President’s Message

This is my last message as President of the ELHS, as I now turn the lead over to Catriona Clemmesen-Bockelmann. At the upcoming meeting in Bergen, Catriona will shift her duties from Secretary to President and Frank Hernandez will become our new Secretary. A big thanks go to both for volunteering to take on these responsibilities.

I have much enjoyed my tenure as President. This is an excellent organization with many dedicated members that put in a lot of time behind the scenes to keep everything functioning and running smoothly. We are a small group, but I think that is a real advantage in keeping us cohesive and supportive of our science and each other. For those of you that are new to the section, I hope you will stick with us and benefit from the great positive atmosphere surrounding our membership.

Many of us have been hit in various ways by the worldwide economic downturn. With shrinking budgets and fewer job opportunities it is often challenging to keep science programs going and maintain the level of communication and interaction we would like to have as a scientific society. The American contingent at this year’s meeting will be fewer in number largely due to disappearing travel budgets, but I hope many of us will be able to recoup and make it to the 2013 meeting in Miami. The economy will recover at some point and we will all need to be ready to take advantage of renewed opportunities when they come.

...continued on p. 12
Northeast Region

Ken Able of Rutgers University Marine Field Station reports that this year, the Rutgers University Marine Field Station is celebrating the 40th anniversary of its establishment. Of relevance are the last two decades which focused on the study of the early life history of fishes.

The Coastal Collaboration On Recruitment (CCOR) effort is continuing. This is a U. S. east coast wide effort to determine recruitment patterns for estuarine dependent fishes based, primarily, on time series of larval fish ingress. As examples, we have published a manuscript that includes aspects of timing and location of reproduction, larval supply, ingress into estuarine inlets and post settlement habitat for the speckled worm eel, *Myrophis punctatus* (Able et al. 2011). In a related project led by Dennis Allen (Baruch Marine Field Laboratory, University of South Carolina), many of the same individuals have decided to target *Leiostomus xanthurus* in a similar analysis. In another study, we are evaluating the multiple sources of larvae spawned in the ocean to Barnegat Bay, New Jersey (Little Egg Inlet – our long term study site, Barnegat Inlet, and the Inter Coastal Waterway from the Manasquan River estuary). Special attention is focused on ingressing *Anguilla rostrata* glass eels and their accumulation below dams and the means to provide for eel passage to upstream habitats.

European Region

Audrey Geffen

Hubert Keckeis (Hubert.Keckeis@univie.ac.at), from the Department of Limnology, University of Vienna, reports on progress in a large three-year project on larval dispersal in the River Danube. Both laboratory and field experiments are included, and they have also successfully marked and recaptured fish in the main stem of the river. The project is called MODI, Modelling dispersal patterns of fish larvae in a large river. Funded by the Austrian Science Fund (FWF; www.fwf.ac.at), Keckeis and his colleagues are studying the dispersal patterns of larval fluvial fishes at different hydro-morphological habitats in the main river channel of the Danube (Fig. 1). Spatial and temporal distributions of marked larval fishes of two different ontogenetic stages are studied under natural conditions by conducting mark-recapture field experiments (Fig. 2). To identify possible effects of hydraulics, morphology, and behaviour on dispersal patterns, the field approach is accompanied by drift experiments in a flume. Using an integrated habitat modelling approach, the observed patterns are superimposed by particle traces derived from the application of a three-dimensional hydrodynamic model in order to define the triggers and mechanisms of larval dispersal patterns. Implications about the connectivity of spawning and nursery habitats are made based on this approach; this knowledge can be used in applied restoration ecology for large-scale restoration concepts. The project started in January 2010 and is an inter-university collaboration between the University of Vienna (Hubert Keckeis), the University of Natural Resources and Life Sciences of Vienna (Helmut Habersack, Michael Tritthart) and the Charles Sturt University, Albury, Australia (Paul Humphries).

Two PhD students are involved in the project: Aaron Lechner is investigating the distribution patterns of marked

Fig. 1 Main channel of the River Danube

...continued on p. 3

Fig. 2 Alizarin marking of larval carp otoliths for mark-recapture experiment

...continued on p. 5

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Verify your email with our ELHS Secretary.
Western Region

Dan Margulies

Swimming ability in larval and pelagic juvenile rockfishes (Sebastes spp.)

