

STAGES



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

Volume 33, Number 1

Lee A. Fuiman, Editor

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36th annual

Larval Fish Conference

Call for Abstracts and Registration is Now Open

Dear colleagues,

Welcome to the 36th Annual Larval Fish Conference!

CALL FOR ABSTRACTS: Presentations on all aspects of the early life history of fishes are welcome.

We have developed a topically broad-ranging program and are pleased to announce renowned keynote speakers who will set the tone for each theme session. [click here](#)

VENUE: The conference is being held at one of the finest hotels in Scandinavia. [click here](#)

REGISTRATION: Open now. [click here](#)

ABSTRACT SUBMISSION: Open now and closes on 13 April. [click here](#)

FINANCIAL ASSISTANCE FOR STUDENTS: We are pleased to be able to offer financial assistance to approximately 40 students. [click here](#)

We hope to see you in Bergen this summer! Even if you cannot make it, we would greatly appreciate your informing your national and international networks about this conference. §

Sincerely,

Howard Browman

On behalf of the Local Hosts

President's Message



I'm sure you are all looking forward as I am to this summer's Larval Fish Conference in Bergen, Norway. The dates are July 2-6 and our venerable hosts are Howard Browman and Anne Berit Skiftesvik, from the Institute of Marine Research in Bergen. Those

of us lucky enough to have attended the 2002 LFC have great memories of one of our most elegant meeting venues ever, the wonderful Solstrand Hotel, which will again be our location for lodging, meals, and meeting rooms. Howard and Anne Berit have made some skilled negotiations to keep costs down, and the resulting registration and combined lodging/meals package are well within the bounds of our usual meeting fees. For students, our hosts have arranged an amazing deal of free lodging and free registration for 40 students. In addition, \$8000 of funding is available

to support travel by students. This is a separate source that requires an application directly to Fred Scharf, the Section's student travel coordinator. The deadline for both of these applications is March 30. If you know any students that might wish to attend the meeting, let them know soon about these opportunities. They will need to be ELHS members and present a paper/poster at the meeting to qualify for a grant. And, for the first time, our esteemed retired members will have their registration fees waived, a special nod of appreciation for their contributions over the years. For all presenters, the deadline for abstract submission is April 30. Several intriguing theme sessions are planned, including the following:

- *Assessing the relative contribution of different sources of mortality in the early life stages of fishes.* Organized by [Richard Nash](#), [Audrey Geffen](#) and [Guðrún Marteinsdóttir](#).

...continued on p. 8



ELHS Back Then

10 years ago: Bob Hoyt steps down after 9 years as ELHS Historian/Archivist.

15 years ago: Sally L. Richardson award has largest competition to date: 32 entries.

30 years ago: 6th LFC at Chesapeake Biological Laboratory attracts record 150 registrants, 26 papers, 15 posters, and 5 workshops.

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

May 4, 2012

News from the Regions



Northeast Region

Dave Richardson

Exploring the habitats and diet of larval American shad in the Hudson River estuary

In collaboration with the New York State Department of Environmental Conservation (NYSDEC), National Estuarine Research Reserve System (NOAA), Cary Institute of Ecosystem Studies, and New England Interstate Water Pollution Control Commission, graduate student Christopher Nack and Dr. Karin Limburg from the State University of New York College of Environmental Science and Forestry are working to characterize the habitat use and diet of larval American shad from the Hudson River. This project is part of the NYSDEC American shad recovery plan which was



Larval growth of American Shad in the Hudson river.

developed to support research to determine causes of high mortality and potential areas of management improvement. The data will be used to determine potential restoration sites on the Hudson River and identify habitat characteristics that promote good larval shad condition and survival.

