Indian River Lagoon National Estuary Program

Fiscal Year 2011 - 2012 Work Plan

Indian River Lagoon National Estuary Program
525 Community College Parkway S.E.
Palm Bay, FL 32909
(321) 984-4950
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Section A. General Information Reporting Requirements

A.1. Comprehensive Conservation and Management Plan Goals for Fiscal Year 2011-2012*

Public Involvement and Education
PIE-1. Implement and expand public involvement and education projects or programs. Priority- High.
PIE-2. Develop, implement and refine a communications plan to inform stakeholders and government officials about the resources of the Indian River Lagoon, the economic and ecological value of these resources and threats to the continued viability of these resources. Priority- High.
PIE-4. Increase public and governmental involvement in activities designed to protect and restore the resources of the Indian River Lagoon. Priority- High.

Fisheries
F-1. Conserve, protect, restore and manage the finfish and shellfish resources in the Indian River Lagoon region. Priority- High.
F-4. Identify, inventory and assess finfish and shellfish habitats within the Indian River Lagoon and implement appropriate management and restoration strategies. Priority- High.

Fresh and Storm Water Discharges
FSD-11. Educate residents and property owners about the impacts of freshwater and stormwater discharges on the Indian River Lagoon and what they can do to reduce these impacts. Priority- High.
FSD-13. Upgrade existing urban and agricultural stormwater systems to reduce pollutant loadings to the Indian River Lagoon. Priority- High.
FSD-14. Develop and implement appropriate mechanisms to fund and undertake the operation, maintenance and improvement of urban and agricultural stormwater management systems to reduce pollutant loadings. Priority- High.

Wetlands

Invasive Fauna and Flora

Monitoring
MON-1. Continue projects related to monitoring the resources of the Indian River Lagoon and address gaps in data as needed. Priority- High.

IRL CCMP Implementation Oversight
FI-1. Continue the Indian River Lagoon Advisory Board’s role of oversight, monitoring, and guidance of implementation of the IRL CCMP. Priority- High.

Biodiversity
BD-4. Create and maintain a species inventory for the IRL. Priority – Medium.

*Total of 16 High Priority and 1 Medium Priority Action Plans within 8 CCMP categories
<table>
<thead>
<tr>
<th>Activity</th>
<th>Applicant</th>
<th>CCMP Action Plan and Priority</th>
<th>Project Title and Abstract</th>
<th>CWA 320 Funding FY 2011-2012</th>
<th>Project Match</th>
<th>Total Project Cost</th>
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<tr>
<td>1</td>
<td>Indian River Lagoon National Estuary Program</td>
<td>High (FI-1) High (FI-2)</td>
<td>Support of NEP Project Office staff salaries and benefits for 2 FTEs to continue CCMP implementation, work plan development and implementation, project management, contracts management, program coordination and Management Conference administration.</td>
<td>187,941</td>
<td>187,941</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>St. Johns River Water Management District</td>
<td>High (MON-1)</td>
<td>Indian River Lagoon Living Resources and Water Quality Monitoring. Funding will support 3 Environmental Scientist FTEs to continue the long term living resources monitoring (seagrass and biological) and water quality collection and analysis. The data from these activities generate the core information for seagrass and water quality evaluation, development and measurement of performance measures (TMDLs) and the lagoon's overall status and trends. SJRWMD will contribute $91,980 of staff in-kind match. Additionally, $21,300 is being provided to Volusia and Indian River Counties to assist with water quality monitoring.</td>
<td>257,514</td>
<td>91,980</td>
<td>349,494</td>
</tr>
<tr>
<td>3</td>
<td>Indian River Lagoon National Estuary Program</td>
<td>High (FSD-11) High (PIE-2)</td>
<td>Indian River Lagoon Program Education Coordinator. The Coordinator will administer the Education Program in Indian River County. Additionally, she will coordinate the activities of the IRLNEP Citizens Action Committee, organize the annual four-day lagoon summer training workshop for IRL region teachers, and coordinate the design of the annual IRL calendar photo contest. The Coordinator also produces and disseminates IRL and District information to the community at environmental educational events, brown bag lunches and public speaking events. FY10 unexpended Sec 320 funds of $28,000 will be added to this project.</td>
<td>42,000</td>
<td>42,000</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>University of Central Florida</td>
<td>High (IFF-1) High (IFF-4)</td>
<td>Long-term ecological and genetic monitoring of exotic species in the Indian River Lagoon. The University of Central Florida (UCF) will examine three (3) recent invasive species, the charn mussel Mytella charthoniae, the green mussel Perna viridis and the pink barnacle Megabalanus pacificus. UCF proposes to identify and characterize these exotic species, monitor their extent and potential spread, and distribute invasive species identification keys to the public and boating community to educate stakeholders about these species. This project has been ongoing since 2006 and provides a unique opportunity to investigate long-term distribution of these invasive species. UCF will contribute $17,410 of in-kind services as match.</td>
<td>19,945</td>
<td>17,410</td>
<td>37,355</td>
</tr>
<tr>
<td>5</td>
<td>Brevard Zoo</td>
<td>High (F-1) High (F-4)</td>
<td>Community Outreach, Restoration and Monitoring of Intertidal Oyster Reefs in Mosquito Lagoon, Florida. The project objective is to implement and monitor the success of a scientifically-based restoration technique to restore approximately 1-acre of intertidal oyster reef of the eastern oyster Crassostrea virginica with damage from boating wakes. The community outreach coordinator will organize skilled volunteers to produce a minimum of 1,500 restoration mats. Project funding will also support UCF to conduct three vertical profiles of each dead margin to be leveled, organize and participate in the deployment of 1,500 restoration mats during the spring/summer of 2012. The Brevard Zoo will contribute $50,011 of in-kind match and the SJRWMD will contribute $55,718 in IRL License Plate funds as match.</td>
<td>105,729</td>
<td>105,729</td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>Indian River County</td>
<td>High (FSD-1)</td>
<td>PCSOUTH – Phase 1 Algal Turf Scrubber System Design. PC South’s Algal Turf Scrubber (ATS) System will treat 10 million gallons per day of polluted water from IRFCW’s South Relief Canal. The South Relief Canal flow averages 26 MGD with nutrient-rich contributions from a 12,500-acre drainage basin that is a mix of developed industrial, residential, commercial, and agricultural land. PC South’s ATS will remove dissolved nitrogen and phosphorus from the canal water. A final polishing filter, similar to a wastewater treatment filter will be included in the treatment train downstream of the ATS to remove all remaining solid particles from the treated water. Initially, up to three million gallons per day of treated canal water will be disinfected and placed into a new County reuse water system. The remaining water will be returned to the South Relief Canal where it will continue its journey to the Indian River Lagoon. Indian River County will contribute $120,621 towards the design.</td>
<td>11,349</td>
<td>130,645</td>
<td>141,994</td>
</tr>
<tr>
<td>7</td>
<td>St. Lucie County</td>
<td>High (W-5)</td>
<td>Connecting St. Lucie Wetlands to the IRL. This project will restore tidal flow into a 178-acre impounded wetland known as Impoundment 14C, to the IRL by installing a pump station and four culverts with floodgates into the perimeter dike. Restoration of this impounded wetland will provide additional habitat, foraging grounds, and water quality improvements in the adjacent surface waters.</td>
<td>7,250</td>
<td>7,000</td>
<td>14,250</td>
</tr>
<tr>
<td>8</td>
<td>Marine Discovery Center</td>
<td>High (MON-2) High (PIE-4)</td>
<td>Volusia County Adopt-An-Estuary Project – Year Two Implementation. This project will continue the current Adopt an Estuary Program that was funded with 2010-11, building on the protocols created and will also include the addition of biological monitoring. The goals of the project are to: 1) collect baseline estuary health data, 2) educate and train schoolchildren and citizens to monitor and protect estuaries, 3) increase public awareness about estuary issues and water quality health, 4) maintain a website portal where citizens can easily access estuary information and data.</td>
<td>45,000</td>
<td>30,555</td>
<td>75,555</td>
</tr>
<tr>
<td>Activity</td>
<td>Applicant</td>
<td>CCMP Action Plan and Priority</td>
<td>Project Title and Abstract</td>
<td>CWA 320 Funding FY 2011-2012</td>
<td>Project Partner Match</td>
<td>Total Project Cost</td>
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<tr>
<td>9</td>
<td>Martin County School Board</td>
<td>High (PIE-1) High (PIE-4)</td>
<td>Martin County Schools' Environmental Studies Center Camp WET 2012. The project will provide three, two-week sessions of academic summer camp for a total of 156 students using a hands-on, field-based curriculum. The project will employ proven instructional methods to engage the students and motivate them to make positive behavior changes as well as share their concern for and knowledge of the Indian River Lagoon with others.</td>
<td>23,056</td>
<td>22,200</td>
<td>45,256</td>
</tr>
<tr>
<td>10</td>
<td>Florida Institute of Technology</td>
<td>High (PIE-1)</td>
<td>Operational Support for the SEAS Mobile Laboratory and Weather Monitoring. This project will continue to increase public awareness of lagoon priority issues as part of the InSTEP NSF education program. The Integrated Science Teaching Enhancement Partnership (InSTEP) is designed to foster student interest in science content and inquiry-based instruction. The SEAS Mobile Lab is used to support educational activities in field studies and promote ocean literacy at public events throughout the IRL watershed. SJRWMD is contributing $9,970 in IRL License Plate and FIT is contributing $9,970 of in-kind match.</td>
<td>19,940</td>
<td>19,940</td>
<td>39,880</td>
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<tr>
<td>11</td>
<td>Florida Department of Environmental Protection Aquatic Preserves Program</td>
<td>High (BD-10)</td>
<td>Indian River Lagoon Shoreline Restoration. FDEP’s IRL Aquatic Preserves Field Office will continue to coordinate the 16-year, grant-funded IRL Shorline project to stabilize publicly-owned shorelines impacted by wave energy to limit erosion, sedimentation and enhance habitat, while facilitating environmental awareness and stewardship. SJRWMD will provide $47,040 in IRL License Plate and FDEP will provide $56,330 in in-kind services as match.</td>
<td>103,370</td>
<td>103,370</td>
<td>206,740</td>
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<td>12</td>
<td>Smithsonian Marine Station</td>
<td>High (PIE-1)</td>
<td>Indian River Lagoon Species Web-Based Education Tool. The Smithsonian will continue the successful expansion of the species web site focusing on IRL invertebrates, designing a new introductory web page and continue to update the IRL Photo Gallery. The SJRWMD will contribute $22,961 in IRL License Plate funds and Smithsonian will contribute $9,534 in in-kind services as match.</td>
<td>32,471</td>
<td>32,471</td>
<td>64,942</td>
</tr>
<tr>
<td>13</td>
<td>Brevard Zoo</td>
<td>High (PIE-1)</td>
<td>Lagoon Quest. Brevard Zoo will continue the successful Lagoon Quest Program to integrate real-life experience with $4$th grade curriculum using the rich environmental resources of the IRL. This program is designed to get students, teachers and families involved in a variety of activities including native shoreline restoration plantings. The SJRWMD will provide $24,000 in IRL License Plate and the Zoo will contribute $13,500 in in-kind services.</td>
<td>37,500</td>
<td>37,500</td>
<td>75,000</td>
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<tr>
<td>14</td>
<td>Indian River Lagoon National Estuary Program</td>
<td>High (FI-1)</td>
<td>Program Operation Costs</td>
<td>2,745</td>
<td>2,745</td>
<td>5,490</td>
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<tr>
<td></td>
<td></td>
<td>Travel</td>
<td>2,000</td>
<td>2,000</td>
<td></td>
<td>4,000</td>
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<td></td>
<td></td>
<td>Totals</td>
<td>598,800</td>
<td>598,800</td>
<td></td>
<td>1,197,600</td>
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**Section A.2.A IRLNEP Work Plan Projects FY2010-2011 Unexpended Carry-Forward**

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<th>Applicant</th>
<th>CCMP Action Plan and Priority</th>
<th>Project Proposal Title and Abstract</th>
<th>CWA 320 Funding FY2010-2011</th>
<th>Project Partner Match</th>
<th>Total Project Cost</th>
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<tr>
<td>3</td>
<td>Indian River Lagoon National Estuary Program</td>
<td>High (FSD-11) High (PIE-2)</td>
<td>Indian River Lagoon Program Education Coordinator. The Coordinator will administer the Education Program in Indian River County. Additionally, she will coordinate the activities of the IRLNEP Citizens Action Committee, organize the annual four-day lagoon summer training workshop for IRL region teachers, and coordinate the design of the annual IRL calendar photo contest. The Coordinator also produces and disseminates IRL and District information to the community at environmental educational events, brown bag lunches and public speaking events. FY10 unexpended Sec 320 funds of $28,000 will be added to this project.</td>
<td>28,000</td>
<td>28,000</td>
<td>56,000</td>
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<td>15</td>
<td>Cape Canaveral Scientific, Inc.</td>
<td>High (FSD-13) High (FSD-14)</td>
<td>Grants Writer &amp; Capacity Building in Support of the IRL CCMP. This project assists local governments in meeting the challenges of financing CCMP implementation projects, and will pay for 5-grant applications during the year. The 13th year of support for this project continues to demonstrate the need of local governments to collaborate with state and federal agencies on implementation activities. Many local governments have used the service to fund capital improvement projects to implement CCMP action plans.</td>
<td>47,855</td>
<td>17,500</td>
<td>65,355</td>
</tr>
<tr>
<td>7</td>
<td>St. Lucie County</td>
<td>High (W-5)</td>
<td>Connecting St. Lucie Wetlands to the IRL. This project will restore tidal flow into a 178-acre impounded wetland known as Impoundment 14C, to the IRL by installing a pump station and four culverts with floodgates into the perimeter dike. Restoration of this impounded wetland will provide additional habitat, foraging grounds, and water quality improvements in the adjacent surface waters.</td>
<td>5,668</td>
<td>28,274</td>
<td>33,942</td>
</tr>
<tr>
<td>6</td>
<td>Indian River County</td>
<td>High (FSD-1)</td>
<td>PC SOUTH – Phase I Algal Turf Scrubber System Design. PC South’s Algal Turf Scrubber (ATS) System will treat 10 million gallons per day of polluted water from IRFWCD’s South Relief Canal. The South Relief Canal flow averages 26 MGD with nutrient-rich contributions from a 12,500-acre drainage basin that is a mix of developed industrial, residential, commercial, and agricultural land. PC South’s ATS will remove dissolved nitrogen and phosphorus from the canal water. This funding is $44,446 in IRL License Plate and an additional $2,803 in Indian River County match.</td>
<td>47,249</td>
<td>47,249</td>
<td>94,498</td>
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<tr>
<td>14</td>
<td>Indian River Lagoon National Estuary Program</td>
<td>High (FI-1)</td>
<td>Program Operation Costs</td>
<td>11,500</td>
<td>11,500</td>
<td>23,000</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Totals</td>
<td>93,023</td>
<td>93,023</td>
<td></td>
<td>186,046</td>
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</table>
A.3. Indian River Lagoon Staff and Their Respective Position Responsibilities

SJRWMD Division of Project Management
IRL Program Office – Palm Bay Service Center

IRL NEP Program Director, Troy Rice
Principal Duties and Responsibilities:
- Directs the IRL Project Office and staff, and provides primary support to the IRL Advisory Board.
- Coordinates with other agencies and local governments on lagoon conservation projects.
- Develops strategies to keep implementation activities on schedule and within budget.
- Manages information resources to individuals and organizations interested in CCMP implementation.
- Facilitates partnerships between agencies, governments and organizations to accomplish CCMP implementation.
- Oversees and provides project management for IRL Program/SJRWMD projects and programs.