Neosha Kashef, a student at Moss Landing Marine Laboratories, recently completed her M.S. thesis research on the ontogeny of critical swimming ability in larval and pelagic juvenile rockfishes (Sebastes spp.). Rockfishes are viviparous and unique in having a long pelagic phase, remaining in the water column for weeks to months after metamorphosis before settling to demersal habitats. Movements of larvae and pelagic juveniles during this period are largely unknown although it is traditionally assumed that young rockfishes are planktonic, moving at the mercy of ocean currents. In this study, critical swimming capabilities of six rockfish species — blue (S. mystinus), yellowtail (S. flavidus), brown (S. auriculatus), kelp (S. atrovirens), gopher (S. carnatus), and splitnose (S. diploproa) — were evaluated to determine their ability to behaviorally influence dispersal.

Results indicate that swimming ability increases throughout ontogeny, and postflexion rockfishes can swim faster than mean current speeds along the California coast. Sebastes spp. critical swimming speeds are substantially lower than those obtained from larvae and juveniles of tropical fishes at similar body sizes. Rockfishes, however, have comparable swimming speeds to some tropical species at settlement, since rockfishes settle at larger sizes. The increasing ability of rockfishes to swim faster than current velocities throughout their pelagic life history phase, acting as nekton rather than plankton, enhances both retention and dispersal potential and has important implications for survival and distribution. Neosha was co-advised by Dr. 

Recent and Pending Publications


Northeast Region...cont’d from p. 2

As part of a broader interest in small piscivores, we are evaluating predator-prey interactions between Conger oceanicus elvers and the glass eels and elvers of Anguilla rostrata in the laboratory. To date, in one-on-one trials, Conger is a predator on all these stages of Anguilla and other Conger while Anguilla only occasionally preys on other Anguilla. These interactions between Conger and Anguilla are likely limited to the lower estuary where they overlap in time and space.

Other recent publications include an evaluation of New Jersey surf zones as nurseries (Able et al. in press), and the response of Lutjanus griseus to winter mortality and climate change (Wuenschel et al. in press).

We are accepting applications for a one-year (with a possible extension depending on funding) postdoctoral fellowship. Individuals with interests in fish and fisheries ecology, with an emphasis on species declines (e.g. winter flounder, weakfish) based on long-term time series, are invited to apply. At RUMFS, these time series include larvae (weekly for 21 years) and juveniles (weekly for 18 years). Ability to work with a team of faculty, graduate students, undergraduate summer interns, and staff is an important qualification. For information concerning this position, please send a C.V. and contact Ken Able.

Recent and Pending Publications


Miniature flume used to swim larval stages (27 cm length). Water enters the flume and hits a weir, which spreads the flow. The straws act as flow straighteners creating laminar flow and the mesh at the end retains the larva at exhaustion.
Workshops on growth–survival paradigm in early life stages of fish: The paradigm needs a synthesis

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Growth and survival are tightly coupled in early life stages of fishes. Larger and/or faster-growing individuals (or populations) are more likely to survive than smaller and/or slower-growing conspecifics. This “growth–survival” paradigm (originally the “growth–mortality” hypothesis; Anderson 1988) was given much attention in studies on recruitment dynamics of fishes. However, attempts to predict year-class strength from early growth dynamics have generally failed.

Nevertheless, much progress has been achieved through numerous field, laboratory, and modeling studies, since the landmark publication of Anderson (1988). For example, different functional mechanisms have been proposed to explain the relationship between growth and survival (Hare & Cowen 1997, Takasuka et al. 2003, Leggett & Frank 2008). In general, field studies tended to support the paradigm/mechanisms (e.g. Meekan & Fortier 1996, Hare & Cowen 1997, Sirois & Dodson 2000, Takasuka et al. 2003, Shoji & Tanaka 2006, Robert et al. 2007). On the contrary, some experimental studies provided evidence contrary to the paradigm (Litvak & Leggett 1992, Lankford et al. 2001, Munch & Conover 2003). Moreover, recent studies revealed variability in the direction of selection occurring in the field (Robert et al. 2007, Sponaugle et al. 2011, several recent works from our teams). Processes driving recruitment seem to be more complex than assumed by the paradigm. We now consider that there is a need for synthesizing these apparently contrary results into a new conceptual framework.

