

Crabs put the pinch on marshlands

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If you take a quick glance at the marsh next to Saquatucket Harbor in Harwich Port, Mass., you will notice right away that some of the grass is missing. The cordgrass there, and all around Cape Cod, has been slowly disappearing for decades.

"The cordgrass that's being destroyed here is the foundation species that builds [salt marshes](#)," explains marine ecologist Mark Bertness of Brown University.

With support from the National Science Foundation (NSF), made possible by the American Recovery and Reinvestment Act of 2009 (ARRA), Bertness studies this critical ecosystem. Marshes offer much more to us than just scenic beauty. They protect our coastal environment by nurturing a complex web of [plants and animals](#), filtering [nutrients](#), and serving as a critical storm barrier.

Right now, this is an ecosystem being thrown out of balance, according to Bertness who's currently researching a possible link between [overfishing](#) and the die off of New England salt marshes.

Bertness says the marshes are being overrun by purple marsh crabs because their main [predators](#), [blue crab](#) and finfish, are being overfished. So, the purple marsh crabs are free to gorge on healthy fields of cordgrass and once done feeding, they leave behind nothing but lumpy fields of mud.

"Marshes have been calculated to be, acre per acre, the most valuable

ecosystem on the planet economically, for the societal services they provide," says Bertness, who has set up experimental stations all over [Cape Cod](#) to monitor the impact of purple marsh crabs on the local habitat.

At each field station, Bertness tethers purple marsh crabs to sticks, offering an easy meal for any hungry blue crabs that happen to pass by. He also sets up predator traps to get a good idea of the number of blues at various stations. So far, where the marsh grass looks healthy, that's where the purple marsh crabs get eaten and the predator traps are full of blue crabs. Conversely, where the marsh grass is patchy and eroded, the purple marsh crabs remain untouched and the predator traps are empty.

Bertness sees the same trend up and down the cape. Marshes are eroding as the purple marsh crab eats the grass away unchecked. Their predators are being fished out at Marinas like the one in Harwich Port.

"These are waters that have been depleted by recreational fishing from that marina over there," says Bertness, pointing to a marina just a few hundred yards away.

The further away from fishing activity, the erosion gradually becomes less and less evident. Bertness calls it a halo effect.

"People like fishing and they like salt marshes, and they don't understand that there's a pretty tight linkage between the healths of both of them," says Bertness. "Salt marshes are such an important nursery ground habitat for both recreational and commercial fisheries that it's in their best interest to understand these linkages."

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