

LONG ISLAND SOUTH SHORE ESTUARY RESERVE
COMPREHENSIVE MANAGEMENT PLAN
IMPLEMENTATION STATUS REPORT
2006—2010



PREPARED BY THE
NEW YORK STATE DEPARTMENT OF STATE
DIVISION OF COASTAL RESOURCES
& SOUTH SHORE ESTUARY RESERVE OFFICE

FOR THE
SOUTH SHORE ESTUARY RESERVE COUNCIL

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South Shore Estuary Reserve (SSER) Comprehensive Management Plan (CMP)

Implementation Status Report 2006 – 2010

I. EXECUTIVE SUMMARY

From **January 1, 2006 through December 31, 2010**, New York State supported **94 projects in the SSER** that are advancing state and regional priorities **resulting in significant implementation of the SSER CMP for water quality protection, habitat restoration, and estuary-related economic support**. Coupled with state agency technical assistance to local governments and SSER partners, these projects implement specific SSER CMP recommendations for watershed management plan development, water quality assessment, improved stormwater management, marine species restoration, maritime trail and signage development, historic building restoration and preservation, and shoreline erosion control. An additional **119 projects/activities** supporting SSER CMP priorities were funded entirely by **SSERC partners** without state assistance.

As **chair of the South Shore Estuary Reserve Council (SSERC)**, the New York State Department of State (DOS) collaborates with SSERC members and others to achieve **coastal resource protection and waterfront revitalization within the SSER**. Together the DOS and SSERC successfully advanced nonpoint source pollution projects and best management practices for improved surface water quality, while protecting habitats, and ensuring a high level of public estuary use with increased opportunities for regional tourism.

Protecting the South Shore Estuary

At the urging of the public concerned with the long-term health of the string of bays along the south shore of Long Island, the New York State Legislature passed Article 46 of Executive Law in 1993, which formed the SSER, and created and directed the South Shore Estuary Reserve Council (SSERC) to protect and enhance the region's natural, cultural, and recreational resources and estuary-related economy. Addressing critical issues affecting the health of the SSER's 500 square miles of bays and upland watersheds, the New York State Department of State (DOS) and others prepared the SSER CMP, which was adopted by the SSERC in 2001. The SSER CMP was a call to action to improve the health and future of the SSER through a series of mutually agreeable implementation projects.

Leveraging Funds for SSER Implementation Projects

Between **January 1, 2006 and December 31, 2010**, 94 New York State-assisted projects, many of which were funded through the Environmental Protect Fund (EPF), leveraged more than \$31.6 million in federal and local government funds for a total of more than \$74.9 million toward SSER CMP implementation in these areas:

- Improve and Maintain Water Quality: 34 projects funded (\$15.3 million)
- Protect and Restore Living Resources: 27 projects funded (\$28.2 million)
- Expand Public Use and Enjoyment of the SSER: 25 projects funded (\$12.3 million)
- Sustain and Expand the Estuary-related Economy: 6 projects funded (\$18.1 million)
- Increase Education, Outreach and Stewardship: 2 projects funded (\$756 thousand)

In addition, 119 projects/activities reported to the DOS and funded entirely by counties, city, towns, villages, or non-governmental organizations resulted in more than \$59.8 million toward advancement of CMP implementation actions. Not all projects, or amounts for projects, may have been reported. **The combined total for New York State-assisted and reported partner-funded projects in the SSER between 2006 and 2010 is more than \$134.8 million.** Descriptions of the 94 state-assisted projects and 119 reported partner-funded projects are provided in Sections A – E.

A Decade of Progress... More to Do

In 2010, the SSERC achieved a **10-year milestone** in implementing SSER CMP actions identified as having a high likelihood of success in estuary protection and preservation. **Governments, non-profit organizations, and others supported more than 290 SSER projects by providing close to \$180 million in funds and in-kind services over the last ten years (2001 - 2010).** However, despite these targeted efforts to answer environmental and economic challenges, many issues affecting SSER health and viability remain to be addressed. Particularly evident is the **imminent threat of climate change and sea level rise.**

2006 – 2010 Significant Accomplishments

Improve and Maintain Water Quality

- Municipalities throughout the SSER completed **20 stormwater improvement projects**, including installation of more than **2,000 new catch basins, catch basin inserts or other devices**, to capture, filter and reduce pollutants from reaching SSER bays. **Thirteen of these projects** mitigated stormwater impacts by altering drainage patterns, installing sediment reduction/filtering features and, where appropriate, improving water flow. In addition to improved water quality in the estuary, these projects protect habitats from degradation.
- All SSER municipalities completed assessments of their nonpoint management practices to comply with the US EPA Municipal Separate Storm Sewer System (MS4) requirements. In addition, municipalities **embarked on 12 stormwater management/watershed planning projects**, which include evaluating existing watershed conditions, mapping stormwater conveyance systems, identifying and prioritizing mitigation projects, developing an implementation strategy, identifying best management practices, and preparing construction plans, specifications and estimates.
- Municipalities have increased efforts to sweep streets, clean catch basins, remove settleable solids from swirl separators, and maintain stormwater infrastructure on a regular basis. **Eight new street sweepers and vacuum eductor trucks** were purchased to provide additional stormwater infrastructure cleaning capability to remove pollutants and sediments from entering the south shore estuary.
- SSER municipalities increased capacity to improve water quality by adding **seven new pumpout vessels** and **one land-based pumpout facility** to eliminate discharge of septic waste from recreational boats into south shore bays by removing and properly disposing of waste. It is estimated that the new pumpout vessels **collected more than 200,000 gallons of boater septic waste** between 2006 and 2010. Numerous federal, state and municipally operated land-based pumpout facilities continued receiving recreational boater septic waste. In 2009, the

Maintain and Enhance the SSER Ecosystem

Watershed management plans are one of the most effective ecosystem-based management (EBM) tools for surface water quality improvement and habitat protection. Plans identify and prioritize capital improvement projects, best management practices and improved local regulations. Since 2001, **ten watershed management plans have either been completed or are underway in the SSER – covering approximately 95 square miles of SSER watershed.** Approximately \$12.5 million in EPF and local municipal funds have been allocated to watershed planning and remediation projects in the SSER.

In 2010, the DOS and the SSERC further reinforced the long-term commitment to protect coastal resources while enhancing economic vitality and cultural integrity by providing close to \$820,000 in EPF-Open Space funds to **advance scientific research on water quality impairments in the SSER Western Bays.** Partnering with the DEC, SUNY School of Marine and Atmospheric Sciences (SoMAS), and the United States Geological Survey (USGS), DOS manages multiple projects to collect and interpret data to establish water quality management parameters, leading to an application to the United States Environmental Protection Agency (US EPA) for Total Maximum Daily Load (TMDL) discharge limits.

existence of adequate pumpout facilities enabled the US EPA to declare the SSER a Vessel No Discharge Zone under the federal Clean Water Act.

- In Nassau County, **six floating debris/trash collection projects** help reduce debris carried by waterways from entering the marine environment. Several netting-based technologies are under evaluation. In addition, **two vessels** were purchased specifically for the removal and proper disposal of floating debris/trash.

Joining Forces: Marine Species Restoration and Protection

Restoration: In the mid 1990s, DOS awarded grants for three Great South Bay hard clam population and bottomlands restoration projects. Support continued over the years for three additional hard clam restoration projects. In 2006, DEC provided SUNY SoMAS with funds to analyze the level of sampling required to develop robust estimates of species abundance and biological rates for finfish and shellfish in the Great South Bay. Building on the DEC project and working with The Nature Conservancy (TNC) in 2008, DOS supported the development of an Ecosystem-Based Management (EBM) Plan for hard clam and submerged aquatic vegetation restoration and water quality improvements in the Great South Bay. These projects provided more than \$1 million for Great South Bay's restoration.

Protection: Each year, DEC collects between 2,000 and 3,000 water samples at 350 SSER underwater land areas to assess fecal coliform (bacteria) levels. DEC uses these results to designate underwater lands as certified (open), uncertified (closed), or seasonally certified for shellfishing.

Protect and Restore Living Resources

- The **installation of three fish passages** in three SSER tributaries is providing 95-acres of new habitat for fish that require marine and freshwater environments during their life cycle. In Oyster Bay, **40-acres of fresh water habitat** are now opened along Massapequa Creek and in Massapequa Lake. **Three acres of spawning habitat** now exists at step pools in Islip's Penataquit Creek. In Brookhaven, the fish ladder at Carmans River opened **52-acres of fresh water habitat** in Hard's Lake. These projects also sustain native fauna and increase recreational fishing opportunities.
- **Approximately 667 acres of open space has been acquired** to preserve valuable living resources throughout the SSER.
- **13,000 acres of Great South Bay underwater land** are now a designated Shellfish Management Area protecting viable shellfish habitat.
- The DOS created the **New York Ocean and Great Lakes Ecosystem Conservation Council's (NYOGLECC) Coastal Atlas of Digital Data** to make coastal information readily available and easy to access. The DOS works continually with the NYOGLECC and others to expand the atlas's data for all coastal areas, including the SSER, while delivering and maintaining a **high quality tool for all New Yorkers to access and use to inform decision-making and foster actions which improve estuary health.**

Expand Public Use and Enjoyment

- Public use and enjoyment was improved for the **1.5 million SSER residents and ten million visitors** through construction and rehabilitation of **12 trails, bikeways, and boardwalks within the SSER.**
- **Twelve renovation projects at five different New York State Parks** in the SSER were completed. Renovated parks have expanded tourism and recreation opportunities for residents and visitors.

Sustain and Expand the Estuary-related Economy

- The Village of Ocean Beach's **Local Waterfront Revitalization Program (LWRP) was approved** by the NYS Secretary of State in 2010. Three towns, the City of Long Beach, and three villages are also participating with the DOS to prepare LWRPs to address critical waterfront issues and prepare for a more sustainable future.
- **Approximately 574,000 cubic yards of sand was dredged** from SSER waterways to **improve recreational and commercial boater safety and navigation and maintain access to recreational and water-dependent businesses.**

Increase Education, Outreach and Stewardship

- Close to **40,000 students increased their knowledge of the SSER ecosystem** and became better estuary stewards through participation in outdoor education programs offered throughout the SSER.
- **Five conferences /workshops held throughout the SSER brought together nearly 400 experts** in academia, government, and non-profit organizations to share scientific research and information to improve water quality and protect living and cultural resources.
- **Two New York State Coastal Resources Interpretive Program signage kiosks** were installed in Patchogue and Bay Shore providing readers with information on the community and the SSER.

A Viable SSER Future

SSER enabling legislation charged the SSERC with reviewing the effectiveness of the SSER CMP's implementation actions and to make revisions accordingly. Water quality impairments and habitat degradation remain pressing issues. Emerging sea level rise and climate change threats will affect the SSER and questions about shoreline sustainability remain unanswered. Reviewing progress over the past 10 years as well as defining specific implementation actions necessary over the next decade to minimize flooding and erosion threats and enhance biological viability are all priorities.

Leading the effort to protect the estuary's future, the DOS is preparing a Long Island South Shore Estuary (SSE) Amendment to the NYS Coastal Management Program for Water Quality Improvement, Habitat Protection, and Climate Change Adaptation. An SSE Amendment will achieve greater collaboration between the SSERC and partners to protect and restore critical coastal resources, enable SSE communities to adapt to climate change, and focus on critical areas where further actions are needed to benefit the SSE. With expertise in interpreting scientific information into sound coastal resource management the DOS is well positioned to facilitate partnerships, coordinate multi-level interaction between constituents, and replicate successes across the SSE.

The SSE amendment will provide state, federal and local governments with new information and current scientific knowledge to improve decisions affecting the SSE's health. It will be based on the DOS and SSERC's knowledge of the region, as well as pertinent information generated from the Oceans and Great Lakes Ecosystem Conservation Council and other initiatives such as the NYS Seagrass Task Force, NYS Sea Level Rise Task Force and NYS Climate Action Council.

With the SSERC, the DOS will continue to pursue opportunities to improve and protect the SSER with strong technical assistance and leadership.

II. ALLOCATED FUNDS FOR SSER CMP IMPLEMENTATION

The following tables document total state funds and match values for projects that advanced SSER CMP implementation actions, between 2006 and 2010.

- Table I summarizes **total state funds with match values** for 94 projects completed or underway in the SSER.
- Table II summarizes **total state funds with match values and reported partner-funded** projects/activities by SSER CMP implementation action.
- Tables III – VII lists all 94 state-assisted projects by SSER CMP implementation action. Project location, state expenditures and match values are provided for each project. Descriptions of these projects are listed by number in Sections A – E. Reported partner-funded projects/activities are also described in Sections A – E, but not enumerated.

Table I. State agency expenditures and match values for 94 projects between 2006 and 2010

State Funding Agency	STATE-ASSISTED PROJECTS			
	# of Projects	Total State Funds	Total Match ¹	Total Amount
New York State Department of State (DOS)	32	\$7,247,904	\$1,937,546	\$9,185,450
New York State Department of Environmental Conservation (DEC)	31	\$9,795,276	\$15,198,943	\$24,994,219
New York State Department of Transportation (DOT)	4	\$7,258,000	13,242,000	\$20,500,000
New York State Office of Parks, Recreation, and Historic Preservation (OPRHP)	25	\$18,815,704	\$1,225,224	\$20,040,928
New York State Department of Agriculture and Markets (DAM)	2	\$211,498	\$0	\$211,498
TOTAL	94	\$43,328,382	\$31,603,713	\$74,932,095

¹ Includes federal agencies funds and local governments funds/in-kind service values

Table II. State-assisted projects and reported partner-funded projects/activities by SSER CMP implementation action between 2006 and 2010

SSER CMP Implementation Actions	SSER CMP Implementation Outcomes	STATE-ASSISTED PROJECTS				REPORTED PARTNER PROJECTS/ACTIVITIES		COMBINED TOTAL	
		# of Projects	Total State Expenditures	Total Match ²	Total Amount	# of Projects	Total Partner Expenditures ³	# of Projects	Total Expenditures ⁴
Improve and Maintain Water Quality	Outcome 1: Reduced nonpoint source pollution Outcome 2: Reduced point source pollution	34	\$12,602,037	\$2,794,113	\$15,396,150	65	\$27,437,703	99	\$42,833,853
Protect and Restore Living Resources	Outcome 3: Increased harvest levels of hard clams and other estuarine shellfish species Outcome 4: Coastal habitats protected and restored to support shellfish, finfish and coastal bird populations Outcome 5: Open space preserved to sustain community character and protect water quality and habitat Outcome 6: Improved knowledge for ecosystem management	27	\$14,520,801	\$13,773,728	\$28,294,529	22	\$12,500,950	50	\$40,795,479
Expand Public Use and Enjoyment of the Estuary	Outcome 7: Increased public use of the estuary and expanded tourism	25	\$10,869,352	\$1,466,872	\$12,336,224	8	\$5,365,000	33	\$17,701,224
Sustain and Expand the Estuary-related Economy	Outcome 8: Water-dependent businesses sustained Outcome 9: Maritime centers thrive	6	\$4,579,382	\$13,569,000	\$18,148,382	6	\$13,918,000	12	\$32,066,382
Increase Education, Outreach, and Stewardship	Outcome 10: Heightened public awareness of the estuary Outcome 11: Actions advanced through Council partnerships and office	2	\$756,810	\$0	\$756,810	18	\$647,500	20	\$1,404,310
TOTAL		94	\$43,328,382	\$31,603,713	\$74,932,095	119	59,869,153	213	\$134,801,248

² Includes federal agencies funds and local governments funds/in-kind service values

³ Expenditures for projects funded entirely by counties, city, towns, villages, non-governmental organizations, or other partners. No state funding involved. Amounts shown were reported by partners. Not all partners reported all projects and activities, nor funding for projects or activities.

⁴ Combined expenditures for state-assisted and reported partner-funded projects/activities in the SSER, from 2006 through 2010.

Table III. State-assisted Projects to Improve and Maintain Water Quality

Implementation Outcome 1: Reduced nonpoint source pollution

The primary water quality concern in the SSER is nonpoint source pollution. Stormwater runoff transports pollutants, which impairs living resources, deteriorates the SSER related economy, and diminishes the public’s use and enjoyment. Reducing nonpoint pollution requires improved policies and regulations, adopting best management practices, completing watershed management plans, and encouraging watershed-friendly practices through education and outreach.

Implementation Outcome 2: Reduced point source pollution

Point sources of pollution—typically discrete and discernible pipe outfalls that discharge directly into surface waters—are generally not widespread, but can cause significant water quality impacts in their immediate areas. Point sources of pollution are regulated and monitored through the State Pollution Discharge Elimination System (SPDES) permit program.

