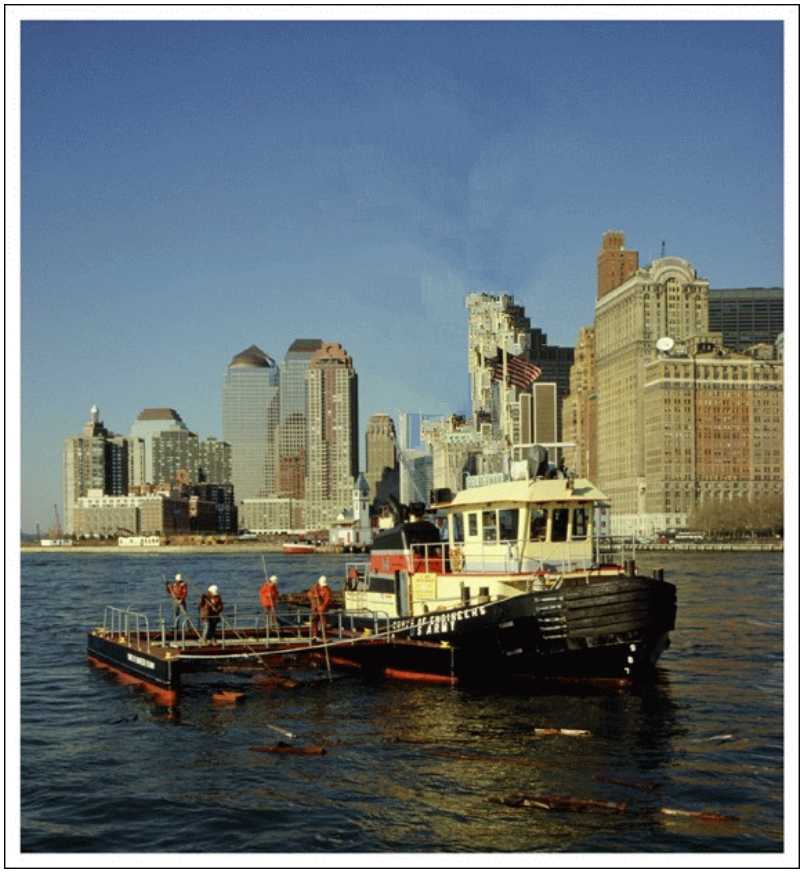
FLOATABLES ACTION PLAN ASSESSMENT REPORT 2004



The United States Army Corps of Engineers *Gelberman*, a Key Vessel in the Implementation of the Floatables Action Plan.

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Executive Summary

Eastern New Jersey, New York City and southern Long Island beaches experienced no beach closings due to floatable debris in 2004. The interagency implementation of the Floatables Action Plan ("FAP") was a major contributor to maintaining this improved beach status.

The FAP is designed to accomplish the following objectives:

- *Minimization of the amount of floatable debris escaping the Harbor Complex;*

- *Maintaining an effective communication network to coordinate floatable debris removal activities and to respond to the spotting of slicks;*

- *Ensuring timely notification of beach operators of potential wash-ups of floatable debris; and*

- *Minimization of beach closures due to floatable debris.*

The FAP has proven to be very successful in minimizing the escape of floatable debris from the Harbor Complex (see summary table of all floatable/shoreline debris collection programs reported on in this report at the end of the Executive Summary). The principal means of collecting floating debris slicks has been through the utilization of USACOE Drift Collection Vessels. These Drift Collection Vessels collected 1192 tons of floatable debris on scheduled "2004 floatables days"(days of and the following two days after new and full moon moons), and an estimated 5362 tons of floatable debris throughout USACOE fiscal year 2004 (October 2003 - September 2004).

The New York City Department of Environmental Protection ("NYCDEP") has supplemented the work of the USACOE with an open water skimmer vessel of its own as well as a booming and skimming program at major City CSO outfall locations. These measures collected 171 tons and 1494 cubic yards of floatable debris, respectively. NYCDEP also conducted a tributary-specific clean-up program. This program utilized community volunteers to collect 80 cubic yards of debris in 2004.

The Passaic Valley Sewerage Commissioners (PVSC) also supplements the USACOE open water skimming operations by operating two skimmer vessels in the Passaic River and Newark Bay, collecting a total of 210 tons of floatable debris in 2004. PVSC's shoreline debris removal program collected an additional 620 tons of debris in 2004.

New Jersey's Clean Shores Program, which utilizes prison inmates to remove shoreline debris, collected 2410 tons in 2004 and the State's Adopt-A-Beach program collected a total of 57,663 beach litter items.

The Ocean Conservancy's Annual International Coastal Clean-up, which uses volunteers to document and remove shoreline debris, collected 165,861 pounds of debris in 2004 in eight selected counties in New York.

The maintaining of an effective communication network has remained a key element of the implementation of the FAP. EPA has remained the hub of the communication network, with its Floatables Coordinator as the link with the USACOE, the United States Coast Guard ("USCG"), the NYCDEP, the NJDEP, the NYSDEC, the National Oceanic and Atmospheric Administration ("NOAA") and the public. Appropriate actions include the reporting of the slick information to the USACOE or the USCG (for oil slicks), based on EPA helicopter flyover reports.

The States of New York and New Jersey continue to work with Harbor dischargers to control floatable debris in the long-term. Approximately 681 tons of floatable debris was collected at CSO points in New Jersey, due to floatable debris controls which have been installed and are operating. New York continues to work with New York City to see the implementation of long-term measures to build upon and perhaps replace existing floatable debris control measures being carried out by the City.

At a minimum, the following three actions still need to be fully addressed:

a) Municipalities in New Jersey need to fully implement CSO floatable controls;
b) New York City needs to implement permanent and effective CSO floatable debris controls; and
c) Storm water floatable debris controls need to implemented in both New Jersey and New York.

Summary Table of Floatable / Shoreline Debris Collection Programs

Floatable / Shoreline Debris Collection Program	Year Begun	Floatable / Shoreline Debris Collected in 2004	Total Floatable / Shoreline Debris Collected through 2004
USACOE Drift Collection Vessel Designated Floatable Days Collection Program	1989	1,192 tons	16,698 tons
USACOE Drift Collection Vessel Fiscal Year Collection Program	1988	5,362 tons	91,549 tons
NYCDEP Cormorant Open Water Skimmer Vessel Collection Program	1994	171	3,277 tons
NYCDEP Boom and Skim Collection Program	1995	1,494	11,123 cubic yards
NYCDEP Special Projects Collection Program	1998	80	1,600 cubic yards
NJDEP Clean Shores Program	1989	2,410 tons	52,232 tons
NJDEP Adopt-A-Beach Collection Program	1993	57,663 items	873,299 items
Ocean Conservancy's International Coastal Clean-up Collection Program (8 counties in NY)	1994	165,861 pounds	1,559,665 pounds
PVSC Skimmer Vessel Collection Program	2000	210 tons	833 tons
PVSC Passaic River/Newark Bay Shoreline Clean-up Program	1998	620 tons	2,964.3 tons
New Rochelle Boom Collection Program	1998	379 cubic feet	4,980 cubic feet
NJDEP Municipality Floatable Debris Collection Programs	1999	681 tons	1,932 tons

I. Summary and Statement of Purpose

Eastern New Jersey, New York City and southern Long Island beaches experienced no beach closings due to floatable debris in 2004. The interagency implementation of the Floatables Action Plan ("FAP") was a major contributor to maintaining this improved beach status.

Formal United States Environmental Protection Agency ("EPA") Region II assessment reports of the FAP were prepared for the following time frames:

a) 1989
b) 1990
c) 1991
d) 1992
e) 1993 - 1994
f) 1995 - 1997
g) 1998
h) 1999
i) 2000
j) 2001
k) 2002
l) 2003

This assessment report has been prepared for 2004 and will assess the effectiveness of the short-term FAP in accomplishing the following objectives:

- Minimization of the amount of floatable debris escaping the Harbor Complex;
- Maintaining an effective communication network to coordinate floatable debris removal activities and to respond to the spotting of slicks;
- Ensuring timely notification of beach operators of potential wash-ups of floatable debris; and
- Minimization of beach closures due to floatable debris.

This assessment report will also discuss the required long-term implementation measures to permanently address floatable debris and provide the current status of long-term implementation measures, providing a clear understanding of what is still needed to effectively control floatable debris in the Harbor Complex.

II. Background

a) What is floatable debris?
Floatable debris is waterborne waste material that is buoyant. Examples include:

- wood
- beach litter
- aquatic vegetation
- street litter: e.g., cans, bottles, Styrofoam cups, plastics, straws, and paper products
- sewage-related wastes: e.g., condoms, sanitary napkins, tampon applicators, diaper liners, grease balls, tar balls, and fecal material
- fishing gear: e.g., nets, floats, lines and traps
- medical wastes: e.g., hypodermic needles, syringes, bandages, red bags and enema bottles

b) What are the sources that generate floatable debris?
The principal sources of floatable debris to the New York / New Jersey Harbor ("Harbor") and the New York Bight are the following:

- Combined Sewer Overflow ("CSO") Discharges: There are approximately 660 combined sewer overflow (CSO) points discharging to the open waters of the NY/NJ Harbor or to its tributaries:

430 from New York City
13 from Westchester County
202 from New Jersey
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645 in total (There are no CSO points discharging to the Bight or to the Back Bays.)

- Storm Water Discharges: New York City, while predominantly a combined sewered City, has 328 outfalls from its municipal separate sewer system.

Hundreds of more storm sewer outfalls in New York and New Jersey impact the Harbor Complex from industrial activity, construction activity and highway drainage.

- Non-point source discharges: including littering, landfill practices, and marine transfer practices;

- Decaying shoreline structures and sunken vessels; and

- Vessel discharges.

c) What are the impacts of floatable debris?
Discharges of floatable debris cause beach closures, have an adverse impact on recreational and commercial boating and cause harm to coastal marine species.

Large amounts of marine debris washed up on southern Long Island ocean beaches and on New Jersey ocean beaches in 1987 and 1988. In 1987, floatable washups were responsible for the closing of 25 miles of New Jersey beaches in May and 50 miles of New Jersey beaches in August. In 1988, floatable washups were responsible for the closing of 60 miles of New York beaches.

These beach closings in New Jersey and New York lasted for varying time periods from several hours to several days and had significant economic and social impacts. The State University of New York Waste Management Institute estimated an economic loss of between $900 million and $4 billion in New Jersey and between $950 million and $2 billion in New York in the 1987 - 1988 time frame.