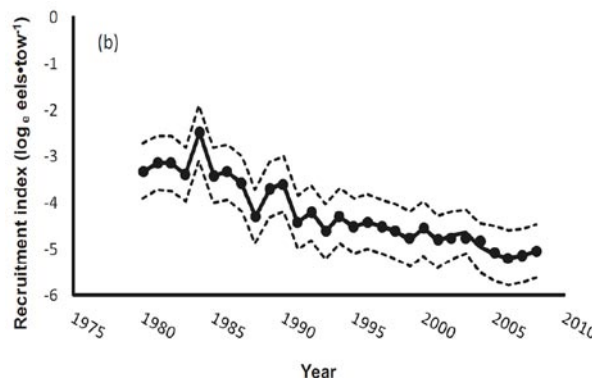
Larval shad were sampled from 16 locations representing four distinct habitat types, in the upper third of the Hudson River estuary where shad are known to spawn. These habitats consist of vegetated and unvegetated main stem sites, contiguous backwaters, and secondary channels. Preliminary data from 2010 have shown that there may be an ontogenetic shift (at approx. 15 mm) from lower energy habitats such as contiguous backwaters to higher energy main stem sites. Diets were also examined from these samples. Surprisingly, zebra mussel veligers contributed a large proportion of the diet of some samples and accounted for 30% of the overall diet. Some larvae were found to have over 300 veligers in their stomach. Cyclopid copepods (40%) and cladocerans (28%, primarily *Bosmina* spp.) also were a major component of the diets.

Current findings from the research being performed by Christopher and Karin suggest that habitat diversity is important to support larval American shad. Some restoration still may improve nursery habitat. Restoration sites should be considered on an individual basis since no general habitat type was found to have a strong negative impact on

shad larvae. The American shad recovery plan has considered competition between larval shad and river herring (blueback and alewife) as a potential source cause for high mortality, and projects to examine this have already begun.

Multi-decadal decline in American eel recruitment in the Chesapeake Bay

Ms. Kari Fenske (right) working together with Mike Wilberg and David Secor at University of Maryland Center of Environmental Science and Mary Fabrizio at Virginia Institute of Marine Science recently uncovered a multi-decadal downward trend in juvenile eel abundances in the Potomac River that mirrors trends observed elsewhere in North America. The trend is significant because



[...continued on p. 3](#)

Section Officers

President

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Secretary-Elect

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

Verify your email with our
ELHS Secretary.



European Region

Audrey Geffen

An ICES workshop on the Identification of Clupeoid, Flatfish, Gadoid and Other Fish Larvae (WKIDFL) was held from 5 to 9 September 2011 in IJmuiden, The Netherlands, to calibrate fish larvae identification. The meeting was chaired by Cindy van Damme, IMARES, The Netherlands, and Matthias Kloppmann, vTI-SF, Germany. In total 17 people, representing 10 institutes from 8 countries participated in the workshop.

The aims of the workshop were to review available information on the identification of fish larvae in the North Sea and adjacent areas, with special emphasis on clupeoid, flatfish, and gadoid larvae; to identify sources of misidentification of larvae; to establish an agreed identification key for clupeoid, flatfish, and gadoid larvae; and to review methods of proper preservation in fish larvae.

WKIDFL compiled an overview of the reference literature used and the characteristics for identification of the different fish larvae. The most used references for identification of fish larvae in the North Sea and adjacent areas are: Schmidt (1905), Ehrenbaum (1909), Russell (1976), Fahay (1983), Moser et al. (1984), Munk and Nielsen (2005).

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

the Potomac and Chesapeake Bay is at the center of the American eel's juvenile range and support the single largest yellow eel fishery. Further, a statistical catch-at-age model showed that despite low effort and landings in recent years, harvest levels exceed an $F_{50\%}$ biological reference point for the Potomac River. The Atlantic States Marine Fisheries Commission is using this information together with a new assessment framework in developing a coast-wide stock assessment due out this year. Ms. Fenske completed her M.S. degree at Chesapeake Biological Laboratory in 2009 and now works as staff scientist for the South Atlantic Fisheries Management Council.

Fenske, K.H., M.J. Wilberg, D.H. Secor, and M.C. Fabrizio. 2011. Age-structured production model for American eels (*Anguilla rostrata*) in the Potomac River, Maryland. *Can. J. Fish. Aquat. Sci.* 68: 1024-1037.

