ABSTRACT

A principal objective of this research is to identify what changes the molluscan community has undergone, focusing on those related to anthropogenic impacts, such as boat traffic, excess input of nutrients, dredging, clamming, etc., which might cause mismatches between the living and dead assemblages at Chadwick Bay, Onslow County, North Carolina.

In order to obtain a baseline for measuring the impact of disturbance and see if there is fidelity between the live and the dead assemblages, the following methods were used.

- Samples of living and death assemblages of mollusks were taken from four transects along Chadwick Bay.
- Each transect was divided into three sampling areas.
- Samples were collected using a 25 cm sieve.
- Species abundance determined for both live and dead assemblages.

RESULTS

Disturbances have both indirect and direct effects on sea grass ecosystems, causing habitat fragmentation (Bell et al. 2002). Fragmentation of highly productive sea grass environments influences molluscan communities that live in them, including affecting species growth rates and survival (Irlandi et al. 1998).

Chadwick Bay, along the New River (near the Intracoastal Waterway) in Onslow County, North Carolina, exhibits activities such as clamming and boat traffic, and the sea grass habitat is fragmented. In this study we test the hypothesis that live-dead assemblages of the molluscan community in the sea grass habitats of Chadwick Bay will show discordance in rank order abundance and diversity as a result of anthropogenic influence.

HYPOTHESIS

Species abundance determined for both live and dead assemblages.

LOCALITY

Ecosystems are constantly undergoing changes due to human influences. High input of nutrients, changes in salinity, dredging and drilling, boat traffic, nutrient, and clamming are examples of tactics that degrade water quality, causing loss of habitat (Kidwell 2007). Such disturbances have both indirect and direct effects on sea grass ecosystems, causing habitat fragmentation (Bell et al. 2002) and influencing communities that live in them. Changes in growth rate and survival may cause disturbances between the local living community of mollusks and the dead assemblages in taxonomic composition (Huit & Nuttle 2007). Because sea grass habitats in Chadwick Bay, Onslow Co., North Carolina, have been disturbed by these factors, we hypothesize that living and death assemblages of the molluscan community will show discordance in taxon rank-order abundance and diversity due to anthropogenic influence.

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CONCLUSION

Human activities such as claming and dredging and filling of the Intracoastal Waterway has made the sea grass habitat inhospitable to the mollusk fauna due to the increase of nutrients and water turbidity. For each transect analyzed, a lack of live-dead agreement in rank ordering of mollusks taxa at Chadwick Bay was obtained. The Spearman rank-order correlation was nonsignificant for each sample analyzed. In addition, Solemna, common in the living assemblages but not in the dead, is an organic-loving species found in areas of anthropogenic eutrophication. This mollusk is characterized by having a mutatisis associated with the chemosynthetic bacteria, occurring endosymbioses, an adaptation found in rich-sulfur environments.

ACKNOWLEDGMENT

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