IRL NEP Project Administrator, Belhaim “Frank” Sakuma, Jr.
Principal Duties and Responsibilities:
- Manages assigned contracts and local government assistance agreements
- Assists in development of Management Conference reports
- Supports preparation of project budgets, tracks expenditures, responds to audit and financial inquires.
- Supports implementing Management Conference agreements and the CCMP
- Assists in the planning and conduct of Management Conference meetings
- Meets with and participates in various advisory boards.

IRL NEP Education Coordinator, Kathy Hill (Contingent Worker)
Principal Duties and Responsibilities:
- Coordinates IRL license plate marketing, IRL NEP public education and outreach.
- Coordinates and participates in IRL public education and outreach events to distribute information.
- Coordinates the NEP Citizens Action Committee for the Program.
- Prepares summaries of marketing and outreach activities.
- Support development of annual work plans, reports and presentations.

SJRWMD Division of Water Resources Information
Palm Bay Service Center

Environmental Specialists III, Lauren Hall & Janice Miller
Principal Duties and Responsibilities:
- Coordinates and conducts seagrass transect monitoring and multi-agency monthly water quality monitoring and provides QA/QC of data entry.
- Coordinates field projects/studies including post-storm sampling and macro-algae studies.
- Oversees seagrass aerial mapping, photography, ground-truth and development of final maps/reports.
- Oversees and conducts field and lab operations.
- Assist with preparation and presentation of technical manuscripts, presentations, status and trend reports.

SJRWMD Division of Environmental Sciences – Estuaries
Headquarters - Palatka

Environmental Scientist V, Charles Jacoby
Principal Duties and Responsibilities:
- Serves as the IRL NEP Program Scientist
- Provides technical support for the IRL Advisory Board and other IRL Program staff.
- Coordinates with the IRLNEP TAC and Bio-toxin Task Force to investigate scientific and research priorities
- Provides presentations on IRL research and environmental related issues.
- Participates in the development of projects to implement the IRL CCMP.
- Provides project management for IRL NEP Program/SJRWMD research and technical projects.
- Participates in the implementation of environmental assessment and monitoring programs in the IRL Basin.
<table>
<thead>
<tr>
<th>Activity</th>
<th>Project Partners</th>
<th>CCMP Action Plan and Priority</th>
<th>Project Proposal Title and Abstract</th>
<th>CWA 320 Funding</th>
<th>Project Deliverables</th>
<th>Project Start Date/ Completion Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>IRL NEP / St. Johns River Water Management District</td>
<td>High (FI-10) High (FI-2)</td>
<td>Support of NEP Project Office staff salaries and benefits for 2 FTEs to continue CCMP implementation, work plan development and implementation, project management, contracts management, program coordination and Management Conference administration</td>
<td>187,941</td>
<td>This objective will support the NEP Program Director and Program Administrator to continue CCMP implementation oversight and work plan management</td>
<td>10/01/2011: 09/30/2012</td>
</tr>
<tr>
<td>2</td>
<td>IRL NEP / St. Johns River Water Management District</td>
<td>High (MON-1)</td>
<td>Indian River Lagoon Living Resources and Water Quality Monitoring. Funding will support 5 Environmental Scientist FTEs to continue the long term living resources monitoring (seagrass and biological) and water quality collection and analysis. The data from these activities generate the core information for seagrass and water quality evaluation, development and measurement of performance measures (TMDLs) and the lagoon’s overall status and trends. SJRWMD will contribute $91,980 of staff in-kind match. Additionally, $21,300 is being provided to Volusia and Indian River Counties to assist with water quality monitoring.</td>
<td>257,514</td>
<td>This objective will support the NEP Program Scientist and two additional Environmental Scientists to conduct water quality monitoring and seagrass trend analysis.</td>
<td>10/01/2011: 09/30/2012</td>
</tr>
<tr>
<td>3</td>
<td>IRL NEP / St. Johns River Water Management District</td>
<td>High (PIE-2) High (FSD-11)</td>
<td>Indian River Lagoon Program Education Coordinator. The Coordinator will administer the Education Program. Additionally, she will coordinate the activities of the IRLNEP Citizens Action Committee, organize the annual four-day lagoon summer training workshop for IRL region teachers, and coordinate the design of the annual IRL calendar photo contest. The Coordinator also produces and disseminates IRL and District information to the community at environmental educational events, brown bag lunches and public speaking events. FY10 unexpended Sec 320 funds of $28,000 will be added to this project.</td>
<td>42,000</td>
<td>This objective will support the NEP Education Coordinator to continue outreach activities and educational projects including teacher workshops, events, Citizens Action Committee, IRL calendar and other activities.</td>
<td>10/01/2011: 09/30/2012</td>
</tr>
<tr>
<td>4</td>
<td>University of Central Florida</td>
<td>High (IFF-1)</td>
<td>Long-term ecological and genetic monitoring of exotic species in the Indian River Lagoon. The University of Central Florida (UCF) will utilize funds from IRL NEP to examine three species recently introduced to the IRL, the charuan mossel Mytilopsis charruauna, the green mussel Perna viridis and the pink barnacle Megabalanus coccopoma. UCF proposes to conduct two tasks to identify and characterize the specific species that have invaded the IRL and to monitor their spread. Their third task involves distributing invasive species identification keys to inform the public about the concerns of invasive species in general and specific invasive species present in the IRL. These projects have been ongoing since 2006 and provide a unique opportunity to investigate long term diversity and distribution of three co-distributed invasive species.</td>
<td>9,945</td>
<td>This project will produce four deliverables. First, UCF will submit test results of the genetic diversity of M. coccopoma; Second, UCF will provide data from the monitoring of 50 locations along length of Indian River Lagoon on docks and along shores for the presence of invasive species; Third, UCF will print and distribute their laminated guide to invasive species; Fourth, UCF will hold a public lecture on invasive species.</td>
<td>10/01/2011: 09/30/2012</td>
</tr>
<tr>
<td>5</td>
<td>Brevard Zoo (lead contractor); University of Central Florida (technical support); Citizen Volunteers</td>
<td>High (F-1) High (F-4)</td>
<td>Community Outreach, Restoration and Monitoring of Intertidal Oyster Reefs in Mosquito Lagoon, Florida. The project objective is to implement and monitor the success of a scientifically-based restoration technique to restore approximately 1 acre of intertidal oyster reef of the eastern oyster Crassostrea virginica with significant damage from wakes from recreational vessels. To meet our project goals, our community outreach coordinator will continue to organize volunteers to produce a minimum of 1,500 restoration mats. Project funding will also support the efforts of UCF to conduct the following activities: conduct three vertical reef profiles for each habitat and to monitor their spread. Their third task involves distributing invasive species identification keys to inform the public about the concerns of invasive species in general and specific invasive species present in the IRL. These projects have been ongoing since 2006 and provide a unique opportunity to investigate long term diversity and distribution of three co-distributed invasive species.</td>
<td>42,000</td>
<td>This project will produce four deliverables. First, UCF will submit test results of the genetic diversity of M. coccopoma; Second, UCF will provide data from the monitoring of 50 locations along length of Indian River Lagoon on docks and along shores for the presence of invasive species; Third, UCF will print and distribute their laminated guide to invasive species; Fourth, UCF will hold a public lecture on invasive species.</td>
<td>10/01/2011: 09/30/2012</td>
</tr>
<tr>
<td>6</td>
<td>Indian River County (lead contractor); Hydrometria Inc. (technical support)</td>
<td>High (FSD-13)</td>
<td>Connecting St. Lucie Wetlands to the IRL. This project will restore tidal flow into a 178-acre impounded wetland known as Impoundment 14C, to the IRL by installing a pump station and four culverts with floodgates into the perimeter dike. Restoration of this impounded wetland will provide additional habitat, foraging grounds, and water quality improvements in the adjacent surface waters. An additional $5,668 in FY10-11 unexpended funds will be added to this project as well as $35,274 from St. Lucie County.</td>
<td>11,349</td>
<td>The project timeline for PC South Phase 1 ATS runs until summer 2013. CWA 320 funding is for the final design of Phase 1 of the project. The project deliverable is the final design for Phase 1 of the algal turf scrubber system.</td>
<td>10/01/2011: 09/30/2013</td>
</tr>
<tr>
<td>7</td>
<td>St. Lucie County Mosquito Control</td>
<td>High (W-5)</td>
<td>PC SOUTH – PHASE 1 ALGAL TURF SCRUBBER SYSTEM. PC South’s Algal Turf Scrubber (ATS) System will treat 10 million gallons per day of polluted water from IRFWC’s South Relief Canal. The South Relief Canal flow averages 26 MGD with nutrient-rich contributions from a 12,500-acre drainage basin that is a mix of developed industrial, residential, commercial, and agricultural land. PC South’s ATS will treat 100,000 lbs of phosphorus from the canal water. A final polishing filter, similar to a wastewater treatment type filter will be included in the treatment train downstream of the ATS to remove all remaining solid particles from the treated water. Initially, up to three million gallons per day of treated canal water will be disinfected and placed into a new County reuse water system. The remaining water will be returned to the South Relief Canal where it will continue its journey to the Indian River Lagoon. An additional $44,446 in IRL License Plate funds will be added to this project and Indian River County will provide $123,424 towards the project.</td>
<td>7,250</td>
<td>This project will restore the tidal exchange to this impounded wetland, restoring habitat and foraging grounds.</td>
<td>10/01/2011: 09/30/2012</td>
</tr>
<tr>
<td>8</td>
<td>Marine Discovery Center (lead contractor); Volusia County School Board (funding partner)</td>
<td>High (MON-2) High (PIE-4)</td>
<td>Volusia County Adopt-An-Estuary Program – Year Two Implementation. Our proposal will continue the current Adopt an Estuary Program that was funded with 2010-11 IRL NEP funds. The new proposal will build on the protocols generated and will also include the addition of biological monitoring and further protocol development into the Indian River Lagoon. The goals of the program are to: 1) collect baseline estuary health data 2) educate and train schoolchildren and citizens to monitor and protect estuaries 3) increase public awareness about estuaries issues and water quality health 4) Maintain a website portal where citizens can easily access estuary information and data. MDC will contribute $30,555 in in-kind match.</td>
<td>45,000</td>
<td>Project deliverables are: employment contract of Adopt-An-Estuary Coordinator; notification of student and school participation commitments; numbers of student and adult participants; event photos; training manual and guide; templates with raw data; notification of posting of monitoring data to websites.</td>
<td>10/01/2011: 09/30/2012</td>
</tr>
<tr>
<td>Activity</td>
<td>Project Partners</td>
<td>CCMP Action Plan and Priority</td>
<td>Project Proposal Title and Abstract</td>
<td>CWA 320 Funding</td>
<td>Project Deliverables</td>
<td>Project Start Date/ Completion Date</td>
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<td>9</td>
<td>Martin County School District (lead contractor); Curtis &amp; Edith Musson Foundation (funding partner)</td>
<td>High (PIE-1) High (PIE-4)</td>
<td>Martin County Schools' Environmental Studies Center Camp WET 2012. The project will provide three, two-week sessions of academic summer camp for a total of 156 students using a hands-on field-based curriculum. The project will employ proven instructional methods to engage the students and motivate them to make positive behavior changes as well as share their concern for and knowledge of the Indian River Lagoon with others. Martin Co. and the Musson Foundation will provide $32,200 in match.</td>
<td>23,056</td>
<td>The following deliverables/outcomes will be produced by this project: development of student selection guidelines; a roster of 156 student participants; summer camp curriculum and student activity book; a hands-on interactive summer camp program; pre and post tests as well as parent and student surveys.</td>
<td>02/01/2012: 09/30/2012</td>
</tr>
<tr>
<td>10</td>
<td>Florida Institute of Technology</td>
<td>High (PIE-1)</td>
<td>Operational support for the Florida Tech SEAS Mobile Laboratory and weather monitoring. The goal of this project is to increase public awareness about priority Indian River Lagoon issues as a part of InSTEP’s NSF funded educational program. The Integrated Science Teaching Enhancement Partnership (InSTEP) is part of the NSF’s Graduate Fellowships in K-12 Education (GK-12) Program and is designed to foster student interest in science while boosting teacher confidence in science content and inquiry-based instruction. The SEAS Mobile Laboratory is used to support educational activities in field studies and promote ocean literacy at public events throughout the Indian River Lagoon region. This project is a portion of the non-federal match with $9,970 in IRL License Plate and $9,970 in in-kind match from FL Tech.</td>
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<tr>
<td>11</td>
<td>Florida Department of Environmental Protection - Aquatic Preserves Program</td>
<td>High (W-6)</td>
<td>Indian River Lagoon Shoreline Restoration. FDEP’s IRL Aquatic Preserves Field Office will continue to coordinate the 16-year, grant-funded IRL Shoreline project to stabilize publicly-owned shorelines impacted by wave energy to limit erosion, sedimentation and enhance habitat, while facilitating environmental awareness and stewardship. The SJRWMD will provide $47,040 in IRL License Plate and FDEP will provide $56,330 in in-kind services as match.</td>
<td></td>
<td>Volunteer sign-in sheets, restoration of 400 meters of IRL shoreline</td>
<td></td>
</tr>
<tr>
<td>12</td>
<td>Smithsonian Marine Station</td>
<td>High (PIE-1) High (BD-4)</td>
<td>Indian River Lagoon Species Web-based Education Tool. The Smithsonian will continue the successful expansion of the species web site focusing on IRL invertebrates, designing a new introductory web page and continue to update the IRL Photo Gallery. The SJRWMD will contribute $22,961 in IRL License Plate funds and Smithsonian will contribute $9,534 in in-kind services as match.</td>
<td></td>
<td>Introductory descriptive information and images and diagrams of three invertebrate phyla, with 21 full species narratives, increased functionality of web site, and new page outlining personal behavior modifications to protect water quality.</td>
<td>02/01/2012: 09/30/2012</td>
</tr>
<tr>
<td>13</td>
<td>Brevard Zoo</td>
<td>High (PIE-1) High (Pie-4)</td>
<td>Lagoon Quest. Brevard Zoo will continue the successful Lagoon Quest Program to integrate real-life experience with 4th grade curriculum using the rich environmental resources of the IRL. This program is designed to get students, teachers and families involved through a variety of activities including native shoreline restoration plantings. The SJRWMD will provide $24,000 in IRL License Plate and the Zoo will contribute $13,500 in in-kind services.</td>
<td></td>
<td>Lagoon Quest curriculum, final report with photos</td>
<td>10/01/2011: 09/30/2012</td>
</tr>
<tr>
<td>14</td>
<td>Indian River Lagoon National Estuary Program</td>
<td>High (Fl-1)</td>
<td>Program operational costs, including travel to the EPA NEP National Meeting, printing, legal ads, supplies and equipment</td>
<td>4,745</td>
<td>2012 Program Evaluation</td>
<td>10/01/2011: 09/30/2012</td>
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</tbody>
</table>

