

Episode 4: Fringing Habitats Featuring Steven Handel (SH), Christina Kaunzinger (CK), and Jean Epiphan (JE)

Hosted by Helen Cheng (HC)

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Trees and shrubs frame the waters of the bay; they provide a home for birds, they provides a breath of fresh air for us, and they provide protection for everything living on water's edge. Welcome to Jamaica Bay.

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You're listening to Jamaica Bay, a podcast series bringing you stories of the people that work, live, and play in Jamaica Bay, New York City. I'm your host, Helen Cheng. And I'm from the Science and Resilience Institute at Jamaica Bay and New York Sea Grant.

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With buildings, bridges, and roads, one wouldn't think of New York City as a having a lot of "green" aside from Central Park. But the life that surrounds the waters of Jamaica Bay are the fringing habitats that shape this landscape of the 'urban wild.'

SH: "Around Jamaica Bay is a whole series of fringing habitats of trees and shrubs and herbs. It's thin - just a little band between the water and the big roads like the Belt Parkway around Jamaica Bay."

CK: "These marshes, the fringing marshes provide nursery habitat for fish, for invertebrates that the seabirds eat, the wading birds, in the system. They also provide important foraging areas for our Diamondback terrapins, one of the iconic species of the Bay."

JE: "The key between seeing wildlife and you experiencing it is having these vegetative habitats, these plant communities which people in these areas can actually have in their yards."

I sat down with three researchers who have been looking at the fringing habitats of Jamaica Bay...

JE: "Because I feel like every day you always learn something new.... in a very dorky way, in a plant ecology sort of way."

...and learned about their experiences.

SH: "I'm Steven Handel; I serve as Professor of Ecology and Evolution at Rutgers University, and also Professor of Landscape Architecture at Harvard Graduate School of Design."

CK: "My name is Christina Kaunzinger; I'm an ecologist; I work at Rutgers University; I'm affiliated with the Department of Landscape Architecture in New Brunswick."

JE: "And I'm Jean Epiphan and I'm also an ecologist and I was the project manager, and I'm affiliated with Rutgers University in New Brunswick."

The fringing habitats of Jamaica Bay border inland, starting from the water's edge and going upland into the city. These habitats have distinct zones with different types of plants and vegetation.

SH: "Starting in the saltwater, you get salt marshes just a few species that can tolerate salt; salt is deadly for most plants. When one goes inland from the saltmarsh is a group of plants which still can tolerate salt, from the salty wind and the occasional flooding from very high tides. And then as we keep going in several more yards away from the salt water, other things can start to live; a more typical forest that people think about when you're away from the salt."

JE: "And there's northern bayberry and black cherry, beach plum, and sometimes you'll find an occasional American holly as well as in the grasslands we find little bluestem which is the one of the most beautiful plants in the late summer to see as well as more interesting plants; there's one that's called a rabbit tobacco which has a maple syrup scent (HC: "Funny name."; JE: "Yes."). And in the marshes of course you find the regular cord grasses. But we also find some salt pans that are really interesting and you see Salicornia which I think is also known as sea pickle, people can actually eat it and it's very salty, and some interesting beautiful species like sea lavender. So you have these little microhabitats as well that are fun to come across when you are in these areas."

With such a diversity of plants, why are they important to us?

CK: "So vegetation that sits in between the water and the built environment, it's really important in flood protection."

Plants and trees act as a barrier as it breaks the force of storms that comes towards land. The roots also stabilize the ground and lessens erosion, reducing the soil going into the Bay and increasing water absorption into the ground.

CK: "They also help to prevent flooding by using water, and then it's taken up by the roots and it goes up through the plants."

The plants and trees also clean our water. When storm water flows onto vegetation, it drips into the soil where there are lots of microbes that break down the pollutants carried in the water, before it all flows into the Bay.

CK: "So it helps to preserve water quality of the Bay itself."

Plants also clean our air. They produce a surface that pollutants can adhere to and produce oxygen.

However there is a concern of rising sea levels and the fate of these important fringing habitats. Though a lot of these plants can handle salt water, too much water causes the vegetation to have to deal with it in other ways.

CK: "As sea level rises there's concern that these species that make up the fringing vegetation will be lost; as the water rises, the vegetation has to migrate inland or die. The problem with migrating inland is

that there's an entire city and Jamaica Bay, which is really the area to which that vegetation would normally migrate."

This team of researchers, in addition to colleagues and students from different universities and agencies, set out to look at what is out there: what vegetation was destroyed by past severe storms, what's the potential of bringing back that vegetation, and how could these fringing habitats stick around for decades ahead.

CK: "I think the most exciting finding from the hurricane damage was that this coastal system is pretty resilient."

They noted that after a few years of a major hurricane that occurred, the coastal vegetation system rebounded and there were healthy areas.

SH: "Not everything was destroyed. The salt marshes were very, very damaged and here and there, piles of sands and wrack - dead leaves and stems - were washed ashore, covering vegetation. But many areas were okay. The human homes were damaged much more than the bird's homes."

CK: "And I suspect it's because this system is very adapted to storms, to this kind of disturbance and I think that's what protected it."

Research is still ongoing but they note that the results look promising. They also note that *you* can help support this effort. So green thumbs out there, listen up!

CK: "One way that people who live around the Bay can support the native species on the coast is to use them in their landscaping efforts. School yards: they have shrub plantings, they have trees, they have flowerbeds but they aren't typically planted with native species. Another place that I've seen is underplanted is the edges of ball fields. As a parent, I find there is not enough shade on soccer fields or on baseball fields. So we have opportunities to maybe provide a little bit of shade and we can use coastal species that will support our natural environment."

SH: "If we can put native beautiful plants back in our yards, it would still be lovely to our eyes but also help maintain the natural heritage and species that Jamaica Bay is so famous for, and that's what we're looking at."

The work continues on for the team but they hope their work will highlight the importance of these places for the environment and for the coastal communities.

CK: "I think some of the most rewarding experiences have been the people who've stopped by when we were working on the restoration experiment, and they're people from the community, and they're curious, and they're supportive and excited that we were there and we were learning about the land around them and they were excited to have school children come and look at the species, not just the species that we were planting but the idea of the experiment that was right there in their backyard."

Steven Handel was even raised here and has witnessed a lot of change.

SH: “Yep, I was raised in Far Rockaway and I’m a graduate of Far Rockaway High School: Go Sea Horses! It was a wonderful place for young boy to grow up near the beach. I didn't know much biology then, of course, I was just a kid but I knew it was lovely and I was surrounded by it.

“When I go back today as an adult, I see how it’s changed. The lack of seaweed species in the water because water quality has been depressed, the lack of birds where there once was a tremendous variety of birds and so on. Many of the plants which are common now, are ones that I never saw when I was growing up in public school. So the changes are everywhere.

“We’re looking at nature at a new arrangement; thin pockets of wildlife and plants stretching across some of our streets, connections between our city parks and preserves, trying to thicken the edge around Jamaica Bay to protect it when the sea level rises.

“We’ve got to get people to realize that, that even if you don’t have the salt water in front yard, you’re part of keeping this great natural resource healthy; it really is the urban wild - the great natural area of the city of New York.”

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JE: “When you’re in some of these beautiful more pristine locations, you just really feel like you're in nature.

“You’re standing out there on a dune; you see Manhattan, you see all of the Bay in panoramic view, you can see Staten Island and New Jersey and the Atlantic Ocean, and you’re just in a beautiful maritime oasis. You don't feel like you're in New York City but you are.”

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Many thanks to Steven Handel, Christina Kaunzinger, and Jean Epiphan.