To tackle this issue, we held a Japan–Québec collaboration workshop on “Growth–survival paradigm in early life stages of fish: Theory, advance, synthesis, and future” in Yokohama, Japan, from October 26 to November 1, 2011, with the support of Grant-in-Aid for Young Scientists (A) from the Ministry of Education, Culture, Sports, Science and Technology of Japan, and Québec-Océan programs. The follow-up workshop was then held in Vancouver, Canada, from May 23 to 26, 2012, with partial support from the Research Chair on Exploited Aquatic Species. These workshops were designed to produce a review paper in which we will expose our ideas and perspectives on the paradigm through synoptic reviews.

First, we reviewed recent advances in studies on the paradigm and its functional mechanisms. Second, we synthesize published results of field and experimental tests of the paradigm/mechanisms through comparisons among different geographic regions, ecosystems, taxonomical groups, and life history strategies. Finally, we provide a list of recommendations for the direction of future studies toward predicting recruitment success. Through these topical discussions, we also found a strong trend for publication bias in paradigm test studies.

As products of these workshops, a review paper will be submitted for publication in the primary literature. This review will be preceded by the publication of an essay paper on the issue of publication bias, which will be presented at the 36th Annual Larval Fish Conference in Bergen, Norway (Sirois et al. 2012).

References


Sirois, P., Dodson, J. J. 2000. Critical periods and growth-dependent survival of larvae of an estuarine fish, the rainbow smelt Osmerus...continued on p.5

A scene from Japan–Québec collaboration workshop in Yokohama from October 26 to November 1, 2011. From left to right: Jun Shoji, Akinori Takasuka, Pascal Sirois, Dominique Robert, Yoshioki Oozeki (adviser); top panels from left to right: Ichiro Aoki and Louis Fortier (advisers).
Pacific Region...cont’d from p. 4


Western Region... cont’d from p. 3
Greg Caillet of Moss Landing Marine Labs and Dr. Susan Sogard of NOAA Fisheries and this work is in collaboration with Dr. Rebecca Fisher. A manuscript is in preparation.

Relationship between absolute critical swimming speed log $U_{crit}$ (cm s$^{-1}$) and size of five species of larval Sebastes spp. at parturition.

European Region... cont’d from p. 2
drifting and settling larvae in the main channel of the River Danube. It is generally assumed that the longitudinal distribution of larval and juvenile fishes is random and mainly related to hydrodynamic forces. Recent studies showed that movement by fish larvae in riverine nearshore habitats is not completely passive via drift, suggesting active dispersal and habitat choice. For this purpose, he observes travel paths of released fish larvae at a natural and a regulated shore of the Danube. A comparison of these paths with those from passive particles is being used to shed new light on the mode of transport (active or passive). Lechner is also studying the effect of different habitat conditions on growth patterns of recaptured larvae. Finally, he intends to predict the optimal range between the spawning area and the next nursery area based on the travel paths for the different developmental stages and mesohabitats.

PhD student Martin Glas is analysing larval dispersal patterns with a 3D numerical model in combination with a particle-tracing model with the objective of improving the predictive capacity of modelling larval dispersal processes. He is using measurements of flow velocity fields and water levels of laboratory and field experiments for the calibration and validation of the numerical model. The accompanying flume experiment (Fig. 3) serves as calibration of the particle-tracing model, which is applied in the field experiment. The particle-tracing model, representing only a passive particle without mass, is extended by a newly developed larval module, which represents swimming properties (e.g., swimming behaviour, swimming ability) of larvae. Observed larval travel paths within the flume are used to validate the developed larval module (Fig. 4). The findings of the flume experiment are tested in the field and spatio-temporal patterns of larval dispersal processes are investigated.

Northeast Region... cont’d from p. 3
and habitat use of the speckled worm eel, Myrophis punctatus, along the east coast of the United States. Environmental Biology of Fishes 92:237-259.


Fig. 3 Experimental flume tank.

Fig. 4 Hydrological model for flume.
How Well Do We Know the Early Life Stages of Our Freshwater and Anadromous Fishes?