Medical syringes, while only a tiny portion of the washups, caused a great deal of concern, prompting the passage of the Medical Waste Tracking Act by Congress in 1988.

Floatable debris, particularly driftwood, poses a hazard to shipping and recreational boating in the Harbor / Bight. The United States Army Corps of Engineers ("USACOE") conducts two programs to address floatable debris: 1) collection of debris already floating and 2) dismantling deteriorating structures before they become drift. Drift materials include timbers, pilings, plastics, rubber tires, fiberglass boats, Styrofoam, rafts, floating drums, docks, sheds, and other shore structures.

Birds, mammals and sea turtles are found seasonally throughout the Bight and portions of the Harbor. These species are vulnerable to entrapment and entanglement in plastic waste including six pack rings, fishing line, and nets. Turtles and mammals (seals and whales) are vulnerable to ingestion of plastic items, such as bags, that are mistaken for squid, jellyfish, or other prey. This ingestion often leads to suffocation or intestinal blockage and death.

III. How effective has the FAP been in minimizing the escape of floatable debris from the Harbor Complex?

The FAP has proven to be very successful in minimizing the escape of floatable debris from the Harbor Complex. The principal means of collecting floating debris slicks has been through the utilization of USACOE drift collection vessels. The New York City Department of Environmental Protection ("NYCDEP") has supplemented the work of the USACOE with an open water skimmer vessel of its own as well as a booming and skimming program at major City CSO outfall locations. Other means have also been utilized to minimize the escape of floating debris from the Harbor Complex. The following summary of these various measures is for 2004 but also includes historical data, where appropriate, for the purpose of comparison.

a) What are the Drift Collection Vessels that the USACOE uses to support FAP implementation?

The USACOE uses three Drift Collection Vessels to support FAP implementation in the Harbor and these Vessels are described in the following table:

USACOE Drift Collection Vessel Information

Name of Vessel	Hayward	Driftmaster	Gelberman
Year Built	1974	1948	1980
Length (feet)	124	99	85
Weight (tons)	390.4	230	190.17
Crane Capacity (tons)	20	18	4.5

The Hayward is used to remove debris and obstructions from high use navigational channels to provide clear and safe channels for general navigation and to ensure that life and property are protected. The Vessel's primary function is the collection of floating debris but more specifically the snagging of larger logs, wreckage, barges, and lifting obstructions from the

waterway. The vessel tows a catamaran barge with a drift net to pick up flotsam and jetsam.

The Driftmaster is used to remove debris and obstructions from high use navigational channels to provide clear and safe channels for general navigation and to ensure that life and property are protected. The Vessel's unique catamaran hull design enables the vessel to trap floating debris between its hulls before it is collected in nets. Pieces too large are towed alongside. The Vessel also lifts wreckage, sections of piers and sunken derelict vessels and barges which are hazards to navigation.

The Gelberman is used to remove debris and obstructions from high use navigation projects and hard to maneuver locations. The Vessel's primary function is to collect floating debris from channels and more confined areas. The Vessel pulls a catamaran barge with a drift net to collect flotsam and jetsam.

These three USACOE Drift Collection Vessels, the Hayward, the Driftmaster and the Gelberman, have been deployed in the Harbor to collect floating slicks since the initiation of the FAP in 1989.

The USACOE Drift Collection Vessels return to Caven Point by 3 PM for off-loading and Drift Collection Vessel preparation for the next day. The USACOE justifies its operations using a performance based criterion, defined approximately as achieving $3.86 in protection for each $1.00 invested.

Aside from Drift Collection Vessel maintenance, the typical Vessel availability schedule is as follows:

T, W, Th: 3 vessels
Sat., Sun.: 1 vessel
M, F: 2 vessels

b) <u>How much floatable debris has the USACOE collected in support of the FAP?</u>
The Water Resources Development Act ("WRDA") of 1974 was modified by WRDA 90 Section 102 (V) (Public Law 99-662) to authorize the collection of floatable debris whenever the USACOE is collecting and removing debris which is an obstruction to navigation. The USACOE estimates that 90 per cent (by volume) of its collection total consists of wood debris. Tires, plastic waste, cardboard, seaweed, sewage-related materials and street runoff-related materials constitute the remaining 10 per cent (by volume).

The USACOE Drift Collection Vessels report collection totals in different ways. The following table indicates the total tons of floatable debris collected by the three USACOE Drift Collection Vessels on scheduled "floatable days" for the listed calendar years. A scheduled "floatable day" is the day of and the two days following both new and full moons (Note: a listing of the USACOE scheduled "floatable days" for calendar year 2004 is attached to this report). USACOE Drift Collection Vessels are deployed to strategic locations (under the Verrazano Bridge and at the confluence of Newark Bay and the Arthur Kill and Kill Van Kull)on these days, to locations where floatable debris historically congregates after becoming resuspended upon higher tides. For these scheduled "floatable days", the USACOE weighs its nets and reports the drift collection totals in terms of tons collected.

USACOE Drift Collection Vessel
Collection Totals
For Scheduled Floatable Days

Year	Tons of Debris Collected
1989	545
1990	795
1991	701
1992	958
1993	1088
1994	1298
1995	829
1996	1407
1997	768
1998	1023
1999	1165
2000	1271
2001	1040
2002	1512
2003	1106
2004	1192
TOTAL	**16698**

The above table only represents the drift collection performed by the USACOE on scheduled "floatable days." The USACOE reports its

annual (on a fiscal year (October - September) basis) drift collection total in terms of cubic feet. The following table lists these fiscal year totals, converts them to cubic yards (for purposes of comparing with the NYCDEP skimmer vessel collection totals), and, based on discussions with the USACOE estimates a total tonnage value based on an approximate conversion factor of 100 cubic feet per ton:

Fiscal Year USACOE Total Drift Collection Vessel Collection Totals

Fiscal Year	Total Drift Collection (Cubic Feet)	Total Drift Collection (Cubic Yards)	Estimated Total Drift Collection (Tons)
1988	537,353	19,902	5,374
1989	571,645	21,172	5,716
1990	537,770	19,917	5,378
1991	544,350	20,161	5,444
1992	548,970	20,332	5,490
1993	539,355	19,976	5,394
1994	442,615	16,393	4,426
1995	552,840	20,476	5,528
1996	592,450	21,943	5,925
1997	493,400	18,274	4,934
1998	558,900	20,700	5,589
1999	560,575	20,762	5,606
2000	539,930	19,997	5,399
2001	528,875	19,588	5,289
2002	557,050	20,631	5,571
2003	512,350	18,976	5,124
2004	536,200	19,859	5,362
TOTAL	**9,154,628**	**339,059**	**91,549**

The accuracy of this table hinges on the conversion factor used of "100 cubic feet per ton." This may very well be a conservative estimate (in other words, the collection total in tons is NOT overstated) and the following should be considered:

1. If a parcel of water measuring 100 cubic feet were collected by the USACOE Drift Collection Vessels, it would weigh (using

0.01602 cubic feet per pound of water) 3.12 tons. This may be considered as the upper limit of any collected parcel of material measuring 100 cubic feet.

2. Since the USACOE Drift Collection Vessels collect drift, items are collected which are buoyant in water. In general then, any parcel of collected material measuring 100 cubic feet will weigh less than 3.12 tons.

3. The USACOE already routinely estimates that 90% (by volume) of its drift collection is comprised of wood. Although the wood is waterlogged and heavy, each 100 cubic feet of wood will weigh less than 3.12 tons since it was buoyant.

4. When floatable debris is collected by the USACOE drift collection vessels, the total volume includes significant "void spaces" which do not add weight. This further adds to the fact that parcels of material measuring 100 cubic feet will weigh less than 3.12 tons.

The use of the conversion factor of 100 cubic feet per ton is therefore a conservative one and is derived from the actual weighing of nets on scheduled "floatable days."

c) <u>How has the NYCDEP supplemented the USACOE in removing floatable debris from the Harbor?</u>
The 1992 CSO Abatement Order on Consent between the NYCDEP and the New York State Department of Environmental Conservation ("NYSDEC") required the following:

- NYCDEP was to implement a short-term booming and skimming program to address floatables pollution from approximately 50% of the City's combined sewer service area. This interim program was principally focused on the tributaries on which retention tanks will be built under the long-term CSO abatement program that the City is implementing, and will continue until that point in time. The NYCDEP was to collect and remove substantially all waterborne floatables in Bergen Basin, Thurston Basin, Paerdegat Basin, Hendrix Creek, Newtown Creek, Gowanus Canal, Coney Island Creek, and the Upper East River tributaries consisting of the Bronx River, Flushing Creek, Westchester Creek, and the Hutchinson River (if practicable). Additionally, the NYCDEP was to collect and remove substantially all waterborne floatables from 10 CSO outfalls in beach-sensitive open water areas. To accomplish this booming and skimming program, the NYCDEP was to purchase and utilize four small skimmer vessels.

The NYCDEP was also to utilize a large open water skimmer vessel (named the Cormorant), patterned after the USACOE Driftmaster skimming vessel, to patrol the waters of the Harbor. The following tables summarize the NYCDEP skimming vessels and the status of the booming and skimming locations.

NYCDEP Skimmer Vessel Information

Name	Where Used	Length (feet)	Capacity
SV Piping Plover	Tributaries	50	3,000 -12,000 lbs of wet material
SV Ibis	Tributaries	50	3,000 -12,000 lbs of wet material
SV Heron	Tributaries	50	3,000 -12,000 lbs of wet material
SV Egret	Tributaries	50	3,000 -12,000 lbs of wet material
SV Cormorant	Open Waters	100	2 nets; 1,000 cubic feet per net; 2,000 cubic feet in total; up to 10 tons of wet material per net

NYCDEP Skimming and Booming Program Locations

Zone	Booming / Skimming Site	Approximate Drainage Area (acres)	Permanent Installation Date
I	Bergen Basin	13400	6/94
I	Fresh Creek *	2110	11/88
I	Hendrix Canal	520	6/93
I	Paerdegat Basin	5787	6/93
I	Thurston Basin	4803	6/94
II/III	Bushwick Inlet *	771	1/97
II/III	Buttermilk Channel	N/A	3/02
II/III	Coney Island Creek	2751	6/96
II/III	East Branch	2197	9/96
II/III	English Kills	1338	9/96
II/III	Gowanus Canal	667	---
II/III	Owls Head	1253	5/96
II/III	Wallabout Channel 1	1258	9/96
II/III	Wallabout Channel 2	1093	9/96
IV	Bowery Bay	2830	4/96
IV	Bronx River	1799	7/96
IV	Clason Point	333	10/96
IV	Cryder's Lane *	825	3/03
IV	Hunts Point	761	4/96
IV	Flushing Bay CS1 (CSO 2)	1225	4/96
IV	Flushing Bay CS2 (CSO3)	3053	4/96
IV	Flushing Creek 1 (CSO4)	6790	11/96
IV	Flushing Creek 2 (CSO7) *	768	11/96
IV	Maspeth Creek	1028	9/96
IV	Odgen Fuel Site	N/A	3/99
IV	Westchester Creek	2039	9/96

* Sites marked with an asterisk indicate netting installations rather than booming.

