

# Trash for Treats

Outreach program to solve an environmental problem by integrating animal behavior research, innovative design, and conservation actions

## Background

Jamaica Bay in New York City is an important habitat for many migratory birds and wildlife. However, garbage has become a thriving “invasive species” and a threat to the residents. As a behavioral ecologist working from home during the COVID-19 pandemic, my attention has shifted to the urban animals outside my windows, including gulls and crows. Inspired by the recent creative project, The CrowBox, I posit that these urban animals may have the potential to help solve the problem at the bay. Early experiments in the CrowBox project have successfully implemented a vendor machine to train crows to pick up coins in exchange for food. The Puy du Fou theme park in France has also started sending trained crows to pick up paper on the ground. All these trials have shown the potential of intelligent birds to be solutions for environmental problems. I propose to apply this to the real world problem, the garbage-infected Jamaica Bay.

Brant Point Wildlife Sanctuary on Jamaica Bay is a 20-acre preserve carved out of a residential neighborhood and has been heavily affected by littering and trash dumping. The community has taken initiatives to work with NYC Parks and local NGO to organize cleanups. We noticed that caps of plastic bottles are the most common type of trash at the bay, and also the most difficult kind to clean due to the small size. I would use this opportunity to work with the kids in the neighborhood to experiment with the CrowBox and train the gulls and crows to pick up caps at the bay.



Figure 1. Fish crow, ring-billed gull, trashed caps at the bay (from left to right).

## Outreach program

I plan to engage high school-age children from the neighborhood (Far Rockaway, NY). Kids in the city generally have less opportunities for exposure to nature and to learn about animals. By presenting a real world problem in their neighborhood, I hope to motivate kids to learn about their local environment and to get interested in animal behavior. I will reach out to the local schools in the neighborhood and use this as the part of the STEAM program in the science class. The outreach program will involve three parts:

- Learn about environmental problems and animal intelligence/cognition. Students will learn scientific research on intelligence of birds and how different birds have adapted to the urban environment. I will host webinars to introduce the project and recruit students to participate.
- Design research and set up training station. Students will use this to develop a hypothesis on the various factors that may affect birds's response to the CrowBox (e.g. variety of food, color of the station, type of trash), and design an experiment to test their hypothesis. Students will take field trips to the Brant Point Wildlife Sanctuary to choose sites and set up the training stations and monitoring cameras.
- Collect, analyze behavioral data and evaluate the outcome: Students will collect the video data and learn how to quantify behaviors. After analyzing the results, they will discuss the effects of different variables on behaviors to propose better solutions for the project goals.



CrowBox (designed and photo from Steve Joy, <https://tinyurl.com/y478uvhn>)

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