

MECHANISMS FOR MIGRATION OF ANADROMOUS HERRING:
AN ECOLOGICAL BASIS FOR EFFECTIVE CONSERVATION

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Excerpt, Pg 532- Implications for Management

The goal of a successful conservation plan should be to restore or maintain a sustainable natural ecosystem while upholding the services society requires (Wear et al. 1996, Harwell 1997, Wilzbach et al. 1998, Shin 1999). A successful conservation plan should be based on sound science, related to management goals (Risser 1993, Parrish et al. 1995), involve the cooperation of many groups at the local, state, and federal level (Rasband 1999), and incorporate real data concerning the ecosystem in question and the needs of the community, both real and perceived (Christensen et al. 1996, Harwell 1997). For river herring, an effective conservation plan should strive to maintain current stocks and preserve or restore watershed health in order to facilitate successful restoration. In addition, water should be budgeted to ensure that adequate water is in stream channels throughout the entire freshwater residence of juvenile herring or at least during potential peak periods of migration. For river herring, understanding mechanisms that drive fish distributions and abundance can aid in the effective development and orchestration of a sound conservation plan for small, coastal systems in which water diversion is a highly debated topic. This study has increased our understanding of herring migration and has provided managers with some level of predictability of migration patterns based on the factors that we identified as important. Specifically, new moon, density of preferred prey, water visibility, and low rainfall were all predictors of migration. Based on the data presented here, we can better monitor juvenile river herring such that we can adjust magnitude and timing of water diversion.