

Freshwater Pearly Mussel Course Outline

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Overview: Freshwater pearly mussels are among the most imperiled groups of animals in North America and approximately $\frac{2}{3}$ - $\frac{3}{4}$ of the 300 freshwater mussel species native to North America are extinct, listed as endangered or threatened, or are in need of conservation status (Williams *et al.* 1993, Nature Serve Global Ranking, Stein *et al.* 2000). This course will provide an introduction to New York's freshwater bivalves and will focus on the ecological importance of pearly mussels and the unique host fish – mussel relationship. Hands on species identification will be provided.

Introduction to New York's freshwater bivalves - 15 minutes

An introductory presentation will provide course participants with an overview of New York State's freshwater bivalves, including native pearly mussels and fingernail clams and nonnative zebra mussels, quagga mussels and Asian clams.

Ecological importance of pearly mussels and the fish-mussel connection - 1 hour, 15 minutes

Instructors will present participants with information on the ecological importance and habitat requirements of pearly mussels. As most mussel species must parasitize a fish to complete their life cycle, special attention will be given to mussel life history and the unique fish host relationship. This discussion will touch upon mechanisms, such as fish mimic lures and suspended mucus nets, used by mussels to pass their young to fish, fish response, and the advantages of fish hosts for mussels. Instructors will also discuss past and present human uses for mussels and current threats, including aquatic habitat fragmentation, facing this group of species and their hosts.

Overview of New York mussel survey work - 30 minutes

Recent New York mussel survey work, including State Wildlife Grant funded surveys of the Alleghany, Southeast and Southwest Lake Ontario and Susquehanna Basins will be introduced. Common qualitative and quantitative survey methods will be briefly discussed.

Small Group "Midden" Sorting - 1 hour

Participants will be introduced to mussel anatomy and key shell identification characteristics. The class will then divide into small groups containing no more than 6 people. Each group will receive a pile of shells containing multiple representatives of approximately 20 New York State mussel species. By examining morphological similarities and differences, groups will divide the piles into species groups. Instructors and assistants will be on hand to guide groups in this effort.

Shell Identification - 1 hour

Common (and not-so-common) NY State pearly mussel species will be introduced. Individual species habitat preferences, life history factoids, conservation status, and identification hints will be discussed. Shells from the "midden" sorting exercise and from DEC R8 collection will be available for reference during this segment.