Fenske, K.H., D.H. Secor, and M.J. Wilberg. 2010. Demographics and parasitism of American eels in the Chesapeake Bay. *Trans. Am. Fish. Soc.* 139: 1699-1710. §



Participants at the ICES workshop on larval fish identification (WKIDFL), held at IMARES, The Netherlands, September 2011.

The majority of the time at the workshop was spent identifying fish larvae. The results promoted discussion and highlighted specific problem areas. These discussions led to the further development of standard keys and larval identification characteristic tables. The results were reassuring as the overall agreement in identification increased from 56% in the first round to 63% in the second round. For herring larvae the percentage agreement increased 54% to 74%. For sprat the improvement rose from 55% to 61%. Percentage agreement in sardine increased from 48% to 57%. However, these results in clupeoid identification clearly show that there are still some uncertainties in the identification of clupeoid larvae.

Even though overall agreement in larval fish identification increased during

the second round and after distinguishing characteristics of major larval fish groups were clarified, there were still some difficulties in correctly identifying particular species. These difficulties occurred in clupeoids, in the distinction between cod and saithe larvae as well as in distinguishing dab from plaice larvae.

Before the workshop not all institutes counted myotomes to identify the different clupeoid species. However, during the workshop all participants agreed that the main characteristic to identify clupeoid larvae is the number of myotomes in the trunk. Even though the agreement in herring larval identification increased in the second round there is still room for improvement. A new larval identification workshop focussing especially on clupeoid identification is proposed to increase agreement in identification.

Different methods are available for the preservation of fish larvae. Participants agreed that it is most important that fish larvae are put in preservative immediately after the catch in order to preserve the larval characteristics. Formaldehyde based preservatives create lower shrinkage in larvae compared to ethanol solutions.

The full report of the workshop is available online at: www.ices.dk/workinggroups/ViewWorkingGroup.aspx?ID=510. §

Section Business

Now getting to the main points, the survey was designed to generate four outcomes: 1) understand the value of the ELHS as viewed by the membership, 2) seek suggestions regarding the Section, 3) STAGES, 4) the webpage, and 5) the LFCs. The results concerning each of these are briefly presented below.

The value of the ELHS was seen as 1) supporting the LFC, 2) producing STAGES, 3) providing a venue for networking, 4) maintaining the Section webpage, and 5) encouraging student involvement. Although straightforward, it is important for the Section officers, present and future, to keep these points at the forefront of the Section's activities.

As for what the Section could improve, several excellent ideas were provided. The Section or Section members could sponsor special sections in Transactions of American Fisheries Society or the new Marine and Coastal Fisheries. Theme [...continued on p. 5](#)

Summary of Survey Results

The Early Life History Section conducted a survey to poll members on issues ranging from STAGES, to the LFC, to the benefits provided by the Section. There were 73 respondents; not all the membership by any measure, but enough so that conclusions could be drawn.

First, thank you to those of you that did respond. Any organization needs to know the sentiment of its members. Hopefully, the next survey will have even more respondents.

Second, a heartfelt thank you to Lee Fuiman (STAGES), Jeff Buckel (webpage), and LFC organizers. Your efforts are at the heart of the ELHS and throughout the survey the membership remarked on the importance and high quality of your efforts.

Upcoming Events

Financial Support for Students Attending LFC36

NOTE: Students can apply for both of the grants described below.

Accommodation and registration fee grants

Free accommodation (double occupancy - you will be asked to share a room with another student of the same gender) at the conference hotel - including food - will be awarded to approximately 40 students. The registration fee for these students will be waived. Applications must include:

1. Cover letter from student requesting consideration for this grant. This letter should also verify that the student is a current member of the American Fisheries Society's Early Life History Section.
2. Supporting letter from student's advisor. This letter should verify that the student is in good standing and is in need of funds to participate in this meeting.
3. A copy of the abstract of the paper which the student plans to present.
4. CV (maximum of 4 pages).