In Spring 2010, we, the authors listed below, did a survey of 47 guides and other selected publications or reports describing or summarizing descriptions of the early life stages of fishes in the fresh waters of the continental United States and Canada. We did this to document the extent of coverage and quality of illustrations and descriptive text and data therein and provide an initial overall assessment of the current state of such information. The results were summarized in the lead presentation for a topical session on Descriptions and Identification held during the 34th annual AFS-ELHS Larval Fish Conference (Santa Fe, New Mexico, 31 May to 2 June 2010 — www.larvalfishcon.org/Conf_home.asp?ConferenceCode=34th; see also article on that topical session in the October 2011 issue of STAGES). The PowerPoint file (slides and text) for the presentation is available for download or viewing at our ELHS website (www.elhs.cmas.ncsu.edu). An extended abstract for the presentation and a tabulated summary of selected results for larvae by family follow.

An Initial Assessment of Descriptive Information Available for Embryos, Larvae, and Early Juveniles of Fishes in Fresh Waters of the United States and Canada

by Darrel E Snyder, Larval Fish Laboratory, Colorado State University, Fort Collins, CO.

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The embryos, various larval phases, and early (usually young-of-the-year) juveniles of fishes are morphologically and often ecologically distinct from each other as well as later juveniles and adults. Accordingly, knowledge of fish early life history is often essential to better understanding aquatic ecosystems and communities, assessing environmental impacts, monitoring reproduction and recruitment, and more effectively protecting, recovering, or managing fish populations and habitat. Acquisition of that knowledge and pertinent study data through field investigations usually requires accurate identification of collected specimens. But even today, the eggs, larvae, and early juveniles of most species remain undescribed or inadequately described for identification purposes.

Of over 800 species of freshwater and anadromous fishes in the continental United States and Canada, it was estimated that only about 15% had been adequately described as larvae for identification purposes by the mid-1970’s (Snyder 1976) and still less than 25% by the mid-1990’s (Snyder 1996), but neither estimate was well documented. By the mid-1990’s, much of that descriptive information had been provided or selectively compiled and summarized in about 20 regional freshwater and estuarine larval fish or early life-history manuals. Several more guides have been published since 2003 (and a few more are currently in preparation).

To better document and provide an initial assessment of the current state of our knowledge of the early life stages of freshwater and anadromous fishes in the continental United States and Canada, we assessed the contents of 47 publications or reports, including nearly all pertinent guides and several other, opportunistically selected, descriptive documents. Our species list was borrowed with permission from the “Fish-Traits” database of Frimpong and Angermeier (2009) and supplemented with additional Canadian species and estuarine species known to frequently use adjacent fresh waters as spawning or nursery grounds. Using identically formatted spreadsheets, we coded our assessments for the quantity and quality of illustrations and descriptive text and data in each species account for each of four developmental intervals: the embryonic period (including egg characteristics); the yolk-sac and post yolk-sac phases of the larval period; and the early, young-of-the-year, portion of the juvenile period. To compile and summarize the data, all spreadsheets were incorporated as worksheets in one large three-dimensional spreadsheet (workbook). The maximum code values for assessed quantity and quality categories from among all sources were used to determine how well each species was described for each developmental period (embryonic, larval and juvenile) and overall for all three periods combined. Finally, array bins and frequency functions were used to determine the number and percentage of species that were minimally, moderately, or well described by developmental period and overall within selected families and for all families combined.

Overall, we found that 43% of the 823 freshwater or anadromous fishes in the United States or Canada have been at least minimally described for at least one early developmental period, but possibly only as few as 5% have been well described (assessed as good to excellent in coverage and quality of that coverage) for all three periods, embryonic, larval, and early juvenile (bottom of Table 1). For the larval period, 26% of all species have been well described – probably well enough for identification purposes. However, among families with at least several species, the percentage varies dramatically from 6% for Petromyzontidae and 15% for Cyprinidae to 75% for Clupeidae and Acioperidiae (Table 1). For the embryonic period, descriptions for only 6% of the species were assessed as good to excellent. However, embryology may actually be well described for a significantly greater percentage of species because many early life history guides note the existence of embryological descriptions but do not include much, if any, of the details or illustrations in their species accounts. For early juveniles, only 21% of the species descriptions were assessed as...continued on p. 8
### Table 1. Percentage of continental United States and Canadian freshwater and anadromous fish species by family assessed as minimally (Min), moderately (Mod), or well-described (Well) as larvae, and the sum thereof (percentage of species at least minimally described, the remainder being undescribed). Also, at bottom, comparable overall assessments (all families combined) for descriptions of larvae, embryos, and early (young-of-year) juveniles, as well as for all three developmental intervals (early life stages, ELS) combined.