**CWA Funding Total: 598,800**
<table>
<thead>
<tr>
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<th>Project Start Date/ Completion Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>7</td>
<td>St. Lucie County Mosquito Control</td>
<td>High (W-5)</td>
<td>Connecting St. Lucie Wetlands to the IRL. This project will restore tidal flow into a 178-acre impounded wetland known as Impoundment 14C, to the IRL by installing a pump station and four culverts with floodgates into the perimeter dike. Restoration of this impounded wetland will provide additional habitat, foraging grounds, and water quality improvements in the adjacent surface waters. An additional $5,668 in FY10-11 unexpended funds will be added to this project as well as $35,274 from St. Lucie County.</td>
<td>5,668</td>
<td>This project will restore the tidal exchange to this impounded wetland, restoring habitat and foraging grounds.</td>
<td>10/01/2011: 09/30/2012</td>
</tr>
<tr>
<td>6</td>
<td>Indian River County (lead contractor); Hydromentia Inc. (technical support)</td>
<td>High (FSD-13)</td>
<td>PC SOUTH – PHASE 1 ALGAL TURF SCRUBBER SYSTEM. PC South’s Algal Turf Scrubber (ATS) System will treat 10 million gallons per day of polluted water from IRFWCD’s South Relief Canal. The South Relief Canal flow averages 26 MGD with nutrient-rich contributions from a 12,500-acre drainage basin that is a mix of developed industrial, residential, commercial, and agricultural land. PC South’s ATS will remove dissolved nitrogen and phosphorus from the canal water. A final polishing filter, similar to a wastewater treatment type filter will be included in the treatment train downstream of the ATS to remove all remaining solid particles from the treated water. Initially, up to three million gallons per day of treated canal water will be disinfected and placed into a new County reuse water system. The remaining water will be returned to the South Relief Canal where it will continue its journey to the Indian River Lagoon. Non-federal match of $47,249 is provided to the FY10-11 unexpended funds.</td>
<td>10/01/2011: 09/30/2013</td>
<td>The project timeline for PC South Phase 1 ATS runs until summer 2013. CWA 320 funding is for the final design of Phase 1 of the project. The project deliverable is the final design for Phase 1 of the algal turf scrubber system.</td>
<td></td>
</tr>
<tr>
<td>14</td>
<td>Indian River Lagoon National Estuary Program</td>
<td>High (FI-1)</td>
<td>Program operational costs, including travel to the EPA NEP National Meeting, printing, legal ads, supplies and equipment</td>
<td>11,500</td>
<td>2012 Program Evaluation</td>
<td>10/01/2011: 09/30/2012</td>
</tr>
</tbody>
</table>
Section B. Proposed New and Ongoing Project Reporting Requirements

Activity 1

CCMP/Work Plan Goal:
FI-1; Priority- High. Continue the Indian River Lagoon Advisory Board’s role of oversight, monitoring and guidance of implementation of the IRL CCMP.
FI-2; Priority –High. Continue measurements of progress of CCMP implementation activities.

Project/Activity Name:
INDIAN RIVER LAGOON PROJECT OFFICE .
Lead Contractor: Indian River Lagoon National Estuary Program / St. Johns River Water Management District.

Project/Activity Purpose and Description: (indicate as proposed or ongoing)
This activity is proposed. Funding will support the salaries and benefits for the IRL NEP Director and IRL NEP Projects Administrator within the IRL Project Office at the SJRWMD Palm Bay Service Center. This is the first year within the Program’s twenty-one year history with the SJRWMD that staff salaries and benefits are required to be paid from the Sec. 320 funds. This is a result of the new state legislative restrictions placed on the water management district that cap the district’s taxing authority, reducing available revenue by more than $26.4 million, resulting in the district’s reorganization and a reduction in workforce eliminating over 100 positions and contract workers. This activity will enable the continuation of the NEP and CCMP implementation.

Budget: $187,941 NEP funding.

Outcomes: (report anticipated and/or completed accomplishments)
Short-term: Continuation of the NEP and implementation of the 2011-2012 work plan.
Intermediate: This activity will enable staff to continue CCMP implementation oversight, manage on-going and new implementation projects and the IRL License Plate funds, and continue the lagoon community’s participation in estuary management decisions.
Changes (+/-) in Pressure Targets: Negative. Reduces the amount of available funds for implementation projects, but allows CCMP implementation to continue.
Long-term: Maintains a viable community-based program, continues important water quality and habitat improvements and education and outreach efforts.

CWA implementation information:
This activity complies with the objectives of the CWA to coordinate implementation of the CCMP by the States as well as Federal and local agencies participating in the conference.
Activity 2

CCMP/Work Plan Goal:
MON-1; Priority- High. Continue projects related to monitoring the resources of the IRL and address gaps in data as needed.

Project/Activity Name:
INDIAN RIVER LAGOON LIVING RESOURCES AND WATER QUALITY MONITORING PROJECTS.
Lead Contractor: St. Johns River Water Management District.

Project/Activity Purpose and Description: (indicate as proposed or ongoing)
This project is ongoing. Funding will support the salaries and benefits of three (3) water management district employees to continue the long-term monitoring of the Indian River Lagoon (IRL) system: 1) living resource surveys (seagrass and other biological monitoring); and 2) water quality monitoring. The data from these two projects have generated the core information for seagrass and water quality evaluation and development of related performance measures. Funding also supports water quality monitoring help from Indian River and Volusia Counties ($21,300).

Budget: $257,514 NEP funding. $91,980 in match funding from St. Johns River Water Management District.

Outcomes: (report anticipated and/or completed accomplishments)

Short-term: Collection of water quality and seagrass data.

Intermediate: Collected data will be analyzed to determine the status of water quality and the seagrass community in the IRL; identify the major components of suspended matter that limit light to seagrass and other seagrass growth limiting factors.

Changes (+/-) in Pressure Targets: Positive. This monitoring will provide a sound scientific basis for the assessment and implementation of management strategies and BMPs designed to reduce pollutant loadings to the IRL.

Long-term: Continuation of data sets supporting evaluation of the condition of IRL resources and strategies implemented to manage and restore these resources.

CWA implementation information:
Data collected will be used to evaluate progress in reaching CWA goals including established TMDL targets. Development of these TMDL targets depends on this project as it is a primary component of the IRL ambient water quality monitoring network.
Activity 3

**CCMP/Work Plan Goal:**
FSD-11; Priority-High. Educate residents and property owners about the impacts of freshwater and storm water discharges on the Indian River Lagoon and what they can do to reduce these impacts.
PIE-2; Priority-High. Develop, implement and refine a communications plan to inform stakeholders and government officials about the resources of the Indian River Lagoon, the economic and ecological value of these resources and threats to the continued viability of these resources.

**Project/Activity Name:**
IRLNEP Outreach and Education Coordinator

**Project/Activity Purpose and Description:** (indicate as proposed or ongoing)
This project is ongoing. The Coordinator will administer the Education Program. Additionally, she will coordinate the activities of the IRLNEP Citizens Action Committee, organize the annual four-day lagoon summer training workshop for IRL region teachers, and coordinate the design of the annual IRL calendar photo contest. The Coordinator also produces and disseminates IRL and District information to the community at environmental educational events, brown bag lunches and public speaking events.

**Budget:** $70,000 NEP funding: $42,000 in FY2011-2012 funds & $28,000 in FY 2010-2011 unexpended funds.

**Outcomes:** (report anticipated and/or completed accomplishments)

**Short-term:** Attend and provide IRLNEP materials to the public at speaking events and festivals. Discuss IRL strengths and challenges with the public at those events.

**Intermediate:** Increased awareness of the state of the IRL and promote changes in lifestyle that will benefit the IRL.

**Changes (+/-) in Pressure Targets:** Positive as teachers, students, citizens and community leaders are informed about IRL strengths and challenges and because of this heightened awareness, become better stewards of the IRL.

**Long-term:** Public awareness of the importance of the IRL habitat restoration and water quality improvement programs; anthropogenic impacts to the IRL and changes in behavior that will curtail pointless personal pollution.

**CWA implementation information:**
One of the strategic goals for the EPA Office of Environmental Education is to promote the use of environmental education in schools and communities to improve academic achievement and stewardship. This project compliments that goal.
Activity 4

CCMP/Work Plan Goal:
IFF-1; Priority: High. Support the inventory and assessment of non-native invasive fauna and flora within the Indian River Lagoon basin.

Project/Activity Name:
Long-term ecological and genetic monitoring of exotic species in the Indian River Lagoon.
Lead Contractor: University of Central Florida.

Project/Activity Purpose and Description: (indicate as proposed or ongoing)
This project is ongoing. The University of Central Florida (UCF) will utilize funds from IRL NEP to examine three species recently introduced to the IRL, the charru mussel Mytella charruana, the green mussel Perna viridis and the pink barnacle Megabalanus coccopoma. UCF proposes to conduct two tasks to identify and characterize the specific species that have invaded the IRL and to monitor their spread. Their third task involves distributing invasive species identification keys to inform the public about the concerns of invasive species in general and specific invasive species present in the IRL. These projects have been ongoing since 2006 and provide a unique opportunity to investigate long-term diversity and distribution of three co-distributed invasive species.

Budget: $19,945 NEP Funding. $17,410 in kind match from the University of Central Florida.

Outcomes: (report anticipated and/or completed accomplishments)
Short-term: Additional data sets on the populations of the three-targeted invasive species and the ascidians.

Intermediate: This project will document the abundance, distribution and genetic variation of these species throughout the IRL.

Changes (+/-) in Pressure Targets: Anticipated change is positive, as additional data on these invasives will support development of management strategies designed to deal with the extent of propagation.

Long-term: Analyses of the data will assist in determining the spatial and temporal extent of these species, the potential economic impact and what management measures may be taken to mitigate the negative impact to the IRL.

CWA implementation information:
This project directly correlates to the direction given to EPA by the CWA to provide for the protection and propagation of a balanced, indigenous population of shellfish, fish, and wildlife.
Activity 5

CCMP/Work Plan Goal:
F-1; Priority- High. Conserve, protect, restore and manage the finfish and shellfish resources in the Indian River Lagoon region.
F-4; Priority- High. Identify, inventory and assess finfish and shellfish habitats within the Indian River Lagoon and implement appropriate management and restoration strategies.

Project/Activity Name:
Community Outreach, Restoration and Monitoring of Intertidal Oyster Reefs in Mosquito Lagoon
Lead Contractor: The Brevard Zoo

Project/Activity Purpose and Description: (indicate as proposed or ongoing)
This project is ongoing. The project objective is to implement and monitor the success of a scientifically based restoration technique to restore approximately 1 acre of intertidal oyster reef of the eastern oyster Crassostrea virginica with significant damage from wakes from recreational vessels. To meet our project goals, the community outreach coordinator will continue to organize volunteers to produce a minimum of 1,500 restoration mats. Project funding will also support the contractual efforts of UCF to conduct the following activities: conduct three vertical reef profiles for each dead margin to be leveled (a minimum of two dead margins); collect any live plant biomass on these dead margins; determine dry weights of all biomass collected, organize and participate in deployment of 1,500 oyster restoration mats on the leveled dead margins in spring/summer 2012.

Budget: $55,718 in IRL License Plate match funding. $50,011 in match funding from The Brevard Zoo, the University of Central Florida and citizen volunteers.

Outcomes: (report anticipated and/or completed accomplishments)
Short-term: Production of 1,500 oyster mats with the assistance of community volunteers.
Intermediate: Deployment of 1,500 oyster mats in Mosquito Lagoon.

Changes (+/-) in Pressure Targets: Positive as the number of oyster reefs in Mosquito Lagoon increases and the outreach component of this project allows citizen volunteers to be directly involved in a marine restoration project.

Long-term: Historically viewed as a commodity to harvest, sell and eat, oysters have been gaining value for the economically important “ecosystem services” they provide including water filtration, shoreline stabilization, and shelter and food for many commercially and recreationally important species.

CWA implementation information
This project directly correlates to one of EPA’s primary responsibilities as directed by the Clean Water Act to provide for the protection and propagation of a balanced, indigenous population of shellfish, fish, and wildlife.
Activity 6

CCMP/Work Plan Goal:
FSD-1; Priority-High. Complete or continue the diagnostic, management or pilot projects related to stormwater or freshwater discharges being planned or undertaken by federal, state, regional and local governments.

Project/Activity Name:
PC SOUTH – PHASE 1 ALGAL TURF SCRUBBER SYSTEM DESIGN.
Lead Contractor: Indian River County.

Project/Activity Purpose and Description: (indicate as proposed or ongoing)
Proposed new Work Plan project. This project will design the PC South’s Algal Turf Scrubber (ATS) System to treat 10 million gallons per day of polluted water from IRFWCD’s South Relief Canal. The South Relief Canal flow averages 26 MGD with nutrient-rich contributions from a 12,500-acre drainage basin that is a mix of developed industrial, residential, commercial, and agricultural land. PC South’s ATS will remove dissolved nitrogen and phosphorus from the canal water. A final polishing filter, similar to a wastewater treatment type filter will be included in the treatment train downstream of the ATS to remove all remaining solid particles from the treated water. Initially, up to three million gallons per day of treated canal water will be disinfected and placed into a new County reuse water system. The remaining water will be returned to the South Relief Canal where it will continue its journey to the Indian River Lagoon.

Budget: $11,349 NEP funding. $130,645 in match funding from Indian River County. Plus an additional $44,446 in IRL License Plate match funding and $2,803 in match funding from Indian River County as match for the unexpended FY2010-2011 carry-forward funds.

