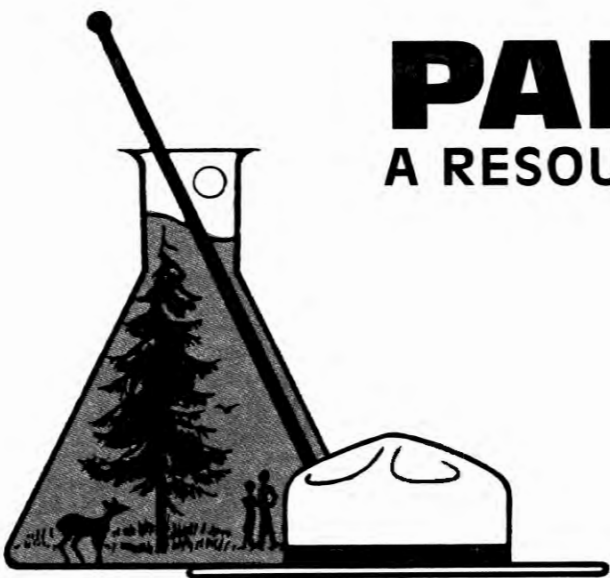




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Cover: NPS staffers from Gateway NRA and the NPS Cooperative Research Unit at Rutgers University take samples at the interface of the Fountain Avenue landfill and Jamaica Bay.

NPS Plays Key Role in Determining Future of Gateway's Jamaica Bay

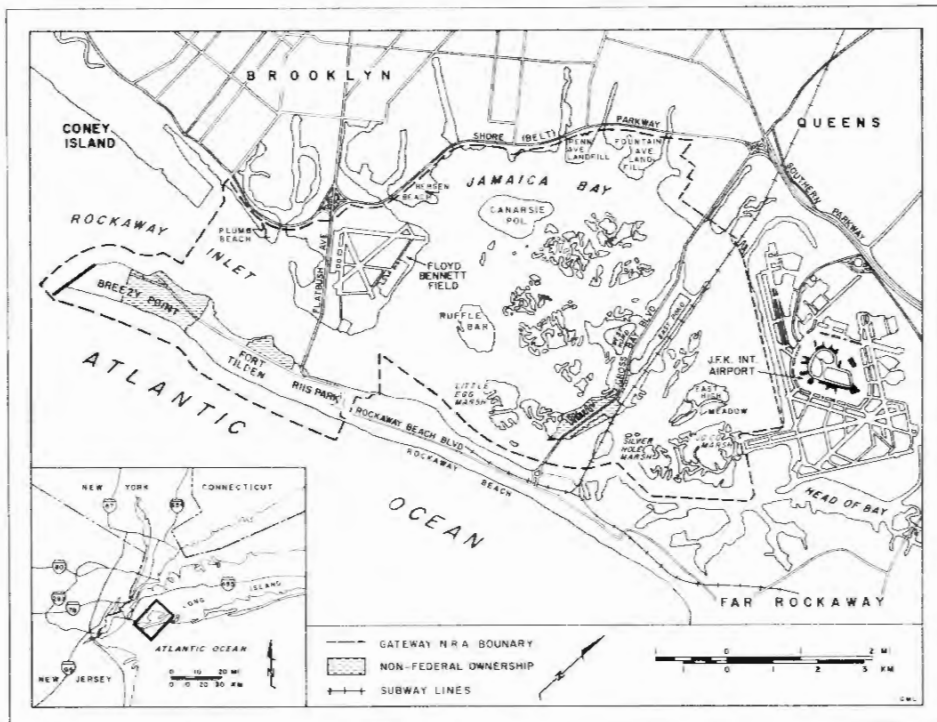
Editor's Note: The following article is the text of a talk given to students at the Harvard School of Design by Michael A. Soukup, Chief Scientist of the North Atlantic NPS Region.

The National Park Service has a major interest in the future of Jamaica Bay, Gateway National Recreation Area – an important ecosystem with a long and fascinating history. The Bay is a large, diverse, teeming estuary nearly in the shadow of the Manhattan skyline, and is seen daily by millions of people. Here, the Service's role is not one of preserving an untouched resource, but rather that of shepherding the recovery of one now extremely stressed.

In earlier times Jamaica Bay was a center of Indian habitation. Elk, bear, deer, raccoon, plus an abundance of fish and shellfish provided a varied diet along its shores. With the arrival of Europeans, agriculture and salt-haying became prevalent, with exploitation of fisheries becoming more important after 1865. Towards the turn to the 19th century, the area had become a fisheries giant – touted to be the best in the nation because its shallow (mean depth: 4m) teeming waters were uncommonly suited for rapid shellfish reproduction and growth. At the same time it became more and more of a resort area for those seeking refuge from the rigors of New York City life. Seasonal cottages then were followed by year-round homes. By 1917, an estimated 50 million gallons per day of sewage were being discharged into the Bay. Not surprisingly, outbreaks of typhoid and gastroenteritis appeared.