The total approximate drainage area impacted by the skimming and booming (and netting) program is 58,399 acres, which represents over 50 per cent of the City's combined sewer drainage area.

In addition to the original skimming and booming sites, the NYCDEP collects floatable material from three other sites on an as-needed basis. These sites are located in Buttermilk Channel at the intake to the Gowanus Canal flushing tunnel, at the Cryder's Lane Outfall Diversion Channel, and at the Ogden Fuel Services site in Bowery Bay.

The NYCDEP maintains a contract such that a contractor operates and maintains the boom facilities and manages the collected floatable debris under the skim and boom program. Materials are trucked out of state.

d) How much floatable debris has the NYCDEP SV Cormorant collected?

NYCDEP SV Cormorant collection data dates back to May 1994. Wood has made up the bulk of the collected material, with trash, plastic, rubber, and metal making up the rest. Historical collection totals and collection totals for 2004 are presented in the following table:

NYCDEP SV Cormorant Collection Totals
(1994 - Present)

Year	Tons Collected
1994	197.87
1995	262.2
1996	856.2
1997	294.00
1998	296.4
1999	333.40
2000	320.00
2001	222.15
2002	157.49
2003	166.04
2004	171.27
TOTAL	**3277.02**

The weight of a net to be emptied is determined by a weight sensing device, providing a digital read-out. Visual estimates are then made for how much wood, trash, plastic, rubber and metal are in a given load.

Example for Wood:

Weight of material in net is 9 tons
Wood is estimated to be 90% of load
Weight of wood in net is 8.1 tons (9 tons x 0.9)

NYCDEP pays a contractor to operate the Cormorant, properly dispose of the collected debris, and to provide for any appropriate equipment, such as barges, used to stage or transport debris.

e) How much floatable debris has the NYCDEP Booming and Skimming Program collected? The NYCDEP booming and skimming program dates back to 1995. Historical collection totals and collection totals for 2004 are presented in the following table:

NYC Boom and Skim Program Collection Totals
(1995 - Present)
(Cubic Yards)

Year	Zone I (Jamaica Bay)	Zone II/III (East River and Newtown Creek and Buttermilk Channel)	Zone IV (Upper East River and Flushing/Bowery Bays)	Annual Total
1995	258.5	123	353	734.5
1996	732.5	195.5	801.5	1729.5
1997	657.5	222	657	1536.5
1998	331.5	65	418.5	815
1999	324.25	116	676.5	1116.75
2000	138	124.75	351	613.75
2001	133	140.5	309	582.5
2002	397.5	130.25	592.5	1120.25
2003	426.0	306.25	648.0	1380.25
2004	445.0	120.25	928.5	1493.75
Zone Total	**3843.75**	**1543.5**	**5735.5**	**11,122.75**

Note: Due to such factors as frozen tributaries, unfavorable (northeasterly) winds and low rainfall (with low floatable debris discharged), there are months in which no boomed floatable debris is collected in the designated zones.

In 2001, the NYCDEP began to investigate the replacement of its four smaller tributary skimmer boats with vessels that are 100% self-propelled (i.e., do not need to be towed) and which are better equipped for different operational uses such skimming the inter-pier areas on the Hudson River, East River and in Brooklyn in support of various New York City waterfront development projects. The NYCDEP bid the replacement in late 2003 but received no bidders. The NYCDEP engaged in a second bid in 2004, and a replacement for one of the existing four smaller skimmer boats is anticipated for late 2005 or early 2006. A Request for Proposals was also issued by the NYCDEP in late 2003 for a design competition for a more mobile skimmer vessel to work in open areas of the Harbor and interpier areas. Two design contractors were selected in 2004, and designs are anticipated in early 2005.

f) How much debris has the NYCDEP Special Project Program collected?

In 1998, the NYCDEP initiated a beach clean-up program in the Gerritsen Beach area of Brooklyn, NY. This project, now termed NYCDEP's Special Project Program, was expanded in 1999 to also include Fort Hamilton High School and Coney Island Creek Beach components. These new components served to remove debris collected in the vicinity of the Verrazano Bridge. This program, in some ways analogous to the NJDEP Clean Shores Program, uses community volunteers to remove debris on beaches and shorelines. The NYCDEP provides dumpsters for debris placement and utilizes its water pollution control plant residuals management contracts to have this collected debris trucked out of state. In 2003, the NYCDEP conducted one tributary-specific clean-up of Thurston Basin. The debris removed by this program is depicted on the following table:

NYCDEP's Special Project Clean-up Program

(1998 - Present)

Year	Cubic Yards Collected
1998	280
1999	680
2000	160
2001	140
2002	240
2003	20
2004	80
TOTAL	**1600**

Additionally, the NYCDEP conducted a shoreline dumping prevention program since 1998. NYCDEP personnel involved with ongoing monitoring activities survey the shoreline of the City for evidence of recent illegal disposal activities. Findings are reported to the New York City Department of Sanitation Environmental Police for enforcement follow-up.

g) How has the NYCDEP's Enhanced Beach Protection Program minimized floatable debris being discharged to beach sensitive areas?

The NYCDEP's Bureau of Wastewater Treatment is responsible for the operation of New York City's collection facilities which convey the flow of sanitary and combined sewage to the fourteen Water Pollution Control Plants ("WPCPs"). A failure within the conveyance system during dry weather can cause the spill of sewage with floatables to the New York Harbor resulting in dry weather bypasses. As a response to the series of failures in June of 1997, the NYCDEP instituted the Enhanced Beach Protection Program ("EBPP") on July 2, 1997, to minimize the chance of additional beach closures due to failure within the collection facilities through a program of increased surveillance and preventive maintenance procedures for critical pumping stations and regulators. The program was found to be successful and in 1998 it was implemented again and became a yearly program to be conducted by the NYCDEP.

The program's goals include: the prevention of any beach closings from failures of collection system facilities and an average bypass response time of 8 hours. The NYCDEP created a list of priority pumping stations and regulators based on proximity to a beach, quantity of flow, and modeling results for beach areas. These facilities (66 sites) were monitored by telemetry at pump stations and by field crews where telemetry was not available. In addition, NYCDEP personnel increased the frequency and locations monitored through its Harbor Marine Programs.

The 2004 EBPP can be summarized as follows:

- No beach closures related to Collection Facilities
- 5 bypasses at EBPP sites = 2.19 MG
- 16 bypasses total = 2.44 MG (less than 0.0013% of the total flow conveyed through Collection Facilities was bypassed during the program period)

h) What role has the New Jersey Department of Environmental Protection ("NJDEP") played in minimizing floatable debris from escaping the Harbor complex?

Clean Shores Program

Beginning in 1989, the NJDEP began a program called "Operation Clean Shores", designed to collect shoreline floatable debris before it became resuspended due to tidal influences. This program has used New Jersey inmates to collect floatable debris, comprised mainly of landed drift wood, on non-recreational shorelines in order to prevent floatable debris from being refloated during extreme high tides and washing up on recreational beaches, becoming hazards to navigation and impacting marine life. The program, now called the "Clean Shores Program", is conducted throughout the State of New Jersey, in the Hudson, Raritan and Delaware estuaries and barrier island bays. In 1993, the Clean Shores Program began to be implemented on a year-round basis whereas formerly it was only implemented during the bathing season. The Program is funded by the sale of Shore Protection license plates. Historical collection totals and collection totals for 2004 for this highly effective program are presented in the following table:

NJDEP's Clean Shores Program Data

Year	New Jersey Shore Miles Addressed	Tons of Floatable Debris Collected
1989	24	3000
1990	48	4800
1991	74	4900
1992	85	5800
1993	71	5750
1994	62	3700
1995	80	2050
1996	103	2650
1997	146	2953
1998	138	2400
1999	182.4	2400
2000	114.9	2563
2001	172.3	2352
2002	151.2	2080
2003	107.8	2524
2004	131.3	2410
TOTAL	-------	**52,332**

Adopt A Beach Program

The State of New Jersey enacted a law on January 7, 1993 which authorized the NJDEP to administer an "Adopt A Beach" program, fostering volunteer stewardship of coastal beaches. NJDEP is required to sponsor two statewide beach clean-ups each year. Volunteers select or "adopt" a beach for these clean-ups. Historical data and data for 2004 are presented in the following table:

NJDEP's Adopt A Beach Program Data

Year	Number of Debris Items Collected
1993	36,122
1994	69,221
1995	93,016
1996	78,282
1997	84,433
1998	120,307
1999	59,247
2000	64,696
2001	79,670
2002	80,205
2003	50,437
2004	57,663
TOTAL	**873,299**

Results of the Adopt A Beach Program are forwarded to the Ocean Conservancy ("OC") in order to be included in the OC's national and international marine debris database.

i) How much beach debris has been collected in selected counties of New York State as a result of the Ocean Conservancy's International Coastal Clean-up?

The Ocean Conservancy ("OC"),formerly the Center for Marine Conservation, sponsors an Annual International Coastal Clean-up in September. In New York State, this volunteer effort to remove and document marine debris is coordinated by the American Littoral Society's Northeast Chapter. The data below cover eight selected counties in New York: **Suffolk, Nassau, Queens, Kings, Richmond, Manhattan, Bronx, and Westchester:**

Clean-up Results
for 8 New York Counties
(1994 - Present)

Year	Beach Miles Cleaned	Pounds of Debris
1994	82.10	42,622
1995	98.75	46,001
1996	108.60	83,533
1997	168.97	95,201
1998	194.00	145,705
1999	162.4	153,507
2000	233.2	202,553
2001	159.0	142,632
2002	198.83	204,078
2003	264.75	277,972
2004	185.59	165,861
TOTAL	**-----**	**1,559,665**

While some of this debris (i.e., the debris that is collected in eastern Westchester County and the north shore of Long Island) probably would not affect New Jersey Beaches or the south shore beaches of Long Island, it is presented for general trend analysis.

j) What has the Passaic Valley Sewerage Commissioners ("PVSC") done to minimize floatable debris in the Harbor Complex?