Outcomes: (report anticipated and/or completed accomplishments)
Short-term: Design of a water quality treatment Best Management Project.
Intermediate: When built, the project will reduce pollutant and nutrient loadings to the IRL from this 12,500-acre basin. Construction is scheduled for 2013.
Changes (+/-) in Pressure Targets: Positive as pollutant and nutrient loadings to the IRL will be reduced.
Long-term: With the reduced pollutant loadings, water quality will improve in the IRL resulting in greater seagrass propagation and habitat restoration producing more fisheries and wildlife abundance.

CWA implementation information:
This project complies with the objectives of the Clean Water Act to restore and maintain the chemical, physical and biological integrity of the Nation’s waters and to control point and non-point sources of pollution.
**Activity 7**

**CCMP/Work Plan Goal:**
W-5; Priority-High. Continue restoration and rehabilitation of impacted coastal wetlands.

**Project/Activity Name:**
Connecting St. Lucie Wetlands to the IRL.

**Lead Contractor:** St. Lucie County.

**Project/Activity Purpose and Description:** (indicate as proposed or ongoing)
This project is proposed. This project will restore tidal flow to a 178-acre impounded wetland known as Impoundment 14C, to the IRL by installing a pump station and four culverts with floodgates into the perimeter dike. Restoration of this impounded wetland will provide additional habitat, foraging grounds and water quality improvements to adjacent surface waters.

**Budget:** $7,250 NEP Funding, $7,000 in match funding from St. Lucie County. Plus an additional $5,668 unexpended FY2010 – 2011 NEP funds, with $28,274 in match from St. Lucie County. The total NEP contribution is $12,918 and St. Lucie County match of $35,274 for a total project cost of $48,192.

**Outcomes:** (report anticipated and/or completed accomplishments)

**Short-term:** Restore the tidal connection to this impounded wetland.

**Intermediate:** Native species will have access to the marsh habitat increasing primary productivity, mangrove biomass and reduction in invasive species that are not salt tolerant.

**Changes (+/-) in Pressure Targets:** Positive as additional wetlands are opened to support a healthy mangrove/marsh community.

**Long-term:** Restoring conditions for adjacent seagrass beds to recruit next to the impoundment and restored nursery and foraging habitat vital to marine and bird species. Reduce the use of chemical treatment for mosquito control, managing for mosquitoes using RIM techniques.

**CWA implementation information:**
Implementation of the EPA Strategic Plan to restore estuaries and maintain healthy habitats within estuaries. This project will result in a gain of habitat acreage as sites over run with invasive vegetation are rehabilitated.
Activity 8

**CCMP/Work Plan Goal:**
MON-2; Priority-High. Continue the Citizens Water Quality Monitoring Program.
PIE-4; Priority-High. Increase public and governmental involvement in activities designed to protect and restore the resources of the Indian River Lagoon.

**Project/Activity Name:**
Volusia County Adopt-An-Estuary Program – Year Two Implementation.
Lead Contractor: Marine Discovery Center.

**Project/Activity Purpose and Description:** (indicate as proposed or ongoing)
This project is ongoing. The project will continue the current Adopt an Estuary Program that was funded with 2010-11 IRL License Plate funds. The new proposal will build on the protocols generated and will also include the addition of biological monitoring and further protocol development into the Indian River Lagoon. The goals of the program are to: 1) collect baseline estuary health data 2) educate and train schoolchildren and citizens to monitor and protect estuaries 3) increase public awareness about estuary issues and water quality health 4) Maintain a website portal where citizens can easily access estuary information and data.

**Budget:** $45,000 NEP Funding. $30,555 in match funding from Marine Discovery Center and Volusia County Environmental Service Learning Legacy Project.

**Outcomes:** (report anticipated and/or completed accomplishments)

**Short-term:** Citizens and students are able to monitor, understand and report on anthropogenic impacts to water quality in the IRL.

**Intermediate:** Students and adults communicate their findings and observations about the causes and effects of water quality problems to their friends, neighbors and communities. For example: a volunteer encounters and fish kill and determines through sampling and testing that the mortality event is associated with low dissolved oxygen levels. Further testing reveals the presence of an algal bloom precipitated by stormwater discharges following a rainstorm. The volunteer can relay the experience and observation to others, promoting action at a personal level to reduce individual impacts to water quality.

**Changes (+/-) in Pressure Targets:** Positive as volunteers learn about estuarine ecology and water quality and pass that information along throughout their community.

**Long-term:** Increased citizen knowledge and activism for pollution prevention and environmental protection and enhanced personal responsibility to reduce water quality impacts at home, businesses and public spaces.

**CWA implementation information:**
This project supports the EPA Volunteer Monitoring Program. The Adopt-An-Estuary Program has produces a field guide and teacher curriculum for monitoring estuarine conditions.
Activity 9

CCMP/Work Plan Goal:
PIE-1; Priority- High. Implement and expand public involvement and education projects or programs.
PIE-4; Priority- High. Increase public and governmental involvement in activities designed to protect and restore the resources of the IRL.

Project/Activity Name:
Martin County Schools’ Environmental Studies Center Camp WET (Water Environment Today) 2012.
Lead Contractor: Martin County School Board

Project/Activity Purpose and Description: (indicate as proposed or ongoing)
This project is ongoing. The project will provide three, two-week sessions of academic summer camp for a total of 156 students using a hands-on field based curriculum. The project will employ proven instructional methods to engage the students and motivate them to make positive behavior changes as well as share their concern for and knowledge of the Indian River Lagoon with others.

Budget: $23,056 NEP funding. $22,200 in match funding from the Martin County School Board, The Munson Foundation and student fees.

Outcomes: (report anticipated and/or completed accomplishments)
Short-term: The Camp WET curriculum will include instructional components in:
- Stormwater discharges and their impact on the IRL.
- Invasive species eradication.
- Operation of a mangrove nursery.

Intermediate: Camp WET consistently develops a high quality, hands-on curriculum that engages students and motivates them to learn about the IRL ecosystem and adjacent environmental communities.

Changes (+/-) in Pressure Targets: Positive as students become the next generation of IRL stewards.

Long-term: Camp WET utilizes a “bottoms up” communications method as students serve as role models for adults on IRL environmental issues.

CWA implementation information
Two of the goals of the EPA Office of Environmental Education are to “Promote the use of environmental education in schools and communities to improve academic achievement and stewardship “and to “Promote and encourage environmental careers.” The Camp WET project complements these goals by engaging 150 incoming 5th and 6th grade students in a curriculum that emphasizes hands on field investigations related to IRL habitats.
Activity 10

CCMP/Work Plan Goal:
PIE-1: Priority-High. Implement and expand public involvement and education projects or programs.

Project/Activity Name:
Operational Support for the FL Tech SEAS Mobile Lab and weather monitoring.
Lead Contractor: Florida Institute of Technology

Project/Activity Purpose and Description: (indicate as proposed or ongoing)
This project is ongoing. The goal of this project is to continue to increase public awareness about priority IRL issues as part of the Integrated Science Teaching Enhancement Partnership (InSTEP), part of the National Science Foundation’s Graduate Fellowships in K-12 Education.

Budget: $9,970 IRL License Plate funds as match, plus $9,970 in in-kind match funds from FL Tech.

Outcomes: (report anticipated and/or completed accomplishments)

Short-term: Enhanced student interest in science, marine ecology and teacher confidence in science content and inquiry based instruction.

Intermediate: Encourage student advancement and college studies in marine sciences and natural systems ecology.

Changes (+/-) in Pressure Targets: Positive as more students interact with the equipment and docents on the mobile lab, their interest in conservation and advanced degrees will be increased and teachers will become more comfortable in inquiry-based instruction procedures.

Long-term: Development of the next generation of marine ecologists and scientists interested in oceans, estuaries and aquatic ecosystems.

CWA implementation information:
Two of the goals of the EPA Office of Environmental Education are to “Promote the use of environmental education in schools and communities to improve academic achievement and stewardship “and to “Promote and encourage environmental careers.
Activity 11

CCMP/Work Plan Goal:

Project/Activity Name:
Indian River Lagoon Shoreline Restoration.
Lead Contractor: Florida Department of Environmental Protection – IRL Aquatic Preserves

Project/Activity Purpose and Description: (indicate as proposed or ongoing)
This project is ongoing. The goal of this project is to continue to stabilize publicly-owned shorelines impacted by wave energy to limit erosion, sedimentation and enhance littoral habitat, while facilitating environmental awareness, stewardship and public participation in restoration activities.

Budget: $47,040 IRL License Plate funds plus $56,330 in in-kind match funding and volunteer services from FDEP Aquatic Preserves.

Outcomes: (report anticipated and/or completed accomplishments)

Short-term: Planting of native species along two identified mangrove ecosystem restoration sites of 200X2M of shoreline, removal of invasive exotics at the sites. Provide an activity for volunteers to participate in lagoon restoration enhancing stewardship and awareness.

Intermediate: Expand mangrove shoreline habitat ecological benefits, reducing suspended solids and erosion and contributing to shoreline stabilization.

Changes (+/-) in Pressure Targets: Positive as shorelines native vegetation establishes providing enhanced estuarine habitat and improvements to adjacent surface water quality. Development of volunteers to become IRL stewards.

Long-term: Restoration of mangrove shoreline forests, enhanced public participation in restoration activities and enhance habitat and water quality.

CWA implementation information:
Implementation of the EPA Strategic Plan to restore estuaries and maintain healthy habitats within estuaries. This project will result in a gain of habitat acreage as sites over run with invasive vegetation are rehabilitated.
Activity 12

CCMP/Work Plan Goal:
PIE-1: Priority-High. Implement and expand public involvement and education projects or programs.
BD-4: Priority-Medium. Create and maintain a species inventory for the IRL.

Project/Activity Name:
Indian River Lagoon Species Web-Based Education Tool.
Lead Contractor: Smithsonian Marine Station.

Project/Activity Purpose and Description: (indicate as proposed or ongoing)
This project is ongoing. The Smithsonian Marine Station (SMS) will continue the expansion of the IRL species on-line inventory by focusing on IRL invertebrates, design a new web page promoting simple personal behavior modifications to protect water quality in the IRL, and continue to post the IRL photo gallery contest pictures.

Budget: $22,961 IRL License Plate funds plus $9,534 in in-kind match funding from SMS.

Outcomes: (report anticipated and/or completed accomplishments)

Short-term: Compile introductory, descriptive information with images and diagrams on three invertebrate phyla, with 21 full species narratives – 7 from each phyla and continue to maintain the inventory website as a popular education and research tool for the IRL community.

Intermediate: Increase the functionality and popularity of the web site, providing additional dissemination of information enticing students and the public to explore and learn about the IRL, its species and diversity.

Changes (+/-) in Pressure Targets: Positive as more people use the site to learn about the lagoon and its economic and ecological importance to the region, state and nation.

Long-term: Enhance understanding of lagoon diversity, and adoption of personal behavior modifications to reduce fertilizer use, and other activities to improve water quality through education.

CWA implementation information:
Two of the goals of the EPA Office of Environmental Education are to “Promote the use of environmental education in schools and communities to improve academic achievement and stewardship” and to “Promote and encourage environmental careers.”
Activity 13

**CCMP/Work Plan Goal:**
- PIE-1: Priority-High. Implement and expand public involvement and education projects or programs.
- PIE-4: Priority-High. Increase public and governmental involvement in activities designed to protect and restore the resources of the Indian River Lagoon.

**Project/Activity Name:**
- Lagoon Quest
- Lead Contractor: Brevard Zoo

**Project/Activity Purpose and Description:** (indicate as proposed or ongoing)
This project is proposed. The goal of this project is to integrate real-life experience with fourth-grad curriculum using the environmental resources of the IRL. This project is designed to get students, teachers and families involved through a variety of activities.

**Budget:** $24,000 IRL License Plate funds plus $13,500 in in-kind match funding from Brevard Zoo.

**Outcomes:** (report anticipated and/or completed accomplishments)

- **Short-term:** Enhance students and teachers experience and skills by providing curriculum with Sunshine State Standards, materials, and workshops for teachers.

- **Intermediate:** Improve students environmental attitudes and pride in the IRL, by getting them out in the field to experience the lagoon and wildlife in their own backyard.

- **Changes (+/-) in Pressure Targets:** Positive as students, teachers and parents become more environmentally aware they will reduce behaviors that negatively impact water quality and natural resources of the lagoon.

- **Long-term:** Behavioral and attitude changes, creation of sense of ownership and responsibility and gained appreciation resulting in an overall reduction in pollution to the IRL.

**CWA implementation information:**
Two of the goals of the EPA Office of Environmental Education are to “Promote the use of environmental education in schools and communities to improve academic achievement and stewardship” and to “Promote and encourage environmental careers.”
**Activity 14**

**CCMP/Work Plan Goal:**
FI-1: Priority-High. Continue the Indian River Lagoon Advisory Board’s role of oversight, monitoring, and guidance of the implementation of the IRL CCMP.

**Project/Activity Name:**
Indian River Lagoon Program Operations
Lead Contractor: IRL NEP / St. Johns River Water Management District

**Project/Activity Purpose and Description:** (indicate as proposed or ongoing)
This project is ongoing. The goal of this project is to continue to support the IRL Project Office within the SJRWMD’s Palm Bay Service Center providing funds for travel, legal advertising of meetings, printing, office supplies and field equipment.

**Budget:** $4,745 NEP funding ($2,000 for travel).
Plus an additional $11,500 in FY2010-2011 unexpended NEP funds as carry forward.

**Outcomes:** (report anticipated and/or completed accomplishments)

Short-term: Enables staff to travel to the required NEP EPA National Meeting in Washington DC in March, to legally advertise Advisory Board meetings in accordance with Florida’s Sunshine Law, and provides a small amount of funds for supplies, printing and equipment to support CCMP implementation.

Intermediate: Supports implementation of the FY2011-2012 work plan.

Changes (+/-) in Pressure Targets: Positive, allowing staff to continue CCMP implementation and management of work plan projects.

Long-term: Continues the project office operations for on-going CCMP implementation, reporting and future work plan development.

**CWA implementation information:**
Implementation of the EPA Strategic Plan to restore estuaries and maintain healthy habitats within estuaries.
**Activity 15**

**CCMP/Work Plan Goal:**
FSD-13; Priority- High. Upgrade existing stormwater systems.
FSD-14; Priority- High. Develop and implement appropriate mechanisms to fund and undertake the operation, maintenance and improvement of urban and agricultural stormwater management systems to reduce pollutant loadings.

**Project/Activity Name:**
Grant Writing Services in Support of the Indian River Lagoon CCMP.
Lead Contractor: Cape Canaveral Scientific Inc.