The deadline for receipt of applications is Friday, 30 March, however, early submission is encouraged. Applications must be received by email, and if documents are sent in separate emails the last timestamp will be used to date the 'completed' application. Selection for these grants should be completed within 2 weeks of the deadline. Students who are offered these grants will be contacted soon thereafter and asked to confirm their attendance at the meeting. Send all accommodation and registration fee waiver application materials (by email) to:

Howard Browman, Institute of Marine Research, Ecosystem Processes Group, Austevoll Research Station, 5392 Storebø, Norway. Email: howard.browman@imr.no

Travel grants

A total of up to \$8000.00 USD is available for Student Travel Grants for LFC2012. Individual award amounts will be based on need and will likely range from \$500-\$1000. Grants are available to students in an undergraduate or graduate degree program who present a paper at this meeting and are members in good standing of the American Fisheries Society's Early Life History Section (ELHS). Applications must include:

1. Cover letter from student requesting consideration for this travel grant. This letter should also verify that the student is a current member of the American Fisheries Society's Early Life History Section.
2. Supporting letter from student's advisor. This letter should verify that the student is in good standing and is in need of funds to travel to this meeting.
3. A copy of the abstract of the paper which the student will present.

The deadline for receipt of applications is Friday, 30 March, however, early submission is encouraged. Applications must be received by email, and if documents are sent in separate emails the last timestamp will be used to date the 'completed' application.

Course Offering

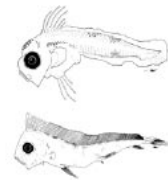
Early Life History of Marine Fishes

(VIMS MSCI 657; Maryland MEES 698F)

- Date: 15 July through 2 August 2012
- 3 credits (600 level)
- Application deadline 1 June 2012
- Approximate cost (tuition and room) for 'out-of-state' students, \$3,000
- Professor Edward D. Houde (University of Maryland Center for Environmental Science), Dr. G. David Johnson (NMNH, Smithsonian Institution), Dr. Nalani Schnell and Dr. Troy Tuckey (College of William and Mary)

A lecture and laboratory course offering a comprehensive view of the biology and taxonomy of early life stages of fishes. These stages, including pelagic eggs, larvae, and newly-transformed juveniles, are abundant and diverse components of aquatic ecosystems. Their small size, dynamic growth and mortality rates, and dependence on ambient environmental factors, including ocean physics, make these stages vulnerable to variability in climate and to stresses of anthropogenic origin. Level of reproductive success in teleosts, termed recruitment, is highly variable and largely dependent on variability in survival of early life stages. Knowledge of their morphological development contributes to studies of phylogenetic relationships. Ontogenetic data serve to clarify the complex systematics of teleost fishes, the most diverse and largest class of vertebrates. Early life stages often have specialized adaptations to insure survival in stressful habitats. In the laboratory, larvae of 190 families of teleostean fishes are examined and characters useful in identification are presented. Laboratory exercises on otolith preparation, otolith-aging, and on feeding by fish larvae will be included.

This is a graduate-level course for students with an interest in fish ecology, ichthyology, fisheries science, morphology and biological oceanography. It is presumed that students will have some experience and background in those disciplines. Prerequisites include an undergraduate degree in a biological discipline; permission of the instructors is required to be admitted to the course. No more than 16 students will be accepted. The lectures and laboratories will be held at the Virginia Institute of Marine Science, College of William & Mary. For further information, contact Dr. Schnell (nschnell@vims.edu) or Dr. Houde (ehoude@cbl.umces.edu) or see our website: web.vims.edu/adv/657/index.html. §



Selection for these grants should be completed within 2 weeks of the deadline. Students who are offered these grants will be contacted soon thereafter and asked to confirm their attendance at the meeting. Send all travel grant applications (by email) to:

Dr. Frederick S. Scharf, Department of Biological Sciences, University of North Carolina at Wilmington, 601 South College Rd., Wilmington, NC 28403. Ph(910)962-7796. Fax(910)962-4066. Email: scharff@uncw.edu §