In 1999, PVSC obtained a skimmer vessel, virtually identical to the NYCDEP skimmer boats used in NYCDEP's boom and skim program, to be used on the Passaic River and in Newark Bay. This skimmer vessel is described in the table below:

Name	Where Used	Length (feet)	Capacity
SV The Newark Bay	Passaic River and Newark Bay	50	12,000 lbs of wet material or 700 cubic feet
SV Passaic River	Upper Passaic River	32	1,500 lbs of wet material or 120 cubic feet

This skimmer vessel initiated its operation in 2000.

In 2001, PVSC purchased a second, smaller trash skimmer vessel. The vessel (the SV Passaic Valley) is 35 feet in length, with a load capacity of 120 cubic feet and was placed into operation in the Spring of 2002. This smaller boat was purchased to operate in the upper reaches of the Passaic River which the larger vessel cannot reach, due to shallow waters and low bridges. The smaller boat is docked at rowing club dock in Rutherford, New Jersey. The rowing club granted PVSC the use of its sea wall for the setting up of a portable pier conveyor to offload collected material. This allows the smaller boat to be offloaded up to 5-6 times per collection day, depending on tidal conditions. Historical data and data for 2004 are presented in the following table.

PVSC Skimmer Vessels Collection Data
(2000 - Present)

Year	Tons of Floatable Debris Collected
2000	68
2001	86
2002	248
2003	221
2004	210
TOTAL	**833**

Beginning in 1998, PVSC established a program to aid in removing trash along the riverbanks of the Passaic River. The program provides coordination and support to municipalities, counties, citizens, service groups, and local businesses to conduct shoreline clean-ups along the river and in their communities. This program is entitled the Passaic River/Newark Bay Restoration Program: Shoreline Clean-up Element.

Gloves, trash bags, trash disposal, and other supplies as requested are arranged for and provided by PVSC to the volunteers. In addition to the sponsorship of voluntary efforts, PVSC has implemented an extensive clean-up of the river's shoreline by creating a River Restoration Department, consisting of 15 full time employees dedicated to the removal of trash and debris from the Passaic River and Newark Bay. Additionally, during the summer months, PVSC's part time employees removed trash on a daily basis in urban parks along the River. Historical data and data for 2004 are presented in the following table:

Passaic River/Newark Bay Restoration Program:
Shoreline Clean-up Element
(1998 - Present)

Year	Tons of Shoreline Debris Collected
1998	85.6
1999	88.7
2000	203
2001	451
2002	895
2003	621
2004	620
TOTAL	**2964.3**

k) What has New Rochelle done to minimize floatable debris in the Harbor Complex?

New Rochelle is a city of 72,000 residents with 10 miles of shoreline. As the City's storm water conveyance system is separate from the sanitary sewer system, floatable debris is discharged to the local waterways from 28 storm water outfalls. In 1998, the City, under a NYSDEC 50/50 matching grant installed a $58,000 "Stream Floatable Debris Collection System" at the Stephenson Brook Storm water Drainage area outfall, which empties to Echo Bay and Long Island Sound. The system has a holding capacity of 1 cubic yard of debris. The Stephenson Brook Drainage area encompasses approximately 3.5 square miles or 30% of the city land area. Collected debris includes wood, paper, glass, metal, plastics and organics. Historical data and data for 2004 are presented in the following table:

New Rochelle Boom Collection Totals
(1998 - Present)
(Values are in Cubic Feet)

Year	Cubic Feet Collected
1998	548
1999	953
2000	483
2001	857
2002	1080
2003	680
2004	379
TOTAL	**4980**

IV. How effective has the FAP been in maintaining a communication network to coordinate floatable debris removal activities and to respond to the spotting of slicks?

The maintaining of an effective communication network has remained a key element of the implementation of the FAP. EPA has remained the hub of the communication network, with its Floatables Coordinator as the link with the USACOE, the United States Coast Guard ("USCG"), the NYCDEP, the NJDEP, the NYSDEC, the National Oceanic and Atmospheric Administration ("NOAA") and the public.

The two main contributors of slick sightings are the EPA helicopter which routinely patrols the Harbor, southern Long Island and the New Jersey coast and the NJDEP plane which routinely patrols the New Jersey coast.

EPA performs summer (pre-Memorial Day until post-Labor Day) helicopter overflights on a daily basis (except Sunday). EPA provided its typical floatables overflight route of the Harbor, beginning at Linden Airport and ending at the Marine Parkway Bridge. The aim is to lift off at 8 AM and end at 9 AM. If slicks are observed, the helicopter lands at Floyd Bennet Field to make the appropriate call to the EPA Floatables Coordinator. If no slicks are observed, the call is sometimes postponed. Due to weather conditions, lift off is sometimes delayed. EPA aims to lift off no later than noon. This then results in calls as late as 1 PM.

The NJDEP utilizes a fixed wing plane to perform summer (daily except Wednesday) overflights of the New Jersey Coast. The plane used to fly over the Harbor, but since the September 11, 2001 event only travels as far north as Raritan Bay. Typically, these flights are initiated between 9:00 AM and 9:20 AM.

The USCG can take samples of oil slicks and compare these with samples from known ships in order to determine the source of the oils. The USCG has a significant oil "DNA" data base.

As reports of Harbor Complex slicks (floatable debris or oil) are received by the EPA Floatables Coordinator, the reports are evaluated to determine appropriate action. Appropriate actions include the reporting of the slick information to the USACOE or the USCG (for oil slicks). For cases in which a slick report identifies a slick not large enough or too disperse to warrant

the deployment of a USACOE drift collection vessel, no action is taken. The following table lists the 2004 slick sightings (all by the EPA helicopter) that resulted in the contact of either the USACOE or the USCG by the EPA Floatables Coordinator:

2004 Floatables Action Plan Slick Reports

DATE	TIME	REPORT	ACTION TAKEN
6/1	10:30 AM	200' rainbow sheen oil slick observed near green buoy #5 in Newark Bay	Reported oil slick to USCG
6/2	10:00 AM	Three floatable slicks were observed: 1. Newark Bay, ½ mile long x 10-50' wide, 2. Kill Van Kull, a heavy density slick containing large pieces of wood 3. Hudson River, just south of the Holland Tunnel, ¼ mile long x 100' wide 4. Gravesend Bay, ¼ mile long x 50' wide.	Floatable debris slicks were reported to USACOE
6/3	10:00 AM	Five floatable debris slicks observed: 1. Newark Bay, 1/4 mile long, east of buoy #4, 1 mile west of Bayonne Bridge 2. Kill van Kull, near green buoy #11, south side 3. Kill van Kull, ½ mile long, 1.5 miles west of Harbor, 20 yards wide 4. Kill van Kull, ½ mile long, 20 yards wide, 1 mile from Harbor 5. Hudson River, near buoy #24 in Upper Harbor, 2 miles long by 1/4 mile long, 2 lines	Floatable debris slicks reported to USACOE

6/4	9:30 AM	Floatable debris slicks observed: 1. Newark Bay, ½ mile long, between buoys 7 and 8, mid-channel 2. West of Marine Parkway Bridge at mouth of Jamaica Bay, 200 yards off shore, 3/4 - 1 mile long	Reported floatable debris slicks to the USACOE.
6/5	9:56 AM	Floatable debris slick observed: Long Island Side of Jamaica Bay, north of Breezy Point, 1.5 miles long, west of Memorial Parkway Bridge	Reported floatable debris slick to USACOE.
6/10	9:28 AM	Oil slick observed: Newark Bay, rainbow oil sheen, 1/4 mile long by 300 yards, NW of Bayonne Bridge	Reported oil slick to USCG
6/18	9:30 AM	Two floatable debris slicks observed: 1. 1/4 mile north of Verrazano bridge, mid-channel, 1/4 mile long x 10' wide 2. 1/8 mile south of Verrazano bridge, mid-channel, ½ mile long x 20' wide	Floatable debris slicks reported to USACOE
6/24	9:58 AM	Floatable debris slick observed: 1/4 mile south of Verrazano bridge, 1 mile long by 5' - 10 yards, coordinates: 40 degrees 35 minutes 7 seconds to 40 degrees 36 minutes 74 seconds.	Floatable debris slick reported to USACOE
6/25	10:56 AM	Two floatable debris slicks observed: 1. Arthur Kill, west of green buoy #3, ½ mile long by 10 yards wide 2. Gravesend Bay, 1 mile south of Verrazano bridge, 1 mile by 5 yards, west of Toys R Us	Floatable debris slicks reported to USACOE

6/30	9:45 AM	Four floatable debris slicks observed: 1. Lower Harbor, eat of red buoy #26, 1/4 mile long x 10 yards 2. Lower Harbor, stern side of anchored ship ATC23, 1 mile long 3. Lower Harbor, south of buoy #22, 1 mile x 10 yards 4. Lower Harbor, ½ mile east of Macy's barges, 1.5 miles x 10 yards	Floatable debris slicks reported to USACOE
7/3	11:02 AM	One floatable debris slick observed, south of buoy #6 in Newark Bay	Slick reported to the USACOE (despite not having a size to report)
7/7	11:04 AM	Three floatable debris slicks observed: 1) Arthur Kill, ½ mile north of red buoy #38, ½ mile long x 5 yards wide 2) Arthur Kill, ½ mile south of red buoy #38, ½ mile long x 5 yards wide 3) Gravesend Bay, 1 mile south of Verrazano bridge, on east side, on the coast, 1 mile long x 10 yards wide	Reported floatable debris slicks to the USACOE
7/8	12:40 PM	1. Gravesend Bay, 1 mile south of Verrazano Bridge, on east side, on the coast, 1 mile long x 10 yards wide 2. 2 mile east of Coney Island ½ mile long 3. Middle of Sandy Hook, 7 mile debris line, ½ mile off the beach, varying in width from very narrow to 15-20 yards, debris line going south, east etc...	Due to a communications mistake, the USACOE was not notified

