

## JAMAICA BAY, GATEWAY NRA: CLIMATE CHANGE THREATENS JAMAICA BAY'S SALT MARSHES

**Barry Sullivan:** Everywhere we see impacts where the sea meets the land. As the sea increases, of course, the land disappears. We lose that wetlands intertidal zone. In the last three years at the Jamaica Bay Wildlife Refuge, we've lost about forty-three acres of wetlands.

**Patti Rafferty:** It's very important as sea level rises that the marsh keeps pace with that sea level rise, otherwise the grass drowns. You can see here that when you don't have the roots there, you lose the marsh material. The peat itself just becomes highly erodible because the network of roots actually helps to hold together and stabilize the sediment, in addition to contributing organic material that builds up the marsh.

**Barry Sullivan:** During the last three years, we've been fortunate in a partnership with the Army Core of Engineers, the New York DEC (Department of Environmental Conservation), the State DEP (the Department of Environmental Protection) to create a project that has started the restoration of wetlands, and we have actually restored over, over 45 acres of wetlands in the Jamaica Bay during that time.

**Patti Rafferty:** Marshes are highly productive systems, and they're very important foraging grounds for small fish and crustaceans that are then fed upon by larger fish and crustaceans.

(Measuring the water) I have a suicide mimi.

That's why as the National Park Service we've engaged in marsh restoration and research to try to understand what the causes of marsh loss are.

Out at this site we've been monitoring vegetation since 2005. We look at the type of plants that are growing here, how dense the plants are growing, and also, we look at what percentage of the marsh is covered by plants, and what part of the marsh is unvegetated. You can see those four poles clustered together. We have an instrument in there called a sediment elevation table. It's essentially pipe that's driven down about 60 or 70 feet below the surface of the marsh, and then we bring out basically a giant level, and then over time we can measure the elevation of the exact same place season after season, to be able to determine if the marsh is increasing or decreasing in elevation.

The juxtaposition of Jamaica Bay to the City is really a great gift for the people of the New York metropolitan area. The aesthetic beauty and enjoyment that folks get from coming out here and kayaking, from being able to do bird watching. We'd have a huge loss without the marsh.

**Barry Sullivan:** The wetland restoration is actually a very complex matrix of increasing the sand level, retaining that sand from erosion, planting it with vegetation, protecting that vegetation until it gets to the right level of growth that it can then sustain the wildlife that uses the area. So, the good news is that we're able to keep pace with sea level rise. The bad news is the long term prognosis is not particularly good.

Gateway National Recreation Area can play a key role in educating the public about the impacts of climate change, the impact of sea level on national parks, on our nation, on your city, and I think that's an important role we can play and will continue to pursue in the future.