THE AIR ABOVE JAMAICA BAY
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STRUCTURES OF COASTAL RESILIENCE
Jamaica Bay Team
Spitzer School of Architecture
The City College of New York

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COVER
Ring-billed gull, number culled.
In early 2014, after months of strident protests from the Audubon Society and other environmental activists, the Port Authority of New York and New Jersey released a statement agreeing to cease the culling of snowy owls that cross over New York’s John F. Kennedy and LaGuardia Airport runways. Instead, the Port Authority will implement a “trap and relocate” management plan for snowy owls, which have recently appeared in the New York area in increasing numbers. This is an important step towards a more humane way of reducing the risk of aircraft bird strikes and protecting air travelers. However, many less charismatic birds that unknowingly trespass into JFK or LaGuardia’s airspace are not given the same consideration.
After the retreat of the Wisconsin Glaciation, over 40,000 years ago, wetland marshes formed in this protected estuarine embayment at the outwash plain of the terminal moraine ridge that crosses Long Island. Since then, hundreds of bird species have relied on Jamaica Bay for habitat and sustenance. The Jamaica Bay Wildlife Refuge was created by Robert Moses in 1951, and was later incorporated into the larger Gateway National Recreation Area in 1974, when the Bay was officially established as part of the National Parks System. New York City Audubon recently reported that over sixty species found at the Jamaica Bay Wildlife Refuge are on the New York State list of “Species with Significant Conservation Need.”
<table>
<thead>
<tr>
<th>Species</th>
<th>State/Federal</th>
<th>Threatened/Endangered</th>
<th>Jan</th>
<th>Feb</th>
<th>Mar</th>
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<th>Notes</th>
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<td>Black rail</td>
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<td>Present in Jamaica bay and marshes</td>
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<td>Black skimmer</td>
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<td>Nesting: May-Sept; present near Breezy Point; ocean front and Atlantic Beach near western tip</td>
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<td>Common loon</td>
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<td>Nesting: May-Sept; present near Breezy Point; ocean front and NW near Rockaway Inlet, Little Egg, Yellow Bar, JoCo marsh, SE portion of Rockaway Community Park, JFK (SE), Inwood (NW), and Atlantic Beach near western tip</td>
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<td>Least tern</td>
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<td>Present near Breezy Point ocean front (nesting May-Sept) and NW near Rockaway Inlet, SE portion of Rockaway Community Park, JFK (SE), Avezo, Inwood (NW) and Atlantic Beach near western tip</td>
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<tr>
<td>Peregrine falcon</td>
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<td>Nesting: May-Sept; present at Marine Parkway; Gil Hodges Memorial Bridge</td>
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<td>Piping plover</td>
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<td>Nesting: April-Aug; present near Breezy Point; ocean front and NW near Rockaway Inlet, Jacob Riis ocean front, Avezo ocean front, Edgemere ocean front and Atlantic Beach near western tip</td>
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<td>Roseate tern</td>
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<td>Nesting: May-Aug; present near Breezy Point; ocean front</td>
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<td>Shortnose Sturgeon</td>
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<td>Juveniles/Adults: Jan-Dec; present in Raritan Bay</td>
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<td>Fin whale</td>
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<td>Present in Atlantic Ocean in NY State waters, East River and Atlantic Ocean NJ State waters (April, Sept-Nov)</td>
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<td>Humpback whale</td>
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<td>Northern right whale</td>
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<td>Present in Atlantic Ocean in NJ State waters</td>
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<td>Leatherback sea turtle</td>
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<td>Present in Jamaica Bay, Atlantic Ocean (including NY/NJ State waters), Raritan Bay and East River (July-Sept)</td>
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<td>Loggerhead sea turtle</td>
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<td>Present in Jamaica Bay, Atlantic Ocean (including NY/NJ State waters), Raritan Bay and East River (July-Sept)</td>
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SALT MARSH LOSS AT JAMAICA BAY, 1879-2011

data source: NOAA
Increasing urbanization and marsh loss due to fill, pollution, and sea level rise along the entire eastern seaboard has reduced the available resources for birds along the Atlantic migratory flyway. Jamaica Bay has become an even more vital resource for these birds, a site to rest and store enough energy to complete their journeys north or south each season.
In 1948, Idlewild Airport opened at the eastern edge of Jamaica Bay, Queens. Its runways and terminals were constructed on filled marshlands. Renamed John F. Kennedy International Airport in 1963, it is one of the busiest international airports in the United States. On average, over one thousand flights take off and land each day from its runways. Since the establishment of the airport, bird species and aircraft have had competing demands for both ground and air space. The airport has been upgraded multiple times to accommodate larger aircraft; in the mid-1960s a major runway was extended south-west into JoCo Marsh, the largest and most intact salt marsh island in Jamaica Bay.
JFK Airport and the Gateway National Recreation Area are in the same place for similar reasons: both airplane runways and marshlands require topography that is essentially flat. Large areas with little elevation change allow broad swaths of *Spartina alterniflora* marsh grasses to exist within the sensitive tidal range of mean tide to high tide. Economics and land value also played an important role in the adjacent siting of these seemingly incompatible land uses. At the time of the airport’s establishment, the wetlands within and surrounding Jamaica Bay were not considered desirable enough to develop as densely as other parts of New York City, nor were they considered ecologically valuable enough to protect from development. There was room for the vast stretches of pavement that airplanes demand, and little environmental regulation in place to prevent the dredging of Grassy Bay to fill the adjacent marshland, creating solid ground for the airport.
In addition to tension on the ground between marshland and pavement, avian and aircraft interests compete in the skies. Complex flight maps reveal the highly controlled airspace surrounding the New York metropolitan region. Vital radial and sectional lines divide the airspace into safe corridors for flying craft. Although these invisible highways shift to align with wind and weather, they follow logical patterns and are very precise. Safety is paramount in air travel, and these boundaries are strictly controlled. The birds, however, are oblivious.
The Port Authority has complete control over the airspace it manages, and concerns over aircraft bird strikes trump the complex needs of wildlife and habitat. Given its adjacency to an avian oasis, JFK Airport has developed many strategies to clear birds from its airspace. Employees shoot flares to scare birds away, post signs in cab driver break areas to discourage feeding the birds, and, most controversially, cull the most threatening species by poisoning, live trapping, sniper shooting, and euthanasia. An unofficial agreement exists among stakeholders that no high marsh will be restored east of the Cross Bay Boulevard, the causeway that transverses the Bay from north to south and divides it approximately in half. High marsh has a much narrower elevational range and a more diverse vegetation spectrum than low marsh, making it both less common and more ecologically valuable and attractive to birds. New York City Audubon has identified high salt marsh as the most crucial habitat for bird species.
Public outcry has proven that the general public is uncomfortable with the idea of killing birds that are innocently in the way, particularly birds that have found sanctuary in an official refuge. The Port Authority couches its culling practices in veiled language, discussing the number of birds “taken,” and bird control through “depredation” (a term defined by Merriam Webster as to plunder, lay waste, ravage). The Port Authority’s recent show of support for the trapping and relocation of snowy owls is a hopeful signal for more flexible mediation in the future. The level of success for this initiative remains to be seen, however, as relocated birds often return after being released elsewhere, and as local populations of common species such as the laughing gull and the Canada goose expand, the relocation of each offending bird is unlikely. The dynamics of this shared space will continue to be complex.