INSIGHTS

Rutgers researchers uncover new knowledge in the sciences and humanities.

City Slickers

Fish Call the Big Apple Home

As unlikely as it seems, in the ongoing battle over responsible development of a prime piece of Manhattan real estate—the Hudson River waterfront—even fish have a place on the bargaining table. After all, two-thirds of the commercial catch harvested off the East Coast originates in protective estuaries like this urban waterfront. The Hudson River Foundation, a nonprofit group that supports scientific research and sound public policy on river-related issues, was concerned that plans to reshape the waterfront with landfills, platform construction, and other structures might damage the urban habitats of fish.

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Although the Foundation was eager to study the effects of man-made structures on fish populations in urban areas, experts were not encouraging. "Marine scientists told us that it was almost impossible to correlate the presence or absence of fish to a specific habitat because they are continuously moving," says Dennis J. Suszkowski (CC'71), science director for the Foundation. "As a result, no one had ever conducted a definitive study, and we were left scratching our heads."

But Ken Able, a professor at Rutgers' Institute of Marine and Coastal Sciences and director of Rutgers' Marine Field Station in Tuckerton, and colleagues at the National Marine Fishery Service in Sandy Hook had developed a method to conduct such studies in the natural estuaries of the Delaware River Basin; they thought it would work just as well in the Hudson River. With a $250,000 grant from the Foundation, Able set out to determine if such urban fish species as winter flounder, tautog, and striped bass can thrive in man-made environments.

Able and his colleagues tested six locations on both the New Jersey and New York sides of the Hudson where fish congregated. In each of these six habitats, he placed three-foot-square, screened cages containing three young fish. Each fish had been marked, weighed, and measured before entering the water. Every 10 days Able pulled the cages and charted the growth of the fish. "We found that although fish may be found under a pier, they do not do well there," says Able. "Compared with fish living in natural estuaries, these fish grow much more slowly; as a result, they are more likely to be eaten by predators and have a harder time surviving the winter. So when you build a large pier, you are essentially removing a fish habitat.

"Estuaries are critical to fish survival, especially during the first year," continues Able. "If we eliminate or further degrade urban estuaries, there will be a significant drop-off in the number of fish."

Able's study will influence the management and development of fish estuaries along the Hudson River, says Suszkowski. "Development is cyclical, and you can be sure there will be other proposals to reshape the waterfront. Able has framed the issue for us."—*Bill Glovin*

Fault Finder

Program "Knows" the Right Stuff

Last summer, after performing flawlessly in a major Navy training exercise, a Marine Corps CH-46 helicopter was pulled out of commission and overhauled. Despite the apparent success of the flight, a computer program had turned up major flaws in the copter's transmission. When the transmission was dismantled, technicians found serious faults in the gears that had gone undetected by conventional testing methods.

The computer program that detected these faults originated in the basic research of Mark Gluck, an assistant professor at the Center for Molecular and Behavioral Neuroscience at Rutgers–Newark. As a postdoctoral student at Stanford University, Gluck used Navy funding to study the learning patterns of rabbits as they were taught to blink their eyes on cue. From this basic research,

Illustrations by Cathie Bleck