Church Grimes Retires

Dr. Churchill B. Grimes recently retired from the National Oceanographic Atmospheric Administration's National Marine Fisheries Service (NMFS) after a long and distinguished career in fishery research and administration. After earning his B.S. and M.S. degrees in Biology from East Carolina University, he began his career in 1970 investigating the ecological effects of steam-electric power plant effluent for the Florida Department on Natural Resources (now Florida Fish and Wildlife Research Institute) in Crystal River, Florida. After earning his Ph.D. degree in Marine Science from the University of North Carolina in 1976, Dr. Grimes became Assistant Professor of Marine Fisheries at Rutgers University in New Brunswick, New Jersey where he attained the rank of Associate Professor. While on the faculty at Rutgers University, Dr. Grimes' colleagues and students conducted and published research on the fishery resources of the southern New England–Mid-Atlantic Bight region. Most notably, he, along with colleague Ken Able and their students, published extensively on the life history, habitat and behavioral ecology and fishery biology of tilefish. In so doing he, Ken Able, and colleagues at Harbor Branch Foundation, NMFS Northeast Fishery Science Center, and USGS Woods Hole, Massachusetts pioneered the application of manned submersibles and acoustic mapping technology to fishery research.

In 1984 Dr. Grimes accepted a position at NMFS Southeast Fishery Science Center in Panama City, Florida, eventually becoming Laboratory Director, where the research mission focused on coastal pelagic and reef species in the Gulf of Mexico. He and colleagues published extensively on the ecology and fishery biology of these important fishery species, but especially on the early life history and recruitment dynamics of fishes associated with the Mississippi River discharge plume. These studies were among the first to explore the role of the special physics and biology of the discharge environment in recruitment dynamics and attempt to understand the overall impact of the discharge plume on fishery recruitment throughout the Gulf of Mexico. During his tenure as Laboratory Director, an effort to close the facility was thwarted, and through addition of competent staff and relevant programs, the institution was advanced to a secure and valued position.

In 1998 Dr. Grimes relocated to Santa Cruz, California to become founding Director of the NMFS Southwest Fishery Science Center laboratory that was being established there. In this role he oversaw the construction of the new laboratory, established strong and enduring relationships with the University of California at Santa Cruz as well as other academic and institutional partners, assembled an outstanding staff and guided the development of its scientific programs on west coast groundfish and salmon. He continued to be involved in research, in particular on the development and application of otolith microstructure and chemical techniques to identify the origins of wild and hatchery-reared salmon. He and colleagues also sought to identify and predict the relationships between salmon production and physical and biological ocean environmental factors, and identify chemical otolith markers for associating recruited juveniles with upwelling fronts.

Throughout his career Dr. Grimes was a member of many technical advisory groups and review panels, a very active member of the American Fishery Society, a frequent reviewer of research proposals and scientific papers submitted for publication, and author of over 130 scientific articles.



In retirement Dr. Grimes remains professionally active, as a senior editor of the *Transactions of the American Fisheries Society* and a member of the Scientific and Statistical Committee of the South Atlantic Fishery Management Council. He remains on the management board of the Pacific Ocean Shelf Tracking project (POST) and Steering Committee of NOAA Integrated Ocean Observing System Acoustic Tracking Network. §

Section business...cont'd from p. 3

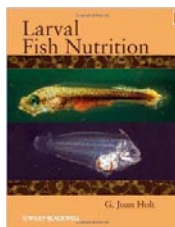
sessions could be sponsored or organized at the Annual AFS meeting or at local AFS meetings throughout the year. Membership records and record keeping could be improved. A formal student travel fund could be established. ELHS is a volunteer organization; if one of these ideas motivates you, contact a member of the ExCom and discuss ways to make it happen.

Several improvements were suggested for the Section newsletter STAGES. First, many respondents suggested making STAGES electronic only – and this recommendation has been followed. Other ideas included: 1) produce STAGES more often, 2) add an "Editor's Choice", 3) add a "Special guest column", 4) include foreign language content, 5) improve solicitation of content, and 6) provide a better balance between freshwater and marine issues. Lee Fuiman is the editor of STAGES and devotes a lot of time to its production. If you want to contribute to one of these ideas or another, please contact Lee and discuss.