7/14	10:09 AM	The following slicks were observed: 1. Arthur Kill, south of buoy #38, 1/4 mile x 10 meters. 2. Arthur Kill, south of Goethals bridge, east side, 1/4 mile x 5 meters. 3. Kill Van Kull, east of Bayonne Bridge, ½ mile long oil slick from barge named "TAURACAVOR." 4. NJ side of Hudson River: a)across from Lincoln tunnel, 50' telephone pole with 100 meters of debris; b)north of University, 40' tree; and c)north of Holland tunnel, NJ side, telephone pole. 5. East River: a)west of buoy #18, 1 ½ mile long; b)east of buoy #18, across from Power Plant large wood and pallets 6. Upper Harbor, north of Verrazano bridge, 1 mile east of Staten Island, ½ mile x 20 meters 8. Lower Harbor, middle of Verrazano Bridge, running north/south, 1 mile long	Reported all floatable debris slicks to the USACOE. Reported oil slick to the USCG

7/15	10:20 AM	The following slicks were observed: 1. Newark Bay: Pieces of wood 10' x 10', 20 yards north of green buoy A 2. Kill Van Kull: a) sheen West and East of Bayonne bridge ½ mile long by 2 yards wide, b) West of red buoy #10 light density, wood paper and plastic on north side of river, 1 mile long x 10 yards wide, and c)East of buoy # 10, 2 miles long x 10 yards wide, wood, plastic and paper 3. Hudson River-Jersey Stevenson College to area of NY waterway terminal Side-slick 1 mile long x 10 yards wide, wood, paper and plastic; possibly pier debris 4. East River: 100 yards from power plant 1 mile from Williamsburg Bridge (most likely 14th street power plant), 3 large pieces of wood, possibly telephone poles 5. Lower Harbor; slick of paper, wood and plastic, medium density, 1 mile long x 30 yards wide, west of red buoy 22. Army Corps Driftmaster at site	Reported all floatable debris slicks to the USACOE.
7/16	9:50 AM	Newark Bay, 8:41 AM, sheen, latitude: N40 degrees, 39 min, longitude: W74 degrees 8 min, 50 yards east of RB #10, ½ mile long x 20 yards.	Report oil slick the USCG
7/17	9:40 AM	Floatable debris slick observed: North of Verrazano Bridge, Brooklyn Side, 40 Deg., 37"; 74 Deg., 2", East of RB #2, ½ mile long.	Reported floatable debris slick to the USACOE.

7/19	12:44pm	The following slicks were observed: 1. Arthur Kill 11:14am N40.37. W74.12 ½ mile west of Goethals bridge ½ mile long by 10 yds wide-light density-paper and plastic 2. Arthur Kill 11:15am N40.38 W74.11 ½ mile east of goethals bridge ½ mile long by 10 yds wide-light density, plastic, paper and some large pieces of wood 3. Kill van Kull 11:25 am N40.38 W74.08 East side of Bayonne bridge extended for 1 mile on the north side of the river light density with wood and paper 4. Kill van Kull 11:26am N40.38 W 74.06 3/4 mile east of Bayonne bridge 1/4 mile long by 20 yards wide light density with wood, paper and plastic 5. Upper Harbor 11:50am N40.38 W74,03 20 yards west of red buoy 22 ½ mile long by 20 yards wide-medium density- paper, plastic and a little wood also at location 20x10 yard rainbow sheen	Reported (voice and email) to USACOE and contacted USCG concerning rainbow slick in Upper Harbor

7/21	12:55pm	The following slicks were observed: 1. Arthur Kill 11:19am N40.38.6 W74.11.5 ½ mile long by 10 yds wide-light density-paper and plastic 2. Arthur Kill 11:20am N40.38.9 W74.89 1/4 mile east of goethals bridge 1½ mile long by 10 yds wide-medium light density, plastic, paper	Reported floatable debris slicks to the USACOE
7/29	9:30 AM	The following floatable slicks were observed: 1. Hudson Rover, 8:47 AM, N40.42, W74.01, near Ground Zero, 100' from seawall, 30 meters x 30 meters, paper, plastic, etc.. 2. East River, 9:00 AM, wood pallets and trash, East side of Manhattan Bridge, 100 meters long. 3. Upper Harbor, 9:07 AM, N40.37, W74.03 to N40.35, W74.04, 3-4 miles long x 10-20 meters, North to South orientation under the Verrazano Bridge, wood pallets and trash 4. Gravesend Bay, 9:15 AM, N40.35, W74.00, 1 acre	Reported observation to the USACOE

7/30	11:45 AM	The following slicks were observed: 1. 10:45 AM, Arthur Kill, N40.38, W74.11 to N40.38.56, south of buoy #20, 1 mile long x 5 yds 2. 10:45 AM, Arthur Kill, N40.36., W74.12, north of buoy #24, 40yds x 10yds 3. 10:45 AM, Arthur Kill, N40.34, W74.12, next to buoy #24, 1/4 mile x 5yds. 4. 11:00 AM, Newark Bay, N40.41, W74.07, 100yds. South of the Turnpike Extension, 3/4 mile x 15yds. 5. 11:00 AM, Newark Bay, N40.40, W74.08, next to buoy #14, large wooden pallets in a 1 acre size debris slick 6. 11:30 AM, Upper Harbor, N40.38, W74.03, west of buoy #24, heavy density 50 yds debris slick 7. 11:30 AM, Upper Harbor, N40.38, W74.02, next to GB3, ½ mile x 20 yds. 8. Also a light rainbow oil sheen was observed 40 yds. South of the Intrepid Museum in the Hudson River.	Reported all floatable debris slicks to the USACOE.
7/31	10:11 AM	The following slicks were observed: 1. 8:46 AM, Kill Van Kull, N40.38, W74.08, east of Bayonne Bridge, north of buoys 10 and 11, 150 yards. 2. 8:51 AM, Kill Van Kull, N40.38, W74.07, 20' wood piling. 3. 8:59 AM, Hudson River, N40.44, W74.01, north to south, 100 yards. 4. 9:33 AM, mouth of Jamaica Bay, scattered debris	Reported floatable debris slicks to the USACOE.

8/2	10:00 AM	The following slicks were observed: 1. 8:45 AM, Arthur Kill, N40.38,, W74.11, 10 yards SW of Goethals Bridge, ½ mile x 10 yards. 2. 8:46 AM, Newark Bay/Kill Van Kull, N40.38, W74.08, West of Bayonne Bridge, extending to steel buoy #4, north to south, ½ mile x 5 yards. 3. 8:50 AM, Newark Bay, N40.39, W74.09, near buoy #7, included large wood, 200 yards x 20 yards. 4. 8:55 AM, Newark Bay, N40.39, W74.09, west of buoy #7, rainbow sheen oil slick, 1/4 mile x 5 yards. 5. 9:22 AM, Upper Harbor, N40.40, W74.01, 200 yards SW of green buoy #11, 1/4 mile x 20 yards. 6. 9:27 AM, Upper Harbor, N40.38, W74.02, from Tanker "Elaine" south to ½ mile of buoy #3, 1.5 mile x 10 yards. 7. 9:35 AM, Upper Harbor, North of Verrazano Bridge on east side, N40.37, W74.02, next to buoy #2, 200 yards x 10 yards. 8. 9:37 AM, Gravesend Bay, scattered debris near seawall. 9. 9:38 AM, West of Coney Island, 1/4 mile x 5 yards	Reported floatable debris slicks to the USACOE and the oil slick to the USCG (reference #730392)

8/3	10:00AM	The following slicks were observed: 1. 9:02am Newark Bay N40.39 x W74.09 Green buoy No 3 Red buoy No 17 Red buoy No 2 1/4 long by 10-20 meters wide mostly wood and plastic, light density 2. 9:04 am Newark Bay north of buoy No 4 1/4 long x 10 meters wood, paper and plastic- light to medium density 3. 9:04 am Newark Bay Rainbow Sheen Green buoy No 5 1/4 mile long x 5 meters wide 4. 9:04am Newark Bay south of buoy no 8 continued north on east side of bay and proceeded to red buoy no 9 N40.39 x W74.08 Light density consisting of paper plastic and wood 5. 9:10am Newark N40.39 x W74.08 Rainbow sheen off the bow of the ship Condor (anchored at ship loading docks) ½ mile long x 5-10 meters 6. 9:14am Kill van Kull East of red buoy 10 North side of river N40.38 x W74.07 Large pieces of wood 300 meters x 5-10 meters light to medium density 7. 9:20am Hudson River N40.42 x W74.01 10 meters long along sea wall slick going into the first marina (manhattan side) of river 8. 9:35am Upper harbor N 40.40 x W74.02 East/west orientation 1/4 mile long x 10 meters consisted of plastic and paper-light density 9. 9:42am Upper Harbor	Reported floatable debris slicks to the USACOE and the oil slick to the USCG. Slick #10 was out of range of the USACOE.

8/4	9:30 AM	The following slicks were observed: 1. 8:51 AM, Kill Van Kull, N40.38, W74.08, West of buoy #11, south of River, extending to buoy 9a, 1/4 mile x 10 meters. 2. 8:59 AM, Kill Van Kull, N40.38, W74.07, east of buoy 10, extending east to several barges, 1/4 mile x 5 meters. 3. 9:11 AM, Hudson River, N40.42, W74.01, south and north of Hyatt Hotel on NJ side, 20 meters off the shore, 100 meters x 5 meters	Reported slicks 1-3 to the USACOE. Slick #10 was out of range of the USACOE.
8/12	9:20 AM	The following floatable debris slicks were observed: 1. 8:50 AM, Kill Van Kull, ½ mile West of Upper Harbor, North side of River, 200 yards x 20 yards 2. 9:07 AM, Upper Harbor, 1 mile north of Verrazano Bridge, middle of channel. 3/4 mile x 10 yards 3. Gravesend Bay, scattered debris near sea wall 4. Coney Island, 20 yards off shore, Scattered debris	Reported observation to the USACOE
8/13	10:50 AM	The following floatable debris slicks were observed: 1. 10:26 AM, Kill Van Kull, just east of Goethals Bridge, on north side, 1/4 mile x 3-5 meters 2. 10:43 AM, Upper Harbor, by buoy #11, extending west, 1/4 mile x 5 meters 3. 10:46 AM, Upper/Lower Harbor, from north to south under the Verrazano Bridge, 1/4 mile x 5 meters	Reported observation to the USACOE

8/17	**9:50 AM**	**The following slick was observed: 8:55 AM, Newark Bay N40˚39' x W74˚ 08', Green Buoy No 5 Green Buoy No. 7, 1/4 mile long x 5 meters wide, mostly paper, plastic and wood, light density**	**Reported observation to the USACOE**
8/18	**10:00 AM**	**The following slicks were observed:** **1. 9:10 AM, Newark Bay, between buoys 5 and 7, 1/4 mile x 5 meters** **2. 9:40 AM, Upper Harbor, near buoy 22, extending west, 1/4 mile x 1-5 meters**	**Reported observation to the USACOE**

V. How effective has the FAP been in ensuring timely notification of beach operators of potential wash-ups of floatable debris?

