

...future Harbor Survey Programs will strive to provide data more representative of ecological change...

BENEFITS DUE TO IMPROVED WATER QUALITY

To date, the *Harbor Survey Program* has focused primarily on collecting and publishing measurements which describe conditions and changes to pollutant loads and water quality. To provide greater evidence of environmental change pursuant to pollution abatement initiatives, the below published findings are cited. In the future, the Harbor Survey Program will strive to provide data more representative of ecological change, in addition to its primary data collection efforts. Researchers and volunteer/citizen monitoring programs are encouraged to submit similar findings for inclusion in future reports and publications.

Evidence of Recent Changes in Ecosystem Quality

Signs of improved conditions in Harbor water quality follow.

- Dramatic decreases of ambient sewage-indicator bacteria, and increases in dissolved oxygen (NYC DOH 1990; 1991; 1992b; O'Connor 1990; Brosnan and Stubin 1992).
- The re-establishment of breeding populations of peregrine falcons in several areas of the Harbor, herons, egrets and other wading birds in the Arthur Kill and Kill Van Kull, and ospreys in Jamaica Bay (West-Valle et al. 1992), as well as what is believed to be the first productive bald eagle nest on the Hudson River in at least 100 years (NYS Governor's Office, 1997).
- Improved benthic (bottom-dwelling) communities in lower NY Bay (Steimle and Caracciolo-Ward 1989; Cerrato et al. 1989).
- Signs of the re-establishment of shortnose sturgeon (Woodhead and McEnroe 1991).
- The heavy re-infestation of woodpilings by marine wood-borers (van Allen 1989; Gruson 1993).
- The upgrading of 67,864 acres of shellfish beds in the estuary since 1985, including the removal of restrictions on 30,000 acres off the Rockaways and Raritan Bay in the late 1980's (Gottholm et al. 1993; HEP, 1996).
- Reduced water quality related beach closings in NY and NJ (Swanson and Bortman 1994) and the virtual elimination of closures due to floatables (the last floatables closure occurring in 1989 for NYC and 1991 for NJ beaches (HEP, 1996)).
- The re-opening of Seagate Beach on Coney Island in 1988, for the first time in 40 years; the re-opening of South Beach and Midland Beach on Staten Island in 1992, for the first time in 20 years, (NYC DOH 1990; 1991; 1992a; 1992b); the lifting of the New York City Department of Health's wet weather advisory for 7 of 10 NYC public beaches (NYC Mayor's Office, 1993); and, the reduction of wet weather advisory from 48 hours to 12 hours at the remaining three beaches.
- Recently increased striped bass stocks (McHugh et al. 1990; Hogan 1995), and decreases in the concentrations of PCBs in their tissues (NYS DEC 1988); and, the subsequent relaxing of the NYS DEC advisory for human consumption of striped bass taken from the Hudson River, south of the Bridge at Catskill (from zero to one meal/month) (NYS DOH 1995).

- Decreases in lead concentrations in the estuary and nationwide due to the federal ban on tetraethyl lead gasoline (Smith et al. 1987; Bopp and Simpson 1989); sediment decreases of PCBs and the insecticides p,p-DDD and chlordane (Bopp and Simpson 1989); and, the dramatic recovery of the 12-mile sludge disposal site in the NY Bight since dumping there ended in late 1987 (NOAA 1991).
- A 50-90% reduction from peak levels (reached in the 1960s-70s) of most trace metals and chlorinated organic compounds found in fine-grained sediment in the Hudson River (Chillrud 1996).