There were a number of suggestions for the website. One recommendation was for a directory of ELHS members be publically available, with an option to not provide contact info. Several years ago, there was a privacy issue, so members would need to verify that they are OK with their contact information being made public. Other suggestions included: 1) develop an archive of larval taxonomy work, 2) Host electronic STAGES (recent and

[...continued on p. 7](#)

Publications



Available now: *Larval Fish Nutrition*

Edited by G. Joan Holt

Published by Wiley-Blackwell. ISBN-0813817927. 2011.

Nutrition is particularly important in the healthy development of fish during their early life stages. Understanding the unique nutritional needs of larval fishes can improve the efficiency and quality of fishes reared in a culture setting. *Larval Fish Nutrition* comprehensively explores the nutritional requirements, developmental physiology, and feeding and weaning strategies that will allow aquaculture researchers and professionals to develop and implement improved culture practices.

Larval Fish Nutrition is logically divided into three sections. The first section looks at the role of specific nutrient requirements in the healthy digestive development of fish. The second section looks at the impacts if nutritional physiology on fish through several early life stages. The final section looks at feeding behaviors and the benefits and drawbacks to both live feed and microparticulate diets in developing fish.

Written by a team of leading global researchers, *Larval Fish Nutrition* will be an indispensable resource for aquaculture researchers, professionals, and advanced students. §

Available now: *Identification of Eggs and Larvae of Marine Fishes*

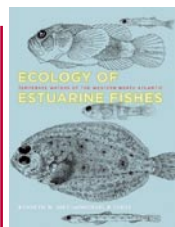
Edited by Arthur W. Kendall, Jr.

Published by Tokai University Press. ISBN-978-4-486-03758-3.

This publication is a compilation of information to help identify eggs and larvae of marine fishes. It should be of practical use for ichthyologists and fisheries scientists needing to identify the larvae of marine fishes in ichthyoplankton collections. The 11 contributors cover the early life history and larval development of 112 species in 94 families in 18 orders. It is based on a syllabus developed for two courses on identification of eggs and larvae of fishes: one that was held in Santa Cruz, California in 2003, and one that was held at the National Museum of Nature and Science in Tokyo in March 2009. Following a general introduction, for each taxon textual information and illustrations of larvae are provided using a standardized format. For most orders (and for more diverse orders, suborders) an introductory section is included with illustrations of midflexion larvae of representative species. For most families then, one or more representative species are covered in more detail, including illustrations of complete developmental series. Textual information includes taxonomic diversity (how many suborders or families, how many genera and species), general life history (geographic distribution, relative abundance and importance to humans, and adult habitat), and early life history (mode of reproduction, state of knowledge of eggs and larvae, and general characteristics of eggs and larvae). Example species and their meristics are then listed as well as pertinent references for the group.

Contributors include: David A. Ambrose, Deborah M. Blood, Morgan S. Busby, Sharon R. Charter, Denice Drass, Michael P. Fahay, Arthur W. Kendall, Jr., Jeffrey M. Leis, Ann C. Matarese, H. Geoffrey Moser, William Watson.

Price: 5000 Japanese Yen. To order, contact: Hiroshi Ina: inaair@keyaki.cc.u-tokai.ac.jp. §



Available now: *Ecology of Estuarine Fishes: Temperate Waters of the Western North Atlantic*

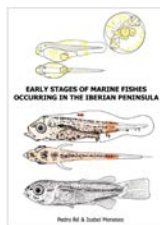
By Kenneth W. Able and Michael P. Fahay

Published by Johns Hopkins University Press. ISBN-0801894719. 2010.

This comprehensive reference book details the life history and ecology of the fish species that occupy the estuarine and coastal habitats along the eastern United States and Canada.

Kenneth W. Able and Michael P. Fahay draw on their own studies and other research to summarize and synthesize all the known facts about the ecology of 93 important species of fish that inhabit the temperate waters of the Western Atlantic. Presented in individual chapters, the species accounts include complete information about each fish's distribution, habitat use, reproduction, development, migratory patterns, prey, and predators and other natural enemies. The species accounts are illustrated and include life-cycle calendars, tables, and charts highlighting key information. Introductory chapters provide the general characteristics of the temperate ichthyofauna and explain the authors' methodology.