A conservative appraisal based on an initial review of 47 publications or reports including most pertinent guides and some other opportunistically selected descriptive literature available through 2010.

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<tr>
<td>Blenniidae</td>
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<tr>
<td>Osphronemidae</td>
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<tr>
<td>Channidae</td>
<td>4</td>
<td></td>
<td>-</td>
<td>-</td>
<td>-</td>
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</tr>
</tbody>
</table>

Overall, Larvae 823                                             9   3   26  39
(For comparison using comparable criteria: Overall, Embryos 823 27 4 6 38 Overall, E. Juveniles 823 16 5 21 42 Overall, All ELS 823 **35** 4 **5** 43)

Notes:

- **Min**—for larvae, at least some info but either illustrations or text (or data) lacking, limited, or assessed as poor in quality; inadequate for identification purposes.
- **Mod**—for larvae, at least 2 illustrations (usually at least 1 yolk-sac and 1 post-yolk-sac larva) and at least some text (or data) with either illustrations or text assessed as only fair in quality and the other as fair or better; may be adequate for identification.
- **Well**—for larvae, at least 2 illustrations (usually at least 1 yolk-sac and 1 post-yolk-sac) and good text (or data) coverage, both assessed as at least good in quality; probably adequate for identification.
- **Min**—at least one early developmental interval (embryonic period, larval period, or early, usually YOY, phase of juvenile period described, but at least one interval only minimally described or undescribed. **Mod**—all intervals at least moderately described, but at least one only moderately described. **Well**—all early developmental intervals well described.

Special Report...cont’d from p. 6

good to excellent. However, adult descriptions and diagnostic criteria should be adequate for identification of most juveniles.

In conclusion, we still have a lot of work to do. Based on the literature surveyed and focusing on the larvae only, about 60% of our freshwater and anadromous fishes have yet to be even minimally described and about 74% remain to be well described for identification purposes. In the past 35 years, the percentage of species that have been well described as larvae has increased from an estimated 15% in 1976 to only about 26% in 2010.

This initial assessment is probably quite conservative. Although most regional guides have been included in our survey, the species accounts in many of them are based at least in part on previously published descriptions and often include only selected illustrations and data from those more detailed descriptions. Also, some described species have yet to be included in regional guides. This is particularly true for species endemic to the Pacific Northwest (e.g., the Columbia and Klamath River Basins) and the deep South. Still, we now have a much better feel for the current state of the art.

Postscript: The authors intend to publish more detailed results of this assessment, including which and how well species are covered in the assessed literature. They also plan to include assessments for at least a few other publications (e.g., guides by Holland-Bartels, et al. 1990 and Sturm 2004) and are working on a user friendly, updatable database for online access. Until then, specific results can be made available upon request.

Literature Cited:


Literature Assessed


Hardy, J. D., Jr. 1978. Development of fishes of the Mid-Atlantic Bight, an atlas of egg, larval and juvenile stages; Volume 1, Anguillidae through Sygnathidae. U.S. Fish and Wildlife Service FWS/OBS-78/12.


McGowan, E. G. 1988. An illustrated guide to larval fishes...continued on p. 9


Stages

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AFS - Early Life History Section

Special Report...cont’d from p. 9


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Postdoctoral Position Available

Rutgers University Marine Field Station (RUMFS) is accepting applications for a one-year (with a possible extension depending on funding) postdoctoral fellowship. Individuals with interests in fish and fisheries ecology, with an emphasis on species declines (e.g. winter flounder, weakfish) based on long-term time series, are invited to apply. At RUMFS, these time series include larvae (weekly for 21 years) and juveniles (weekly for 18 years). Ability to work with a team of faculty, graduate students, undergraduate summer interns, and staff is an important qualification. For information concerning this position, please send a C.V. and contact:

Ken Able
Rutgers University Marine Field Station
132 Great Bay Blvd
Tuckerton, NJ 08087-2004
telephone: (609) 296-5260 x 230
email: able@marine.rutgers.edu

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Have you paid your 2012 dues?

Please help your society maintain its fiscal health by renewing your membership!