Due to the effectiveness of the FAP in 2004 in minimizing the escape of floatable debris from the Harbor Complex, it has not been necessary for the EPA Floatables Coordinator to notify beach operators of potential wash-ups of floatable debris. However, a notification system has been maintained and is in place whereby, based on the sighting of a floatable debris slick outside the Harbor Complex, the EPA Floatables Coordinator is to contact the following:

In New Jersey: NJDEP, which in turn notifies local beach operators; and

In New York: NYSDEC Region 1 (Nassau and Suffolk counties) or NYSDEC Region 2 (New York City), depending on the location of the spotted slick, and the New York Beach Information Network (a cooperative network of many Long Island beach operators for the obtaining of beach condition information).

Although routine clean-up operations are projected to address the significant majority of floatable debris slicks, a program is also established to address non-routine events such as the following:

- vessel accidents or illegal dumping; and

- floatable debris slicks sighted in the Bight, beyond the transect between Sandy Hook and Rockaway Point.

The EPA Floatable Coordinator, upon receipt of a Bight floatable slick sighting is to notify appropriate NJDEP and NYSDEC Floatable Coordinators. Individual State Coordinators are then responsible for notifying appropriate local authorities of an impending washup, who would in turn organize resources for clean-up. NOAA has developed a forecasting program that may be used to predict the impact area for Bight-sighted floatable debris slicks based on several input parameters (wind direction, sea conditions, etc...).

VI. How effective has the FAP been in minimizing beach closures?

The FAP has been very successful in minimizing beach closures as evidenced by the fact that there were no beach closure incidents in 2004 due to floatable debris.

After the floatable debris washups in New Jersey in 1987, the NJDEP's Cooperative Coastal Monitoring Program began tracking beach closures due to floatable debris washups in terms of closures of designated bathing areas. A designated bathing area is typically a stretch of beach patrolled by a lifeguard. A closure of such an area must last for a minimum of one day in order to be counted as an official closure.

Currently, the NJDEP formally defines a beach closure as follows:

The prohibition of primary contact activities at a regulated recreational beach and/or beaches contiguous to these beaches; the term "primary contact activities" implies a certain degree of water immersion/skin contact; regulated beaches must meet criteria detailed in Chapter 9 of the State Sanitary Code, these criteria include the presence of lifeguards, certain safety equipment and water quality testing.

Nassau County does not factor the amount of time that a beach is closed into its reporting of "beach closings due to floatable debris." Rather, based on a cooperative working relationship between the Nassau County Department of Health (NCDOH) and beach operators, beach operators notify the NCDOH when medical debris is discovered either on the beach or in the water. If the quantity of medical debris found on land is manageable, it is collected and no beach closure ensues. If medical debris is found in the water, the beach will typically be, based on an inspection by the NCDOH, closed.

Being further away from the NY/NJ Harbor, Suffolk County does not specifically associate medical waste with beach closings due to floatable debris. The Suffolk County Department of Health Services (SCDHS) works cooperatively with beach operators to close beaches in cases of "significant amounts of floatable debris" either already on the beach or in the water. Beaches remain closed until debris is removed and incoming tides no longer carry significant debris to the shoreline. Beach operators can independently close beaches and alert the SCDHS in such instances.

The following table demonstrates the success of the FAP in minimizing designated bathing area closures due to floatable debris washups in New Jersey:

New Jersey Floatable Debris-Related Beach Closure Data

Year	Total # of Designated Bathing Area Closures in New Jersey between May 15 and September 15
1988	19 (pre-FAP)
1989	9 (2 incidents)
1990	10 (1 incident)
1991	0
1992	0 (1 unofficial incident)
1993	0
1994	0
1995	0
1996	0
1997	0
1998	0
1999	0
2000	0
2001	0
2002	0
2003	13 (2 incidents)
2004	0

Implementation of the FAP in New York has also been highly successful. After the summer of 1988, in which beaches in New York from Coney Island in Brooklyn to Tiana Beach in Suffolk were closed for varying periods of time due to floatable debris washups, the FAP has resulted in minimizing beach closures as indicated in the following table.

New York Floatable Debris-Related Beach Closure Data

Year	Total # of Beach Closure Incidents in New York between May 15 and September 15
1989	0
1990	0
1991	1
1992	1
1993	0
1994	0
1995	0
1996	0
1997	0
1998	1
1999	0
2000	1
2001	0
2002	1
2003	1
2004	0

The FAP has been assessed in the past on a bi-State floatable debris-based beach closure "incident" basis. Using this measure the following table indicates the success of the FAP in minimizing beach closures.

Combined NY / NJ Floatable Debris-Related Beach Closure Data

Year	Total # of Floatable Debris-Based Beach Closure Incidents in New Jersey and New York between May 15 and September 15
1988	9 (pre-FAP)
1989	2
1990	1
1991	1
1992	2
1993	0
1994	0
1995	0
1996	0
1997	0
1998	1
1999	0
2000	1
2001	0
2002	1
2003	3
2004	0

VII. Rain and the FAP

What has been the impact of rainfall on the success of the FAP?

Discharges from both CSO's and storm sewers are triggered by rainfall events. The correspondence, however, between rainfall events and floatable debris slick formation is based on a variety of factors including rainfall intensity, duration of rainfall, time frame between a particular rainfall event and the previous rainfall event, and the location of a rainfall event. In early FAP assessment reports, rainfall data was included from a variety of specific locations: Newark International Airport and Sandy Hook in New Jersey, and Central Park, Dix Hills, the South Shore and John F. Kennedy International Airport in New York.

In order to utilize rainfall data that more accurately reflects the broader region of Northern New Jersey and New York City / Nassau County / Suffolk County, data from the National Climatic Data Center ("NCDC") was obtained and was presented as monthly rainfall in inches for the "summer months" (May through September) for each year between 1985 and 2001.

Beginning in 2002, it was decided to include specific weather station data for Newark International Airport and Central Park, to more accurately correlate the relationship between rainfall and the Harbor's CSO discharge points. Data has been obtained from http://www.erh.noaa.gov/er/okx/climate.html and is tabulated (note: some differences can be seen in monthly precipitation values from past Floatables Action Plan Assessment Reports due to the availability of better data) in the following tables:

State of New Jersey Rainfall Data: 1985 - Present
(National Climatic Data Center New Jersey Division 1 OR
Newark International Airport Weather Station Data, as indicated)

	MAY	JUNE	JULY	AUGUST	SEPTEMBER	Summer Total
1985	3.79	5.25	4.51	3.90	6.03	23.48
1986	1.72	3.39	6.04	5.23	2.78	19.16
1987	2.14	3.63	6.15	5.21	5.69	22.82
1988	5.66	0.99	8.55	3.44	2.77	21.41
1989	9.99	6.65	4.06	4.71	8.40	33.81
1990	8.81	3.38	4.40	8.82	2.33	27.74
1991	3.07	3.14	4.41	4.57	4.98	20.17
1992	3.13	6.34	4.73	4.04	3.80	22.04
1993	0.99	3.05	1.92	3.24	6.11	15.31
1994	3.67	5.27	4.69	5.91	2.74	22.28
1995	3.43	2.36	5.13	1.25	4.24	16.41
1996	3.45	5.29	7.88	2.31	6.30	25.23
1997	3.40	2.57	6.13	4.28	3.00	19.38
1998	6.91	6.05	1.74	3.18	2.27	20.15
1999	3.32	1.06	1.03	4.98	12.04	22.43
2000	4.83	4.86	5.89	5.67	3.92	25.17
2001	3.76	6.16	2.69	2.99	4.31	19.91
2002	3.90	5.80	1.19	4.05	3.66	18.6
2003	3.45	10.50	2.59	8.21	5.57	30.32
2004	4.60	2.95	8.39	3.68	8.01	27.63
Average	**4.20**	**4.43**	**4.61**	**4.48**	**4.95**	**22.67**

State of New York Rainfall Data: 1985 - Present
(National Climatic Data Center New York Division 4 OR Central Park Weather Station data, as indicated)

	MAY	JUNE	JULY	AUGUST	SEPTEMBER	Summer Total
1985	5.32	5.00	3.67	3.75	3.68	21.42
1986	0.95	2.64	5.04	4.86	1.62	15.11
1987	1.81	3.19	3.38	4.69	4.45	17.52
1988	4.29	1.47	6.13	2.19	3.21	17.29
1989	10.21	7.13	5.64	6.42	5.19	34.59
1990	7.70	3.02	3.57	8.51	2.70	25.50
1991	3.31	2.22	2.94	7.81	4.12	20.40
1992	3.13	4.36	5.03	5.57	3.89	21.98
1993	1.27	2.08	1.96	2.86	5.29	13.46
1994	3.81	1.52	2.72	5.80	3.78	17.63
1995	3.07	2.58	4.03	0.51	3.95	14.14
1996	3.07	4.19	6.47	2.95	5.53	22.21
1997	3.15	2.52	5.06	4.73	1.75	17.21
1998	6.12	6.21	1.38	2.57	2.71	18.99
1999	3.84	0.90	1.19	4.28	7.67	17.88
2000	4.28	4.57	6.01	3.86	4.67	23.39
2001	3.10	5.44	2.86	3.71	3.84	18.95
2002	3.69	4.50	1.05	4.91	5.16	19.31
2003	3.43	10.27	3.76	5.85	6.03	29.34
2004	5.77	3.02	7.64	3.03	11.51	30.97
Average	**4.07**	**3.84**	**3.98**	**4.44**	**4.54**	**20.86**

NCDC New Jersey Division 1 includes all of Northern New Jersey, south to just north of Sandy Hook and NCDC New York Division 4 includes New York City and Nassau and Suffolk Counties.

From this information, the following general statements can be made:

- The summers of 1987 and 1988, the two years in which significant floatable debris washups occurred, were summers of average or below average rainfall.

- The summer of 1989, the first year that the FAP was implemented, was a summer of significantly above average rainfall.

- The summers of 1990, 1991 and 1992, were generally summers of above average rainfall.

- The summers of 1993 - 1995, years in which no floatable debris-related beach closures occurred, were generally summers of below average rainfall.

