

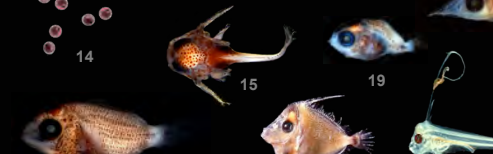
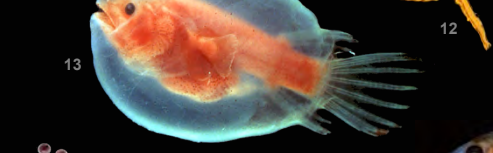
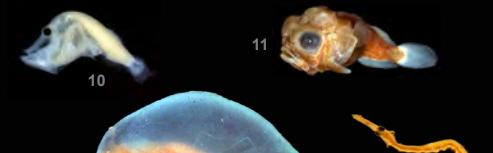
Early Life History of Marine Fishes



A GRADUATE COURSE IN LARVAL FISH IDENTIFICATION AND ECOLOGY



Can you identify these larvae?



Announcing . . .

a lecture and laboratory course that offers a comprehensive view of the biology and taxonomy of early life stages of fishes. These stages (eggs, larvae and juveniles) are abundant and diverse components of aquatic ecosystems. Their small size, dynamic vital rates, and dependence on ambient environmental factors, make them vulnerable to variability in climate and to stresses of anthropogenic origin. Knowledge of their morphological development serves to clarify the complex systematics of teleost fishes, the most diverse and largest class of vertebrates. Early life stages often have specialized adaptations to ensure survival in stressful habitats.

The Larval Fish Collection and Laboratory Sessions

We present a unique teaching collection of larval fishes with over 500 lots and 1,500 specimens. The collection contains larval representatives of 31 orders and about 190 families of teleost fishes. In each laboratory, a 1-h lecture on morphology, systematics and larval identification of lab material is followed by a 3-h study period.

Instructors

Edward D. Houde

University of Maryland

Nalani K. Schnell

College of William and Mary

Guest lecturers

Troy Tuckey

College of William and Mary

G. David Johnson

NMNH, Smithsonian Institution

John E. Graves

College of William and Mary

Jan McDowell

College of William and Mary



24



25



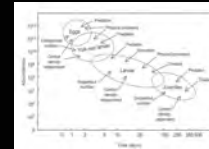
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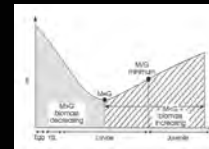
27

Lecture topics

- An Overview of Teleost Systematics
- What is a Fish Larva?
- Ontogeny and Development
- Embryology and Hatching
- Maternal Effects
- Metamorphosis
- Physical Processes
- Larval Assemblages
- Age and Growth
- Nutritional Condition
- Mortality and Cohort Dynamics
- Recruitment Theory
- Applications in Fisheries Science and Management
- Culture, Stocking and Restoration
- Otolith Aging
- Food and Feeding



The complexities of ELH



The recruitment process



Johan Hjort's critical period hypothesis

Right picture: The 2008 class came from universities and agencies in Delaware, Virginia, North Carolina, South Carolina, Alabama, Portugal, Germany and Brasil

Prerequisites, Venue and Costs

Students should have some experience and background in fish ecology, fisheries science, ichthyology and biological oceanography. Prerequisites include an undergraduate degree in a biological discipline and permission of the instructors.

Lectures and laboratories will be held at the Virginia Institute of Marine Science, Gloucester Point, Virginia. VIMS is situated near the confluence of the York River and Chesapeake Bay and offers laboratory space with high quality stereomicroscopes for our use and possibilities to sample fish larvae for laboratory exercises. All lecture and laboratory materials are provided. If you have unknown, unsorted, or interesting larval fish material in your collections, bring them with you!

- Date: 10 June – 28 June 2013
- 3 graduate credits
- Application deadline: 15 April 2013
- Tuition and room: approx. \$3,000
- MSCI 657, MEES 698



Virginia Institute of Marine Science