#	Location	Project	Total State Funds	Total Match	Total Amount	Recipient/Implementing Organization	Funding Agency/Funding Source
<i>Western Bays</i>							
1	Nassau (C)	Implementation of the Nassau County Stormwater Management Program (segment 1)	\$300,000	\$300,000	\$600,000	Nassau (C)	DEC/WQIP
2	Nassau (C)	Purchase of two vacuum eductor trucks	\$350,000	\$350,000	\$700,000	Nassau (C)	DEC/WQIP
3	Nassau (C)	Nassau County Water Quality Coordinating Committee Annual Reports	\$3,375	\$1,125	\$4,500	Nassau (C) SWCD	DEC/WQIP
4	Nassau (C)	Nassau County SWCD Outreach	\$75,000	\$25,000	\$100,000	Nassau (C) SWCD	DEC/WQIP
5	Hempstead (T)	Tide Gauge Upgrade and Data Distribution Program	\$47,075	\$47,075	\$94,150	Hempstead (T)	DOS/EPF-LWRP
6	Hempstead (T)	Deployment of Continuous Water Quality Sampling Devices	\$129,355	\$129,355	\$258,710	Hempstead (T)	DOS/EPF-LWRP
7	Hempstead (T)	Water Quality Sampling for Detection of Illicit Discharges	\$123,025	\$123,025	\$246,050	Hempstead (T)	DOS/EPF-LWRP
8	Hempstead (T)	Historic Water Quality Data Analysis	\$6,715	\$6,715	\$13,430	Hempstead (T)	DOS/EPF-LWRP
9	East Rockaway (V)	MS4 System Management, Implementation of Phase II Best Management Practices	\$54,000	\$76,000	\$130,000	East Rockaway (V)	DEC/WQIP
10	Freeport (V)	Milburn Pond Floatables Collection System	\$100,000	\$77,000	\$177,000	Nassau (C)	DEC/WQIP
11	Freeport (V)	Street Sweeper and Catch Basin Eductor Vehicle	\$120,000	\$100,000	\$220,000	Freeport (V)	DEC/WQIP
12	Hempstead (T)	Jones Beach Sewage Treatment Plant Outfall Pipeline Diversion to Cedar Creek	\$2,000,000	N/A	\$2,000,000	OPRHP	OPRHP/EPF
13	Hempstead (T)	Jones Beach Sewage Treatment Plant Upgrades	\$268,000	N/A	\$268,000	OPRHP	OPRHP/Capital Initiative
14	Hempstead (T)	Jones Beach State Park Water Treatment Plant Upgrades	\$250,000	N/A	\$250,000	OPRHP	OPRHP/EPF-Capital Funds
15	Hempstead (T)	Structural Rehabilitation of the Jones Beach State Park Water Tower	\$6,200,000	N/A	\$6,200,000	OPRHP	OPRHP/Capital Initiative

#	Location	Project	Total State Funds	Total Match	Total Amount	Recipient/Implementing Organization	Funding Agency/ Funding Source
<i>Great South Bay</i>							
16	Babylon (T)	Digitization of Babylon Drainage Infrastructure	\$30,000	\$30,000	\$60,000	Babylon (T)	DOS/EPF-LWRP
17	Babylon (T)	Carlls River Watershed Environmental Clean-up	\$315,000	\$35,000	\$350,000	Babylon (T)	DEC/ERP
18	Babylon (V)	Purchase of Street Sweeper to Implement Stormwater Management Program	\$125,000	\$125,000	\$250,000	Babylon (V)	DEC/WQIP
19	Babylon (V)	Purchase of Drain Cleaning Equipment to Implement Stormwater Management Program	\$40,000	\$40,000	\$80,000	Babylon (V)	DEC/WQIP
20	Brightwaters (V)	Stormwater Infrastructure Mapping with Pollutant Mitigation Assessment	\$22,500	\$7,500	\$30,000	Brightwaters (V)	DEC/WQIP
21	Islandia (V)	Implementation of Required Stormwater Laws	\$9,000	\$9,000	\$18,000	Islandia (V)	DEC/WQIP
22	Islip (T)	Implementation of Green's Creek and Brown's River Watershed Management Plan	\$100,000	\$100,000	\$200,000	Islip (T)	DOS/EPF-LWRP
23	Islip (T)	Tariff Street Stormwater Mitigation	\$90,000	\$90,000	\$180,000	Islip (T)	DOS/EPF-LWRP
24	Patchogue (V)	Wastewater Treatment Plant Reconstruction and Expansion	\$573,000	\$101,118	\$674,118	Patchogue (V)	DEC/WQIP
25	Bellport (V)	Former Bellport Gas Station Remediation	\$118,126	\$12,300	\$130,426	Suffolk (C)	DEC/ERP
26	Brookhaven (T)	Illicit Discharge Reporting and Response Program	\$18,000	\$18,000	\$36,000	Brookhaven (T)	DEC/WQIP
27	Brookhaven (T)	Tuthills Creek Watershed Management Plan	\$75,000	\$75,000	\$150,000	Brookhaven (T)	DOS/EPF-LWRP
28	Brookhaven (T)	Swan River Watershed Management Plan Implementation	\$150,000	\$195,000	\$345,000	Brookhaven (T)	DEC/WQIP
29	Brookhaven (T)	Pine Neck Boat Ramp Drainage Implementation	\$83,000	\$107,900	\$190,900	Brookhaven (T)	DEC/WQIP
30	Brookhaven (T)	Beaver Dam Creek Watershed Management Plan	\$14,771	N/A	\$14,771	DOS	DOS/EPF-OS
31	Brookhaven (T)	Stormwater Remediation to Narrow Bay at County Rd. 46, William Floyd Parkway (segment 1)	\$275,000	\$275,000	\$550,000	Suffolk (C)	DEC/WQIP
32	Brookhaven (T)	Upgrade Waste Water Treatment System in the Lower Forge River Watershed	\$199,095	N/A	\$199,095	Suffolk (C) SWCD	DAM/ EPF-ANSCAP
33	Brookhaven (T)	Forge River Watershed Management Plan	\$238,000	\$238,000	\$476,000	Brookhaven (T)	DOS/EPF-LWRP
34	Brookhaven (T)	Forge River Total Maximum Daily Loads	\$100,000	\$100,000	\$200,000	Brookhaven (T)	DOS/EPF-LWRP

Table IV. State-assisted Projects to Protect and Restore Living Resources

Implementation Outcome 3: Increased harvest levels of hard clams and other estuarine shellfish species

Hard clams and other shellfish were once an abundant resource in south shore bays. Hard clam populations have declined dramatically. Restoring shellfish populations requires building knowledge of current shellfish distribution and advancing cooperative efforts designed to increase the number of shellfish that reproduce in SSER waters.

Implementation Outcome 4: Coastal habitats protected and restored to support shellfish, finfish and coastal bird populations

Coastal habitats (wetlands, tributaries, bay bottoms, and upland woodlands) and species dynamics continue to change. Management measures that strengthen protection for natural habitats in the SSER, and provide for restoration or rehabilitation of impaired habitats will enhance the ability of coastal fish and wildlife species to maintain or increase their populations.

Implementation Outcome 5: Open space preserved to sustain community character and protect water quality and habitat

Open space preservation is the foremost mechanism to sustain community character, prevent further degradation of water quality from potential new development, and protect living resource values.

Implementation Outcome 6: Improved knowledge for ecosystem management

An ecosystem management approach that recognizes the full array of interactions between humans, species, and ecosystem services helps maintain biological integrity and sustain an estuary-related economy for future generations. Filling information gaps is critical to improve management of the SSER.

#	Location	Project	Total State Funds	Total Match	Total Amount	Recipient/Implementing Organization	Funding Agency/Funding Source
35	All SSER Bays	Coastal Atlas of Digital Data	\$1,670,000	N/A	\$1,670,000	DOS	DOS/EPF-Oceans
36	All SSER Bays	New York Marine Sciences Consortium	\$50,000	N/A	\$50,000	SUNY SoMAS	DOS/EPF-Oceans
37	All SSER Bays	Atlantic Coastal Cooperative Statistic Program	\$545,000	N/A	\$545,000	DEC	DEC/EPF-Oceans
38	All SSER Bays	Northeast Area Monitoring and Assessment Program Fish Survey	\$545,000	N/A	\$545,000	Atlantic States Marine Fisheries Commission	DEC/EPF-Oceans
39	All SSER Bays	Sea Level Rise Task Force	\$80,000	N/A	\$80,000	NYS Agencies	DEC/EPF-Oceans
40	All SSER Bays	Sea Turtle Conservation and Research	\$162,500	N/A	\$162,500	OPRHP	OPRHP/EPF-Oceans
<i>Western Bays</i>							
41	Nassau (C)	Western Bays Water Quality Monitoring System	\$820,282	N/A	\$820,282	SUNY SoMAS and USGS	DOS/EPF-OS
42	Nassau (C)	Landscaping and erosion control; installation of bird nesting structures	\$3,100,000	N/A	\$3,100,000	DOT	DOT/SDF
43	Nassau (C)	Acquisition of Three Open Space Properties	\$438,000	\$438,000	\$876,000	Nassau (C)	OPRHP/EPF
44	Hempstead (T)	Hard Clam Stock Quality Assessment	\$25,525	\$25,525	\$51,050	Hempstead (T)	DOS/EPF-LWRP
45	Hempstead (T)	Middle Bay Oyster Seeding and Reef Development Program	\$58,203	\$58,203	\$116,406	Hempstead (T)	DOS/EPF-LWRP
46	Hempstead (T)	Tackapausha Pond Re-vegetation	DEC: \$5,775 DAM:\$4,303	N/A	\$10,078	Nassau (C) SWCD	DEC/WQIP and DAM/EPF
47	Hempstead (T)	Purchase and Installation of Cape American Beachgrass for Civic Beach Dune Restoration	\$8,100	N/A	\$8,100	Nassau (C) SWCD	DAM/EPF

#	Location	Project	Total State Funds	Total Match	Total Amount	Recipient/Implementing Organization	Funding Agency/ Funding Source
<i>Great South Bay</i>							
48	Suffolk (C)	Great South Bay EBM Demonstration Area	\$606,456	N/A	\$606,456	DOS	DOS/EPF-Oceans
49	Suffolk (C)	Great South Bay Modeling Project	\$650,000	N/A	\$650,000	SUNY SoMAS	DOS/EPF-Oceans
50	Suffolk (C)	Pilot Ocean Observing System in the Great South Bay	\$510,000	N/A	\$510,000	SUNY SoMAS	DOS/EPF-Oceans
51	Suffolk (C)	Continuation of the Atlantic Coast of New York Monitoring Program	\$32,000	N/A	\$32,000	SUNY Stony Brook	DOS/Erosion
52	Suffolk (C)	Seagrass Task Force/Report	\$350,000	N/A	\$350,000	DEC	DEC/EPF-Oceans
53	Suffolk (C)	Winter Flounder Study	\$250,000	N/A	\$250,000	DEC	DEC/EPF-Oceans
54	Suffolk (C)	Great South Bay Fishery Survey	\$75,000	N/A	\$75,000	DEC	DEC/EPF-Oceans
55	Suffolk (C)	Continuation of Fire Island Inlet to Montauk Point Reformulation Study	\$1,000,000	N/A	\$1,000,000	USACE	DEC
56	Suffolk (C)	Multi-year Strategic Conservation Plan for Fire Island	\$20,000	\$5,000	\$25,000	Fire Island Land Trust	DEC and Land Trust Alliance/EPF-NYSCPP ⁵
57	Suffolk (C)	Cooperative Management and Education	\$20,000	\$5,000	\$25,000	Fire Island Land Trust	DEC and Land Trust Alliance/EPF-NYSCPP ⁶
58	Suffolk (C)	Fish Ladder Installation at Carmans River	\$158,000	\$42,000	\$200,000	DOT	DOT/EIP and NOAA
59	Suffolk (C)	Installation of Fish Passage at Penataquit Creek/ Drainage Improvements	\$3,300,000	\$13,200,000	\$16,500,000	DOT	DOT/STP
60	Babylon (T), Islip (T), Brookhaven (T)	Inventory and Analysis of Barriers to Fish Passage for Six SSER Tributaries	\$29,157	N/A	\$29,157	DOS	DOS/EPF-OS
<i>Eastern Bays</i>							
61	Quogue (V)	Removal of Japanese Knotweed at Quogue Wildlife Refuge	\$7,500	N/A	\$7,500	Suffolk (C) SWCD	DEC/Aquatic Invasive Species Eradication

⁵ Conservation Capacity Grant

⁶ Conservation Catalyst Grant

Table V. State-assisted Projects to Expand Public Use and Enjoyment of the SSER

Implementation Outcome 7: Increased public use of the SSER and expanded tourism

Public use and enjoyment depends upon access to the SSER’s bays, tributaries, shorelands, recreational sites, natural areas, and facilities. Preservation and interpretation of the SSER’s maritime culture and heritage is important. Better use of existing facilities, increasing the number of access points/recreational sites, and improving amenities are necessary to increase public use and expand tourism in the SSER.

#	Location	Project	Total State Funds	Total Match	Total Amount	Recipient/Implementing Organization	Funding Agency/ Funding Source
62	All SSER Bays	South Shore Bayway Strategic Implementation and Marketing Plan	\$180,000	N/A	\$180,000	DOS	DOS/EPF-OS
<i>Western Bays</i>							
63	Hempstead (T)	Lido Nature Preserve Boardwalk and Signage	\$118,300	\$118,300	\$236,600	Hempstead (T)	DOS/EPF-LWRP
64	Hempstead (T)	Wantagh State Parkway Pedestrian/Bike Shared-Use Path Safety Enhancement	\$700,000	N/A	\$700,000	DOT	DOT/STP
65	Hempstead (T)	Jones Beach State Park West Bathhouse Rehabilitation	\$750,000	N/A	\$750,000	OPRHP	OPRHP/EPF-Capital Funds
66	Hempstead (T)	Stabilize and Restore Jones Beach State Park Central Mall Buildings	\$750,000	N/A	\$750,000	OPRHP	OPRHP/EPF-Capital Funds
67	Hempstead (T)	Rehabilitate Zach’s Bay Comfort Station at Jones Beach State Park	\$400,000	N/A	\$400,000	OPRHP	OPRHP/SPIF
68	East Rockaway (V)	Improving Public Access on the Mill River	\$234,500	\$234,500	\$469,000	East Rockaway (V)	DOS/EPF-LWRP
69	Lynbrook (V)	Park Development and Shared-Use Path	\$50,000	\$50,000	\$100,000	Lynbrook (V)	OPRHP/EPF
70	Freeport (V)	South Shore Blueway Trail	\$50,000	\$50,000	\$100,000	Freeport (V)	DOS/EPF-LWRP
71	Freeport (V)	Northeast Park Rehabilitation	\$75,000	\$25,000	\$100,000	Freeport (V)	OPRHP/EPF
72	Oyster Bay (T)	Design and Construction of SSER Bikeway Trail	\$201,673	\$201,673	\$403,346	Oyster Bay (T)	DOS/EPF-LWRP
<i>Great South Bay</i>							
73	Babylon (T)	Geiger Lake Land Acquisitions for new Trailways	\$150,000	\$50,000	\$200,000	Babylon (T)	OPRHP/EPF
74	Babylon (T)	Robert Moses State Park East Boat Basin Rehabilitation	\$3,318,500	N/A	\$3,318,500	OPRHP	OPRHP/Capital Initiative
75	Babylon (T)	Robert Moses State Park Renovations (Bathhouse)	\$1,000,000	N/A	\$1,000,000	OPRHP	OPRHP/Capital Initiative
76	Babylon (T)	Robert Moses State Park Beach Nourishment	\$1,000,000	N/A	\$1,000,000	OPRHP	OPRHP/EPF-Capital Funds
77	Babylon (T)	Belmont Lake State Park Parking Lot Improvements	\$800,000	N/A	\$800,000	OPRHP	OPRHP/SPIF
78	Babylon (T)	Belmont Lake State Park Electrical Upgrades	\$50,000	N/A	\$50,000	OPRHP	OPRHP/SPIF
79	Babylon (T)	Captree State Park Bulkhead Rehabilitation	\$400,000	N/A	\$400,000	OPRHP	OPRHP/SPIF
80	Babylon (T)	Captree State Park Fuel Dock Electric Upgrades	\$22,000	N/A	\$22,000	OPRHP	OPRHP/SPIF
81	Babylon (T)	Captree State Park Fuel Line Replacement	\$225,000	N/A	\$225,000	OPRHP	OPRHP/SPIF
82	Islip (T)	Homan Avenue Harbor Waterfront Park	\$50,000	\$50,000	\$100,000	Islip (T)	OPRHP/EPF

#	Location	Project	Total State Funds	Total Match	Total Amount	Recipient/Implementing Organization	Funding Agency/Funding Source
83	Islip (T)	Nicoll Grist Mill Restoration at Connetquot State Park	\$102,500	\$445,520	\$548,020	Friends of Connetquot, Inc.	OPRHP/EPF
84	Patchogue (V)	Patchogue Maritime Heritage Trail	\$75,175	\$75,175	\$150,350	Patchogue (V)	DOS/EPF-LWRP
85	Patchogue (V)	Reconstruction of Shorefront Park	\$91,704	\$91,704	\$183,408	Patchogue (V)	OPRHP/EPF
<i>Eastern Bays</i>							
86	Brookhaven (T)	Terry Ketcham Inn Restoration	\$75,000	\$75,000	\$150,000	Ketcham Inn Foundation, Inc.	OPRHP/EPF

Table VI. State-assisted Projects to Sustain and Expand the Estuary-related Economy

Implementation Outcome 8: Water-dependent businesses sustained

The SSER has the largest concentration of commercial and recreational vessels, marinas, and other water-dependent businesses in the state. This sector of the economy depends on access to the SSER, safe navigation, sound infrastructure, and a clean, healthy estuarine environment. Local harbor management plans are prepared to identify where infrastructure is needed to support existing and new water-dependent uses and maintain navigable channels.