In retrospect, these outbreaks probably contributed to a dramatic shift in the perception of the Bay, from an attractive and bountiful haven to that of a sullied and potentially dangerous area to be avoided. The appearance of fertilizer factories, which processed New York City's horse carcasses, and fish processing factories were clear signals of (and confounding contributors to) the Bay's lowered esteem. There followed periods of real estate speculation and attempts to transform the Bay into an international port – for which it is an especially ill-suited natural feature. After massive dredging and filling, these attempts failed.

In 1930, Robert Moses saw a new future for the Bay: a park for urbanites isolated from natural areas. Moses was a visionary but also a pragmatist, yet his creation of a wildlife refuge and a Shore Parkway



Site map, showing the Fountain Avenue and Pennsylvania Avenue landfills and their positions relative to Jamaica Bay.

constituted only partial success. With the establishment of Gateway National Recreation Area in 1972, the Service inherited not only these two creations (including the Service's only wildlife refuge), but also a pivotal role in the future perception, treatment and viability of the Jamaica Bay ecosystem.

Exactly what do we have and what will we do with it? Jamaica Bay today covers an area of 52 km² – (of an original 101 km² the rest was filled). Roughly 31 million cubic meters of rain fall directly on the Bay, while the remaining input of surface water is either treated sewage (60%; or 320 million gallons per day) or urban runoff (40%). Tidal exchange is limited to a narrow inlet, 1 km wide and 7 m deep. The extension of John F. Kennedy International Airport runways into the Bay reduced tidal circulation such that the flushing time has been increased from 10 to 35 days.

Clearly, it is an understatement to say that there are formidable stresses on the Jamaica Bay system. Nevertheless the Bay has endured surprisingly well.

This survival is apparent in a recent benthic survey carried out under contract with Brooklyn College (Franz and Harris 1985). These investigators found – much to their budgetary dismay – a far greater faunal diversity than expected. With all impacts accruing to the Bay, the invertebrates, the fish community, and even the diamond-back terrapin still survive in good numbers. As expected, the body burdens of heavy metals within these animals reflect their surroundings and indicate various sources of pollution. Nevertheless it is amazing and encouraging that a system surrounded by one of the largest urbanized areas in the world shows such resiliency.

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Manhattan's skyline, including the twin towers of the World Trade Center, presents a sharply quizzical contrast to the Fountain Avenue landfill adjacent to Jamaica Bay – three separate expressions of "what man hath wrought."

Recent symposia organized by John Tanacredi (GATE Resource Manager) have drawn many specialists, who have concluded that conditions in the Bay are indeed improving significantly. Tanacredi also has initiated fishing and shellfishing surveys, as well as research on PCB contamination in fish and shellfish, because recreational use of these resources remains important to local citizens.

Perhaps the most challenging long-term threat to our bay system are impacts from two large landfills acquired by NPS from New York City. The last deeded right for use of the Fountain Avenue Landfill (at 6000-8000 tons per day) expired in December, 1985. The City fought hard to retain its operation on the Fountain Avenue Landfill, but the Service closed both landfills for good, citing "bird strikes" at JFK Airport, environmental impacts on the Bay, and operational violations by NYC as overriding concerns. JFK Airport had led the world in number of bird strikes. Thirty percent of its flights were 750 feet above the landfills, where gulls, "towering" on thermals, abound. P.A. Buckley (at the NPS Rutgers Cooperative Research Unit) has worked with the FAA and with JFK airport officials on reducing those strikes and, with the closure of Fountain Avenue, is now working on the Laughing Gull components of bird strikes there.

A major concern now is that the leachate associated with these old landfills (and any landfill in the temperate zone) may also contain toxic wastes. Recent testimony before Congress by illegal ("midnight") toxic waste haulers indicates that millions of gallons of such wastes were illegally dumped at these two landfill sites. PCBs are now leaking from the smaller Pennsylvania Avenue site. As the City of New York closes these sites, it is vital that the Service insures that every means of isolating their influence upon Jamaica Bay waters be considered.



John Tanacredi, Resource Manager at Gateway NRA, takes samples at Fountain Avenue landfill for priority pollutant analysis.

Because of the hydrological, chemical, toxicological, political and, of course, legal complexities, this will be a prolonged struggle.

These are high hurdles. We have in progress an evaluation (by the Rutgers Cooperative Research Unit) of all data now available from all sources on these two sites. By drawing in the needed areas of expertise, from analytical chemists to toxicologists, these researchers have provided a critical evaluation of the data and have outlined steps which must be taken to protect the Bay over the long term. The data collection and analysis alone will be expensive, yet they are vital in assuring that the City successfully isolates the wastes from Jamaica Bay.

The NPS goal is to isolate and reclaim these sites as important recreation areas along the shoreline of this major natural resource. The progress toward improving sewage treatment and cleaning up the Bay must not be jeopardized by failure to stem leakage of toxic wastes from the landfill sites. The degree to which we are effective in this endeavor will be the harbinger of the Jamaica Bay's future. Clearly, this represents a new kind of challenge for the Service.

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