Eelgrass Restoration in the Kennebec

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Eelgrass (*Zoster marina*), a type of submerged aquatic vegetation native to the Maine coast, is not as widespread as it once was. The lack of eelgrass along the coast poses a threat to biodiversity, as it provides a nursery habitat for juvenile fish and a wide range of marine species. In addition to providing nursery habitat, eelgrass traps sediment and improves water quality. Previous studies and restoration efforts have shown that transplanting eelgrass to areas lacking a healthy population can be successful and improve the coastal ecosystem (Jane Disney pers. comm.). After a large-scale restoration effort in the Chesapeake, the transplanted eelgrass spread rapidly, doubling its density in less than two years (Orth *et. al.*, 1999). This study indicates nature’s capacity for recovery: a small establishment of *Zostera* can modify its environment enough to enable its spread along the coast and once again be a dominant species fostering biodiversity.

Although eelgrass restoration has been successful in the Chesapeake, there have been mixed results with other transplant experiments, and more research needs to be done (Fonseca, 2011). This project sought to refine methods of transplanting eelgrass and the success of this experiment will help determine whether or not a large-scale restoration effort, like the one in the Chesapeake, would be feasible and beneficial to coastal Maine ecosystems. Eelgrass beds at the mouth of the Kennebec River, Phippsburg, Maine, were surveyed (Seth Barker, 2010, DMR). Forty shoots with intact rhizomes were pulled from a healthy bed in Sagadahoc Bay and transplanted to a sandy region lacking large stands of eelgrass on the opposite side of the bay. Biodegradable grids were used to secure the shoots in the sediment.

Several factors, including wave exposure, turbidity, dissolved oxygen, salinity, and temperature, will determine the success of the transplants. The success of the transplanted bed will be monitored to determine if a large-scale restoration effort in the mouth of the Kennebec would be possible. In light of the recent diebacks in previously healthy eelgrass beds throughout Maine, future research should explore the effects of green crabs and global warming on eelgrass, as these factors will likely contribute to the future of eelgrass in Maine.

Biodegradable grids used to secure eelgrass transplants in the sediment. (Brown)
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References