Implementation Outcome 9: Maritime centers thrive

The SSER's 23 maritime centers are where estuary-related businesses concentrate and thrive. Serving as destinations with a sense of place, the centers offer opportunities for public access to the waterfront and appreciation of maritime culture and heritage.

#	Location	Project	Total State Funds	Total Match	Total Amount	Recipient/Implementing Organization	Funding Agency/Funding Source
87	All SSER Bays	Dredged Material Management Plan	\$178,382	N/A	\$178,382	DOS	DOS/EPF-OS
<i>Western Bays</i>							
88	Nassau (C)	Comprehensive County Vision for Water-Dependent Maritime Uses	\$85,000	\$85,000	\$170,000	Nassau (C)	DOS/EPF-LWRP
<i>Great South Bay</i>							
89	Islip (T)	Sayville and West Sayville LWRP	\$50,000	\$50,000	\$100,000	Islip (T)	DOS/EPF-LWRP
90	Islip (T)	Fire Island Inlet and Shore Westerly to Jones Inlet Dredging	\$1,566,000	\$7,434,000	\$9,000,000	USACE	DEC and USACE
<i>Eastern Bays</i>							
91	Southampton (T)	Preparation of LWRP	\$100,000	\$100,000	\$200,000	Southampton (T)	DOS/EPF-LWRP
92	Southampton (T)	Shinnecock Inlet Federal Navigation Channel	\$2,600,000	\$5,900,000	\$8,500,000	USACE	DEC and USACE

Table VII. State-assisted Projects to Increase Education, Outreach, and Stewardship

Implementation Outcome 10: Heightened Public Awareness of the SSER

An informed and involved public is critical to understanding the reasons for improving water quality, protecting living resources, maintaining a living maritime heritage, and providing public access to the estuary.

Implementation Outcome 11: Actions Advanced Through SSERC Partnerships

The success of the SSERC’s efforts to implement the CMP is based on the formation and strengthening of partnerships, as well as the DOS and SSER Office’s effectiveness in promoting, coordinating, and monitoring implementation efforts.

#	Location	Project	Total State Funds	Total Match	Total Amount	Recipient/Implementing Organization	Funding Agency/ Funding Source
93	All SSER Bays	SSER Office Operation	\$569,310	N/A	\$569,310	DOS	DOS/EPF-OS
94	All SSER Bays	EBM Education Exhibits and Materials	\$187,500	N/A	\$187,500	OPRHP	OPRHP/EPF-Oceans

III. ABBREVIATIONS AND TERMS

ANSCAP	Agricultural Nonpoint Source Abatement and Control Program
ARRA	American Recovery and Reinvestment Act
BMP	Best Management Practice
CMP	Comprehensive Management Plan
CWCA	Clean Water Clean Air
DAM	New York State Department of Agriculture and Markets
DEC	New York State Department of Environmental Conservation
DOS	New York State Department of State
DOT	New York State Department of Transportation
EBA	Environmental Bond Act
EBM	Ecosystem-based Management
EFC	Environmental Facilities Corporation
EIP	Environmental Initiative Program
EPF	Environmental Protection Fund
Erosion	Erosion Monitoring Funds
ERP	Environmental Restoration Program (1996 Clean Water/Clean Air Bond Act)
FINS	Fire Island National Seashore
GIS	Geographic Information System
IEC	Interstate Environmental Commission
LWRP	Local Waterfront Revitalization Program
MS4	Municipal Separate Storm Sewer System
NDZ	No Discharge Zone
NOAA	National Oceanic and Atmospheric Administration
NYOGLECC	New York Ocean and Great Lakes Ecosystem Conservation Council
NYSCPP	New York State Conservation Partnership Program
OPRHP	New York State Office of Parks, Recreation, and Historic Preservation
Oceans	Ocean and Great Lakes Ecosystem Conservation Council Program
OS	Open Space
SDF	State Dedicated Funds
SPDES	State Pollution Discharge Elimination System
SPIF	State Parks Infrastructure Fund (Capital Funds)
SSE	South Shore Estuary
SSER	South Shore Estuary Reserve
SSERC	South Shore Estuary Reserve Council
STP	Surface Transportation Program (part of U.S. DOT's Highway Funding Program)
SUNY SoMAS	State University of New York School of Marine and Atmospheric Sciences
SWCC	New York State Soil and Water Conservation Committee
SWCD	Soil and Water Conservation District
TMDL	Total Maximum Daily Load
TNC	The Nature Conservancy
USACE	U.S. Army Corps of Engineers
USEPA	U.S. Environmental Protection Agency
USGS	U.S. Geological Survey
USFWS	U.S. Fish and Wildlife Service
WMP	Watershed Management Plan
WQIP	Water Quality Improvement Program (Environmental Protection Fund – 1996 Clean Water/Clean Air Bond Act)

Local Waterfront Revitalization Program (LWRP): An LWRP is a locally prepared land and water use plan and strategy for a community's natural, public, working, or developed waterfront through which critical issues are addressed. In partnership with the DOS, a municipality develops community consensus regarding the future of its waterfront and refines state waterfront policies and adopts local laws to reflect local conditions and circumstances. Once the program is approved by the New York Secretary of State, pursuant to Article 42 of NYS Executive Law, the LWRP serves to coordinate state and federal actions needed to assist the community achieve its vision.

Harbor Management Plan: A plan to address the problems of conflict, congestion and competition for space in the use of harbors, surface waters and underwater lands of the state within a city, town or village or bounding a city, town or village to a distance of fifteen hundred feet from shore.

Total Maximum Daily Load (TMDL): A TMDL is a calculation of the maximum amount of a pollutant that a waterbody can receive and still safely meet water quality standards. Under Section 303(d) of the Clean Water Act, states, territories, and authorized tribes are required to develop a list of impaired waterbodies, establish priority rankings and develop TMDLs for impaired waterbodies.

USEPA Stormwater Phase II Program: The Phase II Program requires permits for stormwater discharges from Municipal Separate Storm Sewer Systems (MS4s) in urbanized areas and small construction sites. Permittees are required to implement programs and practices to control polluted stormwater runoff. The DEC enforces the Phase II Program under the State Pollution Discharge Elimination Program (SPDES) permit program.

Watershed Management Plan (WMP): The DOS facilitates stormwater management efforts by helping municipalities develop a WMP. In the SSER, this comprehensive plan guides local actions to restore impaired waterbodies and prevent polluted water from entering the bays. A WMP focuses on the relationship between where problems exist, land uses, vegetative cover, and the quantity and quality of water moving through the watershed. A WMP identifies and prioritizes necessary laws, regulations, management measures and capital projects to improve water quality and as a result, enhance habitats, public use, and the estuary-related economy.

IV. STATE-ASSISTED AND PARTNER-FUNDED PROJECT DESCRIPTIONS

Sections A – E provide greater detail on projects funded in the SSER between 2006 and 2010. Not all projects have been completed during this timeframe.

State-assisted projects and reported partner-funded projects/activities and amounts are grouped by the SSER CMP implementation action they fulfill. The numbered state-assisted projects are listed by location (West to East) as shown in Tables III – VII above. Reported partner-funded projects are listed by the implementing agency or organization (federal, state, local government, non-governmental organization). Partner-funded projects/activities do not involve any state funds.

Section A: Improve and Maintain Water Quality

Implementation Outcome 1: Reduced nonpoint source pollution

Nonpoint pollution carried by stormwater runoff is the primary water quality concern in the SSER. Draining more than 325-square-miles of SSER upland into the estuary's five shallow bays, stormwater runoff transports nutrients, soil, solvents, oils and grease, fecal matter, and heavy metals. These pollutants trigger algae growth, introduce chemicals into the food chain, and cause shellfish beds/bathing beaches closures due to elevated levels of coliform bacteria – an indicator of the potential presence of pathogens. Impaired living resources deteriorate the estuary-related economy and diminish the public's use and enjoyment. Reducing nonpoint pollution requires multi-faceted actions that include completing watershed management plans, adopting best management practices, improving public policies and regulations, constructing capital improvement projects, and increasing education and outreach efforts to encourage watershed-friendly practices.

Implementation Outcome 2: Reduced point source pollution

Point source pollution is any single identifiable source of pollution from which pollutants are discharged, such as pipe outfalls from sewage treatment plants. Although not as geographically widespread as nonpoint pollution, point source pollution can cause significant water quality impacts in their immediate areas. Controlling point source pollution in the SSER requires remediation of hazardous waste and solid waste disposal sites, clean-up of spills in waterbodies, and regulation and monitoring of discharges through the State Pollution Discharge Elimination System (SPDES) permit program.

State-Assisted Projects

1. Recipient: Nassau (C)

Project: Implementation of the Nassau County Stormwater Management Program (segment 1)

Funding Agency/Source: DEC/WQIP, 2006. Total project cost: \$600,000

Nassau County matched funds to partner with SSER municipalities to implement the County Stormwater Management Program. Activities include: locating drainage infrastructure; conducting watershed assessments to evaluate land cover types, topography and stream corridors; illicit discharge detection; and best management practice recommendations.

2. Recipient: Nassau (C)

Project: Purchase of two vacuum eductor trucks

Funding Agency/Source: DEC/WQIP, 2006. Total project cost: \$700,000

Nassau County matched funds to purchase two vacuum eductor trucks to clean stormwater drainage systems and reduce nonpoint pollution from entering the Western Bays.

3. Recipient: Nassau (C) SWCD

Project: Nassau County Water Quality Coordinating Committee Annual Reports

Funding Agency/Source: DEC/WQIP, 2010. Total project cost: \$4,500

Nassau County SWCD matched funds to reconvene the Water Quality Coordinating Committee to prepare 2011 and 2012 county water quality reports detailing proposed and on-going water quality improvement projects.

4. Recipient: Nassau (C) SWCD

Project: Nassau County SWCD Outreach

Funding Agency/Source: DEC/WQIP, 2010. Total project cost: \$100,000

Nassau County SWCD matched funds to create public education materials (DVD, display, brochures) on how low impact strategies, smart growth principles, and implementation of best management practices mitigates stormwater discharges. Input on the draft materials will be provided by public officials/departments, private citizens, developers, school children and nonprofit groups.

5. Recipient: Hempstead (T)

Project: Tide Gauge Upgrade and Data Distribution Program

Funding Agency/Source: DOS/EPF-LWRP, 2006. Total project cost: \$94,150

Hempstead Town matched funds to upgrade three obsolete tide gauges at Bay Park, Seaford, and Merrick with electronic data loggers, additional sensors and web cams. The Town partnered with the Ocean Instrumentation Lab at the Marine Sciences Research Center at SUNY SoMAS. Real-time tide data, precipitation, water temperature and water level information collected from the gauges is available on the Town's Conservation and Waterways website.

6. Recipient: Hempstead (T)

Project: Deployment of Continuous Water Quality Sampling Devices

Funding Agency/Source: DOS/EPF-LWRP, 2006. Total project cost: \$258,710

Hempstead Town matched funds to purchase seven water monitoring devices (four electronic monitoring devices, two automated sample collection devices, and one manually operated collection device) to collect data on parameters such as salinity, temperature, nitrate, ammonia, chlorophyll, dissolved oxygen, turbidity and water depth. One electronic unit is permanently deployed in the Mill River (East Rockaway Creek); three others are rotated among seven locations in the Hempstead Bays. The automated sample collection devices and manually operated device are used at more than 30 bay and tributary locations. Data is analyzed to identify pollutant types and sources, and to identify corrective water quality improvement measures.

7. Recipient: Hempstead (T)

Project: Water Quality Sampling for Detection of Illicit Discharges

Funding Agency/Source: DOS/EPF-LWRP, 2006. Total project cost: \$246,050

Hempstead Town matched funds to trace illicit discharges and identify sources of nonpoint source pollution so that remediation and enforcement actions can be taken.

8. Recipient: Hempstead (T)

Project: Historic Water Quality Data Analysis

Funding Agency/Source: DOS/EPF-LWRP, 2006. Total project cost: \$13,430

Hempstead Town matched funds to analyze the temporal and spatial trends in 40 years of water quality data for use in the development of a watershed management plan.

9. Recipient: East Rockaway (V)

Project: MS4 System Management, Implementation of Phase II Best Management Practices

Funding Agency/Source: DEC/WQIP, 2010. Total project cost: \$130,000

East Rockaway Village matched funds to map the stormwater conveyance system to locate sources of pollutants and develop a mitigation plan.

10. Recipient: Nassau (C)

Project: Millburn Pond Floatables Collection System

Funding Agency/Source: DEC/WQIP, 2010. Total project cost: \$177,000

Nassau County provided matching funds to retrofit the Millburn Pond sedimentation basin with a netting system to collect floatable trash and debris, located in Freeport Village. Several netting based technologies are currently being investigated and evaluated.

11. Recipient: Freeport (V)

Project: Street Sweeper and Catch Basin Eductor Vehicle

Funding Agency/Source: DEC/WQIP, 2010. Total project cost: \$220,000

Freeport Village matched funds to purchase a combination street sweeper/catch basin eductor vehicle to prevent debris from entering the stormwater conveyance system and waterways.

12. Implementing Organization: OPRHP

Project: Jones Beach Sewage Treatment Plant Outfall Pipeline Diversion to Cedar Creek

Funding Agency/Source: OPRHP/EPF, 2008. Total project cost: \$2,000,000

To prevent wastewater discharge into the Hempstead Bays, OPRHP installed 2.5 miles of underground pipe from the Jones Beach Sewage Treatment Plant to connect to the Cedar Creek Sewage ocean outfall pipe. Shallow bay water quality, shellfish and marsh habitats should be improved.

13. Implementing Organization: OPRHP

Project: Jones Beach Sewage Treatment Plant Upgrades

Funding Agency/Source: OPRHP/Capital Initiative, 2007. Total project cost: \$268,000

OPRHP repaired Jones Beach State Park Sewage Treatment Plant to meet the State Pollutant Discharge Elimination System (SPDES) permit requirements in accordance with the Clean Water Act.

14. Implementing Organization: OPRHP

Project: Jones Beach State Park Water Treatment Plant Upgrades

Funding Agency/Source: OPRHP/EPF-Capital Funds, 2010. Total project cost: \$250,000

OPRHP will upgrade and automate the water treatment plant that provides safe drinking water for the entire park.

15. Implementing Organization: OPRHP

Project: Structural Rehabilitation of the Jones Beach State Park Water Tower

Funding Agency/Source: OPRHP/Capital Initiative, 2008. Total project cost: \$6,200,000

OPRHP repaired the Jones Beach Water Tower to safeguard Jones Beach's public water system.

16. Recipient: Babylon (T)

Project: Digitization of Babylon Drainage Infrastructure

Funding Agency/Source: DOS/EPF-LWRP, 2008. Total project cost: \$60,000

Babylon Town matched funds to digitize stormwater infrastructure maps to use in the development of Great South Bay watershed management plans. Work includes georeferencing existing imagery and creating a geodatabase for infrastructure and natural features.

17. Recipient: Babylon (T)

Project: Carlls River Watershed Environmental Clean-up

Funding Agency/Source: DEC/ERP, 2007. Total project cost: \$350,000

Babylon Town matched funds to remediate contaminated soils within the Carlls River Watershed.

18. Recipient: Babylon (V)

Project: Purchase of Street Sweeper to Implement Stormwater Management Program

Funding Agency/Source: DEC/WQIP, 2006. Total project cost: \$250,000

Babylon Village matched funds to purchase a street sweeper to collect debris and trash to reduce pollutants in stormwater runoff from reaching the Great South Bay. Street sweeping is a USEPA best management practice for protecting water quality.