Featuring new information based on more than 76,000 samples, novel long-term data, and an exhaustive analysis of more than 1,800 references, this invaluable resource is a complete compendium on estuarine fishes of the Western North Atlantic. §



Available to download: *Early stages of marine fishes occurring in the Iberian Peninsula*

By Pedro Ré and Isabel Meneses

Published by IPIMAR/IMAR. ISBN-978-972-9372-34-6.

This guide is intended for the identification of the early life history (ELH) stages of fishes collected by plankton nets from the marine and estuarine waters of the Iberian Peninsula (Eastern North Atlantic Ocean). The coverage area extends from latitude 34° - 45° N, to longitude 6° - 14° W.

The basic characteristics of the eggs and larvae of 104 species belonging to 45 families are described. The emphasis has been placed on the most diagnostic or easily observed characters in order to facilitate comparisons between taxa.

The descriptive accounts of this guide follow the format of previous ELH guides. Nomenclature follows Eschmeyer (1998) except for more recent changes. Within families, genera are listed in alphabetical order.

Species descriptions are given only for species for which some ELH stages are known. Each species account includes the same basic information (written information on the left-hand page and figures on the facing right-hand page). Written information includes meristic data (fin-ray counts in adults and myomere counts), life-history information (range, habitat, spawning season, ELH pattern), main references and ELH descriptions (eggs and larvae). Measurements of larvae usually refer to standard lengths. Many published illustrations have been redrawn mainly to provide certain uniformity throughout the guide. Sources of illustrations are given for every plate.

More information about this book and a link to download full text as a PDF document are at: astrosurf.com/re/ichthyo_bio.html. §



Available now: Identification Guide of The Early Life History Stages of Fishes from the Waters of Kuwait in the Arabian Gulf, Indian Ocean.

By William J. Richards

Published by Kuwait Institute for Scientific Research. ISBN-978-99906-41-94-3. 2008.

This identification book for fish larvae from Kuwait's waters is the first guide of its kind for the region, with updated and descriptive information and detailed illustrations for most of the larval fish of the Arabian Gulf. The Gulf is located in a semi-tropical and arid region. Nearly all marine bony fishes, have a pelagic larval stage which is morphologically very different from the adult stage. The aim of this guide is to aid researchers to identify larvae of the marine fishes of the Arabian Gulf. Many larvae in this book have commercial importance.

Available for download as PDF file from: www.kisr.edu.kw/Data/Site1/images/kisr_publications/978-99906-41-94-3.pdf §

Section business...cont'd from p. 5

past additions), 3) provide more up-to-date job links; 4) provide more meeting links; 5) provide automatic notification of updates to the webpage; 6) coordinate and archive book reviews; 7) provide regional links to ELHS labs and long-term activities; and 8) add social networking. These are excellent ideas, but many of them require us – as members – to provide content to Jeff Buckel. So if you know of a meeting or a job or want to help develop an archive of taxonomy work contact Jeff.

The LFC received high marks with very few suggestions. But, there were three ideas for improvements: 1) coordinate LFCs with other meetings, 2) decrease cost of LFCs, and 3) include panel discussions of "hottopics." Please contact the organizers of upcoming LFCs if you have additional ideas: 2012 Howard Browman (howard.browman@imr.no); 2013 Su Sponaugle (ssponaugle@rsmas.miami.edu); 2014 Pascal Sirois (pascal.sirois@uqac.quebec.ca). §

– Jon Hare

Other Recent Publications

Ecology of Anguilliform Leptocephali: Remarkable Transparent Fish Larvae of the Ocean Surface Layer. M.J. Miller. Published by Aqua-BioScience Monographs. TERRAPUB. 2009.

Advances in Early Life History Study of Fish. C. Clemmesen, A.M. Malzahn, M.A. Peck, and D. Schnack, eds. *Scientia Marina*, volume 73S1, Supplement 1. Consejo Superior de Investigaciones Cientificas. 2009.

Plankton. A Guide to Their Ecology and Monitoring for Water Quality. I.M. Suthers & D. Rissik. Published by CSIRO Publishing, 272 pp. 2009. ISBN: 9780643090583.

