settlement into Eelgrass Habitat

3:30 p.m. Elaine Caldarone, Sharon MacLean, Beth Sharack, Shayla Williams, John McCarthy, Vincent Guida, Brian Beckman

Potential Non-lethal Methods for Estimating Condition and Growth Rates in Juvenile Fish

3:45 p.m. Jin Gao, Stephan Munch

Parental Contributions to Larval Growth in Atlantic Silversides: a Heritability Study

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Conference schedule...cont'd from p. 10

4:00 p.m. Richard Brodeur, Cassandra Benkwitt, Elizabeth Daly, Marisa Litz

Lipids and Fatty Acids of Juvenile Salmon and their Prey in Coastal Waters

4:15 p.m. Christopher Chambers

A Method for Comparing Alternative Measures of Fish Condition and other Qualitative Indices

4:30 p.m. John Govoni

Feeding on Protists and Particulates by the Leptocephali of the Worm Eels *Myrophis* spp. (Lotken 1852) (Teleostei, Anguilliformes, Ophichthidae), and the Potential Energy Contribution of Large Aloricate Ciliates

4:00-6:00 p.m. Poster Session II (Exhibit Hall)

5:00-6:00 p.m. ELHS Business Meeting

President's messge...cont'd from p. 5

Award. The committee consisted of Jeff Govoni (chair), Grace Klein-MacPhee, Ann Matarese, and Bruce Collette. I will present more details of their deliberations at the Business Meeting, but I would like to thank them for their service and I am hopeful that we can implement a sound financial policy for our flagship award.

There are other financial issues that the Section needs to deal with, but here I will address only one more: membership. Section dues through AFS and affiliate membership are our primary source of general revenue and this revenue has been declining. While we were looking for ways to spend our money, our main source of revenue was declining. I am not a business-type, but this isn't good. So how do we increase membership? Taking a page from the leadership 101 book I got at a 2-day training course, I plan to ask you for your ideas. Since I assume that very few people will have read to this point in my message, I will work with the ExCom to develop a questionnaire that will be distributed broadly – to members and non-members. To encourage participation, we will have some kind of drawing. Not sure what, but better than the left over small t-shirts from the Lake Placid meeting. So look for this in your inbox and based on your answers and ideas, we will work to increase membership, thereby increasing our income, thereby increasing our ability to do the types of things the ELHS has become known to do: support student travel, award good work, and produce important early life stage information.

So much for the bleak economic news and moving to something more enjoyable, the LFC will be held in Portland (www.dce.k-state.edu/conf/jointmeeting/schedule.shtml). It will be a great meeting held jointly with the Joint Meeting of Ichthyologists and Herpetologists. Doug Markle is leading an excellent Local Committee to whom we owe our thanks. There will be some great theme sessions, a plethora of contributed talks, the energy of an Ichs and Herps meeting, and the best of Portland to savor. There will also be the Business Meeting. Although probably not the high point, I ask that you attend, bring your ideas and opinions, members and non-members are welcome, and there may even be some door prizes – this time it will be the left over t-shirts from the Lake Placid meeting.

In closing, the Section has spent money on good things. We don't have much left, but we hope to have more. See you in Portland and please answer your questionnaire. §

— Jon Hare, President

Editor's Ramblings

Good Deeds

In his President's Message in this issue of *STAGES*, Section President Jon Hare reminds us of all of the wonderful things we have been able to do for our profession through our organization's financial resources. We charge our members very reasonable, dare I say cheap, annual dues, and we provide so much to our members and to colleagues in our field who have not jointed our ranks. I recall business meetings many years ago when we realized that our fiscal balance was not only "healthy," but growing quite well. We asked the question, "Why are we collecting dues if we are not using them?" The obvious solution would be to reduce the dues, but we realized the amount was already quite low, so there would be little to gain by reducing the dues. Then, we asked the question, "How can we use the funds productively?" Some options were obvious...shore up funding for the Sally L. Richardson Award, provide travel funds for students, provide conference hosts with up-front money, assist the Section President with travel. Then, we started thinking outside the box. For example, we agreed to consider proposals that request subvention for publications that further our field of study. We agreed to create a lifetime achievement award to honor our most influential colleagues. The point is, we dared to do new things.

Jon summarizes our Section's contributions quite nicely. And while he closes his message admitting "bleak economic news," I prefer to reflect on those deliberations years ago with a great deal of pride in our organization. We were willing to think outside the box, to break new ground, all for the betterment of our profession. Yes, we *will* find the middle ground where we can support important new initiatives and innovative projects without depleting our reserves. It will be a matter of careful deliberation.

In order to reach that point, the Section needs your help. Respond to the questionnaire that the Section will be sending you. Input from the membership and colleauges outside the Section is critical to assessing our needs and wishes, and this questionnaire is the best way for our Executive Committee to reach the largest number of people efficiently. Another way you can help is to recruit new members. The total number of members and affiliates grew quickly during the early years of the ELHS, but we have lost members in recent years. It's getting to the point that we risk dropping below the minimum number of copies of *STAGES* being mailed within the United States to take advantage of the very inexpensive postage rates of our bulk mailing permit. Fewer members may actually cost us more to serve! Another way to help is to attend our business meeting. This is where important decisions are made. Would you like to have a say in where a future Larval Fish Conference will be held? That decision is made at the business meeting. Even the decisions officially made by the Executive Committee are influenced a great deal by the opinions expressed by those who attend the business meeting. Those great ideas for spending the healthy balance in the Section's coffers years ago originated in discussions at the business meeting. Bring your ideas to the meeting, let them be heard, and maybe, just maybe, you will be able to reflect proudly on an idea you suggested. I *know* you'll gain a new appreciation for all the good deeds our Section does. §

Newsletter Production Team

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

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Join ELHS

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

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

To become an affiliate member, go to **https://www.larvalfishcon.org/ELHSAffiliate/affiliate-triage.asp** or mail your name, institutional affiliation (if appropriate), mailing address, telephone and fax numbers, e-mail address, and dues (US $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.

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6:30 p.m. ELHS Social (McMenamin’s – Lola’s Room)