19. Recipient: Babylon (V)

Project: Purchase of Drain Cleaning Equipment to Implement Stormwater Management Program

Funding Agency/Source: DEC/WQIP, 2006. Total project cost: \$80,000

Babylon Village matched funds to purchase drain cleaning equipment to reduce nonpoint source pollution in stormwater runoff from reaching the Great South Bay.

20. Recipient: Brightwaters (V)

Project: Stormwater Infrastructure Mapping with Pollutant Mitigation Assessment

Funding Agency/Source: DEC/WQIP, 2010. Total project cost: \$30,000

Brightwaters Village matched funds to map stormwater infrastructure, identify problem areas and recommend pollutant mitigation measures.

21. Recipient: Islandia (V)

Project: Implementation of Required Stormwater Laws

Funding Agency/Source: DEC/WQIP, 2006. Total project cost: \$18,000

Islandia Village matched funds to develop and adopt local laws for illicit discharge and runoff from construction and post-construction activities.

22. Recipient: Islip (T)

Project: Implementation of Green's Creek and Brown's River Watershed Management Plan

Funding Agency/Source: DOS/EPF-LWRP, 2009. Total project cost: \$200,000

Islip Town matched funds to mitigate stormwater impacts from Brook Street in Sayville on Green's Creek through projects designed to collect and filter stormwater runoff from entering the Great South Bay. The project implements Green's Creek and Brown's River Watershed Management Plan recommendations.

23. Recipient: Islip (T)

Project: Tariff Street Stormwater Mitigation

Funding Agency/Source: DOS/EPF-LWRP, 2008. Total project cost: \$180,000

Islip Town matched funds to design and construct 28 leaching pools, install stormwater filtration units and sediment traps, and replace paving and curbing along Tariff Street in Sayville. The project implements Green's Creek and Brown's River Watershed Management Plan recommendations.

24. Recipient: Patchogue (V)

Project: Wastewater Treatment Plant Reconstruction and Expansion

Funding Agency/Source: DEC/WQIP, 2006. Total project cost: \$674,118

Patchogue Village matched funds to upgrade its wastewater treatment plant to reduce the amount of nitrogen entering Patchogue Bay. Increased nitrogen concentrations can cause negative environmental effects such as algal blooms, which cause decreased oxygen in the water, and ultimately results in reductions of fish, shellfish, and other animal populations.

25. Recipient: Suffolk (C)

Project: Former Bellport Gas Station Remediation

Funding Agency/Source: DEC/ERP, 2008. Total project cost: \$130,426

Suffolk County matched funds to remediate the former Bellport Gas Station which is contaminated with petroleum hydrocarbons.

26. Recipient: Brookhaven (T)

Project: Illicit Discharge Reporting and Response Program

Funding Agency/Source: DEC/WQIP, 2006. Total project cost: \$36,000

Brookhaven Town matched funds to implement an illicit discharge reporting and response program in partnership with six villages.

27. Recipient: Brookhaven (T)

Project: Tuthills Creek Watershed Management Plan

Funding Agency/Source: DOS/EPF-LWRP, 2007. Total project cost: \$150,000

Brookhaven Town matched funds to develop the Tuthills Creek Watershed Management Plan, which includes a watershed characterization, stormwater infrastructure database, and recommends preventive and corrective management. Tuthills Creek discharges into Patchogue Bay.

28. Recipient: Brookhaven (T)

Project: Swan River Watershed Management Plan Implementation

Funding Agency/Source: DEC/WQIP, 2006. Total project cost: \$345,000

Brookhaven Town matched funds to construct stormwater drainage improvements to mitigate stormwater impacts to Swan Lake, Swan River, and Patchogue Bay.

29. Recipient: Brookhaven (T)

Project: Pine Neck Boat Ramp Drainage Implementation

Funding Agency/Source: DEC/WQIP, 2006. Total project cost: \$190,000

Brookhaven Town matched funds to construct leaching catch basins and an infiltration system at the Pine Neck Boat Ramp to reduce the amount of silt, sediment and pathogens entering the Swan River and Patchogue Bay.

30. Implementing Organization: DOS

Project: Beaver Dam Creek Watershed Management Plan

Funding Agency/Source: DOS/EPF-OS, 2007. Total project cost: \$14,771

DOS funded the Beaver Dam Creek Watershed Management Plan which characterized natural resources, identified known water quality impairments, inventoried existing land uses and open space, provided a comprehensive stormwater infrastructure inventory, determined critical stormwater runoff areas, recommended actions to prevent further degradation, and developed an implementation strategy to restore the watershed which drains into the Great South Bay.

31. Recipient: Suffolk (C)

Project: Stormwater Remediation to Narrow Bay at County Rd. 46, William Floyd Parkway (segment 1)

Funding Agency/Source: DEC/WQIP, 2006. Total project cost: \$550,000

Suffolk County matched funds to implement stormwater improvement projects to remediate stormwater discharges from County Road 46, William Floyd Parkway (segment 1) into Narrow Bay.

32. Recipient: Suffolk (C) SWCD

Project: Upgrade Waste Water Treatment System in the Lower Forge River Watershed

Funding Agency/Source: DAM/EPF-ANSCAP, 2006. Total project cost: \$199,095

Suffolk County SWCD received funds to upgrade the existing waste treatment system at a farm located in the Lower Forge River watershed, Brookhaven Town. The Forge River empties into Moriches Bay.

33. Recipient: Brookhaven (T)

Project: Forge River Watershed Management Plan

Funding Agency/Source: DOS/EPF-LWRP, 2006. Total project cost: \$476,000

Brookhaven Town matched funds to develop a Forge River Watershed Management Plan to evaluate pollutant sources and recommend concurrent development and implementation of a Total Maximum Daily Load (TMDL) for nitrogen loading, as required under Section 303(d) of the Clean Water Act, to improve water quality and river ecology.

34. Recipient: Brookhaven (T)

Project: Forge River Total Maximum Daily Loads

Funding Agency/Source: DOS/EPF-LWRP, 2008. Total project cost: \$200,000

Brookhaven Town matched funds to complete a nitrogen Total Maximum Daily Load (TMDL) to address identified impairments of the Forge River watershed. A water quality model to determine the most effective and feasible means of restoring the river to ecological health and an implementation and monitoring plan is being developed.

Partner-Funded Projects/Activities

National Park Service, U.S. Department of the Interior, Fire Island National Seashore (FINS):

- **Pumpout Facilities Maintained, Ongoing**
FINS maintained pumpout facilities at Sailor's Haven and Watch Hill in Brookhaven Town through an agreement with Fire Island Concessions, LLC.
- **Groundwater-Submarine Aquifer Relationship Study, Ongoing**
FINS, in cooperation with USGS, is examining the nature of groundwater and surface water interactions and associated nutrient fluxes along the Great South Bay shoreline by measuring quantity, quality, and variability of submarine groundwater discharge at representative locations. Results will be used to help limit groundwater as a source of nonpoint pollution.

USACE:

- **Forge River Watershed Ecosystem Restoration and Flood Damage Reduction Reconnaissance Study, 2008; and Feasibility Study, 2009**
Total project cost: \$3,100,000 (USACE: \$1,600,000; Brookhaven Town funds: \$1,500,000)
USACE completed a Section 905 (b) Reconnaissance Study for the Forge River watershed which confirmed a federal interest in participating in a cost-shared Feasibility Study to evaluate environmental restoration improvements to the Forge River watershed. USACE completed a Forge River Feasibility Study Project Management Plan, which made recommendations for integrated and enhanced existing water quality monitoring and implementation efforts that contribute to a healthy Forge River. Brookhaven Town matched funds for the Feasibility study.

USEPA:

- **Phase II Stormwater Regulations for Municipal Separate Storm Sewer System (MS4) Permits:**
All SSER municipalities have completed assessments of their nonpoint source pollution management practices and complied with the MS4 requirements, which include six minimum control measures that can be satisfied by implementing best management practices (BMPs), which are methods or measures designed and selected to reduce or eliminate the discharge of pollutants from point and nonpoint source discharges:
 1. Public Education to inform individuals and households about ways to reduce stormwater pollution
 2. Public Involvement in the development, implementation, and review of an MS4's stormwater management program
 3. Illicit Discharge Detection & Elimination of spills to storm drain systems
 4. Construction Practices to address stormwater runoff from active construction sites

5. Post-Construction Practices to address stormwater runoff after construction activities have completed
6. Pollution Prevention/Good Housekeeping to address stormwater runoff from municipal facilities and activities

- **SSER Declared a Vessel No Discharge Zone (NDZ), 2009**

USEPA declared all SSER bays a Vessel No Discharge Zone (NDZ) under the federal Clean Water Act. Planning and preparation for this action, included as recommendations of the SSER CMP, were key steps in the effort to reduce water quality impairments throughout navigable waters and south shore bays. At the urging of the SSERC and estuary-wide stakeholders, the Peconic Baykeeper garnered support of the six SSER towns, completed an analysis for designation, and facilitated petition submission. With the support of the South Bay Cruising Club and other boating-related groups, the Baykeeper supported acquisition and use of recreational boater septic waste pumpout vessels and facilities estuary-wide.

DOS and DEC:

- **Watershed Planning Multi-Media Materials (Guidebook, DVD, Web Pages), 2009**

Recognizing the importance of watershed planning as a means to protect and restore water resources the DOS, in partnership with DEC, prepared multi-media materials to encourage and assist local watershed planning and implementation efforts. The Guidebook, Watershed Plans: Protecting and Restoring Water Quality, helps communities understand the benefits planning can have to protect and restore watershed resources. SSER communities are using the guidebook's step-by-step strategy to develop a clear vision, incorporate broad public involvement, and foster creative partnerships to create a plan that successfully improves water quality. The DVD features communities where watershed planning has improved water quality. Additional guidance on watershed planning and contact information is available online at www.nyswaterfronts.com.

DEC:

- **Long Island-wide MS4 Stormwater Phase II Planning**

DEC/American Recovery and Reinvestment Act (ARRA), 2009. Total project cost: \$232,893

Using federal Clean Water Act Section 604(b) funds, made available by ARRA, DEC funded the Interstate Environmental Commission (IEC) to provide Long Island-wide MS4 stormwater management planning assistance through a combination of workshops, presentations, site visits, workgroups and in-depth consultations as provided by the New York State Sea Grant Long Island - MS4 Planning Program. Work includes assisting over 100 municipalities with planning, implementing, evaluating and documenting their stormwater programs.

NYSEFC:

- **Clean Vessel Assistance Program (CVAP), Ongoing**

CVAP grants are federally funded through the U.S. Fish & Wildlife Service and administered by New York State Environmental Facilities Corporation (NYSEFC). Grants are provided to marinas, municipalities, and not-for-profit organizations for installing or upgrading their pumpout boats and for the installation, renovation, and replacement of pumpout stations for the removal and disposal of recreational boater septic waste. Pumpout vessels discourage boaters from discharging raw sewage into SSER bays. Raw sewage degrades water quality, may lead to shellfish contamination and beach closures, and violates the EPA's No Discharge Zone (NDZ) designation.

OPRHP:

- **Pumpout Stations Maintained for the Removal and Disposal of Recreational Boater Septic Waste, Ongoing**

Vessel pumpout stations at Jones Beach, Captree and Heckscher State Parks are maintained to reduce pollutants entering SSER waters and make it convenient for recreational boaters to dispose of sewage.

- **Canada Goose Population Reduced, Ongoing**

To reduce the negative impacts of resident populations of the Canada goose on the SSER, an egg-addling program was implemented at State Parks to humanely terminate egg embryos to prevent hatching. Canada

geese carry disease, parasites and noxious weeds with fecal droppings, a major source of water pollution. Canada geese interfere with aircraft. Locally born Canada geese do not migrate to the species' northern breeding grounds becoming year-round residents. Signs were installed at Belmont Lake State Park to educate the public and discourage waterfowl feeding.

Nassau (C):

- **South Shore Estuary Stormwater Control**
Nassau (C) EBA, 2006. Total project cost: \$150,000
Nassau County is funding installation of 100 catch basin inserts in various locations throughout the south shore estuary.
- **Catch Basin Inserts**
Nassau County EBA, 2006. Total project cost: \$1,650,000
Nassau County is funding installation of 1,100 catch basin inserts throughout the County, including 50 in East Rockaway Village, 150 in Freeport Village, 20 in Oceanside hamlet, 150 throughout Oyster Bay Town, and 200 throughout Hempstead Town. A catch basin is a chamber, well or inlet designed to collect stormwater runoff. Catch basins may include stormwater filtration devices to collect and filter out debris, sediment, oils, and grease, thus preventing storm sewer clogging and protecting water quality. Stormwater filtration devices need periodic replacement.
- **Capture Nets to Reduce Floatable Debris**
Nassau County EBA, 2006. Total project cost: \$65,000
Nassau County is examining feasibility of installing 13 capture nets at various locations in the SSER to prevent floating debris from entering SSER waterways.
- **Urban Forest Master Plan**
Nassau County EBA, 2006. Total project cost: \$130,000
Nassau County, under an agreement with the U.S. Department of Agriculture, is funding the development of an urban forest master plan. This is the first inventory and evaluation of street trees and non-street trees on 480 miles of county roads. Trees alleviate impacts from stormwater run-off water and air pollution, high temperatures caused by the "heat island effect," energy use, and urban noise.
- **Bannister Creek Stormwater Project**
Nassau County EBA, 2006. Total project cost: \$388,000
Nassau County installed 125 catch basin inserts and a swirl separator, a device for removing settleable solids, to prevent pollutants from entering Bannister Creek which flows into Reynolds Channel.
- **Rehabilitation of the Viceroy Section Adjacent to the Massapequa Preserve**
Nassau County EBA, 2006. Total project cost: \$85,000
Nassau County surveyed the 31-acre Viceroy Section in Farmingdale adjacent to the 423-acre Massapequa Preserve to address encroachments, install permanent boundary markers, reclaim land where dumping occurs, install fencing to prevent encroachment and dumping, improve hiking trails, benches, lighting and stormwater runoff systems, clean access points, and repave damaged areas. A property map of the Viceroy Section has been prepared and is under review by the Long Island Office of Parks, Recreation, and Historic Preservation.
- **Massapequa Creek Stormwater Treatment**
Nassau County EBA, 2006. Total project cost: \$75,000
Nassau County is installing catch basin inserts, restructuring drainage pipes, and addressing flooding and erosion issues at Massapequa Creek.
- **Massapequa Creek Sediment Removal**

Nassau County EBA, 2006. Total project cost: \$250,000

Nassau County is continuing a 2005 EPF-CWCA project to reduce storm water pollution and runoff, originating in Farmingdale Village, discharging into Massapequa Creek.

- **Coes Neck Park Remediation**

Nassau County EBA, 2006. Total project cost: \$650,000

Nassau County improved access and completed design work and partial remediation of contaminated soils at Coes Neck Park, Hempstead Town.

- **Stormwater Drainage Improvement at Washington Avenue Park**

Nassau County EBA, 2006. Total project cost: \$35,000

Nassau County completed grading and drywell installation to improve stormwater drainage at the Washington Avenue Park, Hempstead Town.

- **Merokee Pond Dredging**

Nassau County EBA, 2006. Total project cost: \$1,850,000

Nassau County is dredging and installing 490 catch basin inserts at Merokee Pond, Hempstead Town, to reduce pollutants from entering Whaleneck Creek.

- **Stormwater Runoff Impact Analysis Procedures Manual/Subwatershed Reports, 2007**

Nassau County completed the Stormwater Runoff Impact Analysis Procedures Manual which provides an organized and consistent process for assessing and ranking subwatersheds in the county.

Nassau County completed Stormwater Runoff Impact Analysis reports for three SSER subwatersheds in Hempstead Town: Bellmore Creek, Cedar Swamp Creek, and Newbridge Creek. These assessments included drainage infrastructure mapping, land cover characterization, and storm pollutant load calculations. Best management practices to address nonpoint source pollution were also identified.

- **Local Law Adopted, 2007**

Migratory Waterfowl Law: No person shall feed or provide food for any migratory waterfowl on Nassau County property at any time of the year. A violation of this law is subject to monetary fines. The feeding of migratory waterfowl increases the potential for the spread of the disease to residents. Such feeding can interrupt the birds' natural migration patterns, cause nutritional problems, and promote the spread of serious migratory waterfowl diseases such as avian influenza, avian cholera, plague, and botulism. Unless feeding is prohibited, efforts to limit waterfowl populations are undermined and birds will return to impacted areas.

- **New Drainage Requirements Adopted, 2008**

Nassau County enacted new drainage requirements associated with the construction of subdivisions and buildings on county roads to reduce stormwater discharge impacts. County approval of plans for grading of streets, avenues, roads, or highways shown on any such map, and the drainage thereof, will only be granted for plans which meet the requirements.

