

Assessing the population genetic structure of eelgrass (*Zostera marina* L.): implications for management and restoration of a coastal habitat R/6642-001

Dr. Paul Bologna
Department of Biology and Molecular Biology
Montclair State University
973-655-4112
bolognap@mail.montclair.edu

Dr. James Campanella
Department of Biology and Molecular Biology
Montclair State University
973-655-4097
campanellj@mail.montclair.edu

Research Summary

Seagrasses have undergone dramatic declines worldwide from both natural and anthropogenic sources. Several studies investigated the distribution of seagrasses from New Jersey and have shown declines in coverage. Seagrasses serve as a barometer of the health of the ecosystem by being one of the most sensitive indicators of long-term water quality and changes in their distribution may equate to system-wide decline. Consequently, assessing these important communities will allow us to better understand impacts of loss and community linkages.

Eelgrass (*Zostera marina*) is one of the most widely distributed seagrasses in the world. It serves as essential fish habitat for many commercially and recreationally important species and provides stability to coastal systems through reductions in water velocity, increased wave attenuation, and

stabilization of sediments. However, due to coastal eutrophication, *Z. marina* has undergone significant declines in spatial coverage throughout much of its range. Along the mid-Atlantic

Coast, *Z. marina* declines have been linked to disease and changes in water quality and the problems facing many coastal managers relate to minimizing losses and increasing coverage through restoration efforts. In New Jersey, the wasting disease outbreak in the 1930's is thought to be responsible for the

elimination of *Z. marina* in the southern part of the state. Since limited natural transport of seeds can occur across these distances, active restoration may lead to significant increases in spatial coverage if successfully reestablished in these regions. Essentially, once small populations are established, they can expand vegetatively and through seed dispersal. This project will provide a critical assessment of the genetic structure of *Z. marina* populations in New Jersey and provide guidance for future restoration efforts.