Manual of recommended practices for modelling physical – biological interactions during fish early life. E.W. North, A. Gallego, and P. Petitgas, Jr., eds. ICES Cooperative Research Report No. 295. 111 pp. 2009. ISBN: 978–87–7482–060–4.

Early Life History of Marine Fishes. B.S. Miller and A.W. Kendall, Jr. Published by University of California Press. ISBN: 978-0-520-24972-1. 2009.

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

Reproductive Biology and Early Life History of Fishes in the Ohio River Drainage

– Volume VI, Elasmobranchii and Centrarchidae. Edited by R. Wallus and T.P. Simon. Published by CRC Press. ISBN 978-0-8493-1923-8. 2008; 472 p.

– Volume V, Aphredoderidae through Cottidae, Moronidae, and Sciaenidae. Edited by R. Wallus and T.P. Simon. Published by CRC Press. ISBN 978-0-8493-1921-1. 2006; 360 p.

– Volume IV, Percidae – Perch, Pikeperch, and Darters. T.P. Simon and R. Wallus. Published by CRC Press. ISBN 978-0-8493-1920-4. 2006; 648 p.

– Volume III, Ictaluridae – Catfish and Madtoms. T.P. Simon and R. Wallus. Published by CRC Press. ISBN 0849319196. 2003; 232 p.

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.

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. §

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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Flounder larva, probably a witch flounder (Glyptocephalus sp.), taken at a depth of 30 m in Høgsfjorden, Norway. Photo by Rudolf Svendsen.

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

- *The contribution of mechanistic behavioural and physiological studies on fish larvae to ecosystem models.* Organized by [Frode Vikebø](#) and [Geir Huse](#).
- *Effects of oil and natural gas surveys, extraction activity and spills on fish early life stages.* Organized by [Sonnich Meier](#), [Bjørn Einar Grøsvik](#) and [Erik Olsen](#).
- *Quality indicators for larval fishes: Wild vs. cultured.* Organized by [Lee A. Fuiman](#) and [Amos Tandler](#).
- *The biology and ecology of cleanerfish early life history.* Organized by [Anne Berit Skiftesvik](#), [Ingegjerd Opstad](#), [Reidun Bjelland](#) and [Caroline Durif](#).

For helpful suggestions on travel to Bergen and other useful information, check the meeting website at http://www.larvalfishcon.org/Conf_home.asp?ConferenceCode=36th.

In other news, based on my most recent list from AFS, we have several new student members that joined in the last few months and paid dues for 2012. Welcome to all of you and thanks to those of you making the effort to inform students about our section and encourage them to join. Hopefully many of them will take advantage of the available grants for this year's meeting and come to Bergen!

If you have not yet paid your dues for 2012, please take a moment to do so. If you are an affiliate member, it is much easier to pay your dues now by using *Paypal* on the website (http://www.larvalfishcon.org/join_elhs.asp).

Thanks to our Treasurer Jeff Buckel for implementing this option.

I also want to thank Lee Fuiman for ensuring a seamless move to creating an electronic version of STAGES. Our first electronic issue, October 2011, was packed with great articles and many color photographs, clearly a successful transition from paper copies. Without the production expenses of paper, we can include many more of those wonderful photos you have stored on your computer, so send them in! The only down side to the electronic version is that we must have your exact email address for distribution. If you are a member but reading someone else's copy, we probably do not have your correct email address.

Finally, I would like to mention a recent message I received from Sarah Gilbert Fox, who is the managing editor of *Fisheries* magazine for AFS. She is looking for news items about our Section and its members, specifically articles about 120-400 words (or more) about breaking news, some important study, new technologies and methods, or other information to highlight our section in the magazine. Although these types of articles are also welcome and desired for STAGES, they will get additional attention and potential press releases via *Fisheries*. Sarah is also interested in helping with the style and presentation of such articles to increase their impact. You can contact her at sgilbertfox@fisheries.org if you have something you wish to contribute, but don't forget to send it to Lee for STAGES as well!

Thanks to all for continuing support of the ELHS.

§

— Susan Sogard, President

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.