- **Massapequa Preserve Streamflow Augmentation and Pond Restoration Project**

Nassau County Capital Program, 2008. Total project cost: \$8,500,000

Nassau County continued work of this 2001 EPF-CWCA project to restore and protect the Massapequa Preserve, one of the County's most valuable natural areas. Freshwater from the decommissioned Brooklyn Water Works facility is augmenting streamflow into Massapequa Creek. This will allow the stream to flow more consistently during dry weather and provide colder water to the stream in an effort to provide habitat for cool-water species such as trout. Other project elements include: pond ecology and aesthetic enhancements; stream channel improvements to prevent erosion and wetland loss; improved water flow to the Massapequa Reservoir;

irrigation of a 12-acre red maple swamp to maintain wetland habitat viability; and, installing devices to filter contaminants, and prevent floatable trash and debris from entering the stream.

- **Canada Geese Eradication Program, Ongoing**
Nassau County Departments of Public Works and Recreation and Parks are implementing a goose management plan on County property. Non-migratory waterfowl, primarily Canada Geese, contribute large amounts of excreted nutrients and pathogens in the SSER.

Hempstead (T):

- **Water Storm Basin Debris Control**
Nassau County EBA, 2006. Total project cost: \$300,000
Hempstead Town is installing a weir on a Baldwin stream, located between Maple Street and Winding Road, to collect floating debris from entering Lofts Pond and eventually entering Middle Bay.
- **Lofts Pond Debris Control**
Nassau County EBA, 2006. Total project cost: \$5,000
Hempstead Town is installing capture nets at Lofts Pond to prevent floating debris from entering Middle Bay.
- **Pumpout Vessels for Removal and Disposal of Recreational Boater Septic Waste**
NYSEFC/CVAP, 2008. Total project cost: \$100,000 (NYSEFC: \$60,000; Hempstead Town general funds: \$40,000)
NYSEFC/CVAP, 2009. Total project cost: \$75,000 (NYSEFC: \$35,000; Hempstead Town general funds: \$40,000)
Hempstead Town purchased two 23-foot pumpout vessels and installed one pumpout station to improve recreational boater septic collection in the Hempstead Bays and make it convenient for boaters to dispose of their sewage.

Long Beach (City):

- **Replacement of Wood Bulkheads**
Long Beach City General Fund, 2010. Total project cost: \$1,558,000
Long Beach City is rehabilitating bulkheads in the canal section of the City.

Hewlett Harbor (V):

- **Willow Pond Dredging Project**
Nassau County EBA, 2006. Total project cost: \$350,000 (County EBA: \$150,000; Nassau County match: \$50,000; Hempstead Town match: \$150,000)
Hewlett Harbor Village is dredging the north end of Willow Pond to remediate aquatic habitat and improve water flow into West Hempstead Bay.

Freeport (V):

- **Milburn Pond Debris Control**
Nassau County EBA, 2006. Total project cost: \$12,000
Freeport Village is providing an access ramp and installing capture nets at Milburn Pond to prevent floating debris from entering Middle Bay.
- **Mill Basin Debris Dock Trap**
Nassau County EBA, 2006. Total project cost: \$54,000
Operation SPLASH is installing a floating debris dock trap and an oil boom at Mill Basin in Freeport to prevent debris and oil from entering Middle Bay.
- **Purchase of Debris Collection Vessels**
Nassau County EBA, 2006. Total project cost: \$70,000

Freeport Village purchased two Carolina skiffs to collect and prevent debris from entering SSER waterways.

- **Purchase of Vacuum Truck**

Nassau County EBA, 2006. Total project cost: \$86,000 (County EBA: \$43,000; Village match: \$43,000)

Freeport Village matched funds to purchase a vacuum truck to clean catch basins to prevent debris from entering Middle Bay.

Oyster Bay (T):

- **Local Law Adopted, 2008**

Oyster Bay Town adopted a local law prohibiting the feeding of waterfowl on any land owned, maintained, leased or managed by the Town. Violating this law is subject to a monetary fine. Elimination of feeding is a significant step toward control and prevention of nuisance waterfowl.

Island Park (V):

- **Swirl Separators – Stormwater Treatment Controls**

Nassau County EBA, 2006. Total project cost: \$472,000 (County EBA: \$410,000; Village general funds: \$62,000)

Island Park Village is installing 51 catch basin inserts and 6 swirl separators and purchasing an eductor truck to clean catch basins and reduce pollutants from entering SSER waterways.

Massapequa Park (V):

- **Catch Basin Inserts**

Nassau County EBA, 2006. Total project cost: \$518,000 (County EBA: \$450,000; Village capital, general funds, and in-kind services: \$68,000)

Massapequa Park Village is installing 230 catch basin inserts and purchasing a vacuum trailer to clean catch basins and reduce pollutants from entering SSER waterways.

Suffolk (C):

- **Watershed Boundary Delineations, 2006**

Suffolk County SWCD determined the surface flow watershed boundaries for Mud Creek, Swan River and Forge River in Brookhaven Town. These boundary delineations help identify best management practices in each watershed.

- **Removal and Disposal of Obsolete Underground Petroleum Storage Tanks**

Suffolk County Water Quality Protection and Restoration Program, 2008. Total project cost: \$111,000

Suffolk County is removing and disposing of 24 underground petroleum storage tanks throughout the county to protect soil and water from potential petroleum contamination. The tanks are obsolete due to conversion to natural gas heating fuel or because the buildings served by the tanks are scheduled for demolition.

- **Standard Operating Procedures for Fuel and Chemical Tanks**

Suffolk County Water Quality Protection and Restoration Program, 2008. Total project cost: \$70,000

Suffolk County is developing standard operating procedures for inspecting petroleum and chemical tanks and preventing leaks. The manual will standardize design, operation and environmental compliance for underground and above ground tanks to help prevent soil and groundwater contamination.

- **Stormwater Remediation, Yaphank Lakes and Carmans River**

Suffolk County Water Quality Protection and Restoration Program, 2009. Total project cost: \$200,000

Suffolk County is implementing stormwater runoff improvements at four discharge points along a 1.4-mile stretch of CR 21 in Brookhaven Town to prevent pollutants from entering the Yaphank Lakes and Carmans River. Project includes a detailed topographic survey and drainage system reconnaissance; preparing design alternatives, including information on flow rate, pollutants of concern, and construction cost/benefit analysis; preliminary design and necessary permits; and final construction plans, specifications, and estimates.

- **Local Law Adopted, 2008**

Fertilizer Nitrogen Pollution Reduction: Suffolk County adopted a local law to reduce nitrogen pollution from fertilizer. The law prohibits applying fertilizer during cold months and on most county-owned properties year-round, and includes training requirements for licensed landscapers and educational programs at the retail level. The legislation is an important step toward restoring SSER water quality.

Babylon (T):

- **Salt Storage Upgrade**

Babylon Town Funding, 2006. Total project cost: \$30,000

Babylon Town funded engineering design work to upgrade its salt storage facility at the Town highway yard to minimize runoff into Santapogue Creek watershed.

- **Local Law Adopted, 2008**

Babylon Town adopted a law that prohibits feeding domestic or migratory waterfowl on Town property. Signs were placed at several Town parks to educate the public with information regarding the negative impacts of feeding waterfowl.

- **Green Homes Septic Assistance Program, 2010**

Babylon Town is implementing its *Green Homes Septic Assistance Program*, which allows residents to install modern and efficient septic systems with no upfront costs. The Town will apply a benefit assessment to the property that will pay up to \$12,000 for the upgraded system. Participants save money by having to perform maintenance on their systems less frequently. The program was first implemented in the Carlls River area as the high water table minimizes the ground's leaching capability. System upgrades can result in a 50% reduction in nitrogen loads to groundwater resources.

- **Drainage Infrastructure Improvements, Ongoing**

Babylon Town Funding: \$500,000- \$1,000,000 annually

Babylon Town annually spends between \$500,000 and \$1,000,000 to improve and maintain drainage infrastructure to reduce runoff discharging into SSER waters.

- **Low Impact Development/Green Infrastructure Improvements at Phelps Lane and Tanner Parks, 2010**

Babylon Town Funding: \$225,000

Babylon Town installed a rain garden to filter stormwater runoff at Phelps Lane Park in North Babylon and stormwater drainage swales at Tanner Park in Copiague.

- **Pooper Scooper Program, Ongoing**

Babylon Town continues its Pooper Scooper Program to decrease fecal bacteria levels in stormwater runoff from entering the Great South Bay. The program provides free pooper scoopers and educational information to encourage residents to pick up their pet's waste. The Town maintains bag dispensers at Tanner Park in Copiague.

- **Public Educated, Ongoing**

Babylon Town continues to provide water quality best management practice pamphlets to educate residents on proper water quality management relating to waterfowl feeding, disposal of pet waste and actions to minimize stormwater runoff impacts.

- **Streets Swept, Ongoing**

Babylon Town conducts its street sweeping program four times annually. This program meets the Phase II stormwater minimum control measure of "Pollution Prevention/Good Housekeeping for Municipal Officials."

- **Stormwater Infrastructure Cleaning, Ongoing**
Babylon Town cleans its stormwater infrastructure on an annual basis to prevent pollutants from entering SSER waterways.
- **Canada Goose Population Reduced, Ongoing**
Babylon Town collaborated with Geese Peace, a humane goose population control organization dedicated to resolving wildlife conflict humanely, to develop a program that controls and reduces the numbers of Canada goose at key Town parks. Canada geese carry disease, parasites and noxious weeds with fecal droppings, a major source of water pollution. Canada geese interfere with aircraft. Locally born Canada geese do not migrate to the species' northern breeding grounds becoming year-round residents.
- **Pumpout Stations Maintained for the Removal and Disposal of Recreational Boater Septic Waste, Ongoing**
Babylon Town Funding: \$4,000/annually
Babylon Town maintains vessel pumpout stations at Tanner Park Marina, Gilgo Marina and Cedar Marina to reduce pollutants entering SSER waters by making it convenient for recreational boaters to dispose of sewage.

Babylon (V):

- **Protection of Babylon Village Waterways**
Suffolk County Water Quality Protection and Restoration Program, 2008
Total project cost: \$620,000 (County: \$310,000; Village match: \$310,000)
Babylon Village is installing Smart Sponge filtration units at 93 outfall pipes to prevent more than 90% of stormwater waste from entering the Great South Bay.

Islip (T):

- **Pumpout Vessel for Removal and Disposal of Recreational Boater Septic Waste, 2006**
Islip Town launched a pumpout vessel in the Great South Bay which collected nearly 47,000 gallons of boat sewage during the first two years of operation. In 2009, Islip Town was awarded a DEC Environmental Excellence Award for continued improvement in bay water quality.
- **Champlin Creek Stormwater Mitigation, 2008.**
Islip Town general funds: \$20,000
Islip Town removed debris at Walnut Street, adjacent to the Champlin Creek corridor, and installed a vegetated berm to reduce runoff from the adjoining roads.
- **Street Sweeping, Ongoing**
Islip Town conducts street sweeping three times a year to prevent sediment from entering the storm drain systems. A sweeping schedule and map is posted on the Town's website.
- **Storm Drain/Catch Basin Maintenance, Ongoing**
Islip Town initiated a new storm drain maintenance program. More than 500 of the Town's catch basins have been cleaned. Several locations were upgraded with new catch basins. An eductor truck was purchased to improve catch basin and pipe cleaning.

Brookhaven (T):

- **Local Law Adopted, 2008**
Brookhaven Town adopted a local law that prohibits illicit discharges and connections to the Town's MS4.
- **Pumpout Vessels for Removal and Disposal of Recreational Boater Septic Waste, 2006**
Total project cost: \$151,410

Brookhaven Town purchased two pumpout vessels to reduce pollutants entering SSER waters by making it convenient for recreational boaters to dispose of sewage. The pumpout vessels began operating in 2007 and annually collect approximately 36,500 gallons of untreated waste.

Southampton (T):

- **Pumpout Vessel for Removal and Disposal of Recreational Boater Septic Waste, 2009**

Total project cost: \$154,400 (NYSEFC/CVAP: \$115,800; Suffolk County Capital: \$19,300; Southampton Town: \$19,300)

Southampton Town began operating two pumpout vessels: one at Westhampton Beach to serve Moriches Bay, and one at Hampton Bays to serve Shinnecock Bay. The vessels collected 77,180 gallons of untreated waste between 2006 and 2010. The Town received the NYSEFC Environmental Award of Excellence in 2006.

Cornell Cooperative Extension of Suffolk County:

- **Installation of Waterfowl Feeding Signage, Ongoing**

Cornell Cooperative Extension inspected Suffolk County parks bordering waterbodies on the NYS Section 303(d) List of Impaired Waters for the existence of signs that discourage feeding waterfowl and installed new signage where appropriate.

Dowling College:

- **Undergraduate Research Projects:**

Multi-year Trend Analysis, 2005-2009, of the Water Quality Monitoring Program for the Great South Bay and Adjacent Waters, Fire Island National Seashore

General funds, \$75,000

Department of Earth and Marine Sciences students tested water quality parameters such as temperature, salinity, visibility, chlorophyll a, top and bottom dissolved oxygen, and total fecal coliform at 14 locations within the Fire Island National Seashore. The results were used to support the USEPA declaration of a No Discharge Zone in 2009 for all SSER bays.

Temporal and Spatial Variations in Water Quality on New York South Shore Estuary Tributaries: Carmans, Patchogue, and Swan Rivers

Department of Chemistry students assessed chemical and biological impacts of physical modifications, such as dredging and channelization. The results suggest that physical modifications and spatial structure may foster hypoxic conditions in the Patchogue and Swan rivers. Results were published in the Coastal and Estuarine Research Federation's journal, *Estuaries & Coasts*.

Section B: Protect and Restore Living Resources

Implementation Outcome 3: Increased Harvest Levels of Hard Clams and Other Estuarine Shellfish Species

Historically, hard clam and oyster harvests were a significant portion of the estuary-related economy. During the 1960s and 1970s, more than half the hard clams consumed in the United States came from SSER waters. Harvests peaked in the mid-1970s when more than 700,000 bushels had a dockside value of \$35 million - \$135 million in today's dollars. Pollution, over-harvesting and algae blooms triggered such a decline in clam populations that the industry collapsed. Research on shellfish health, distribution, and optimal habitat conditions is necessary to identify actions that will result in populations of successfully reproducing and thriving shellfish.

Implementation Outcome 4: Coastal Habitats Protected and Restored

Coastal habitats (wetlands, tributaries, bay bottoms, and upland woodlands) and species dynamics continue to change in response to coastal development, population growth, and natural shore processes. Management measures that strengthen protection for natural habitats in the SSER, and provide for restoration or rehabilitation of impaired habitats will enhance the ability of coastal fish and wildlife species to maintain or increase their populations.

Implementation Outcome 5: Open Space Preserved

Human population growth and burgeoning development in the SSER continue to dramatically affect the SSER through loss of open space. Open space preservation is the foremost mechanism to sustain community character, prevent further degradation of water quality from potential new development, and protect living resource values. Measures to preserve open space include both development of strategic acquisition plans and actual acquisition of property.

Implementation Outcome 6: Improved Knowledge for Ecosystem Management

An ecosystem management approach that recognizes the full array of interactions between humans, species, and ecosystem services helps maintain biological integrity and sustain an estuary-related economy for future generations. Filling information gaps is critical to improve management of the SSER.

State-Assisted Projects

35. Implementing Organization: DOS

Project: Coastal Atlas of Digital Data

Funding Agency/Source: DOS/EPF-Oceans, 2006. Total project cost: \$1,670,000

DOS developed the New York Ocean and Great Lakes Ecosystem Conservation Council's Coastal Atlas of Digital Data. The atlas is an online mapping program that makes it possible to download data into Google Earth Geographic Information System (GIS) software. Currently, more than 200 datasets that contain information on such resources as storm drains, wetland boundaries, underwater vegetation, park locations, and fisheries are available through the atlas. Eventually, more than 900 datasets will be included. The atlas can be accessed at www.nyoglatlas.org. The atlas has been created to help advance ecosystem-based management statewide. The philosophy of ecosystem-based management takes into account environmental and human interrelationships. Its goal is to manage human activities in order to create healthy, productive and resilient ecosystems that can deliver the resources people want and need. \$350,000 (2008-2009); \$500,000 (2007-2008); \$720,000 (2006-2007)

36. Implementing Organization: SUNY SoMAS

Project: New York Marine Sciences Consortium

Funding Agency/Source: SUNY SoMAS/EPF-Oceans, 2008. Total project cost: \$50,000

SUNY SoMAS created a Marine Science Consortium of 27 New York Universities and Colleges to teach EBM concepts in college curricula and also encourage collaboration on marine research. A website for linking institutions and sharing information about lectures, events, and activities has been developed.