**Project/Activity Purpose and Description:** (indicate as proposed or ongoing)
This project is ongoing. The project assists local governments in meeting the challenges of financing CCMP implementation projects. Most local governments in the IRL watershed have little if any staff support including engineering services to dedicate to preparation of grant applications for stormwater projects and environmental restoration. As this project has gained acceptance and success stories circulated, more local governments have agreed to utilize the services of the grant writer team. Last year, while under contract with the IRLNEP, Cape Canaveral Scientific (CCS) worked with various local governments to submit seven applications for water quality improvements, stormwater retrofits, and land acquisition from the State of Florida’s 319, TMDL and Florida Forever programs.

**Budget:** $47,855 NEP Funding from FY 2010-2011 as unexpended carry forward. $17,500 in match funding from CCS and Scientific Environmental Applications.

**Outcomes:** (report anticipated and/or completed accomplishments)

**Short-term:** Develop, generate, submit and support five grant applications.

**Intermediate:** Since the inception of this project, the number of participating partners has steadily increased.

**Changes (+/-) in Pressure Targets:** Projected change is negative. As many of these grants require a local match, state mandated property tax reductions will impact implementation of CCMP Action Plans by local governments. State of Florida funding for the Florida Forever/Florida Communities Trust Program has been significantly reduced. IRLNEP funding for CCS in FY 201-2012 has also been reduced which will result in fewer grant applications produced by CCS.

**Long-term:** These projects have a direct benefit to the IRL either through land acquisition or stormwater improvements designed to reduce nonpoint source pollution and untreated stormwater discharges to the IRL.

**CWA implementation information:**
This project supports the EPA Non Point Source (NPS) Program to provide technical assistance for implementation of activities designed to reduce non point sources of pollution. The grants writer has submitted 319 and TMDL funding applications for projects that include the development of stormwater parks and treatment systems in urbanized areas and for the purchase of environmentally sensitive lands through the Florida Forever/ Florida Communities Trust Program.
Section C. Previous Years Reporting Requirements

C.1 Summary of IRLNEP and Management Conference Accomplishments for 2010-2011

The **IRLNEP** had another successful year in FY 2010-2011 implementing the IRL CCMP. The FY 2010-2011 work plan included 9 unique projects (please see Section C.2 of this Work Plan) which ranged from shoreline habitat restoration to harmful algal bloom monitoring to oyster reef restoration. The IRLNEP also funded a number of other projects utilizing State of Florida and license plate dollars. These projects include the installation of sediment traps, invasive species removal and estuary education and outreach.

The **IRLNEP Management Conference** made up of the Indian River Lagoon Advisory Board, the Citizen’s Action Committee (CAC), and the Technical Advisory Committee (TAC) continues to lead the program through active community directed guidance and oversight.

Below and on the following pages are projects that have been initiated and/or completed by members of the IRLNEP Management Conference in FY 2010-2011.

**St. Johns River Water Management District** (SJRWMD)

The SJRWMD continues to implement the IRL Surface Water Improvement and Management Plan (SWIM) in the northern and central IRL and provide on-going local sponsor support for the IRLNEP Project Office and staff. The SJRWMD completed several regional stormwater and environmental enhancement projects in 2010 and 2011 and continues implementation of other important projects in the basin.

- SJRWMD’s Coastal Basins Section (CBS) continued to assist the Florida Department of Environmental Protection’s (FDEP) Bureau of Watershed Management in developing TMDLs based on Pollutant Load Reduction Goals for sea grass restoration in the IRL and Banana River Lagoon and is currently working on creating scientifically based numeric nutrient criteria in cooperation with FDEP. CBS also continues to monitor nutrient loadings from atmospheric deposition, sea grass resources and water quality in the central and northern IRL.

- Impounded wetlands and drag-line ditched wetland restoration is continuing under the guidance of SJRWMD in partnership with U.S. Fish and Wildlife Service and Volusia County, with funding assistance from IRLNEP, the IRL License Plate Program, and a grant from the National Oceanic and Atmospheric Administration, and National Coastal Wetlands Grants Program.

- The first phase of the C-1 Re-diversion Project is complete with the construction of the western pump station and the MS-1 gate modifications finished in early 2011. This project will re-divert 25% of the freshwater currently discharged from the 100 square mile Melbourne-Tillman Water Control District west, into the upper basin of the St Johns River. Phase 2, to be complete in several years, will re-divert a total of 33% of these discharges.

- Construction of the Fellsmere Water Management Area is ongoing to create a 10,000-acre management area providing water quality treatment of agricultural discharges in northwest Indian River County.

- Construction of the Herndon Swamp slough restoration was complete in early 2010 and will improve water quality flows in the north prong of the St. Sebastian River. Planning and design of the Wheeler Stormwater Park is on-going.
• Construction of Indian River County’s Egret Marsh Regional Stormwater Park is complete.
• Construction of Vero Beach’s Deep Injection Well is complete.

**IRL License Plate Projects** have been completed, initiated or continued in the following counties:

**Brevard County:**
• Cocoa Beach Ocean Beach Boulevard Bio-retention and Exfiltration project is complete under budget.
• Melbourne Beach Basin 4 & 11 stormwater improvements are ongoing with construction estimated to be complete in the fall of 2011.
• Brevard County’s Lake George Water Quality Enhancement project is complete.
• Brevard County’s Comprehensive Maritime Management Master Plan development is on-going with regular meetings and plan creation.
• The FDEP Aquatic Preserves IRL Shoreline Habitat Restoration Project is proceeding on schedule.
• Hubbs-Seaworld Research Institute creation of redfish brood stock holding tanks is complete.
• Support for the InSTEP educational program and RV mobile lab continues.

**Volusia County:**
• River Road Sanitary Sewer Project in Oak Hill was completed in July of 2010 connecting many homes and mobile home parks adjacent to Mosquito Lagoon to central collection and treatment.
• Support for The Nature Conservancy’s oyster reef restoration using oyster mats is ongoing and on schedule.
• Support for Volusia County’s Adopt-An-Estuary educational campaign is ongoing.

**Indian River County:**
• Support for the on-line IRL Species Inventory in partnership with Smithsonian Marine Station is continuing.

The **U.S. Army Corps of Engineers** continues to make progress on the Comprehensive Everglades Restoration Plan South Indian River Lagoon (SIRL) implementation.

• The C-44 feature and the Troop Indiantown Water Control District Reconfiguration: All land has been acquired and design completed. Relocation of the Troop Indiantown Water Control District office has begun clearing the way for construction of the C-44 reservoir and stormwater treatment area. Construction is anticipated to begin in 2011.
Implementation of the C-23/24 Reservoir and Stormwater Treatment Area is temporarily on hold as the focus has shifted to construction of the C-44 features. All land has been acquired for the northern Stormwater Treatment Area and reservoir footprint. Near the completion of the C-44 features, detailed design will be reinitiated on the C-23/24 reservoirs and stormwater treatment area. Construction on the Allapattah Natural Storage Area for hydrologic restoration is ongoing with approximately 5,000 acres of land restored to natural hydrologic conditions. Additional construction and measures to complete hydrologic restoration are planned. The property has been opened to the public for passive recreation use.

**St Lucie County** environmental efforts this year were concentrated on rehabilitating IRL shorelines and spoil islands. Completed projects include:

- Completed the removal of Brazilian pepper and Australian pine, planted native species and reconnected a 0.24-acre wetland, on a 5.8-acre spoil island (SL-3).
- Planted native species on 20 acres at Queen’s Island Park.
- Removed non-native plants including Brazilian pepper, Scaevola taccada and Australian pine on 8.5 acres at Normandy, Ocean Bay Park, Dollman, Herman’s Bay and Waveland Parks.
- Acquired a 6.4 acre tract located along Ten Mile Creek in March, 2010 as donation in lieu of tree mitigation. It is located immediately west of Ten Mile Creek Preserve, on the north side of Ten Mile Creek and west of Gordy Road.

Stormwater management projects in 2010 focused on retrofitting several existing neighborhoods and watersheds that ultimately drain to the IRL, including:

- Completion of the Paradise Park Phase II drainage retrofit providing stormwater management, water quality treatment and paved roads to 39 acres of this 171 acre single family, residential neighborhood draining to the IRL via SFWMD Canal C-25.
- Construction commencement of the Paradise Park Phase III drainage retrofit that will provide stormwater management, water quality treatment and paved roads to 21 acres of this 171 acre single family, residential neighborhood draining to the IRL via SFWMD Canal C-25.
- Obtaining a grant to fund construction of the Harmony Heights Phase I drainage retrofit that will provide stormwater management, water quality treatment and paved roads to 44 acres of this 222 acre single family, residential neighborhood draining to the IRL via SFWMD Canal C-25.
- Obtaining a grant to fund design of the Indian River Estates Phase II drainage retrofit that will provide a drainage conveyance system to the pump station, alum injection and wet detention facilities constructed in Phase I. When completed this system will provide stormwater management and water quality treatment to this 1,200 acre single family residential neighborhood draining to the IRL via the Savannas State Preserve.
- Entering a Memorandum of Agreement with the City of Port St. Lucie to design, permit and construct Phase II of the Platts Creek water quality and wetlands restoration project that will provide water quality treatment and 80 acres of wetlands restoration to this 1,000 acre watershed draining to the IRL via the North Fork of the St. Lucie River.
The Florida Fish and Wildlife Conservation Commission (FFWCC) has a number of completed and ongoing research and restoration projects in the IRL watershed:

- Continued studying manatee use of secondary warm water refugia in Brevard and neighboring counties. FFWCC staff is monitoring water temperature, salinity, and the availability of fresh water and food sources among other factors at sites used by manatees between the months of November and March.

- Ongoing monitoring of marine fisheries through fisheries-independent, fisheries-dependent and life history projects for the assessment and management of fisheries resources.

- Completed a collaboration with the Florida Institute of Technology to conduct a literature survey of the natural resources present within the boundaries of the Cape Canaveral National Seashore (Mosquito Lagoon).

- Ongoing seagrass sampling at the restored spoil island (SL15) in Fort Pierce, a Florida Department of Transportation mitigation site.

- Continuing with a study on habitat utilization and resource partitioning of apex predators in coastal rivers.

- Ongoing participation in cooperative monthly sampling of HABs in the IRL in collaboration with the University of Florida, Innovative Health Applications, the St. Johns River Water Management District and the IRLNEP.

- Continuing to work with the St. Johns River Water Management District and Volusia County to conduct dike removal/impoundment restoration on public lands in Volusia County. The project is funded through a three-year grant from the NOAA National Coastal Program.

- Completed the field sampling portion of a project to look at the impacts of dredging on fish. This is a cooperative project funded by SJRWMD with Smithsonian (benthic invertebrates) and FIT (sediments) to look at the overall system changes in the St. Sebastian River during the removal of muck deposits.

- Conducted a study of blackwater effects on coral stress at St. Lucie Reef in Martin County funded through the State Wildlife Grant program.

- Commenced developing a Restoration Plan for Johnson’s seagrass within its range funded by NOAA.

- Secured grant funding to demolish/renovate buildings at the old New Smyrna Beach High School along Mosquito Lagoon as part of a Marine Ecocenter development process.

- Reconnected an historical oxbow along the North Fork St. Lucie River funded through FWC’s Lake Restoration program and conducted associated monitoring efforts.

South Florida Water Management District (SFWMD) continues to lead localized IRL restoration efforts and CCMP implementation throughout the southern IRL watershed.

- SFWMD through the CERP RECOVER program is monitoring IRL and St. Lucie River benthos, submerged aquatic vegetation, oyster reefs and water quality parameters in partnership with the U.S. Army Corps of Engineers.

- The SFWMD Coastal Ecosystems Sciences Division (CESD) is currently doing research on the effects of low level dry season freshwater releases into the estuary on the productivity in the oligohaline zone of the estuary.
The CESD is developing and calibrating a water quality model and a nutrient budget for the St. Lucie Estuary.

Lakewood Park Canal Water Control Structure: This construction project involved improving and upgrading the primary outfall/control structure for the Lakewood Park Subdivision, providing detention time and sediment control.

The **St. Lucie River Issues Team** was formed by the South Florida Ecosystem Restoration Working Group in May 1998 and is managed by SFWMD. The Issues Team mission is to develop federal, state and stakeholder consensus on an action plan that would accelerate progress toward improving water and habitat quality in the St. Lucie River Estuary and IRL. This action plan assessed current problems in the estuary and lagoon and set direction for achieving improvements in both water quality and estuarine ecosystem functions (e.g., fish and wildlife habitat).

The Issues Team has continued to solicit, rank and submit projects to the Florida Legislature for the past seven years. To date, the Issues Team has received $63.7 million from the Florida Legislature, and received an additional $2 million in federal funding. The program has funded over 114 individual projects in Martin and St. Lucie counties.

Current Issues Team projects are as follows:

- **Canal 1 Erosion and Sedimentation Project:** The SFWMD and the Treasure Coast Resource Conservation & Development Council propose to eliminate canal bank erosion from the south side of 2+ miles of Fort Pierce Farms Water Control District Canal 1, thereby reducing sedimentation up to 10,000 tons per year and improving water quality in the Indian River Lagoon

- **St. Lucie Tributary Flow Monitoring Network:** The SFWMD is continuing an on-going monitoring network within the urban portion of the St. Lucie River/Estuary watershed in order to document water quality and flow conditions and to develop a baseline data set for calculation of loads from these tributaries.

- **E-8 Waterway Phase 3 Stormwater Quality Retrofit:** The SFWMD and the City of Port St. Lucie propose to increase stormwater treatment for older subdivisions and commercial development, reduce peak discharges, reduce the Watershed “B” runoff nutrient loads and help resolve recurring drainage and flood control problems through exotic nuisance vegetation removal, side slope re-grading and sodding, channel dredging and outfall control structure upgrades within the E-8 Waterway.

- **Howard Creek Stormwater Quality Retrofit:** The SFWMD and the City of Port St. Lucie propose to construct a stormwater treatment area as part of a $36M Eastern Watershed Improvement Project (EWIP) to provide water quality treatment and improve flood protection in the Howard Creek Drainage Basin. These improvements will provide 18-AF of detention prior to discharge into the North Fork of the St. Lucie River.

Issues Team projects completed in FY2010 include:

- **Paradise Park Storm Water Improvements, Ph 2 – Construction:** This is a 5-phase project in St. Lucie County to provide water quality for an older, 168-acre subdivision. This phase entailed the construction of roadside drainage swales, dry detention ponds and hydraulic treatment facilities, as well as asphalt paving of the local roadways. The system as designed will result in removal of 80% to 100% of suspended solids and 60% to 80% of phosphorus and nitrogen.

- **Harbor Branch Preserve:** Approximately 120 acres of impounded wetlands were acquired bordering the IRL. The next phase of this project will work to reconnect those wetlands to the lagoon.