- The summer of 1999 included months of June and July which were exceptionally low rainfall months in both New York and New Jersey. For New York, 1999 included the lowest June and July rainfall since 1985. For New Jersey, 1999 included the second lowest June rainfall and the lowest July rainfall since 1985.

- Generally, the summer of 2001 was a summer of lower than average rainfall for both New York and New Jersey.

- Based on the Newark International Airport Weather Station and the Central Park Weather Station data, 2004 was the second highest year for precipitation in New York and the third highest in New Jersey since the inception of the Floatables Action Plan.

The variety of activities implemented under the FAP and in concert with the FAP since 1989 have clearly resulted in far greater control of floatable debris slicks exiting the Harbor and affecting beaches.

VIII. Wind and the FAP

What role do wind speed, wind direction and currents play in the transport of floatable debris?

In past FAP assessment reports, wind speed and directions were provided for a variety of specific locations: Newark International Airport and Sandy Hook in New Jersey, and Central Park, Dix Hills, the South Shore and John F. Kennedy International Airport in New York. The value of this specific-location information is, however, minimal. Wind speeds and directions are variable from location to location and can differ between land and sea. Winds also engage in a complex interplay with tidal currents. Such data provides little conclusive correlation between the presence of floatable debris in the Harbor, its exit to the Bight and its eventual washup on Long Island and New Jersey beaches. What can be said of wind speeds and directions in regard to the movement of floatable debris is summarized as follows:

- Based on tests conducted, there appear to be four categories of floatable debris. These four categories are defined below and the major contributor(s) to their movements is indicated:

Categories of Floatable Debris

Category	Definition	Predominant Transport Cause(s)
Floating	Items that float on the top of the water surface (e.g., Styrofoam cups, plastic containers, metals cans)	Wind and Surface Current
Partially Submerged	Items that are found partially above the water surface and partially below (e.g., partially filled cans or bottles)	Wind and Surface Current
Submerged	Items that float just at or below the water surface (e.g., driftwood that has taken on water)	Surface Current
Neutrally Buoyant	Items which exist in the water column (e.g., plastic bags or plastic fragments)	Subsurface Current

- It appears that the transport of floatable debris over long distances is affected by large-scale wind and offshore current systems.

- Washups of floatable debris in 1987 and 1988 are believed to have been linked to favorable meteorological and oceanographic conditions. It is believed that persistent summer winds from the south-southwest, along with their associated mean currents to the northeast, drove floatable debris ashore, on to the Long Island beaches.

- Summertime climatological and meteorological conditions favor floatables washups on Long Island and New Jersey beaches. There is an increased frequency of winds blowing towards the west, northwest, north and northeast.

- Oceanic winds cause circulation patterns in the water which result in windrows. Windrows concentrate floatable debris within narrow bands, usually parallel to the current direction. Such floatable debris slicks can washup onto shores if given favorable short-term conditions of winds and tides.

- Once floatable debris exits the Harbor and enters the Bight, its transport is determined by the Bight's meteorological and hydrodynamical activities.

Based on this discussion, it is imperative that Harbor-generated floatable debris not be permitted to exit the Harbor and enter the Bight. The FAP has recognized this basic aim and has sought to do just that. The interagency implementation of the FAP has significantly reduced the amount of floatable debris that both enters the Harbor and exits the Harbor, as evidenced by other sections of this report.

IX. NYCDEP Long-term Floatable Debris Control

Current Status

On January 19, 2005, the NYSDEC signed an Order on Consent with the NYCDEP which addresses implementation of New York City's CSO Long-term Control Plan (LTCP). This action replaces the former NYSDEC / NYCDEP CSO Order on Consent, dated June 26, 1992 and a modification, dated September 19, 1996. This CSO Order was developed to address certain past NYCDEP schedule violations, ensure that the NYCDEP CSO Program conforms with the 1994 National CSO Control Policy, clarify language set forth in the 1992 Order and 1996 modification and to update the implementation schedules for the NYCDEP CSO LTCP Facility Plans. A $2,000,000 penalty for past violations was included. The CSO Order outlines, on a water body by water body basis, when a LTCP is to be submitted and when work is to be initiated. Implementation schedules for yet-to-be developed LTCPs will be incorporated, once the LTCPs are approved, into the new CSO Order. The new CSO Order provides an implementation schedule for already approved elements of the NYCDEP CSO program and outlines a CSO abatement program implementation schedule lasting approximately 15 years into the future.

The new CSO Order contains detailed schedules for CSO Facility Plans, Waterbody / Watershed Plans and Drainage Basin LTCPs for the following project areas:

a) Alley Creek CSO
b) Outer Harbor CSO
c) Inner Harbor CSO
d) Paerdegat CSO
e) Flushing Bay CSO
f) Jamaica Tributaries CSO
g) Coney Island Creek CSO
h) Newtown Creek CSO
i) Westchester Creek CSO
j) Bronx River CSO
k) Hutchinson River CSO
l) Jamaica Bay CSO

The CSO Facility Plans under the old CSO Order were pre-CSO Control Policy plans, and simply looked at knee-of-the-curve analysis for cost effective CSO control.

The Waterbody/Watershed Plans are holistic watershed analyses that serve as the draft LTCP for an individual basin without a Use and Standards Attainability ("USA") analysis. These plans will evaluate all sources of pollution to a basin, specific causes for non-attainment of WQS, model impact of specified CSO projects and will evaluate whether additional cost effective CSO control and/or non-CSO control will result in attainment of water quality standards("WQS").

The Drainage Basin LTCPs are final Waterbody/Watershed reports and will include any final implementation, USA analysis, and application for standards review. These are not to be submitted until 60 days after the last Notice-to-Proceed is processed for the specific CSO projects in that basin, ensuring that all CSO projects proposed and approved under the old CSO Order will be constructed before the NYCDEP proposes applicable WQS reviews.

The final City-wide LTCP, to be submitted to the NYSDEC on December 2017, is a compilation of all drainage basin-specific work.

Additionally, the new CSO Order requires that the NYCDEP submit a modified floatable debris facility plan by December 2004, a date which was met by the NYCDEP. This modified plan seeks to update its floatable debris facility plan which was submitted in June 1997, under the old CSO Order, and to demonstrate various enhancements over that earlier plan. As such, the modified plan consists of the following elements:

a) Monitor City-wide street litter levels and advise the New York City Department of Sanitation if litter levels are not maintained at levels approximately equal to or better than those existing prior to NYCDEP implementation of the Nine Minimum Controls.

b) Hood catch basins and reconstruct unhoodable basins.

c) Maximize collection system storage and capacity.

d) Maximize wet weather flow capture at Water Pollution Control Plants.

e) Capture floatable debris at wet weather CSO storage / treatment facilities.

f) Capture floatable debris at end-of-pipe floatable debris control facilities.

g) Continue Illegal Dumping Notification Program.

h) Engage in public outreach programs.

i) Evaluate emerging floatable debris control technologies through pilot testing and demonstration projects.

j) Review and revise water quality standards to provide for achievable goals.

Background

On June 25, 1992 the NYSDEC and the NYCDEP entered into an Order on Consent ("CSO Abatement Order") providing for the planning, designing and construction of a comprehensive CSO abatement program for New York City. Generally, the CSO Abatement Order required the abatement of CSO impacts in two "Tracks." Track I consisted of a series of deadlines which required the NYCDEP to plan, design, commence construction and complete construction of

CSO abatement facilities designed to prevent violations of permit requirements for minimum levels of dissolved oxygen and maximum levels of coliform bacteria. End dates for these Track I facilities ranged from 2001 to 2006. Track II required the NYCDEP to plan, design, and commence construction of facilities designed to abate substantially all floatable debris and settleable solids (termed the "Comprehensive Plan") from CSO outfalls where floatable debris would not be abated by the construction projects included in Track I. Dates for the initiation of construction of Track II facilities were area-specific and were generally specified to be within 18 months of the completion of Track I facilities.

Interim Floatable Debris Abatement

The 1992 CSO Abatement Order required that the NYCDEP undertake certain interim measures to address floatable debris control. The NYCDEP was required to purchase and operate one large open water skimmer vessel, designed to supplement U.S. Army Corps of Engineers drift collection efforts in the New York / New Jersey Harbor. NYCDEP was also required to establish a booming and skimming program (through the purchase and operation of four skimming boats) to collect and remove substantially all waterborne floatables in certain prescribed Jamaica Bay tributaries, inner / outer Harbor tributaries and from certain outfalls in beach-sensitive open waters around Staten Island, western Brooklyn and the upper East River. These interim measures were discussed earlier in this assessment report.

Catch Basin Hooding

Another interim measure for floatables control mandated by the 1992 CSO Abatement Order was that the NYCDEP would complete a systematic Citywide survey of catch basins (over 136,000 throughout the City). This survey was to consist of cleaning each catch basin that requires cleaning and determining whether the catch basin had a hood in place. If the catch basin lacked a hood, the NYCDEP was to replace the hood by no later than September 1993. The rationale behind this requirement was that although catch basins were primarily equipped with hoods for odor control purposes, the presence of a functioning hood traps floatables in the catch basin, minimizing their delivery to the downstream sewer system. Based on a series of discussions between the NYSDEC and the NYCDEP, with the support of EPA, the catch basin program was modified and was incorporated into the 1996 CSO Abatement Order modification. The program was divided into two separate Phases.

Phase I was defined as those Community Districts where the booming and skimming program captures floatables from less than 50 per cent of the area for which the Mayor's Office of Operations found a street litter rating of greater than 1.4 as of July 1993. Phase II was defined as Community Districts where the booming and skimming program captures floatable debris from more than 50 per cent of the area or for which the Mayor's Office of Operations found a street litter rating of 1.4 or lower in July 1993, and Community Districts where booming and skimming captures floatables from between 50 and 75 per cent of the area, and selected Community Districts not covered by the booming and skimming program. Hooding of basins has taken place in both combined sewered and separately sewered (with storm sewer outfalls) areas of New York City.

Phase I hood installations were completed on December 26, 1997. The Phase I inventory tallied 44,375 structures and the hooded percentage of structures was increased to 85.7% of all structures in Phase I areas.

Phase II hood installations were completed on September 24, 1998. The Phase II inventory tallied 51,443 structures and the hooded percentage of structures was increased to 85.2% of all structures in Phase II areas.

NYCDEP submitted a work plan for NYSDEC's approval to determine an appropriate and cost-effective catch basin cleaning program for floatables capture and flood control in locations of various street litter characteristics throughout the City. Based on the results of the completed study the NYCDEP incorporated the findings into the City's Comprehensive Plan.