37. Implementing Organization: DEC

Project: Atlantic Coastal Cooperative Statistic Program (ACCSP)

Funding Agency/Source: DEC/EPF-Oceans, 2007 - 2009. Total project cost: \$545,000

DEC has continued and expanded its participation to implement and maintain ACCSP standards for vessel and dealer reporting, data delivery, and biological sampling in New York's commercial food fisheries. The ACCSP was established in 1995 through a Memorandum of Understanding signed by the 23 state and federal agencies responsible for marine fisheries management. \$270,000 (2008-2009); \$275,000 (2007-2008)

38. Implementing Organization: Atlantic States Marine Fisheries Commission (ASMFC)

Project: Northeast Area Monitoring and Assessment Program (NEAMAP) Fish Survey

Funding Agency/Source: DEC/EPF-Oceans, 2007 - 2009. Total project cost: \$545,000

Through the ASMFC, DEC is continuing the NEAMAP independent fishery survey which generates critically important fishery data, independent of commercial landings, to improve management science. This trawl survey supplements existing NOAA National Marine Fisheries Service survey data, and estimates biomass, length and age structures, and diet compositions of finfish and selected invertebrates. \$275,000 (2007-2008); \$270,000 (2008-2009)

39. Implementing Organizations: NYS Agencies

Project: Sea Level Rise Task Force

Funding Agency/Source: DEC/EPF-Oceans, 2008. Total project cost: \$80,000

Created in 2007 by the NYS Legislature, the NYS Sea Level Rise Task Force was charged with assessing potential impacts to the state's coastlines from rising seas and recommending protective and adaptive actions. The Task Force includes representatives from state agencies, local governments, not-for-profit groups, and private citizens. On December 31, 2010, the Task Force delivered its final report of findings and recommendations for adapting to sea level rise to the Legislature.

40. Implementing Organization: OPRHP

Project: Sea Turtle Conservation and Research

Funding Agency/Source: OPRHP/EPF-Oceans, 2007 – 2009. Total project cost: \$162,282

A Sea Turtle Conservation and Research project is underway to determine the type and extent of resources sought by marine sea turtles while foraging, nesting and migrating near Long Island. The work evaluates turtle conservation status to help guide future conservation efforts and provides environmental education materials to the public at State Parks located along the Atlantic Ocean. \$100,000 (2008-2009); \$62,500 (2007-2008)

41. Implementing Organizations: SUNY SoMAS and USGS

Project: Western Bays Water Quality Monitoring System

Funding Agency/Source: DOS/EPF-OS, 2010. Total project cost: \$820,282

DOS funded researchers at SUNY SoMAS to collect environmental data to develop Total Maximum Daily Load (TMDL) levels for the Hempstead Bays. A coherent description of water quality impairment associated with identifiable sources of pollution will be developed. The research investigates historical water quality data, while collecting tide-adjusted bathymetry (depth) data, conducting a water column survey, analyzing sediment compositions, examining the rate and degree of saltwater marsh subsidence (sinking), and evaluating environmental factors that affect winter flounder, an important recreational and commercial fishery that is currently overfished.

42. Implementing Organization: DOT

Project: Landscaping and erosion control; installation of bird nesting structures

Funding Agency/Source: DOT/SDF, 2008. Total project cost: \$3,100,000

DOT landscaped and installed erosion control protection along Meadowbrook and Ocean Parkways. Osprey and Peregrine falcon nesting structures were installed/rehabilitated along Ocean Parkway.

43. Recipient: Nassau (C)

Project: Acquisition of Three Open Space Properties

Funding Agency/Source: OPRHP/EPF, 2008. Total project cost: \$876,000

Nassau County plans to purchase three parcels of waterfront property in the SSER for community open space preservation. These parcels are among the last remaining open space and publicly accessible, undeveloped areas, providing critical buffer for SSER tributary corridors and bay front in the densely developed Hempstead Town.

44. Recipient: Hempstead (T)

Project: Hard Clam Stock Quality Assessment

Funding Agency/Source: DOS/EPF-LWRP, 2006. Total project cost: \$51,050

Hempstead Town matched funds to: survey hard clam stocks; assess the significance of water quality and habitat parameters on growth rates; and, develop management recommendations.

45. Recipient: Hempstead (T)

Project: Middle Bay Oyster Seeding and Reef Development Program

Funding Agency/Source: DOS/EPF-LWRP, 2006. Total project cost: \$116,406

Hempstead Town matched funds to conduct a multi-year project to encourage the growth of oyster reefs in the Hempstead bays to expand shellfishing opportunities, improve water quality, and reduce marsh erosion. The Town is mapping existing oyster occurrences, conducting a sediment composition analysis, modifying Town ordinances to address oyster harvesting, placing oyster seeds in the bays, mapping salt marsh edges to monitor erosion, depositing shells to form oyster reefs, and implementing a seeding strategy. Oysters improve water quality by filtering it as they feed. Oyster reefs increase ecosystem diversity by attracting other marine species to take up residence, which in turn attracts smaller animals to feed there. They prevent salt marsh erosion by building the marsh edges, which holds plants and sediment in place.

46. Recipient: Nassau (C) SWCD

Project: Tackapausha Pond Re-vegetation

Funding Agency/Source: DEC/WQIP and DAM/EPF, 2008. Total project cost: \$10,078

DEC and DAM provided funds to Nassau County SWCD to complete a shoreline erosion control and aquatic habitat restoration project at Tackapausha Pond in Seaford by installing biologs (bound biodegradable coir fibers) and inserting them with native plants. As biologs degrade, the plants take hold to restore the shoreline and increase habitat.

47. Recipient: Nassau (C) SWCD

Project: Purchase and Installation of Cape American Beachgrass for Civic Beach Dune Restoration

Funding Agency/Source: DAM/EPF, 2008. Total project cost: \$8,100

DAM provided funds to the Nassau County SWCD to purchase and plant 48,000 plugs of Cape American beachgrass to stabilize dunes at Civic Beach in Point Lookout. The beachgrass was planted in partnership with Hempstead Town, Point Lookout Civic Association, and more than 250 volunteers.

48. Implementing Organization: DOS

Project: Great South Bay EBM Demonstration Area

Funding Agency/Source: DOS/EPF-Oceans, 2006. Total project cost: \$606,456

DOS continues its commitment to hard clam restoration in the SSER by providing funds to The Nature Conservancy to prepare an EBM Plan for Great South Bay that integrates ecosystem protection and restoration goals with economic sustainability and community well-being. Various research products produced include: a *Draft EBM Technical Report*, 2008; *Great South Bay Stakeholder Outreach Report*, 2008; *Initial Phases - Nitrogen Loading Study*, 2008; and, *Restoring Hard Clams in the Great South Bay Report*, 2010. The latter reports on high priority short- and intermediate-term recommendations necessary to restore hard clams to Great South Bay by

2020, improve ecosystem health and sustain hard clam harvests. A summary report is pending release. Since the mid 1990s, DOS has awarded more than \$380,000 for hard clam population and bottomland restoration projects in the SSER.

49. Implementing Organization: SUNY SoMAS

Project: Great South Bay Modeling Project

Funding Agency/Source: DOS/EPF-Oceans, 2007 – 2009. Total project cost: \$650,000

SUNY SoMAS is developing an ecosystem model of the Great South Bay by researching the bay's biogeochemistry and its effect on organisms living in the pelagic zone (water column) and benthic zone (bay bottom sediment and sub-surface layers). The modeling allows for the development of efficient, cost-effective ecosystem management strategies and restoration alternatives. Initial work focuses on models of water circulation and species' trophic levels (bacteria and algae, low trophic level; birds and fish, high trophic level) to understand the spatial-temporal variability and critical food web. Currently, identified data and knowledge gaps are being filled. \$325,000 (2008-2009); \$325,000 (2007-2008)

50. Implementing Organization: SUNY SoMAS

Project: Pilot Ocean Observing System in the Great South Bay

Funding Agency/Source: DOS/EPF-Oceans, 2008. Total project cost: \$510,000

SUNY SoMAS deployed an environmental data buoy and eight SeaCat instrument stations to measure real time data on the ecological attributes throughout the Bay including temperature and salinity. Data is posted on SUNY SoMAS's website.

51. Implementing Organization: SUNY Stony Brook

Project: Continuation of the Atlantic Coast of New York Monitoring Program (ACNYMP)

Funding Agency/Source: DOS/Erosion, 2006. Total project cost: \$32,000

SUNY Stony Brook will complete quality assurance assessments for 770 beach profile surveys for incorporation into the ACNYMP website. The data provides valuable coastal management information to state and local governments' land use decision makers.

52. Implementing Organization: DEC

Project: Seagrass Task Force/Report

Funding Agency/Source: DEC/EPF-Oceans, 2007-2009. Total project cost: \$350,000

In 2006, the NYS Legislature created the NYS Seagrass Task Force, charged with examining the current state of seagrass abundance and distribution and making recommendations on restoring, researching, preserving, and properly managing this valuable marine resource. The Seagrass Task Force is comprised of representatives from state and local governments and non-profit organizations.

DEC funded research on the impacts of groundwater quality on seagrass, and monitoring and restoration activities to preserve and enhance submerged aquatic vegetation populations and meadows. The research supported the development of the Seagrass Task Force Report, released in 2009. The report serves as a management tool and planning guide for protecting and restoring seagrass habitats. In addition it is a framework for the development of a statewide seagrass management initiative and a foundation for future monitoring, restoration, and management policies. Seagrass improves water quality and provides invaluable spawning, nursery, and maturation habitat for several commercially and recreationally important fish and shellfish. Approximately 20,000 acres of the SSER currently support seagrass.

53. Implementing Organization: DEC

Project: Winter Flounder Study

Funding Agency/Source: DEC/EPF-Oceans, 2006 - 2008. Total project cost: \$250,000

DEC is estimating the natural and fishing-related mortality, growth and movement patterns of young-of-the-year and of the inshore adult winter flounder populations in Long Island waters. Change in population is based upon salinity and temperature. \$125,000 (2007-2008); \$125,000 (2006-2007)

54. Implementing Organization: DEC

Project: Great South Bay Fishery Survey

Funding Agency/Source: DEC/EPF-Oceans, 2006. Total project cost: \$75,000

DEC conducted analyses to determine the level of sampling required to develop robust estimates of abundance and biological rates for finfish and shellfish in the Bay. A survey design is needed since the long-term survey database is lacking.

55. Implementing Organization: USACE

Project: Continuation of Fire Island Inlet to Montauk Point (FIMP) Reformulation Study

Funding Agency/Source: DEC, 2010. Total project cost: \$1,000,000

DEC provided funds to USACE for data collection, modeling, analysis, and preparation of maps and graphics for the ongoing FIMP Reformulation Study. The FIMP study began in 1994 with the purpose to identify, evaluate, and recommend long-term solutions for hurricane and storm damage reduction for homes and businesses within the floodplain extending 83 miles along the ocean and bay shoreline from Fire Island Inlet to Montauk Point. A report, including an Environmental Impact Statement, is currently being prepared.

56. Recipient: Fire Island Land Trust

Project: Multi-year Strategic Conservation Plan for Fire Island

Funding Agency/Source: DEC/ Land Trust Alliance/EPF-NYSCPP, 2008. Total project cost: \$25,000

Fire Island Land Trust matched funds to complete a comprehensive strategic conservation plan for Fire Island. The grant will help Fire Island Land Trust identify, protect, and preserve fragile coastal habitat and open space and help bring about a public-private partnership to implement common goals.

57. Recipient: Fire Island Land Trust

Project: Cooperative Management and Education

Funding Agency/Source: DEC/Land Trust Alliance/EPF-NYSCPP, 2009. Total project cost: \$25,000

Fire Island Land Trust matched funds to develop relationships with the National Park Service, Fire Island National Seashore, Suffolk County, The Nature Conservancy, and Pines Conservation Society to support cooperative management and increase landowner involvement in efforts to protect the barrier island.

58. Implementing Organization: DOT

Project: Fish ladder Installation at Carmans River

Funding Agency/Source: DOT/EIP and NOAA Restoration Center, 2008. Total project cost: \$200,000

DOT and NOAA, in cooperation with partner organizations, funded the installation of Long Island's first permanent fish ladder on the Carmans River in Brookhaven Town. The fish ladder permits fish to move upstream beyond a previously impassable barrier to spawn in Hards Lake in Southaven County Park, now connecting two isolated parts of this important SSER ecosystem. Enhancing the Carmans River fish population will help sustain native fauna and increase recreational fishing opportunities.

59. Implementing Organization: DOT

Project: Installation of Fish Passage at Penataquit Creek/ Drainage Improvements

Funding Agency/Source: DOT/STP, 2008. Total project cost: \$16,500,000

DOT installed a fish passage at Penataquit Creek on Rt. 27A in Bay Shore as part of a \$16.5 million drainage improvement project. The step-pool system installed restores fish access to the freshwater stream system north of Montauk Highway, permitting diadromous fish, such as alewives, which spawn in fresh water and live in saltwater as adults, to swim upstream to reproduce. Alewives are an important source of food for many animals and are monitored through the Seatuck Environmental Association.

60. Implementing Organization: DOS

Project: Inventory and Analysis of Barriers to Fish Passage for Six SSER Tributaries

Funding Agency/Source: DOS/EPF-OS, 2006. Total project cost: \$29,157

DOS funded an inventory and assessment of in-stream physical barriers (culverts, bridges, and dams) within six prioritized tributaries of the SSER: Carlls River (Babylon); Brown's River (Islip); and Swan River, Mud Creek, Beaver Dam Creek and Carman's River (Brookhaven). These tributaries were identified as having the greatest potential for habitat restoration through fish passage improvements due to the historic documentation of spawning runs and existing quality of natural habitat.

61. Recipient: Suffolk (C) SWCD

Project: Removal of Japanese Knotweed at Quogue Wildlife Refuge

Funding Agency/Source: DEC/Aquatic Invasive Species Eradication grant, 2007. Total project cost: \$7,500

Suffolk County SWCD removed Japanese Knotweed, an invasive plant that reduces biodiversity and damages wildlife habitat by forcing out native plants with shade and thick growth, at the Quogue Wildlife Refuge. Native seed from the Sayville Grasslands and Smith Point Marina was collected and used to reestablish native grasses at various sites throughout the Refuge.

Partner-Funded Projects/Activities

USFWS:

- **Seabeach Amaranth Survey, Ongoing**

USFWS coordinated with the New York Natural Heritage Program (DEC and TNC) to annually survey the endangered seabeach amaranth. Seabeach amaranth is threatened because of the continued loss of barrier beach habitat. Long Island supports the largest population of seabeach amaranth within its historical range, extending from South Carolina to Massachusetts. Surveying began in the 1990s when the plant began returning to south shore beaches. Established plants trap sand and one large plant can create a sand mound of two to three cubic yards. It shares this habitat with other threatened and endangered species, such as piping plovers and roseate terns.

DEC:

- **Shellfish Monitoring Program, Ongoing**

DEC General Fund

DEC annually collects between 2,000 and 3,000 water samples at 350 stations in underwater lands of the SSER to assess fecal coliform (bacteria) levels. Results from these efforts are used by DEC to designate underwater lands as certified (open), uncertified (closed), or seasonally certified for shellfishing. DEC works with local governments to evaluate underwater lands for conditional (rainfall related) shellfishing regulation. DEC coordinates and hosts meetings of the Shellfish Advisory Committee, which includes state and local shellfish managers and harvesters to discuss shellfish management issues.

- **NYS Open Space Conservation Plan**

DEC and OPRHP, 2009.

DEC and OPRHP developed the NYS Open Space Conservation Plan which provides state, regional, and local guidance for open space planning and protection. The Plan was completed with input from the DAM, DOT, DOS, local governments and citizens. Priority SSER conservation projects identified in the Plan include: Nassau Tributary/Bay Buffer Sites; St. John's University/Oakdale Campus; Patchogue River Maritime Park; Mastic/Shirley Conservation Area; Forge River Watershed; Carlls River Watershed Addition; Haven's Point Additions; and, Shinnecock Bay.

Nassau (C):

- Brookside Preserve Improvement in Freeport**
Nassau County EBA, 2006. Total project cost: \$66,000 (County: \$60,000; South Shore Audubon Society match: \$6,000)
 Nassau County is improving habitats at Brookside Preserve in Freeport with invasive plant species management and control measures.
- Solar Powered Trash Compactors**
Nassau County EBA, 2006. Total project cost: \$32,000
 Nassau County installed solar powered trash compactors at seven park locations throughout the County.
- Acquisition of Parkway Drive Property**
Nassau County EBA, 2006. Total project cost: \$4,865,000
 Nassau County purchased three waterfront acres along Parkway Drive in Baldwin Harbor to protect water quality and habitat.
- Acquisition of Gold Property**
Nassau County EBA, 2006. Total project cost: \$635,000
 Nassau County purchased a one-acre property bordering Seaford wetlands to protect water quality and habitat.
- Restoration of Diadromous Fish in Massapequa Creek**
NOAA and USFWS/Superfund settlement agreement. Total project cost: \$173,000
 Agencies supervised installation of the first permanent fish ladder in Nassau County on Massapequa Creek in Oyster Bay Town. The ladder permits diadromous fish, such as alewives (which spawn in fresh water and live in saltwater as adults), to swim upstream to spawn. Alewives are an important source of food for many animals and are monitored through a program coordinated by the Seatuck Environmental Association. The project was implemented to compensate for past injury to the creek resulting from contamination from the Liberty Industrial Finishing Superfund Site, a 30-acre property in Farmingdale.

