

Dynamics of sexual reproduction and embryonic incubation in marine bryozoans.

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Our research will focus on the dynamics of sexual reproduction and embryonic incubation in marine bryozoans. The central group will be cyclostome bryozoans, one of the most ancient bryozoan taxa, that is still diverse and abundant in modern seas. We intend to study their: oogenesis, intracoelomic incubation of embryos (viviparity), matrotrophic nourishment of progeny (in a form of placentation) and polyembryony (multiple clonal development of embryos from a single fertilized egg). This exceptionally rare combination of reproductive characters could have played a key role in their past explosive radiations and current success in marine ecosystems, thus making this group a unique model system for studying role of reproductive mode in evolutionary success. Detailed study, besides describing of processes involved in reproduction of Cyclostomata, aims to answer the following questions: What was the ancestral reproductive mode for Cyclostomata? How did such complex reproductive mode evolve? What is the source and how does function so-called “nutritive tissue”? What is a major factor controlling the polyembryony in Cyclostomata? Whether embryonic multiplication can be secondarily lost?