

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

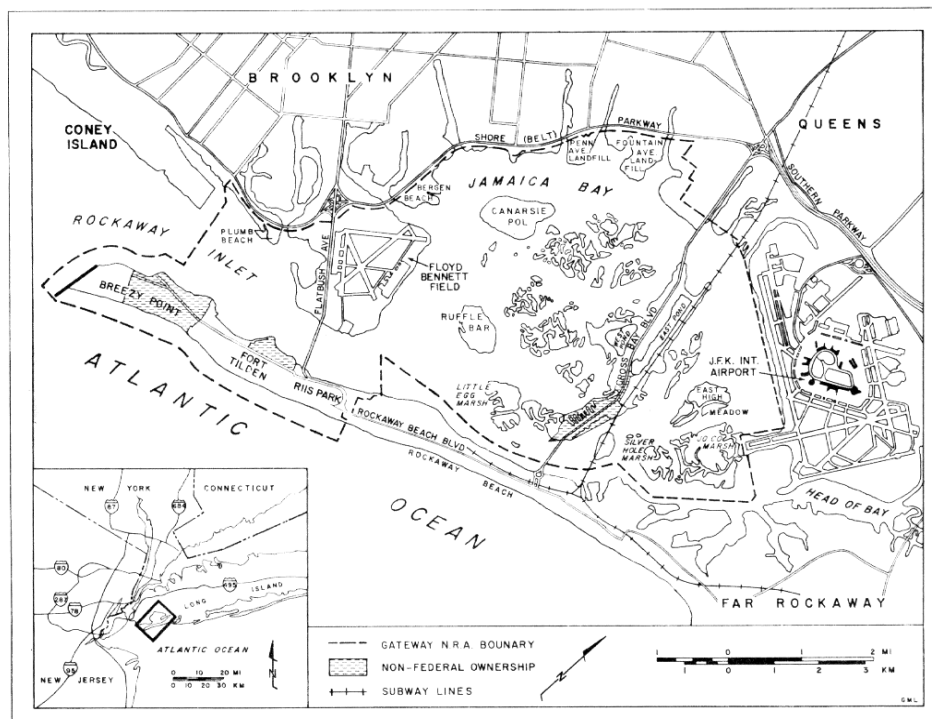
Editor's Note: The following article is the text of a talk given to students at the Harvard School of Design by Michael A. Soukup, Chief Scientist of the North Atlantic NPS Region.

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."

NPS Plays Key Role

Continued

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 ("mid-night") 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.

revegetation notes

A "revegetation working group" composed of several park and natural resource managers and park and university researchers emerged informally and spontaneously at the July NPS-George Wright Society science conference in Fort Collins, Colo. Their objective is to form a nucleus that will increase communication among park staff members working in revegetation.

The issues that brought the group together include concern over the lack of field consensus on how best to relate work in these areas to management objectives, the need for a more formal network than currently exists among field personnel with experience in these areas, and the difficulties that various participants experience while trying to locate appropriate sources of plant materials for use in revegetation. Other common concerns include the specifications for revegetation work in contracts and the selection of appropriate revegetation techniques.

Participants agreed that the working group's first step should be to form a "revegetation network" by circulating to interested field staff members a list of field personnel involved in revegetation, vegetation rehabilitation, and vegetation restoration work,

together with the personnel's specific areas of expertise.

Anyone involved in park revegetation work and interested in receiving such a list may write to Mary Hektner, Resources Management Division, Redwood National Park, 1111 Second Street, Crescent City, CA 95531. Please include the following information: (1) Your name, mailing address, and phone number; (2) a list of the vegetation types you are working with; (3) a list of the revegetation techniques you have used; (4) a description of the types of revegetation information you currently are most in need of; and (5) a description of what information on techniques of how-to-develop-reveg programs you feel the Service should publish for Servicewide distribution as part of the Natural Resources Report Series.

Hektner must receive your information by Dec. 1, 1986, if you are to appear on the list.

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NPS Washington Office

At Olympic NP, preliminary work is underway on the Soleduck Road revegetation project, with Nancy Dunkle, DSC environmental specialist, in charge. At this stage, the work consists primarily of identifying native plants along the old roadway and establishing them in a nursery so that they can be used in replanting roadsides after work on the roadway is completed in 1987. A story on the project, by Candy Moger, management assistant in the Pacific Northwest Region, is slated for the November issue of *The Courier*.

For those interested in vegetation management elsewhere in the world, the most recent issue of *Australian Ranger Bulletin* (Vol. 3, No. 4, 1986) is devoted to this broad topic. Control of several weed species such as mimosa, bitou bush, and prickly pear is highlighted, including techniques such as the Bradley method of bush regeneration, planting out, and direct seeding. An example of vegetation management for wildlife conservation is provided by the work being carried out in the Tanami Desert.

Approaches to vegetation management covered in the issue include weed control, revegetation of degraded areas, and the use of fire to produce a plant mosaic. Also called for is longer term vegetation monitoring to see if current conservation practices are achieving their objectives.

REFERENCES

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CORRECTION: The second of two parts of the article by Dr. Rosemary Nichols, based on "A Needs Assessment-Based Review of the NPS Science Program in the Rocky Mountain Region" by Nichols and Katherine Kitchell, promised for this issue, will appear instead in the Winter issue of *Park Science*. Part One, in the Summer issue, dealt with subject from the superintendents' point of view. Part two will present the subject as seen by RM Region NPS scientists.