Suffolk (C):

- Hard Clam Restoration in the Great South Bay**
Suffolk County Water Quality Protection Program, 2006, 2010. Total project cost: \$1,500,000. \$1,000,000 (2006), \$500,000 (2010)
NOAA/Community-Based Restoration Program, 2003-2010. Total project cost: \$410,942. \$125,000 (2010), \$72,250 (2008), \$45,000 (2005), \$118,692 (2004), \$50,000 (2003)
 Suffolk County contributed \$1,500,000 to The Nature Conservancy for continuing hard clam restoration efforts in the Great South Bay, including seeding hard clams and studying water quality and habitat conditions. This restoration effort has been concentrated on 13,400 acres of Great South Bay bottomland owned and managed by The Nature Conservancy. The Nature Conservancy received separate funding from the NOAA Community Based Restoration Program for additional hard clam restoration activities. Hard clam restoration plays a critical role in improving water quality.
- Great South Bay Clam Restoration Working Group, 2008**
 Suffolk County is developing short-term and long-term harvest management and protection plans to ensure the vibrancy of the clam population in Great South Bay through a stakeholder work group. Members include bay bottom landowners (Suffolk County, Babylon, Brookhaven and Islip Towns, The Nature Conservancy and Fire Island National Seashore), federal, state and local marine enforcement agencies, baymen, and shellfish distributors.
- Long Island Native Grass Initiative**
Suffolk County Water Quality Protection and Restoration Program (Land Stewardship Initiative), 2008. Total project cost: \$22,700

Suffolk County is funding a seeding and growing program to increase the availability of native plants for use in erosion control, wildlife habitat restoration, and recreation and roadside landscaping.

- **Suffolk County Farm Nitrogen Reduction and Irrigation Upgrade
Suffolk County Water Quality Protection and Restoration Program, 2008.**
Suffolk County is upgrading the irrigation system at the Suffolk County Farm and Educational Center in Yaphank to reduce soil erosion and nitrogen leaching into the soil due to excessive irrigation.
- **Acquisition of Farmland Development Rights to Cuomo Family Farm, 2010**
**Total project cost: \$5,000,000 (Suffolk County Drinking Water Protection Program: \$3,500,000;
Brookhaven Town: \$1,500,000)**
Suffolk County and Brookhaven Town purchased farmland development rights to a 27-acre farm in East Moriches to protect the health of nearby Terrell River which drains into Moriches Bay. The property may still be sold, but it must continue to be operated as a farm.
- **Open Space Acquisition Lists, Ongoing**
Suffolk County prepared open space acquisition lists that identified 1,184 acres within the SSER for potential acquisition. The lists include properties along or within many tributary corridors and watersheds in the SSER, as well as properties immediately adjacent to Great South Bay, Moriches Bay, and Shinnecock Bay.
- **Open Space Acquisition, Ongoing**
Suffolk County acquired more than 636 acres within the SSER including along the following tributaries and wetlands: Carlls River, and Santapogue Creek (Babylon Town); Carmans River, including additions to Southaven County Park and Warbler Woods County Park, Forge River, Seatuck Cove, Patchogue River, Terrells River, Patchogue River, Beaver Dam Creek, Tuthill Cove, Mud Creek, Mastic/Shirley Conservation Area (Brookhaven Town); Champlin Creek, Doxees Creek, Pepperidge Hall Wetlands, Green's Creek, Bayport wetlands (Islip Town); Aspatuck Creek (Southampton Town).

Oyster Bay (T):

- **Growth and seeding of shellfish into South Oyster Bay, Ongoing**
Oyster Bay Town annually seeded approximately 1 million clams and 250,000 oysters into South Oyster Bay. The clams were grown in a Floating Upwelling System on the north shore during the summer of 2008 and transplanted to South Oyster Bay in October to avoid the damaging effects of a severe brown tide.

Islip (T):

- **Comprehensive Shellfish Management Program, Ongoing**
The Islip Town Shellfish Culture Facility annually produced 70 million seed clams, except in 2008 when a severe brown tide limited production. The facility provides stock for Town-conducted seeding and serves as a regional supplier for other public and private seeding operations.
- **Cooperative Agreement for Shellfish Research and Education, 2009**
Under a ten-year agreement with Islip Town, Dowling College Department of Earth and Marine Sciences students will work in partnership with the Islip Town Shellfish Hatchery to collect and interpret shellfish data from three 50-acre sites on Great South Bay bottomland. Alternative means of reinvigorating the shellfish population will be explored.

Babylon (T):

- **Bay Management Program, Ongoing**
Babylon Town routinely samples the clam population, bacteria and physical parameters of its waters to assist DEC in certification of shellfish grounds within its borders. The Town placed 6,865 bushels of spawner clams into

Town Sanctuaries within the Great South Bay between 2006 and 2010. One million seed clams and 350,000 oysters are introduced into the Bay annually as the result of a cooperative grow-out program with Islip Town.

Brookhaven (T):

- **Shellfish Management Area Designated, 2009**

Brookhaven Town enacted a law designating nearly 13,000 acres of Great South Bay bottomland as a protected Shellfish Management Area. The designation authorizes the Town to enforce shellfish protections, such as restrictions on harvesting, for areas that provide or have the potential to provide viable shellfish habitat.

SUNY SoMAS:

- **Shinnecock Bay Restoration Initiative**

Southampton Bath and Tennis Club Charitable Foundation, 2010. Total project cost: \$10,000

The Initiative is designed to slow and reverse negative biological trends in Shinnecock Bay. Researchers investigated which species of shellfish grow and filter bay water most rapidly, the locations in which more rapidly growing species are likely to be found, and sites where seagrass is most likely to grow rapidly. Adult and juvenile clams, oysters, slipper shell snails, eelgrass and *Ulva* seaweed (sea lettuce) were placed at five locations in Shinnecock Bay from June through October. Growth rates were assessed every two weeks. Filtration rates of adult shellfish were measured; and levels of phytoplankton biomass, brown tide, temperature, salinity, dissolved oxygen, and water clarity were measured.

Dowling College:

- **Long Island Horseshoe Crab Research, Ongoing**

Since 2003, Department of Earth and Marine Sciences staff have coordinated a volunteer effort to collect horseshoe crab data at 64 sites throughout Long Island to identify population and habitat trends. In 2007, the Department organized and hosted the first International Horseshoe Crab Symposium at which 45 researchers shared conservation success stories and effective strategies for rebuilding horseshoe crab populations.

Section C: Expand Public Use and Enjoyment of the Estuary

Implementation Outcome 7: Increased Public Use of the Estuary and Expanded Tourism

Public use and enjoyment depends upon access to the SSER's bays, shorelands, recreational sites, natural areas, and facilities. Preservation and interpretation of the SSER's maritime culture and heritage is important. Better use of existing facilities, increasing the number of access points/recreational sites, and improving amenities are necessary to increase public use and expand tourism in the SSER.

State-Assisted Projects

62. Implementing Organization: DOS

Project: South Shore Bayway Strategic Implementation and Marketing Plan

Funding Agency/Source: DOS/EPF-OS, 2006. Total project cost: \$180,000

DOS funded the development of the South Shore Bayway Strategic Implementation and Marketing Plan, completed in 2009, which serves as a blueprint for creating a dynamic, cohesive network of cultural centers, recreational activities, and interpretive programs and exhibits that promotes enjoyment of the SSER and supports the long-term stewardship of SSER resources.

63. Recipient: Hempstead (T)

Project: Lido Nature Preserve Boardwalk and Signage

Funding Agency/Source: DOS/EPF-LWRP, 2006. Total project cost: \$236,600

Hempstead Town matched funds to design and construct a 900-ft boardwalk at the Lido Nature Preserve, a 40-acre marshland on Middle Bay. The project includes installation of web-based cameras, interpretive signage, and observation binoculars along the boardwalk and platform.

64. Implementing Organization: DOT

Project: Wantagh State Parkway Pedestrian/Bike Shared-Use Path Safety Enhancement

DOT/STP, 2009. Total project cost: \$700,000

DOT rehabilitated and installed safety improvements to the 4.5 mile shared use pedestrian/bike path between Ocean Parkway and Merrick Road in Hempstead Town.

65. Implementing Organization: OPRHP

Project: Jones Beach State Park West Bathhouse Rehabilitation

Funding Agency/Source: OPRHP/EPF-Capital Funds, 2010. Total project cost: \$750,000

OPRHP will rehabilitate the historic West Bathhouse, including masonry, tower, and second flood deck repairs, and window and door replacements.

66. Implementing Organization: OPRHP

Project: Stabilize and Restore Jones Beach State Park Central Mall Buildings

Funding Agency/Source: OPRHP/EPF-Capital Funds, 2010. Total project cost: \$750,000

OPRHP will stabilize and restore the main park building and public café to enhance recreation and tourism opportunities.

67. Implementing Organization: OPRHP

Project: Rehabilitate Zach's Bay Comfort Station at Jones Beach State Park

Funding Agency/Source: OPRHP/SPIF, 2008. Total project cost: \$400,000

OPRHP will rehabilitate Zach's Bay Comfort Station to enhance recreation and tourism opportunities.

68. Recipient: East Rockaway (V)

Project: Improving Public Access on the Mill River Access

Funding Agency/Source: DOS/EPF-LWRP, 2007. Total project cost: \$469,000

East Rockaway Village matched funds to design and construct a canoe/kayak launch, three fishing stations, and a pathway system with pedestrian amenities along the Mill River.

69. Recipient: Lynbrook (V)

Project: Park Development and Shared-Use Path

Funding Agency/Source: OPRHP/EPF, 2008. Total project cost: \$100,000

Lynbrook Village matched funds to redevelop vacant land into a recreational park with a shared-use pedestrian/bike path and fitness equipment.

70. Recipient: Freeport (V)

Project: South Shore Blueway Trail

Funding Agency/Source: DOS/EPF-LWRP, 2008. Total project cost: \$100,000

Freeport Village matched funds to plan and implement infrastructure improvements for a water trail for non-motorized vessels in the western portion of the SSER. Work includes identification of launch sites and routes best-suited for non-motorized use; development of signage, a water trail map, a brochure, and a website dedicated to the blueway trail; and the construction of infrastructure improvements to the identified launch sites. The Nassau County Environmental Bond Act provided the \$50,000 match to Freeport Village in 2006.

71. Recipient: Freeport (V)

Project: Northeast Park Rehabilitation

Funding Agency/Source: OPRHP/EPF, 2009. Total project cost: \$100,000

Freeport Village matched funds to rehabilitate basketball and tennis court surfaces at Northeast Park serving 52,000 residents in the immediate area.

72. Recipient: Oyster Bay (T)

Project: Design and Construction of SSER Bikeway Trail

Funding Agency/Source: DOS/EPF-LWRP, 2007. Total project cost: \$403,346

Oyster Bay Town matched funds to design and construct a shared-use pedestrian/bike path that connects the Bethpage and Jones Beach Bikeways in the SSER. Work includes trail extension and widening, traffic signal improvements, installation of signage, and development of a brochure and route map.

73. Recipient: Babylon (T)

Project: Geiger Lake Land Acquisitions for New Trailways

Funding Agency/Source: OPRHP/EPF, 2009. Total project cost: \$200,000

Babylon Town matched funds to provide access between Geiger Lake Park in Wyandanch and Belmont Lake State Park in North Babylon via trails, paths, and bikeways in an undeveloped portion of the Carlls River Watershed. This project provides recreational and educational opportunities and supports economic renewal and growth in the economically-distressed community of Wyandanch. The project includes acquisition of undeveloped portions of parcels within the area that are essential to the establishment of the trail system.

74. Implementing Organization: OPRHP

Project: Robert Moses State Park East Boat Basin Rehabilitation

Funding Agency/Source: OPRHP/Capital Initiative, 2008. Total project cost: \$3,318,500

OPRHP will rehabilitate and reopen East Boat Basin at Robert Moses State Park.

75. Implementing Organization: OPRHP

Project: Robert Moses State Park Renovations (Bathhouse)

Funding Agency/Source: OPRHP/Capital Initiative, 2008. Total project cost: \$1,000,000

OPRHP completed park improvements, including a \$700,000 renovation to the bathhouse at Field #3. A new family restroom has been added to the center entryway of the bathhouse. Restroom renovations involved

retiling the walls and floors, installing new partitions and fixtures, and repainting. Restrooms were reconfigured to allow more space and better traffic flow. The park's cupola and clock have been restored to working order. The food concession area, beach shop, and first aid offices have been enlarged.

76. Implementing Organization: OPRHP

Project: Robert Moses State Park Beach Nourishment

Funding Agency/Source: OPRHP/EPF-Capital Funds, 2010. Total project cost: \$1,000,000

OPRHP funded a beach nourishment project to address significant erosion problems along Robert Moses' ocean swimming beaches.

77. Implementing Organization: OPRHP

Project: Belmont Lake State Park Parking Lot Improvements

Funding Agency/Source: OPRHP/SPIF, 2008. Total project cost: \$800,000

OPRHP improved the main parking lot at Belmont Lake State Park.

78. Implementing Organization: OPRHP

Project: Belmont Lake State Park Electrical Upgrades

Funding Agency/Source: OPRHP/SPIF, 2008. Total project cost: \$50,000

OPRHP funded electrical and generator upgrades at the administration building at Belmont Lake State Park.

79. Implementing Organization: OPRHP

Project: Captree State Park Bulkhead Rehabilitation

Funding Agency/Source: OPRHP/SPIF, 2008. Total project cost: \$400,000

NYSORPHP funded a bulkhead rehabilitation project at Captree State Park.

80. Implementing Organization: OPRHP

Project: Captree State Park Fuel Dock Electric Upgrades

Funding Agency/Source: OPRHP/SPIF, 2008. Total project cost: \$22,000

OPRHP upgraded the electric system and alarm at the Captree State Park fuel dock.

81. Implementing Organization: OPRHP

Project: Captree State Park Fuel Line Replacement

Funding Agency/Source: OPRHP/SPIF, 2008. Total project cost: \$225,000

OPRHP replaced fuel lines at Captree State Park fuel dock.

82. Recipient: Islip (T)

Project: Homan Avenue Waterfront Park

Funding Agency/Source: OPRHP/EPF, 2009. Total project cost: \$100,000

Islip Town matched funds to transform Homan Avenue Dock into Homan Avenue Waterfront Park. The dock is situated on Penataquit Creek in Bay Shore and is an ideal location for a passive recreational facility.

83. Recipient: Friends of Connetquot, Inc.

Project: Nicoll Grist Mill Restoration at Connetquot State Park

Funding Agency/Source: OPRHP/EPF, 2010. Total project cost: \$548,020

Friends of Connetquot, Inc. matched funds to restore the Nicoll Grist Mill to its original, functional form. The mill is the only surviving example of a horizontal (tub) wheel-powered mill in the state. Once the project is complete, the mill will be an important landmark and will be operated as a museum dedicated to increased understanding of Long Island's social and industrial history.

84. Recipient: Patchogue (V)

Project: Patchogue Maritime Heritage Trail

Funding Agency/Source: DOS/EPF-LWRP, 2007. Total project cost: \$150,350

Patchogue Village matched funds to design, construct, and install 12 interpretive wayside signs and develop a plan for the Patchogue Maritime Heritage Trail, which will connect the business, recreational, and residential areas of the Village.

85. Recipient: Patchogue (V)

Project: Reconstruction of Shorefront Park

Funding Agency/Source: OPRHP/EPF, 2008. Total project cost: \$183,408

Patchogue Village matched funds to reconstruct the Shorefront Park, a continuous 7-acre stretch of parkland on the Great South Bay, which has deteriorated due to environmental factors and vandalism. The project includes the construction of a barrier free playground.

86. Recipient: Ketcham Inn Foundation, Inc.

Project: Terry Ketcham Inn Restoration

Funding Agency/Source: OPRHP/EPF, 2010. Total project cost: \$150,000

Ketcham Inn Foundation, Inc. matched funds to complete interior and exterior renovations that will permit public access to the Terry Ketcham Inn, a state- and national-designated historic structure located in Center Moriches. Work includes: rebuilding exterior doors and windows; replacing shingles, fascia/soffit and trim; reconstructing the front porch; re-plastering walls; conserving interior wainscoting, floorboards, window and door trim, chair rail moldings, and door and fireplace surrounds; and replacing the roof plate, missing tie beam, and brace supports.

