Andrew Cohen: Mussel-bound

WHEN ANDREW COHEN '85, M.S. '89, PH.D. '96, CELEbrated his son's fifth birthday on a San Francisco Bay beach with his family this summer, he came down with a rash. As one of the leading experts on the biology of the Bay, and one of the state's foremost invasive-species researchers, he identified the source immediately—a swimming flatworm larva, recently arrived in the Bay—and promptly went home to photograph his arm.

"You could see the little entry holes where it went in," he says. "Quite interesting, actually."

Cohen, 52, grew up in Boston and finished high school at 16. After a series of odd jobs, and college stops at MIT and Tufts, he moved to the West Coast to finish his bachelor's degree at Berkeley—and ended up sticking around for his master's and Ph.D. While studying and working as an elected member of the East Bay Municipal Utilities District board of directors, Cohen started exploring the Bay and wondering what critters made their homes in it.

In the summer of 1992, he met renowned marine ecologist Jim Carlton, now Director of Williams College's Williams-Mystic Maritime Studies program in Connecticut. The two went on a Bay tour and Cohen says Carlton, "not only knew what was living there but had stories about it and knew the history of it. By the end of the day, I was completely seduced."

Together they attempted to count all the invasive species in the Bay, research that formed the basis of Cohen's Ph.D. thesis. Their findings on accelerating invasion rates were published in *Science* and became the seminal work on aquatic invasions nationwide. Many of those invaders had hitched rides in the ballast water of ships, which take on water to help balance them as they navigate the ocean, then dump that water, still teeming with happy critters from exotic seas, before entering port. Cohen's research was presented to Congress and in 1999 he led California's efforts to ban ballast water dumping in state waters. Cohen's finding that the rate of invasion in the San Francisco Bay—which he estimated might be the most invaded aquatic ecosystem in the world—was accelerating rapidly, lent urgency to the ballast water bills.

His most recent work has focused on a freshwater invader that hasn't—yet—arrived in Northern California: quagga mussels. Quaggas have devastated the Great Lakes region, causing an estimated $100 million a year in damage, and showed up for the first time west of the Rockies in a Southern California lake last January. The thumbnail-sized mussels clog pipes and drains, foul boat hulls, and scour the water of nutrients that sustain other life. If they reach the Sacramento Delta, quagga mussels could clog up the pipes that supply drinking water to more than 20 million Californians and agricultural water to about 600,000 acres, with damages reaching hundreds of billions of dollars.

"Among aquatic invasions, this is the poster child for disaster," Cohen says. "We could quite reasonably bring resources to do an eradication on the scale that's never been done before."

For now, Cohen is cataloguing new invaders in the Bay—including a "very aggressive" kind of oyster and a hungry snail that's just arrived from back East—looking for grants to continue his exotics guide, and studying the Japanese bubble snails that carry the flatworm larvae. And, of course, looking for a new place to celebrate his son's next birthday party.

—Eric Simons