- **Citrus BMP Program:** This is an on-going multi-agency program that implements Best Management Practices in citrus groves within the Indian River area.
• V-2 (Russakis) Ranch Conservation Easement: A permanent conservation easement was secured on property within the footprint of the Natural Areas component of the Indian River Lagoon South Plan CERP component in western St. Lucie County.

• Living in a Watershed Centerpiece: The Oxbow Eco-Center in St. Lucie County constructed a showcase exhibit that shows through visual, multi-sensory and interactive elements, the ecology and restoration of the St. Lucie River watershed.

• Identification of Residential Pesticides of Potential Risk to the St. Lucie Estuary and Indian River Lagoon: This is a research project to locate pesticide discharges and provide useful data to identify where best management practices need to be developed and/or implemented.

• Assessment and Reduction of Dissolved Organic Matter Loads in Surface Runoff Water from Agricultural Fields in the Indian River Area: This is a research project to quantify the concentrations and loads of dissolved organic matter in storm runoff from major production systems which will lead to the development of best management practices.

• Contribution of Agricultural Runoff to *Escherichia coli* populations in the St. Lucie River Estuary: This is a research project to provide information on the level of coliform bacteria in agricultural runoff, correlate the populations with the type of agriculture and ultimately alter the best management practices to correct the problem.

• North St. Lucie River Water Control District Stormwater Retrofit (Structures 81-1-2 and 85-1-2: This construction project replaced riser boards with dual leaf hydraulically operated gates in two existing box culverts enhancing control and improving water quality to receiving water bodies.

• Martin County Baffles Boxes: This construction project placed 2-3 chamber baffle boxes at existing outfalls with no current sediment treatment removal upstream in the vicinity of Indian River Drive.

The Indian River Lagoon License Plate Program was established to support habitat restoration, water quality improvement, and associated education projects. The South Florida Water Management District is responsible for administering Indian River Lagoon License Plate funds for projects in St. Lucie, Martin and Palm Beach counties.

Indian River Lagoon License Plate projects that were completed in FY2010 include:

• Limestone Creek Natural Area Restoration – Phase 3: This project focused on the the construction of two oxbows along the south fork of the Loxahatchee River. The canal bank was excavated and regarded to create two shallow water oxbows with intertidal mangrove wetlands. The oxbow will add additional estuarine habitat to the area, reduce erosion along the canal bank, and improve overall water quality in the estuary.

• SL-3 & Queens Island Preserve – Exotic Removal & Restoration: The objective of this project was to remove exotics and fallen vegetative debris resulting from past Hurricanes from the 5.8-acre spoil island and 20 acres of Queens Island Preserve. Replant those areas with native vegetation and reconnect a small wetland on SL-3 to the lagoon.

During the past year, **Brevard County** has initiated and/or completed several stormwater treatment and outreach projects.

Completed stormwater treatment projects include:

• The Merritt Island Sediment Control project was completed last year with addition of type II baffle boxes for two more drainage basins and thirty-two more curb inlet baskets, bringing the project total to 11 baffle boxes and 34 curb inlet baskets.
The Area One Watershed Improvement Project provided nearly $2M of piping and culvert improvements in a County maintained canal system within the Titusville area. Stormwater treatment is provided through the Chain of Lakes Regional Stormwater Facility.

The Chase Hammock/Lake George Stormwater Project enhances flood protection and improves water quality throughout the North Merritt Island area by re-routing agricultural and residential runoff from a 629-acre basin through two treatment facilities and an existing wetland prior to entering the Sykes Creek/IRL system.

The M-1 Canal Stabilization project lined approximately 300 feet of severely eroding canal with gabions. This will prevent transport of sediment from the channel banks to the IRL.

Stormwater projects initiated with construction underway:

- Expansion of the existing Merritt Island Airport Pond will provide stormwater treatment for a 190-acre watershed, which discharges directly into the Banana River. In addition, approximately 0.6 acres of highly disturbed marsh on the west side of the pond will be enhanced by removing Brazilian peppers and re-establishing native species.

- Indialantic Drainage Improvements were partially completed in 2008. Now that a conflicting sewer pipe has been relocated, the final pipe replacement and weir removal will proceed. This project will reduce flooding near Hoover middle School.

- A baffle box was installed at Indian River Isles several years ago, however piping from that box to the lagoon could not be replaced without a temporary construction easement from the adjacent property owner. The property recently sold and the new owner is working with us to complete this water quality improvement project.

Brevard County has multiple stormwater projects in the final days of permitting, contracting or advertisement for bid. These projects are anticipated to begin construction within the next six months:

- Chain of Lakes Expansion will further improve the quality of storm water flowing into the Indian River from an 1175-acre drainage basin by adding several more acres of treatment pond to the existing regional park project. This regional park currently consists of created wetlands, lakes, walking bridges, paved walking trails, a bird watching tower, soccer fields and softball fields.

- Phase I of the North Merritt Island/Pine Island project consists of converting an existing borrow pit within the Pine Island Conservation Area into a stormwater treatment pond. This project will be constructed on land owned by St. Johns River Water Management District.

- Fortenberry Regional is a multi-phase project to construct a 26-acre regional stormwater treatment pond just south of the Merritt Square Mall. Phase 1a will break ground shortly and use available funding to construct the first few acres of this treatment pond system.

- Sarno Lakes Phase II will improve upstream conveyance and divert additional flows to three existing stormwater treatment ponds totaling 14.5 acres. The project also diverts stormwater from the IRL, restoring the historic hydrological connection between the basin and the St. Johns River.

- Phase II of the Crane Creek/Lamplighter project will redirect additional freshwater flows to the St Johns River and away from the IRL by adding additional conveyance improvements and a large stormwater treatment pond.

- The Valkaria Lakes project is a partnership with the County and Town of Grant-Valkaria to convert three existing borrow pits located on a county property to a regional treatment system for a 524-acre drainage basin within the Town. County staff are designing and overseeing construction of the project.
The Brevard County Natural Resources Management Office (NRMO) is offering the following outreach/educational programs and events in 2011:

- Staff presentations that describe local watersheds, drainage basins, and Best Management Practices for homeowners.

- A “Wonders of Water Science Night” event at Pinewood and Gemini Elementary Schools. Community partners will assist with water related activities for students in the fourth and fifth grade.

- Watershed science will be presented to students groups ages 8-12 at the Brevard County Public Libraries as part of the summer reading program. Participants will play “Stormwater Limbo” using a Rain Stick and build edible rain sticks.

- Brevard County will work with local veterinarians to encourage pet owners to dispose of pet waste properly. Bacteria and nutrients from pet waste have been identified as a significant pollutant of the Eau Gallie River and Crane Creek, major IRL tributaries. “Bags on Board” waste disposal tools will be distributed at area “dog” events such as Paws in the Park.

- NRMO will continue to partner with the Florida Department of Environmental Protection and the City of Palm Bay Public Works Stormwater Department to offer certification classes for construction inspectors and other construction industry employees on BMP’s that reduce erosion on construction sites.

- Staff will partner with the University of Central Florida Stormwater Academy and Brevard County Cooperative Extension Service to provide rain barrel workshops for the public.

- Staff will participate in events such as the Family Fun Day, Secondary Science Teacher Conference, Earth Day at the Enchanted Forest and Indian River Lagoon Day.

- The NRMO Website continues to offer stormwater guidelines for homeowners and contractors, updates on NRMO projects, and a calendar of events. The URL for the NRMO website is: http://www.brevardcounty.us/natres/index.cfm

The Florida Department of Environmental Protection (FDEP) has a number of ongoing research and restoration projects benefiting the IRL ecosystem. Listed below is a sampling of those projects:

- The Basin Management Action Plans are currently under development for the IRL to implement TMDLs. The Indian River Lagoon has been divided into 3 sub-basins, Banana River, North Indian River and Central Indian River. Work on tributary nutrient TMDLs is continuing.

- The NPDES Permits for Domestic and Industrial Wastewater Facilities with surface water discharges have been revised to include new nutrient load allocations as contained in the adopted TMDL.

FDEP continues to monitor wastewater treatment plants throughout the IRL watershed for compliance with the Indian River Lagoon Protection Act.

- The City of Cocoa Beach will be receiving a SRF loan in early 2011 for the construction of advanced wastewater treatment facilities and an injection well for aquifer storage and recovery of reclaimed water, enabling compliance with the load allocation contained in the TMDL for the Indian River Lagoon.

- The City of Melbourne was awarded an SRF loan for construction of reclaimed water reuse improvements in 2009. This construction project is ongoing.
• The City of Vero Beach was awarded an SRF loan in 2009 and an IRL initiative appropriation through the St. Johns River Water Management District for construction of reclaimed water transmission facilities and an underground injection well for disposal of demineralization concentrate and excess reclaimed water during wet weather. Construction was recently completed in January 2011.

• The City of Stuart was awarded an SRF loan for construction of upgraded wastewater treatment and reuse transmission facilities in early 2010.

• Brevard County was awarded a federal 319 grant in 2009 to construct the Pine Island Stormwater Improvement project.

• The Town of Melbourne Beach was awarded a federal 319 grant in 2010 for stormwater retrofit project involving additional storage within basins in Melbourne Beach and construction of a stormwater treatment train.

• The Town of Sewall's Point was awarded a federal 319 grant in 2010 for stormwater improvements including an exfiltration system and porous pavement pedestrian walkway.

• The FDEP performed water quality and macroinvertebrate sampling in Brevard County at New Found Harbor off Airport Point, for the north IRL in Titusville and SR 528 at the IRL and Banana River during 2010. In 2011 FDEP will collect and identify macroinvertebrate samples from Scottsmoor (mid bay), Ponce Inlet and the Mosquito Lagoon (2 locations).

• Biological monitoring of bird colonies and roosting sites in the IRL watershed and the Indian River Lagoon Aquatic Preserves (IRLAP) is performed by FDEP through monthly boat and foot surveys. Staff conducts routine surveys throughout the seven Indian River Lagoon Aquatic Preserve’s, documenting nesting and roosting Roseate spoonbills, Wood storks, brown and white pelicans, cormorants, herons, egrets anhinga, and other coastal bird species. Staff has surveyed and documented approximately 50 Wood Stork nests at spoil island BC 52 in the IRL as well as roosting egrets, herons and pelicans.

• FDEP IRLAP staff supported the Florida Fish and Wildlife Conservation Commission with routine fish species sampling in the Banana River and Indian River Lagoon.

• FDEP is expanding local awareness and support of the IRL and Mosquito Lagoon Aquatic Preserves by conducting volunteer spoil island enhancement activities. Events are held on the second Saturday of each month from September to April and utilize volunteers to remove exotic plant species, plant natives, remove debris, and add picnic tables and fire rings to promote recreation. In FY 2010, volunteers logged over 1,000 hours of service in the program. FDEP further promotes stewardship of the spoil islands through the Adopt-A-Spoil Island Program, encouraging Eagle Scout and student research projects, and maintaining the educational website www.spoilislandproject.org.

• FDEP is the lead contractor on the IRL Shoreline Restoration Project that focuses on re-establishing mangrove fringe along the IRL between Cocoa Beach (SR 528) and Jupiter Inlet. Twelve red mangrove experimental sites that compare three planting methods at three different shoreline elevations have been established since the summer of 2008. During the spring of 2010 four pilot saltmarsh grass planting sites were established. These sites will be monitored for natural recruitment of all three mangrove species found along the IRL. The final report for FY 2010 was completed in September of 2010 and provides a project history, current objectives, and future goals. The project is funded through FDEP and the IRLNEP and is funded through FY 2011.

• FDEP continues to partner with the St. Lucie County Mosquito Control District to enhance St. Lucie County spoil island SL 3 (across from Harbor Branch Oceanographic Institute). Enhancements include removal of all exotic plant species, planting of native species, re-establishment of a tidal connection to an internal salt marsh, establishment of four camp sites including picnic tables and fire rings.
• FDEP IRLAP Staff assists SJRWMD in their winter and summer seagrass transects from Ft. Pierce to Jensen Beach.

• FDEP IRLAP Staff assist with oyster bagging and placement projects creating oyster reefs in the IRL.

• FDEP IRLAP Staff assist the St. Lucie County Department of Health perform monthly bacterial monitoring of the North Fork St. Lucie River.

**Martin County**

As one of the six county governments participating in the implementation of the IRL South Comprehensive Everglades Restoration Plan (CERP), Martin County supports the improvement of water quality and enhancement of the habitat within and adjacent to the IRL. This support is evidenced by the development and implementation of the Martin County Lands for Healthy Rivers and Natural Resources Protection Program. The proposed land purchases within this program are priority parcels identified within CERP, the Florida Forever Program, the IRL Blueway Program and other state and federal land acquisition programs. In addition, on November 7, 2006, Martin County citizens voted to add a one half cent sales tax for five years and dedicate the revenues to acquisition of land for river restoration, matching funds for conservation lands purchase and to fund capital projects for water quality improvement and recreation. The tax is expected to generate $60 million with 50% of the funds conditioned for recreation and 50% of the proceeds dedicated to the Conservation Lands Program, which will be used to leverage other state and federal funds. To date, approximately 820 acres within the IRL watershed have been acquired at a cost of $22.18 million.

In addition to conservation and recreational land acquisition, Martin County has also aggressively implemented numerous stormwater BMP’s. In FY 2010 Martin County, either completed or initiated the following stormwater capital improvements:

• The Manatee Creek Retrofit. Phase I of this project included creation of 12-acres of stormwater treatment area (STA) marsh, creation of a dry detention facility and infrastructure improvement to convey runoff to the treatment facilities for water quality and to provide relief to residences from chronic flooding. Phases II & III include conversion of the decommissioned, seven acre, Dixie Park Wastewater Treatment Plant (WWTP) to an STA/wet detention system with a prototype denitrification bed to treat runoff from serving 200+ acres and creation of a 5 acre STA within the adjacent sub-basin serving 40 acres of older residential development and reduce chronic structural flooding in the New Monrovia subdivision. The project is currently under construction and will be complete by July 2011.

• Old Palm City Phase 3 project will address water quality and flood attenuation problems within the southern portion of the basin, and proposes construction of two (2) STA’s totaling approximately 6.5 acres. The SFWMD ERP permit petition has concluded, the ACOE permit has recently been obtained, the project has been bid and a preconstruction meeting is scheduled for late April 2011 with construction scheduled to commence in early May 2011.

• Tropical Farms Stormwater Quality Improvement. The construction of the project is complete, with only punchlist items remaining to be done. The project’s improvements include construction of a pipe system to collect the first inch of stormwater runoff from a 468-acre basin and convey this runoff to a 17 acre STA that will provide 39 acre-feet of water quality treatment and flood attenuation volume.

