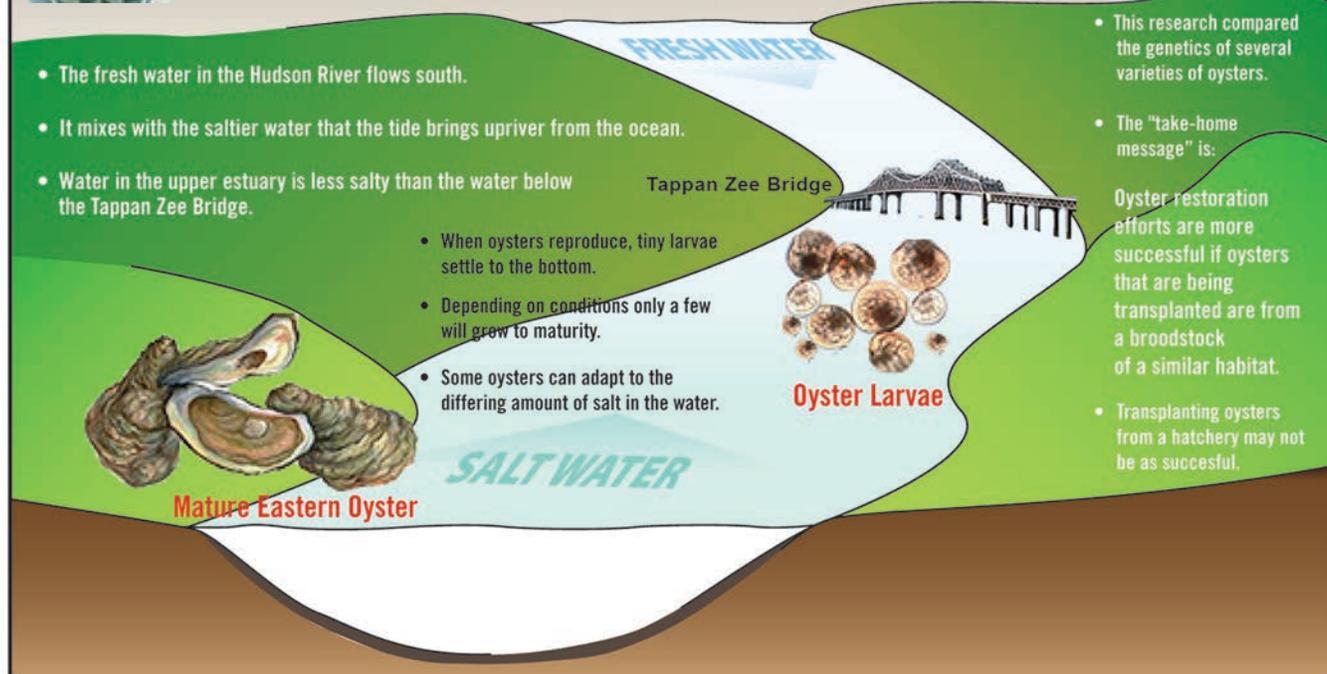




The Hudson Is His Oyster:

Matt Hare looks at restoring oysters in the Hudson



Genomic Analysis of Oyster Dispersal and Recruitment Success, a New York Sea Grant research project by Dr. Matthew P. Hare, Department of Natural Resources, Cornell University.

Oysters were once so plentiful in New York City that oyster shuckers worked nearly 'round the clock, feeding rich and poor alike, discarding mountains of shells. Not now.

But there is much interest in restoring oyster populations. Some habitats targeted for restoration are at the geographic and environmental edge of the oysters' ecological niche in low salinity waters of the Hudson estuary above the Tappan Zee Bridge. In Sea Grant-funded research, **Matthew Hare** of Cornell has been looking at two important genetic questions that affect plans to restore oysters in the Hudson: Is there gene flow between lower and upper estuary oyster populations low enough to cause genetic structure? And secondly, are low salinity oyster populations locally adapted by functional genetic differences, or do they survive extreme conditions by virtue of acclimating to the conditions?

Hare has studied these questions in Delaware Bay and Hudson River oysters using a combination of genomic approaches applied to gene expression and genomic polymorphism. In other words, for oysters, the size and shape matter.

What he found was genetic differences between the fresher upper the Hudson compared to the saltier lower Hudson estuary. The research team found genomic patterns consistent with limited gene flow exist between upper and lower estuary populations. This implies that local adaptation may be more multigenerational. This means in order to restore oysters using hatchery-produced oysters and ensure that they will produce viable offspring, restoration programs should use broodstock collected from a habitat that matches the planned restoration habitat.

— Barbara A. Branca

Matt Hare and Harmony Borchardt-Wier anchoring a cage of experimental oysters along the East River, Bronx, NY. Photo by Sarah Crestol.

"The goal of oyster restoration efforts in the Hudson-Raritan Estuary and elsewhere is to jump-start a population recovery. By improving habitat or using hatcheries to supplement the population it is hoped that a little effort now will promote and hasten natural recovery."

— Dr. Matthew Hare, Cornell researcher