Partner-Funded Projects/Activities

Nassau (C):

- **Harold Walker Memorial Park Trail**
Nassau County EBA, 2006. Total project cost: \$30,000
Nassau County is funding construction of a trail to improve public access at Hempstead Lake Park in Hempstead Town.
- **Fitness Trail at Cedar Creek Park**
Nassau County EBA, 2006. Total project cost: \$15,000
Nassau County is funding construction of a fitness trail to enhance public use and enjoyment at Cedar Creek Park in Wantagh.
- **Athletic Field at Cedar Creek Park**
Nassau County EBA, 2006. Total project cost: \$1,200,000 (County: \$1,000,000; County capital funds: \$200,000)
Nassau County is funding construction of an all-purpose athletic field to enhance public use and enjoyment at Cedar Creek Park in Wantagh.
- **Artificial Field at 59 East Fulton Street in Roosevelt**
Nassau County EBA, 2006. Total project cost: \$130,000
Nassau County is funding construction of an athletic field, gazebo, park benches and a fence adjacent to Centennial Park in Hempstead Town.
- **Wantagh Park Marine Playground**
Nassau County EBA, 2006. Total project cost: \$400,000
Nassau County repaved paths to accommodate bicycles and created a nautical-themed low impact recreational area for children.

Lynbrook (V):

- **Greis Park Fitness Trail and Lighting**

Nassau County EBA, 2006. Total project cost: \$90,000 (EBA: \$50,000; Village general funds: \$40,000)

Lynbrook Village matched funds to complete a fitness trail and install lighting at Greis Park to enhance public use and enjoyment.

Long Beach (City):

- **Clark Street Park Improvement Project**

Nassau County EBA, 2006. Total project cost: \$1,500,000 (EBA: \$750,000; City match: \$750,000)

Long Beach City matched funds to improve Clark Street Park, which included installation of playground equipment, rubberized play surfaces, fencing, landscaping with native plants, a sprinkler system, walkways, lighting, tennis courts and a children's splash park. The project also includes the replacement of 540 feet of deteriorating wood bulkheads at the Clark Street Park site.

Islip (T):

- **Bay Shore Marina Improvements, Phase III**

Islip Town Capital Improvement Fund, 2010. Total project cost: \$2,000,000

Islip Town completed bulkhead improvements, continued to make boardwalk and utility improvements, installed decorative boardwalk lighting, and replaced an underground fuel storage tank.

Section D: Sustain and Expand the Estuary-related Economy

Implementation Outcome 8: Water Dependent Businesses Sustained

The SSER has the largest concentration of commercial and recreational vessels, marinas, and other water-dependent businesses in the state. This sector of the economy depends on access to the SSER, safe navigation, sound infrastructure, and a clean, healthy estuarine environment. Loss of the economic contributions made by water-dependent businesses weakens the viability of the estuary-related economy. As traditional water-dependent businesses are displaced, the SSER's maritime heritage diminishes. Local harbor management plans are prepared to identify where infrastructure is needed to support existing and new water-dependent uses and maintain navigable channels.

Implementation Outcome 9: Maritime Centers Thrive

The SSER's 23 maritime centers are where estuary-related businesses concentrate and thrive. Serving as destinations with a sense of place, the centers offer opportunities for public access to the waterfront and appreciation of maritime culture and heritage.

State-Assisted Projects

87. Implementing Organization: DOS

Project: Dredged Material Management Plan

Funding Agency/Source: DOS/EPF-OS, 2008. Total project cost: \$178,382

DOS funded a background information report for the SSERC as a preliminary step toward a dredged materials management plan for the SSER, which included a database of navigation dredging sites, sediment quantities and known contaminants, and opportunities for sediment reuse, marketing, processing, and shared facilitative management. The SSER Office and DOS provided technical assistance and coordinated public meetings. The report can be found on the SSERC website at www.estuary.cog.ny.us.

88. Recipient: Nassau (C)

Project: Comprehensive County Vision for Water-Dependent Maritime Uses

Funding Agency/Source: DOS/EPF-LWRP, 2008. Total project cost: \$170,000

Nassau County matched funds to hire the Regional Plan Association to undertake a County-wide visioning process for the development of a comprehensive plan to manage and protect water-dependent maritime uses and working waterfronts. Grant funding will be used for County geographic information system data, mapping supplies and contractual services and salaries.

89. Recipient: Islip (T)

Project: Sayville and West Sayville LWRP

Funding Agency/Source: DOS/EPF-LWRP, 2009. Total project cost: \$100,000

Islip Town matched funds to prepare an LWRP focused on community waterfront land use issues, public access to the shore, and improving water quality in Sayville and West Sayville on the Great South Bay.

90. Implementing Organization: USACE

Project: Fire Island Inlet and Shore Westerly to Jones Inlet, 2007

Funding Agency/Source: USACE and DEC, 2007. Total project cost: \$9,000,000 (USACE: \$7,434,000; DEC: \$1,566,000)

USACE dredged 550,000 cubic yards of sand from Fire Island Inlet to improve navigation. The dredged sand was placed along the shoreline several miles west of Gilgo Beach to provide storm damage protection.

91. Recipient: Southampton (T)

Project: Preparation of LWRP

Funding Agency/Source: DOS/EPF-LWRP, 2008. Total project cost: \$200,000

Southampton Town matched funds to prepare a Harbor Management Plan and Intermunicipal Waterbody Management Plan, and integrate the findings into a comprehensive LWRP. The grant will support a number of studies to stimulate community projects relating to economic, environmental, and recreational improvements.

92. Implementing Organization: USACE

Project: Shinnecock Inlet Federal Navigation Channel

Funding Agencies/Source: USACE Operations and Maintenance/ARRA and DEC, 2009. Total project cost: \$8,500,000 (USACE: \$5,900,000; DEC: \$2,600,000)

USACE completed maintenance dredging of Shinnecock Inlet to deepen the channel and improve navigation and placed 487,000 cubic yards of dredged sand at Tiana Beach for storm damage protection.

Partner-Funded Projects/Activities

USACE:

- **Great South Bay Federal Navigation Channel, 2006**

Total Project Cost: \$180,000

USACE funded engineering and design work to prepare final plans and specifications and to coordinate environmental requirements and controlling depth reports for the Patchogue River Reach Dredging Project which was carried out in 2009 to improve navigation.

- **Long Island Intracoastal Waterway Federal Navigation Channel, 2010**

Total project cost: \$1,450,000

USACE completed maintenance dredging of approximately 70,000 cubic yards in the Moriches Bay reach of the Long Island Intracoastal Waterway to improve recreational and commercial boater navigation. Dredging was completed in two phases. A 6,000 cubic yard stockpile of sand was constructed on Cupsogue Beach. Brookhaven Town transported sand from the stockpile for replenishment of a Center Moriches beach.

FEMA:

- **Gilgo Beach Shoreline Emergency Stabilization**

FEMA/Flood Control and Coastal Emergency appropriation, 2007. Total project cost: \$888,000

FEMA funded dune rehabilitation along severely eroded portions of Gilgo Beach in Babylon Town. Approximately 63,770 cubic yards of material was placed on the beach for future storm protection.

Suffolk (C):

- **Dredging Oversight**

Suffolk County provided oversight on dredging projects within the County to maintain safe navigability and access to recreational and water-dependent businesses. Projects include:

Champlin Creek, Islip Town: 1,000 cubic yards (2009); 3,050 cubic yards (2010)

Homans Creek, Islip Town: 3,250 cubic yards (2007)

Long Island Marine Museum/Hard Estate, Islip Town: 400 cubic yards (2006); 500 cubic yards (2007); 500 cubic yards (2008); 1,900 cubic yards (2010)

Abets Creek, Brookhaven Town: 3,000 cubic yards (2009); 2,000 cubic yards (2010)

Boylan Lane Canal, Brookhaven Town: 4,650 cubic yards (2007)

Moriches Inlet/Smith Point/Cupsogue Beach, Brookhaven Town: 454,000 cubic yards (2009)

Mud Creek, East Patchogue: 1,575 cubic yards (2007); 4,000 cubic yards (2009)

Swan River, Brookhaven Town: 4,900 cubic yards (2010)

Far Pond, Southampton Town: 3,400 cubic yards (2008); 3,000 cubic yards (2010)

Middle Pond, Southampton Town: 5,000 cubic yards (2008); 3,000 cubic yards (2010)

Speonk Point Canal, Southampton Town: 5,070 cubic yards (2007)

- **Moriches Inlet Federal Navigation Channel, 2009**

- **FEMA funds. Total project cost: \$11,400,000**

- Suffolk County DPW conducted dredging of Moriches Inlet to improve navigation. Approximately 454,000 cubic yards of dredged material was removed from the inlet and placed on Cupsogue Beach and Smith Point for storm protection.

Brookhaven (T):

- **Replenishment of Shoreline in Center Moriches, 2010**

- Brookhaven Town and Suffolk County entered into an Intermunicipal Agreement to replenish Webby's Beach in Center Moriches. The Town transported 6,000 cubic yards of sand from a stockpile at Cupsogue Beach which was dredged from a \$1.45 million USACE project in Moriches Bay. In exchange, the Town granted the County a waiver of \$50,000 in usage fees at the Town landfill. This was the first stage of work to restore the beach that became severely eroded due to a series of nor'easters in 2010. Town will be working on a series of drainage improvements in the area as a long term solution for erosion control.

Section E: Increase Education, Outreach, and Stewardship

Implementation Outcome 10: Heightened Public Awareness of the Estuary

An informed and involved public is critical to understanding the reasons for improving water quality, protecting living resources, maintaining a living maritime heritage, and providing public access to the estuary.

Implementation Outcome 11: Actions Advanced Through Council Partnerships and Office

The success of the SSERC's efforts to implement the CMP is based on the formation and strengthening of partnerships, as well as the DOS and SSER Office's effectiveness in promoting, coordinating, and monitoring implementation efforts.

State-Assisted Projects

93. Implementing Organization: DOS

Project: SSER Office Operation

Funding Agency/Source: DOS/EPF-OS, 2006. Total cost: \$569,310

SSER Office staffing and operations.

94. Recipient: OPRHP

Project: EBM Education Exhibits and Materials

Funding Agency/Source: OPRHP/EPF-Oceans, 2007-2009. Total project cost: \$187,500

OPRHP developed EBM education exhibits and materials which have been distributed at key State Park facilities in the Great Lakes region and along the Atlantic shore. \$125,000 (2008-2009) and \$62,500 (2007-2008)

Partner-Funded Projects/Activities

Federal Emergency Management Agency (FEMA):

- **Light Detection and Ranging (LiDAR) Mapping, 2006**

FEMA funded. Total project cost: \$625,000

FEMA provided funds to map Suffolk County topography using Light Detection and Ranging (LiDAR) technology. LiDAR data will be used to update flood prone areas on FEMA Flood Insurance Rate Maps.

National Park Service, U.S. Department of the Interior, Fire Island National Seashore (FINS):

- **Fire Island General Management Plan, 2006**

The National Park Service is preparing a general management plan for FINS. This "master plan" will lay out a vision for the future of the park and provide guidance for park managers over the next 15-20 years. A new plan is needed to address a variety of new management issues that have emerged since the current plan was completed in 1977. The plan will look at a full range of topics -- protecting resources, serving the public, and operating and maintaining the seashore's facilities and programs.

- **Biennial Science Conferences, 2007 and 2010**

FINS hosted the sixth and seventh biennial conferences, bringing together more than 50 experts from academia, government, and conservation organizations to present topical sessions about projects relevant to FINS in the areas of cultural resources, wildlife management, inventory and monitoring, ocean and bay processes, and park planning.

DOS:

- **SSER Stormwater Treatment Technology Workshop, 2006**

The DOS and SSER Office hosted a workshop on emerging stormwater treatment technologies and best management practices (BPMs) for nonpoint source pollution. More than 60 government, academic and nonprofit attendees received technical assistance, training, and information on: developing watershed management plans and implementation strategies; US EPA Phase II Stormwater Regulations; effectiveness of various BMP practices and alternative stormwater treatments; expenses related to stormwater management; scheduling stormwater infrastructure maintenance; best construction/post-construction practices; and, improving regulations and laws. The SSER Office produced and distributed the *Proceedings of the Long Island South Shore Estuary Reserve Stormwater Treatment Technology Workshop* and posted it on the SSER website.

SSER Office:

- **Technical Assistance, Ongoing**

The Office assists DOS in providing technical assistance and guidance to SSER partners on a range of projects, including stormwater infrastructure mapping, water quality monitoring, watershed management planning, development of LWRPs and Harbor Management Plans, and ecosystem-based management.

- **Public Outreach and Education, Ongoing**

The Office heightens awareness of the SSER and maritime-related issues by participating in public events and conferences, and distributing educational material at more than 40 venues. The Office updates the SSERC website with events, activities, and reports pertinent to the SSER.

- **SSERC Meetings, Ongoing**

The Office assists DOS in organizing and coordinating SSERC meetings. The Office records meeting minutes which are available on the SSERC website.

- **SSERC Stewardship Award, Ongoing**

The Office assists the SSERC Citizens Advisory Committee (CAC) with implementation of the SSERC Stewardship Award which recognizes individuals and organizations that make significant contributions to improving and protecting the SSER. Between 2006 and 2010, five individuals and four groups received the award.

- **CAC SSER Stewardship Certificate Recognition Award, Ongoing**

The Office assists the SSERC CAC with recognizing individuals who actively participated in preserving and protecting the SSER. To date, more than 400 individuals have been recognized for their achievements.

Nassau County Board of Cooperative Education Services (BOCES):

- **Outdoor Education Programs, Ongoing**
BOCES-Nassau County operating budget

A marine biologist leads students, grades 4-12, on boat trips out of Freeport, Pt. Lookout, and Captree to collect and examine marine specimens and increase knowledge of the SSER ecosystem. This program annually introduces an average of 3,500 students to the SSER estuarine environment. BOCES offers additional onshore educational programs at Jones Beach and Fire Island to increase understanding of SSER shallow water and inter-tidal habitats, and geomorphology of barrier islands. More than 6,500 students, grades 4-12, participated between 2006 and 2010.

Suffolk (C):

- **Sewer Summits, 2008 and 2010**

Suffolk County hosted two sewer summits to increase awareness on importance of sewers to sustaining a vibrant commercial base. The summits examined areas where sewers might be most appropriate and created a coalition aimed at lobbying to increase state and federal funding for sewer development.

Western Suffolk County Board of Cooperative Education Services (BOCES):

- **Outdoor Education Programs, Ongoing**

BOCES-Western Suffolk County Operating Budget

BOCES offers outdoor educational programs to students to expand knowledge of the SSER ecosystem and maritime history. Programs include Fire Island lighthouse tours, marine biology boat trips in Shinnecock Bay, clam mariculture, and Fire Island ecology. Approximately 4,000 students participate in these programs each year.

Dowling College:

- **Center for Estuarine, Environmental and Coastal Oceans Monitoring, 2008**

The Department of Earth and Marine Sciences opened a coastal research facility on the historic Blue Point Oyster Company site in West Sayville which will be used for student and faculty projects involving issues specific to Long Island, such as: hurricane protection, drinking water contamination, air pollution and health, urban sprawl and transportation.

The Nature Conservancy Long Island:

- **Coastal Resilience Long Island, 2007**

The Nature Conservancy, in partnership with NOAA and others, is providing communities with easy access to information to assist in coastal planning and other management decisions regarding resources at risk from sea level rise and coastal hazards. One of the principal products of the project is a web mapping tool that provides forecasts of inundation on the south shore under different sea level rise and storm surge scenarios.

New York State Marine Education Association (NYSMEA):

- **Shipboard Oceanography**

USEPA Environmental Education, 2006. Total project cost: \$7,500 (EPA: \$5,000; NYSMEA: \$2,500)

NYSMEA matched funds to provide in-service course for 20 teachers designed to increase student knowledge of and interest in preserving the marine environment. Course work included laboratory and field instruction.

- **South Shore Estuary Learning Facilitator's Program (sSELF)**

Environmental Resource Monitoring (ERM) Foundation Grant, 2007-2010. Total project cost: \$15,000

NYSMEA received grants from the ERM Foundation to fund instruction, support, supplies, and equipment for schools and community groups to measure and monitor SSER water chemistry. Data collected from more than 400 excursions is available on the NYSMEA website. In May 2008, sSELF participants presented data at a Dowling College symposium.

- **Annual Conferences, 2009 and 2010**

The 2009 and 2010 conferences were held in Southampton. More than 100 teachers and environmental educators attended workshops, lectures, and field trips designed to heighten their knowledge of the SSER.

- **Beach Clean-up, Ongoing**

NYSMEA organized annual clean-ups at Jones Beach in cooperation with the American Littoral Society.