• The Rio St. Lucie Water Quality Retrofit Phases I & II will treat runoff from a 104-acre basin of an older development and roadway, which historically drained untreated runoff to the St. Lucie River. The project utilizes a treatment train approach to stormwater management including; installation of exfiltration and dry retention, converting conveyance ditches into dry retention swales with underdrains and piping beneath wherever appropriate conditions exist, creation of an STA detention marsh with control structure and installation of a control structure on the outlet of an existing uncontrolled pond. The project is complete.
- Leilani Heights/Warner Creek Stormwater Quality Retrofit. Approximately 1600 acres drain to Warner Creek between the Savannas State Reserve and the St. Lucie River. This retrofit is a multi-phased project, which includes installation of exfiltration, baffle boxes, and swales in upper basin reaches; installation of sediment traps in middle reaches of the creek, and construction of wet detention facilities in the downstream reaches. Phase I consisting of the installation of 1600 linear feet of exfiltration trench, installation of a 2nd generation nutrient separating baffle box, and creation of 900 linear feet of swales is complete. Phase 2 of the project is construction of a wet detention facility on the site of the decommissioned, five-acre Beacon 21 Waste Water Treatment Plant, and Phase 3 of the project involves sediment removal, channel widening and increased creek depth upstream of an existing weir in Warner Creek and replacement of undersized CMP culverts in Warner Creek with box culverts. Construction of Phase 2 improvements in Beacon 21 were completed in April 2011. Construction began on Phase 3 improvements in April 2011.

- Indian River Drive Baffle Box Project. This project consisted of installing six, second generation, nutrient separating baffle boxes, and installing exfiltration trenches along Indian River Drive between the Jensen Beach Causeway and County Road 707. The construction of the project has been 100% complete since May 2010.

- The County has awarded a contract for construction of the Manatee Pocket Enhancement Project, which will remove over 260,000 cubic yards of muck sediments from the Pocket and its tributaries. Mobilization commenced in March 2010, and dredging operations began in June 2010. As of May, 2011 over 130,000 cy of material had been removed. Prior upland water quality projects, totaling over $10 million are treating the water now entering Manatee Pocket.

- Martin County has spent $120,000 on eradicating exotic vegetation from properties that adjoin the South Fork of the St. Lucie River and IRL within the last year.

- Martin County completed the restoration of Twin Rivers Park within the last year. The project included the removal and replanting of 6-acres of native maritime hammock near the Saint Lucie Inlet.

- Martin County completed construction of the Port Salerno CRA Drainage Improvements – Desoto Ave. project in April 2011. The project installed 192 ft of exfiltration trench with control structure and 750 square yards of pervious concrete pavement in a 12 ft wide alley to treat runoff and eliminate a long standing erosion problem which carried sediment and untreated stormwater runoff to the Manatee Pocket.

The National Aeronautics and Space Administration:

- NASA has initiated a wetland mitigation plan for the NASA Causeway Revetment project, which is currently underway. The plan is to create 8-10 acres of high salt marsh along the NASA Causeway. An Environmental Resource Permit application has been received and funding is now available to start the work. The project will allow the filling of rotary cut ditches along the causeway and grading of the south side of the causeway to an elevation that will allow for inundation from the IRL. The project area will be planted with salt marsh plant species. Current schedule is to commence work when the water levels in the lagoon are low enough to allow grading to low water elevation.

- NASA continues to operate an atmospheric deposition site at Kennedy Space Center adjacent to the IRL in collaboration with St. Johns River Water Management District as part of the Clean Air Status and Trends Network (CASTNET) system.

The U.S. Fish and Wildlife Service (USFWS) manages the Pelican Island National Wildlife Refuge (PINWR) and the Merritt Island National Wildlife Refuge (MINWR). Combined, the two refuges constitute a land mass of over 145,000 acres. Managing conservation habitats of that size requires a variety of tools ranging from conducting wildlife surveys to implementing wetland impoundment strategies to exotic vegetation removal.
PINWR:

- The refuge continued coastal hammock restoration in 2009-2010 with the conversion of citrus groves to native coastal hammock species, which historically covered the barrier island landscape. Seventy acres of sparse to moderate coverage of Brazilian pepper, guinea grass, and other category 1 and 2 exotic species were treated in November 2009. The Sierra Club installed 15 acres of irrigation systems to support coastal hammock plants. Fifteen acres of coastal hammock plants have been planted to date.

- Throughout 2009-2010, the refuge staff continued to treat Category I and II invasive species across 300 acres of the refuge.

- Invasive plant species such as Brazilian pepper and Australian pine are currently being removed from Preachers Island and Paul’s Island. Initial treatment of all exotic species was completed in 2009.

- Retreatment of Preachers Island was completed November 2009 and November 2010. Total treatment area was approximately 35 acres. In November 2010, an additional 5 acres of initial treatment was conducted. Currently, approximately 5 acres of exotics have been eradicated on Paul’s Island.

- Newly acquired funds through the USFWS invasive species program and the IRLNEP will be used in 2010 to continue retreatment of over 30 acres on the spoil islands as well as plant native shoreline vegetation to enhance the quality of lagoon habitat within the refuge.

- In 2009, 2010, 2011 the refuge, the Environmental Learning Center, and the Marine Resources Council partnered to install over 2,000 red mangroves on the northern end of Paul’s island.

- Island clean-ups continue on IR4, IR5, and IR6 through volunteer efforts and outreach activities.

- The refuge continues to participate in waterway clean-ups and derelict crab trap removal.

- In May 2010, a new boardwalk overlook was installed on Pete’s Impoundment to provide wildlife viewing opportunities to the public. Currently, two 15 passenger refuge vans conduct tours to this outlook.

- In September 2010, a 10-year bioreview of Pelican Island habitat and wildlife programs was reviewed by experts from the area and top USFWS advisors. Currently, there is a 300 page Habitat Management Plan in draft form that describes all activities, goals, and protocols.

- In February 2011, the RAMSAR Wetland of International Importance data was updated to reflect all changes that have occurred since 1993.

- In March 2011, an ERP permit was submitted to SJRWMD for wetland construction directly north and to the south of Centennial Trail to alleviate problem mosquito areas and establish feeding and foraging habitat for wetland birds.

- In March 2011, a 24 X 48ft shadehouse was constructed on the refuge by volunteer groups to support future planting efforts.

- In April 2011, approximately 7,000 plants including cordgrass, sea purslane, saltwort, and red mangroves are going to be installed on the Preachers, Nelsons, and Pauls by the Coastal Conservation Association of the Treasure Coast and students from Florida Institute of Technology.

- New interpretative panels highlighting the habitat restoration efforts are set to be installed in spring 2011.

MINWR:
Monitored the completed restoration of T-39 South mosquito control impoundment. The project restored 2.67 miles of dike, creating 18 acres of wetlands and reconnecting 78 acres of wetlands to the IRL.*

Monitored the recently completed C-21-C South impoundment restoration. This project removed 0.75 miles of dike while creating seven acres of wetlands and reconnecting 70 acres of wetlands to the IRL.*

With assistance from Florida Fish and Wildlife Conservation Commission, contract crews continued to treat exotic vines (air potato, rosary pea, and Old World climbing fern).

Using USFWS Invasive Species Strike Team funding, Melaleuca trees were removed from 10,000 acres of wetlands immediately adjacent to the IRL near the NASA Causeway

Refuge staff continues to retreat Cogon grass sites on the refuge.

Contract crews administered by the St Johns River Water Management District continue the restoration of over 18 miles of levee. This work is funded by the American Recovery and Reinvestment Act of 2009. *

Collaborating with the Florida Fish and Wildlife Conservation Commission, USFWS completed a project to restore the natural hydrology of impoundment T-16 by placing water control structures on the upland side of the levee and plugging the perimeter ditches to retain and slow roadside runoff into Banana Creek. *

* Indicates projects designed and permitted under the IRLNEP wetland ecologist position funded at Merritt Island from 2006-2008.

Indian River County completed the Main Relief Canal Pollution Control project in 2008 and the Egret Marsh Regional Stormwater Park in 2010. Both of these projects are large-scale water quality improvement projects that will address the heavy sedimentation and phosphorous and nitrogen loadings from this watershed that had been discharging untreated into the IRL from the Indian River Farms Water Control District.

Main Relief Canal Pollution Control Project (Now known as PC Main):

- Design and construction of the Main Relief Canal Pollution Control System Using Series Screening Methodology is complete and the facility is in operation. In 2010 the facility removed over 156 tons of plants and debris from the Main Relief Canal, with a one-day high of 20.61 tons. An estimated 444 cubic yards of sediment was removed from the facility’s two sediment traps in 2010.

Egret Marsh Regional Stormwater Park:

- Egret Marsh was placed in service in June 2010. The facility’s primary purpose is to remove dissolved nutrients from drainage canals that accept runoff from a 9,000-acre basin. Egret Marsh uses an aquatic based plant system, the patented Algal Turf Scrubber (ATS) system, for the majority of the dissolved nutrient removal. Ten million gallons of water per day is pumped from the Indian River Farms Water Control District’s canal system to a gently sloping algae field. The algae removes dissolved nitrogen and phosphorus from the diverted water. Additional nutrients that have bonded with solids are removed through settling in the project’s three large polishing ponds. Water leaving the ATS flows through the three polishing ponds and finally to a wetland marsh for additional treatment prior to discharge to canals leading to the IRL. The project is estimated to remove 60.9 tons of suspended solids, 1.7 tons of phosphorus and 7.3 tons of nitrogen per year that had been entering the IRL from these canals.

PC South:

- Indian River County is in the planning and preliminary design stages for the construction of another ATS system and solids screening system in the Indian River Farms Water Control District’s South Relief Canal. An ATS pilot
plant is operating and will gather nutrient uptake data and other information for at least six months. The data will be used for final design of a Phase 1 ATS system, treating 10 mgd, similar to Egret Marsh. Reverse Osmosis reject water from the County’s Hobart Road Water Treatment Plant will be mixed with the canal water and the ATS system will remove nitrogen and phosphorus from both the reject water and the canal water. Some of the treated effluent will be incorporated into a new water reuse system operated by the Indian River County Division of Utility Services. Final design is expected to begin in the summer of 2011 and construction will begin in 2012. The Phase 2 screening system will be designed to screen in excess of 200 mgd of canal water, removing material as small as 1/16th of an inch in diameter. Final design has begun on this facility but funding issues will likely prevent construction for the foreseeable future.

The Florida Department of Agricultural and Consumer Services (FDACS) is actively involved in the development of Best Management Practices (BMP’s) addressing water quality and water conservation applicable to agriculture operations as well as commercial and residential properties. Florida law provides for farmers to reduce their impacts to water quality through the implementation of BMPs adopted by FDACS. Agricultural BMPs are practical, cost-effective actions that agricultural producers can take to reduce the amount of pesticides, fertilizers, animal waste, and other pollutants entering our water resources. Implementing BMPs benefits both the farmer and the environment, and demonstrates agriculture’s commitment to water resource protection.

- Approximately 304,892 acres of agricultural land within Brevard, Indian River, Martin, St. Lucie, and Volusia counties are enrolled in FDACS BMP programs. This is an increase of 68,573 acres over 2010 figures. Indian River, Martin, and St. Lucie counties comprise 235,673 of the total acres. The table below provides a breakout of enrolled acres by county and commodity.

<table>
<thead>
<tr>
<th>County</th>
<th>Citrus</th>
<th>Nursery</th>
<th>Row Crops</th>
<th>Cow/Calf</th>
<th>Leatherleaf Ferns</th>
<th>Sod</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Brevard</td>
<td>4082.50</td>
<td>149.88</td>
<td>590.00</td>
<td>56,103.00</td>
<td>0.00</td>
<td>2,050.00</td>
<td>62,975.48</td>
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<tr>
<td>Ind. River</td>
<td>44437.64</td>
<td>163.00</td>
<td>0.00</td>
<td>743.00</td>
<td>0.00</td>
<td>325.00</td>
<td>45,668.64</td>
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<tr>
<td>Martin</td>
<td>40315.49</td>
<td>1,437.40</td>
<td>2,093.00</td>
<td>32,160.75</td>
<td>0.00</td>
<td>200.00</td>
<td>76,206.64</td>
</tr>
<tr>
<td>St. Lucie</td>
<td>82537.58</td>
<td>880.56</td>
<td>0.00</td>
<td>30,249.40</td>
<td>0.00</td>
<td>130.00</td>
<td>113,797.54</td>
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<tr>
<td>Volusia</td>
<td>105.00</td>
<td>146.00</td>
<td>0.00</td>
<td>4,450.00</td>
<td>953.30</td>
<td>589.55</td>
<td>6,243.85</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>171478.21</td>
<td>2,776.94</td>
<td>2,683.00</td>
<td>123,706.15</td>
<td>953.30</td>
<td>3,294.55</td>
<td>304,892.15</td>
</tr>
</tbody>
</table>

- The County Alliance for Responsible Environmental Stewardship (CARES) program highlights efforts by farm owners to improve natural resource management. The CARES program is sponsored by the University of Florida Institute of Food and Agriculture Science (IFAS). FDACS provides support for the program in evaluating BMP implementation and assisting with organizing and conducting awards events. Farm owners who have met verifiable standards of excellence in resource management receive a CARES designation and post signage on their properties identifying them as award winners for their good work.

