

Episode 2: Water Quality Featuring Brett Branco (BB)

Hosted by Helen Cheng (HC)

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Animals need it and people too; water, water everywhere. But is its quality that we are aware?
Welcome to Jamaica Bay.

-Music interlude-

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.

-Music interlude-

Beyond the skyscrapers and the masses of people, you might not realize it at first but New York City is more than just a booming metropolis.

BB: "Well, New York City is an island. Manhattan obviously and Staten Island obviously, but even Brooklyn and Queens are part of Long Island. And we're a coastal city so we're intimately tied to the waters."

To learn about the New York City waters and Jamaica Bay waters, I sat down with

BB: "Brett Branco, I'm a professor here at Brooklyn College, also hold a joint appointment at the CUNY Graduate Center. I'm also currently the director of the Urban Sustainability Program here at Brooklyn College."

Brett does research on shallow, coastal, and inland waters. A lot of his research looks at human impacts on estuaries and coasts especially in New York City bodies like Jamaica Bay. In particular, he's looking at the water quality of Jamaica Bay.

HC: "What is water quality and why is it important?"

BB: "Yea, that's sort of people's favorite questions to me. They always want to know: how's the water, what's the water quality like in this place or that place, and it's not necessarily an easy question to answer because water quality can mean a lot of different things depending on what the intended use of the waters are."

Brett explains that water quality for drinking is different from water quality for recreation or water quality to support an ecosystem. Water quality is represented by the physical, chemical, and the biological properties of the water.

BB: “So physical, you might be thinking about the water temperature or the salinity, both of which can impact the suitability of the water for certain purposes. For chemical, we might be thinking about the dissolved oxygen, or the pH, or the amount of nutrients that are in the water, or the pollutants, or something like that. And then all these properties kind of feed into what the ecology of the water bodies are going to be like - what kind of organisms are going to be able to thrive there, how the ecosystem is structured.”

So let's focus on Jamaica Bay; what about Jamaica Bay waters and what makes them so special?

BB: “For Jamaica Bay, one of the most important functions is its role in fueling a very rich marine food web.”

The food web describes the interaction of all life and their dependency on each other. Jamaica Bay's food web and ecosystem supports a tremendous amount of wildlife, as well as provides life for us in ways like fishing, swimming, and aesthetics.

BB: “So the water quality helps determine how rich and productive that ecosystem is going to be and what sort of things are actually growing there. So you want the water quality to be such that you can support a thriving primary producer community, that can support a high biodiversity. So these are all very important things and we need good water quality to be able to continue to support all those functions.”

Historically, Jamaica Bay has been impacted by water quality issues, however there's been a lot of work done in Jamaica Bay to help improve the water quality. For example, the New York City Department of Environmental Protection is upgrading all the wastewater treatment plants. There is a wealth of water quality data from the Department of Environmental Protection and the National Park Service since 1909.

BB: “What we don't have is really, a really thorough in-depth analysis of some of those water quality data, to see how that water quality has changed in response to different events throughout the history of Jamaica Bay.”

This is where Brett's work comes in. He's looking at combining all of these data sets from Jamaica Bay, analyzing these data to better understand changes in the bay's water quality due to different disturbances over time.

BB: “It would be nice to be able to say whether or not the effort that the DEP [New York City Department of Environmental Protection] is putting in is having a positive impact on water quality. So we're doing a lot to make those data easily available to the research community but also doing some more kind of looking at how that water quality has changed in the past and then hopefully watch it change in the near future as we see those waste water treatment plant upgrades happen.”

Throughout his work, Brett also brings his passion for teaching.

HC: "So you took your students out to a beach called Plumb Beach. Can you describe a little bit more about that experience?"

BB: "Yea, so one of my favorite things to do as a professor here at Brooklyn College, (HC: "And I can tell"), Yea it is, is to bring students from Brooklyn College out to Jamaica Bay."

You can tell his enthusiasm and passion. Brett's eyes brighten up and there was a big smile on his face.

BB: "And in particular, I go to Plumb Beach a lot just because there's a lot of different issues that you can expose students to at Plumb Beach. "

Plumb Beach is located in South Brooklyn along the north shore of the Rockaway Inlet and sits at entrance to Jamaica Bay. The beach has faced erosion issues, the interaction between natural coastal dynamics and humans, in addition to water quality as the Coney Island Waste Water Treatment Plant outfall sits at the Rockaway inlet. But the beach is also an opportunity to teach about the ecology of Jamaica Bay.

BB: "It's somewhat of a transformational experience for them. So they go out there and see this place; it's an urban ecosystem and it's beautiful out there, and they just love it."

With his experience working and teaching in the bay, there was one thing I had to set straight.

HC: "So it's okay to swim in Jamaica Bay?"

BB: "You know, so I have never hesitated to wade in. My students and I, when we go to Jamaica Bay, we don't mind getting wet. I've never really felt any concerns about wading into Jamaica Bay or getting wet with Jamaica Bay water." (HC: "I've stepped into Jamaica Bay. I'm still here today so it's great.")

BB: "You know, there are sometimes when I've gone there with a class to Plumb Beach for example and really have marveled on how clear the water has looked. You know sometimes the clarity of the water is impacted by suspended sand and mud and stuff like that and other times it's just because of excessive algae growth fueled by nutrients. So when you see nice crystal clear water, it makes you happy because that's what people love, they love the aesthetic appeal of a nice clean water body, sometimes it just really looks that."

-Music Outro-lude-

BB: "I think the biggest thing that's change is just the awareness; the awareness of the importance of Jamaica Bay and what's going on to try to help the bay get better. You realize that there's just so many people out there that really sort of connect with it in ways similar to the way that I used to connect with my local waters. And so, it makes you hopeful about the future of a place like Jamaica Bay."

-Music Outro-lude-

Thanks again to Brett Branco.