Continuing Challenges

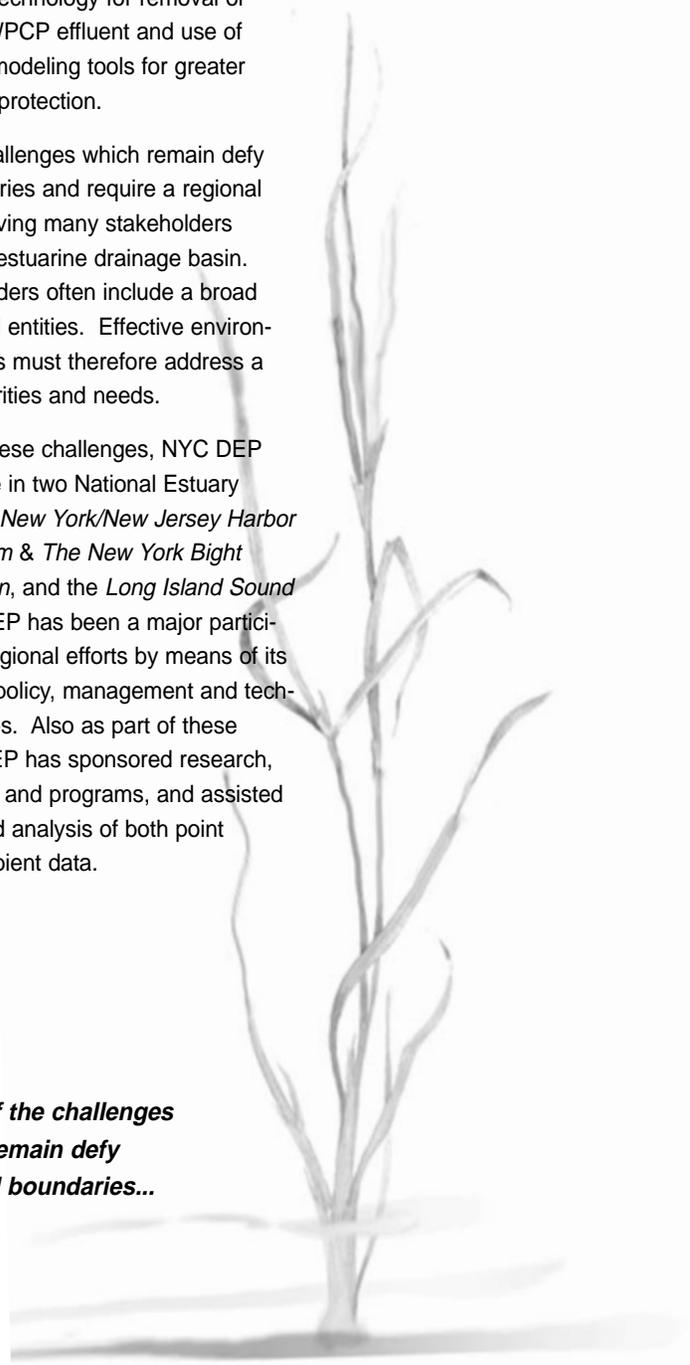
While the above citations reflect important improvements to regional water and environmental quality, efforts to further enhance the region's estuarine resources continue. Despite noteworthy improvement to New York Harbor and its environs, many environmental problems must still be resolved. These concerns include: periodically closed shellfish beds and beaches; episodically low dissolved oxygen; eutrophication; areas of high sediment contaminant concentrations and problems with dredge disposal; floatables; oil spills; fishing advisories; over-fishing; and, accelerating nonpoint source pollution from continued over-development within the drainage area.

To address many of these problems, NYC DEP seeks to identify and implement cost-effective solutions, and develop innovative programs. Some examples of this approach include retrofit technology for removal of nitrogen from WPCP effluent and use of hydrodynamic modeling tools for greater regional beach protection.

Many of the challenges which remain defy political boundaries and require a regional approach, involving many stakeholders throughout the estuarine drainage basin. These stakeholders often include a broad array of political entities. Effective environmental solutions must therefore address a diversity of priorities and needs.

To best meet these challenges, NYC DEP has been active in two National Estuary Programs: *The New York/New Jersey Harbor Estuary Program* & *The New York Bight Restoration Plan*, and the *Long Island Sound Study*. NYC DEP has been a major participant in these regional efforts by means of its involvement in policy, management and technical workgroups. Also as part of these efforts, NYC DEP has sponsored research, initiated studies and programs, and assisted in collection and analysis of both point source and ambient data.

**Many of the challenges
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Conclusion

This report summarizes the NYC DEP's efforts to monitor and characterize the quality of the Harbor's waters. Concurrent with the Harbor Survey, several other DEP programs are actively collecting a variety of site specific water quality and point source data.

Examples of these programs include:

- *the CSO Abatement Program;*
- *the Shoreline Survey Program;*
- *Storm Water Monitoring;*
- *Toxics Trackdown;*
- *the Landfill Remediation Program;*
- *the Citywide Floatables Program;*
- *Effluent Biomonitoring; and,*
- *Wetlands Protection;*

Data from these programs are available upon request.

For more information about the Harbor Water Quality Survey or related NYC DEP programs, please contact the Bureau of Public and InterGovernmental Affairs at 718-595-6600 or visit our Web site at

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