A draft work plan entitled, "Determining Catch Basin Cleaning Frequency for Control of Street Flooding and Floatables Discharges" was submitted to the NYSDEC for review in April 1996. The NYCDEP finalized the work plan in January 1997. This work plan called for two phases of work, the first of which was scheduled for completion by June 1997. A draft report entitled "Catch Basin Cleaning Program for Floatables Capture and Flood Control" was completed and submitted in June 1997. The second phase of work called for in the work plan was completed in 2001 through a catch basin pilot study which determined the following: a) Floatable debris capture starts to deteriorate in a hooded catch basins between 600 and 1100 gallons per minute of runoff flow, b) Floatable debris capture in a hooded catch basin improves as material accumulates in the basin, implying that hood installation increases the need for basin cleaning, and c) Grit

does not have a significant effect on floatables debris capture in a hooded catch basin.

NYCDEP has also extended the catch basin hooding program beyond the Phase I and II areas. These other areas were collectively termed the Phase III areas. This program was recommended in the June 1997 Plan. NYCDEP initiated the hooding of Phase III areas in December 1998 and substantially completed it by October 28, 1999. The Phase III inventory tallied 40,815 structures and nearly 18,000 catch basins were hooded in Phase III areas.

Based on specific design configuration criteria, certain catch basins were termed "currently unhoodable" by the NYCDEP. In order to place a hood into these catch basins, the catch basins had to be rebuilt. NYCDEP has identified this activity as the most costly of all its Track II floatable debris control activities.

Based on the work outlined in the 1996 modification to the CSO Abatement Order, this ongoing catch basin hood program has resulted in the entire City being covered by a floatable debris control technology, either booming and skimming or catch basin hoods. Floatable debris control measures were also strengthened above the original CSO Abatement Order in that there now exists a recurring hood inspection and replacement program (on a 3-year cycle, based on SPDES permit conditions, dated April 2003) to ensure the continued effectiveness of the catch basin hoods as a floatable debris control technology. This revised phased catch basin hood program is expected to augment beach protection efforts for a number of years.

Comprehensive Plan: Transition to Long-Term Control Planning

In June 1997, the NYCDEP submitted a Draft City-Wide CSO Floatables Plan (i.e., the Comprehensive Plan) to the NYSDEC.

The Comprehensive Plan was intended to provide CSO controls outside of the Track I program which focused on larger CSO discharge areas and the WPCPs. Since its submittal, changes were made to the Plan to address new concerns from the NYSDEC. One of these has been to include the investigation of settleable solids, oil and grease as a CSO issue.

The Comprehensive Plan evaluated CSO-control technologies. NYCDEP is seeking technologies that have a wide application such as catch basin hoods, regulator baffles and bending weirs for controlling floatables and where applicable, will use a

combination of technologies to achieve the reduction goals. As the Use and Standards Attainment ("USA") Project moved forward to develop waterbody/watershed plans for each of 26 water bodies in New York Harbor, the NYCDEP developed a change in direction for the Comprehensive Plan. NYCDEP integrated the development of the Comprehensive Plan with waterbody/watershed planning. The USA Project was integrated into the Development of a Citywide Long-Term Control Plan for Combined Sewer Overflows Project (Long-Term Control Plan). To date, draft waterbody/watershed plans have been developed for the Bronx River, Paerdegat Basin and Gowanus Canal, that include assessments of floatables and settleable solids. Work is now progressing in the development of waterbody/watershed facility plans and long term control planning for a variety of waterbodies including Newtown Creek, tributaries of the Upper East River and tributaries of Jamaica Bay.

As part of the Long Term Control Plan project, the NYCDEP also submitted an updated Citywide Comprehensive CSO Floatables Plan, Modified Facility Planning Report to the NYSDEC in December of 2004.

Outfalls Program

The NYCDEP has a total of 758 permitted outfalls for the discharge of CSO and storm water. The outfalls program work includes mapping of outfalls, drainage area characterization, land use determination, structural survey, and installation of public notification signs. The NYCDEP has installed signs at more than 400 CSO outfalls, a program mandated by the NYSDEC. The NYCDEP evaluated potential negative aesthetic impact of the sign on high profile areas such as waterfront promenades and walkways. At these locations plaques have been installed to ensure that views are not obstructed. In Brooklyn, as a pilot project, the NYCDEP installed plaques and an informational public education sign at Shore Road as part of the Waterwalk Project. The signs notify the public of CSO locations and encourages the public to report dry weather discharges.

Dry Weather Bypass Reduction

The failure or improper operation of a WPCP, pump station, or sewer regulator can cause a dry weather bypass to occur. In the 1980s there were numerous continuous dry weather bypasses and failures within the collection system were common. In 1988 the NYCDEP began a shoreline survey program to identify and evaluate all CSO locations. In addition staffing of a Collection Facilities Operations ("CFO") group was increased and re-organized to properly operate and maintain pump stations and sewer regulators. The program included daily inspection of pump

stations which was continued until a telemetry system was installed. The NYCDEP has made major efforts to improve pump stations by installing redundant control systems and backup pumps to improve reliability. Sewer regulators were inspected on a monthly or weekly schedule based on priority. Dry weather bypasses from WPCPs, pump stations, and regulators have seen a reduction of 98.5% from fiscal year 1989 to fiscal year 2004. A total of 26.92 million gallons of sewage was bypassed in FY 2004 compared to 1,844.6 million gallons bypassed in FY 1989.

Increased Wet Weather Capture

Since 1989, the NYCDEP has instituted operational changes at many of its plants, rehabilitated tide gate structures, and made improvements to the functioning of its regulators. These changes have resulted in an increase in the capture of rainfall that enters the combined sewer system. Tide gate infiltration has been reduced by over 40 MGD since 1985. Water conservation has also increased capacity available for CSO capture at the WPCP's.

Public Education

The NYCDEP has developed a brochure on floatables which is available to the public. This brochure describes sources of floatables debris and the programs currently in place for reduction of floatables discharge. It is distributed at conferences and public information desks. In addition the brochure is also displayed in the NYCDEP website at www.nyc.gov/html/dep/html/float.html. The NYCDEP has also conducted a project to evaluate the potential benefits of developing a Public Education/Advertising Campaign on reducing littering as a Best Management Practice for reduction of CSO floatables. The NYCDEP determined that it would consider moving forward with such a campaign as a partner among other agencies such as the DSNY, EPA and NYSDEC should these agencies decide to implement such a program. However, the NYCDEP did not feel the benefits of such a program would warrant conducting such a program without such a partnership with other agencies.

X. NJDEP Long-Term Floatable Debris Control

The NJDEP, under its 1995 (and reissued in 2000) general permit for combined sewer systems, requires permittees with combined sewer systems to construct solids/floatables control measures which will capture and remove solids/floatables which cannot pass through a bar screen having a bar spacing of 0.5 inches (13.0 mm) from all CSO's, unless the permittee can demonstrate, to the satisfaction of the NJDEP, that an alternative control measure is more appropriate for a CSO point.

In general, once the NJDEP approves the long-term solids/floatables plan submitted by a permittee, a 30-month time frame is initiated as follows:

a) Permittee is to submit a treatment works approval ("TWA") application for NJDEP approval (within 12 months of plan approval)

b) NJDEP is to approve permittee's submitted TWA application (within 3 months of receiving the TWA application)

c) Permittee is to construct final solids/floatables control measures (within 15 months of TWA)

The NJDEP has taken and will continue to take enforcement actions in cases of permittee non-compliance with these time frames to gain enforceable implementation time schedules.

The following table indicates the status (as of December 31, 2004) of the various New Jersey CSO permittees' implementation of solids/floatables control measures:

Implementation Status of Floatables Abatement Programs of New Jersey Communities

(all collection totals in tons)

Municipal Entity (Total # of CSO Points)	Type of Solids/ Floatables Control	1999	2000	2001	2002	2003	2004	Total To Date
Bayonne (29)	Bar screens, in-line netting and end-of pipe netting and floating net facilities		10.1	25.0	89.2	127.2	90.5	342
Elizabeth (28)	Bar screens and In-line netting				78.4	194.8	211.5	484.7
East Newark (1)	In-line netting under development							
Fort Lee (2) **AND** **Edgewater MUA (0)**	In-line netting; receives flow from the Edgewater MUA service area		2.2	9.9	11.6	32.3	36.6	92.6
Guttenburg (1)	In-line netting completed			2.0	6.4	5.5	4.6	18.5
Hackensack (2)	In-line storage modules with screening; **collection data not available**							
Harrison (7)	In-line netting		13.0	17.0	20.2	28.5	60.67	139.37

Jersey City MUA (21)	In-line netting and end-of-pipe netting under development; 13 CSO points complete; remaining points to be completed in 2004				33	46	87.2	166.2
Kearney (5)	In-line netting and end-of-pipe netting under development							
North Bergen Twp. MUA-Central (9) **AND** **North Bergen Twp. UA-Woodcliff (1)**	In-line netting, end-of pipe netting, floating TrashTrap, static bar rack	5.0	30.5	43.5	37.5	29.6	36.77	182.87
Newark (30)	Screens and end-of pipe netting partially completed; 2 facilities completed.				14.2	12.4	15.75	42.35
Paterson (31)	Under development; final plan will involve in-line netting, end-of-pipe netting and screens							
Perth Amboy (17)	In-line Netting		17.3	47.3	49.4	24.8	16.5	155.3

North Hudson SA (Tri-City) **AND** **North Hudson SA River Road Plant** **12 total CSO points being combined to 9. 5 have completed facilities.**	Under development; final plan will involve bar screen and CDS technology facilities (based on a conversion factor of 100 cubic feet = 1 ton)					80	104	184
Ridgefield Park (6)	In-line Netting and end-of-pipe netting	1.5	25.8	28.1	22.8	29.0	17.1	124.3
TOTALS (in tons)	----------	**6.5**	**99**	**173**	**363**	**610**	**681**	**1932**

Based on provided information, 681 tons of floatable debris were captured in 2004 at 122 of the 202 CSO outfalls listed above.

XI. References

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XII. Attachments

a) Floatables Action Plan Graphs

b) Map: New York Bight Apex, New York/New Jersey Harbor Complex

c) USACOE "Floatable Days - 2004"

d) Summary of Past Floatable Debris Beach Closing Incidents

e) Copy of New York Times Article, dated December 11, 2004

f) Cover page and Floatables Disposal Chart from NYCDEP's "City-Wide Comprehensive CSO Floatables Plan Modified Facility Planning Report," dated December 2004