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Development of Freshwater Snails (Planorbidae)

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Poster Presentation P40

DEVELOPMENT OF FRESHWATER SNAILS (PLANORBIDAE)

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Freshwater snails in the family Planorbidae are common inhabitants of river and lake systems in central Illinois. Like other pulmonate snails, *Planorbis* sp. reproduces by mutual exchange of sperm with hermaphroditic partners and internal fertilization of eggs followed by encapsulation of the zygote in an egg capsule. Each egg capsule is incorporated into an egg mass containing between 16 and 64 capsules. The egg mass surrounding the capsules consists of a jelly matrix surrounded by a thin chitin-like membrane. Encapsulated embryos develop within this mass, completing development and exiting the capsule 8-10 days after laying. This study of the development of *Planorbis* sp. was undertaken to determine if the egg mass material provides developing snails protection from UV radiation, which is known to cause abnormal development in other metazoans. As a first step towards this objective, the variability of the timing of development, as well as hatching time and size at hatching, were determined for lab raised individuals. Encapsulated embryos separated from the egg mass had similar development and hatching time to those within egg masses. Hatching time and size at hatching was variable for both snails separated from the mass and those still encased in the mass. In both groups, not all embryos reached hatching stage. Environmental factors such as light and algal growth correlated with inhibited development. Examination of the egg mass showed a change in consistency of the internal jelly within two to four hours after laying. Initially, the eggs may be separated from the egg mass and the extra-capsular jelly's consistency is that of a gel matrix. After four hours, capsules become fused to each other and to the chitin-like external membrane. During this change in the consistency of the jelly in the mass, a color change from translucent white to more transparent yellow also occurs.