If you have already paid your 2012 dues, thank you for your support. If not, you have several options for renewal. If you are an active member of AFS wishing to add (or renew) ELHS membership beginning with the next calendar year, simply check the box for the Early Life History Section on your annual fall AFS dues/subscription statement for the upcoming year and add the $15 annual ELHS dues to your annual AFS dues and other payments. You can also renew online at the AFS website: [www.fisheries.org/afs/membership.htm](http://www.fisheries.org/afs/membership.htm). Be sure to add the section dues to your membership fees.

You can also join the section as an affiliate member. You can join online at the website: [https://www.larvalfishcon.org/ELHSAffiliate/affiliate-triage.asp](https://www.larvalfishcon.org/ELHSAffiliate/affiliate-triage.asp). Or you can send $15 along with your name, institutional affiliation (if appropriate), mailing address, telephone and fax numbers, and e-mail address to:

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Affiliate members of the Section 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, the official ELHS newsletter.

Please take a moment today to join or renew your membership. Also check your mailing label and send any address corrections to Secretary Catriona Clemmesen ([clemmesen@ifm-geomar.de](mailto:clemmesen@ifm-geomar.de)) or President Sue Sogard ([susan.sogard@noaa.gov](mailto:susan.sogard@noaa.gov)).
Entosphenus tridentatus 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.

**Recent Series of ELH Guides**

Darrel Snyder advises that the following publications are available online at www.usbr.gov/pmts/tech_services/tracy research/tracyreports:


**Available now: Larval Fish Nutrition**

Edited by G. Joan Holt

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 Guide of The Early Life History Stages of Fishes from the Waters of Kuwait in the Arabian Gulf, Indian Ocean.**

By William J. Richards

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.


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

By Kenneth W. Able and Michael P. Fahay

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.
We have made several important changes to the section in the last couple of years. Perhaps the most obvious is the switch to an electronic version of STAGES. It’s even easier now to get your intriguing results and new ideas out to the membership, so don’t forget to respond to those requests from your Regional Representatives and submit a short article or two, complete with those great photographs. It doesn’t really take that much time and STAGES is also an excellent venue for students to get some exposure for their work and their talents as they enter the job market. Another change is the smooth transition to providing a Paypal option for affiliate members directly on the website. I hope this will encourage more affiliate members to join and keep their dues up to date. We have strengthened our numbers overall this year and we are in good financial shape with the increased revenue in dues and the decreased costs for producing STAGES.

I have worked hard to get our membership information in order and clean up our files. I believe we now have accurate lists of full members and affiliate members. However, the more we shift to electronic communication, the more important it is that we have correct email addresses. This will be a continuing challenge as new members join and old members change their addresses. If your email changes, think about all of those organizations for which you will suddenly disappear and remember to contact them!

Thanks to all of the officers and committee chairs for their gracious service. Your contributions are key to the solid foundation and integrity of the ELHS.

— Susan Sogard, President
**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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**Southeast Region**
Akinori Takasuka's summary of a workshop on the growth-survival paradigm is in Iain Suthers' report from the Pacific Rim. Darrel Snyder's report on the state of knowledge of early life stages in North American fresh waters is so large, it required it's own section. I am delighted to have these kinds of reports and I know our membership will find them interesting.

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**Editor’s Ramblings**

**Getting Used to the New Format**

I may be starting to get the hang of this electronic format! Actually, it’s more of a lack of format. For instance, the print version we published for many years required each issue always to have a total number of pages that was a multiple of four. You can imagine how difficult it was if the content in hand came out to just over 8 or 12 pages. But that’s a worry of the past. The current issue of STAGES, for example, actually contains an odd number of pages. I will continue to experiment with this new format, but it still take a lot of time to assemble an issue of STAGES. So, I may be looking for ways to cut back on the time.

That said, it would be impossible to have a newsletter at all if I did not receive content. I always rely on our Regional Representatives to comb their territories for material to include in the newsletter. For this issue of STAGES, I want to extend special thanks to two people who sent detailed reports about the activities of their collegial groups. Akinori Takasuka’s summary of a workshop on the growth-survival paradigm is in Iain Suthers’ report from the Pacific Rim. Darrel Snyder’s report on the state of knowledge of early life stages in North American fresh waters is so large, it required it’s own section. I am delighted to have these kinds of reports and I know our membership will find them interesting.

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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/ELHASAffiliate/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.”