- For more than a decade, partnership-based Mobile Irrigation Labs (MILs) have been operating free of charge, throughout the State of Florida. The MILs provide expertise in analyzing irrigation systems and educating agricultural, commercial, and residential property owners on how to improve water conservation and use. They give recommendations on the improvement of existing irrigation systems and equipment, and inform their customers and the public on water conservation, irrigation planning, and irrigation management. There are two MILs that operate within the Indian River Lagoon Region: the Treasure Coast Resource Conservation and Development Council MIL (agricultural), which serves St. Lucie and Martin counties, and the East Central Florida Resource Conservation and Development Council MIL (urban), which serves Brevard and Volusia Counties.
The Florida Inland Navigation District (FIND) continues to direct navigational and environmental dredging projects and support boater education, habitat restoration efforts, waterway cleanups and recreational enhancement throughout the IRL. Listed below are projects that FIND initiated, continued or completed in FY 2009-2010:

- Continue publication of Florida East Coast Intracoastal Waterway Zone Brochures
- Currently in the design/permitting phase of the Dredged Material Management Area (DMMA) on FIND property in Indian River County
- Completed construction of DMMA- BV- NASA on NASA property in Brevard County
- Completed construction of DMMA on FIND property in St Lucie County
- Repair of gabion mat at DMMA M-5 in St. Lucie Inlet
- Completed the Crossroads dredging project
- Continue support for the Florida Department of Environmental Protection Clean Marina and Clean Vessel programs
- Completed Martin County Peck Lake Park Improvements
- Supported Martin County Manatee Pocket Channel Dredging
- Completed the St. Lucie County South Causeway Shoreline Restoration
- Completed Brevard County derelict vessel removal
- Replaced the Titusville Marina fuel tank
- Supported the Cocoa Beach Channel 400 dredging project.
- Completed the Crane Creek Promenade Reconstruction
- Funded in part the Environmental Learning Center Exhibits, Aquaria & Signage
- Supported the City of Vero Beach Marina Improvements
- Completed the Little Mud Creek Canoe/Kayak Launch in St. Lucie County
- Completed the Stan Blum Boat Ramp Restrooms
- Supported MC-2 Spoil Island stabilization
- Continued the St. Lucie Inlet maintenance
- Completed the Shepard Park Boat Ramp reconstruction in Martin County

The Nature Conservancy (TNC) is the world’s leading conservation organization working to protect ecologically important lands and waters for nature and people. TNC has a strong presence in the IRL region focusing on the areas of invasive species, land acquisition and habitat restoration.
Land Protection

TNC assisted Brevard County Environmentally Endangered Lands (EEL) Program and secured funding through the US Air Force Department of Defense’s Readiness and Environmental Protection Initiative (REPI) for the following two acquisitions within the Brevard Coastal Scrub Ecosystem (BCSE) Florida Forever Project:

1. Coastal Jewel property – 188 acres of important Florida scrub-jay habitat. This acquisition increased the size of the Jordan Scrub Sanctuary by 25 percent. The REPI program contributed $900,000 towards the purchase of this property.
2. Florida Power & Light property – 6.67 acres of prime scrub habitat. The purchase was approved by the Board of County Commissioners in February 2011 and closing is pending. This parcel is adjacent to the Cruikshank Sanctuary in Rockledge. REPI will contribute 50% of the acquisition cost.

TNC also assisted Brevard County EEL Program in acquiring the last remaining inholding in the Malabar Scrub Sanctuary, a 1.47 acre parcel.

- TNC resubmitted an application developed in 2010 to National Oceanic and Atmospheric Administration’s Coastal and Estuarine Land Conservation Program (CELCP) 2011 for acquisition of lands within the IRL Blueway project in Brevard and Volusia Counties. The proposed acquisition consisted of five parcels encompassing approximately 144 acres. The IRL was ranked 8th on NOAA’s FY2011 Prioritized List for funding consideration.

Oyster Reef Restoration

- Since 2005, The Nature Conservancy, University of Central Florida, Canaveral National Seashore, IRLNEP, St. Johns River Water Management District, Brevard Zoo, Royal Caribbean Cruise Lines, and many partners including thousands of community volunteers have been helping to restore intertidal oyster reefs degraded by boat wakes in the Mosquito Lagoon, Florida. TNC has received lead funding from the TNC/NOAA Community-Based Restoration Program since inception of the restoration project. In addition to the TNC/NOAA CRP grants, funding has also been received through several other grant sources including the IRLNEP/SJRWMD. Since 2005 more than $1 million has been directed to this project through public grants, private donations and in-kind services. By the end of 2010, 42 reefs have been restored with the help of more than 18,000 volunteers who made and deployed 19,654 oyster mats. These newly created reefs provide habitat and food for species, including fishes, crabs, birds and other important estuarine species. More than 140 different species have been identified using these restored reefs, which is similar to the number of species using nearby natural reefs. In addition, seagrass establishment has been observed adjacent to new reefs. Results have proven the oyster mat restoration technique successful in the shallow, intertidal system of Mosquito Lagoon. After only one year in the water, an average of 36 new oysters had settled on each mat and a 3-dimensional reef structure has started to form on all of the restored reefs. The new reefs are monitored every year to determine the success of this restoration method over time.

- The Nature Conservancy received three additional grants and an award in 2010 to continue the oyster reef restoration work in the Mosquito Lagoon. The 2010 ANEP/NOAA Community-Based Restoration Program and IRLNEP License Plate grants were awarded for FY 2011. Both of these grants are collaborations with the IRLNEP, UCF and other partners. A third grant was received through the US Fish and Wildlife Service Coastal Program. In addition to these public grants TNC was awarded $100,000 through the Disney Friends for Change program.
Invasive Species Management

- TNC led or assisted with quarterly steering committee meetings, eight cooperative multi-agency workdays, prioritizing early detection/rapid response (EDRR) species and efforts, outreach events and USFWS Coastal Program and Partners for Wildlife cooperative funding agreements for the Treasure Coast Cooperative Invasive Species Management Area (TC CISMA). TC CISMA is a regional invasive working group that includes northern Palm Beach County, and all of Martin, St. Lucie and Indian River counties. Major participants are TNC, Florida Park Service, Martin County, St. Lucie County, U.S. Fish and Wildlife Service, Natural Resource Conservation Service - Resource Conservation and Development Program, South Florida Water Management District, Florida Fish and Wildlife Conservation Commission, St. Johns River Water Management District/IRLNEP and the University of Florida. TC CISMA’s mission is to implement a comprehensive, cooperative approach across boundaries to address the threats of invasive species within the Treasure Coast. Highlights from the past year included: TC CISMA received the 2010 Coastal America Partnership award for the cooperative Scaevola taccada dune removal project; established chair positions and subcommittees in private lands, invasive animals, control species, and EDRR; and participated in National Invasive Species Awareness Week with cooperative multi-agency workdays, a private land workday and invasive species presentations to the Florida Grazing Land Coalition.

- TNC assisted with the formation of the East Central Florida CISMA, a regional invasive species working group, for Putnam, Flagler, Volusia and Brevard counties. Since January 2010, the new CISMA held three meetings, participated in National Invasive Species Awareness Week with two cooperative multi-agency workdays, and developed a five-year strategic plan.
### Section C.2 IRLNEP Work Plan Projects FY 2010-2011

<table>
<thead>
<tr>
<th>Project Partners</th>
<th>CCMP Action Plan and Priority/ Project Proposal Title and Abstract</th>
<th>CWA 320 Funding</th>
<th>Project Deliverables</th>
<th>Scheduled Completion Date</th>
<th>Project Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>Martin County School Board (lead contractor); Munson Foundation (funding partner); Martin County Students (funding partner)</td>
<td>PIE-1 (High); PIE-4 (High); Martin County School Board’s Environmental Studies Center Camp WET. The project will provide three, two-week sessions of academic summer camp for a total of 156 students using a hands-on field based curriculum. The project will employ proven instructional methods to engage the students and motivate them to make positive behavior changes as well as share their concern for and knowledge of the Indian River Lagoon with others.</td>
<td>16,000</td>
<td>The following deliverables/outcomes will be produced by this project: development of student selection guidelines; a roster of 156 student participants; summer-camp curriculum and student activity book; a hands-on interactive summer camp program; pre and post tests as well as parent and student surveys.</td>
<td>9/30/2011</td>
<td>On Schedule</td>
</tr>
<tr>
<td>The Nature Conservancy (lead contractor); University of Central Florida (technical support); Citizen Volunteers</td>
<td>F-1 (High); F-4 (High); Community Outreach, Restoration and Monitoring of Intertidal Oyster Reefs in Mosquito Lagoon. The restoration efforts will occur in the Mosquito Lagoon within the waters of the Canaveral National Seashore and/or the Mosquito Lagoon Aquatic Preserve. The restoration efforts require leveling dead margins and providing stabilized recruitment substrate for oysters (oyster restoration mats) over the leveled shell material. The mats prevent movement of the leveled material and provide an increase in the available oyster habitat and thus the number of live oysters, oyster clusters and associated oyster reef organisms.</td>
<td>39,482</td>
<td>The objective of this project is to implement a scientifically based restoration technique that minimizes wake damage from recreational boats on intertidal oyster reefs. Project deliverables include periodic reports summarizing the number of citizen volunteers participating; the numbers of mats produced and deployed. The final project report will detail the how well the deployed mats are recruiting oyster larvae and an inventory of other wildlife found on the deployed mats.</td>
<td>9/30/2011</td>
<td>On Schedule</td>
</tr>
<tr>
<td>Martin County (lead contractor); Florida Inland Navigation District (funding support); U.S. Fish and Wildlife Service (funding support)</td>
<td>ETS-1 (High); ETS-3 (High); MC-2 (Bird Island) Wave Attenuation System and Shoreline Protection Project. MC-2 is a ±2-acre dredged material deposit island in the Indian River Lagoon. The island houses one of the most important bird-nesting colonies in South Florida. It supports hundreds of nesting and roosting birds including state and federal listed species. The eastern and northern shorelines of MC-2 are continually threatened by erosion from boat wakes and storms. Since 1970 the island has decreased in size by approximately 30%. Martin County will build a wave attenuation system to protect the shoreline of this island rookery.</td>
<td>100,000</td>
<td>Martin County will submit copies of all necessary project permits; design plans; bid documents and photographs of work progression. The County will also provide copies of the native vegetation planting plan and will seed the attenuation facility with oyster larvae. The project final report will include preliminary post project implementation erosion/ accretion rates ; assessment of the oyster larvae settlement on the attenuation facility and seagrass recruitment and survival rates of the planted vegetation.</td>
<td>8/30/2013</td>
<td>On Schedule</td>
</tr>
<tr>
<td>Cape Canaveral Scientific Inc., (lead contractor); Stormwater Solutions Inc., (technical support); Scientific Environmental Applications (technical support)</td>
<td>FSD-13 (High); FSD-14 (High); Grant Writing Services in Support of the Indian River Lagoon CCMP. This project assists local governments in meeting the challenges of financing CCMP implementation projects. The thirteenth year of work under this project continues to demonstrate a desire by lagoon area municipalities and counties to collaborate with state and federal agencies on implementation activities. Many local governments have utilized the services of the IRLNEP consultant to identify new funding sources, prepare grant proposals and join with other partners to implement CCMP Action Plans.</td>
<td>47,857</td>
<td>Develop, write, submit and support up to five grant applications to the Florida Department of Environmental Protection’s 319 Non Point Source Grants Program and/or the TMDL Water Quality Restoration Grant Program for the treatment of stormwater, and/or the Florida Department of Community Affairs’ Florida Communities Trust Program for the acquisition of environmentally sensitive land.</td>
<td>9/30/2011</td>
<td>On Schedule</td>
</tr>
<tr>
<td>University of Central Florida</td>
<td>IFF-1 (High); Measuring and Monitoring Exotic Species in the Indian River Lagoon. UCF will monitor the spatial and temporal distribution of three exotic invasive species (the charru mussel <em>Mytila charruna</em>, the pink barnacle <em>Megabalanus coccopoma</em>, green mussel <em>Perna viridis</em>) and the recent discovery of multiple colonial ascidians now covering live oysters in northern IRL waters. Many southeastern native coastal species may be affected by the invasion of these species, including but not limited to three ecologically important native species, <em>Gedkensia demissa</em> (ribbed mussel), <em>Brachiodontes spp.</em> (scorched mussel), and <em>Crassostrea virginica</em> (eastern oyster).</td>
<td>31,911</td>
<td>This project will produce two deliverables. First, UCF will produce 3000 laminated color IRL Exotic Species ID Guides so that the public-at-large (e.g. school groups, kayak clubs, etc.) can search for these invasive species. Fact sheets have already proven to be valuable in the spread of knowledge concerning <em>M. charruna</em> and this new guide will further efforts to spread the knowledge of other exotic species. Second, this project will provide a final report on the abundance, distribution and genetic variation of these three exotic species throughout the IRL.</td>
<td>9/30/2011</td>
<td>On Schedule</td>
</tr>
<tr>
<td>Project Partners</td>
<td>CCMP Action Plan and Priority/ Project Proposal Title and Abstract</td>
<td>CWA 320 Funding</td>
<td>Project Deliverables</td>
<td>Scheduled Completion Date</td>
<td>Project Status</td>
</tr>
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<tr>
<td>Florida Fish and Wildlife Conservation Commission (lead contractor); University of Florida (technical support); Innovative Health Applications (technical support); Ocean Research and Conservation Association (technical support)</td>
<td>BAH-2 (High); BAH-3 (High); Monitoring Toxic Algae in the Indian River Lagoon. This project will continue the cooperative collection effort for water, phytoplankton and sediment harmful algal bloom cyst samples at six fixed core sites (CS), twice a month for the presence and abundance of known and potentially toxic algae. The CS represent a range in the distribution and abundance of the target saxitoxin-producing dinoflagellate <em>Pyrodinium bahamense</em> allowing for more detailed analysis of the co-occurring phytoplankton community, water quality and environmental parameters</td>
<td>93,000</td>
<td>This project will continue to monitor temporal and spatial distributions of HAB's; identify toxic algae present in the samples; conduct nutrient, water quality and sediment analyses. Deliverables include biannual report and final comprehensive report of research findings.</td>
<td>9/30/2011</td>
<td>On Schedule</td>
</tr>
<tr>
<td>The Smithsonian Institution</td>
<td>MON-1 (High); Benthic Infaunal Monitoring of the Central Indian River Lagoon. The goal of this project is to increase the number of data sets relative to the health of the benthos in the central IRL. Monitoring six sites in the central portion of the IRL, will improve the quality and reliability of the data sets. It will also improve the ability to distinguish anthropogenic disturbances from natural successions and oscillations within the IRL ecosystem.</td>
<td>38,907</td>
<td>The following deliverables/outcomes will be produced by this project: Baseline data on the general benthic health status of the central IRL as compared to the southern part of the lagoon. Identify areas where the ecological conditions are problematic. Follow temporal trends and ecological changes, and determine which are natural and which are caused by anthropogenic activities. Identify sources of anthropogenically induced disturbances. Final comprehensive project report.</td>
<td>9/30/2011</td>
<td>On Schedule</td>
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<tr>
<td>Town of Sewalls Point (lead contractor); South Florida Water Management District (funding partner); Florida Department of Environmental Protection (funding partner); Florida Department of Transportation (funding partner)</td>
<td>FSD-13 (High); The Town of Sewall’s Point Greenway /Pedway Project. The Town will construct a low impact development greenway, pedway and exfiltration system adjacent to the main Town thoroughfare. The Town will install one mile of exfiltration along the 24 foot road on the west side of the thoroughfare. The pedway will be paved with a porous pavement made from re-cycled tires that will allow stormwater to infiltrate to exfiltration pipe underground for recharge to the water table.</td>
<td>15,000</td>
<td>Project deliverables are: Survey of installation site; engineering design; construction contract; photographs of the installation of the pervious pavement, and signage; as-built drawing and final project acceptance letter.</td>
<td>2/25/2012</td>
<td>Contract Pending</td>
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<tr>
<td>St Johns River Water Management District</td>
<td>MON-1 (High); Indian River Lagoon Seagrass and Water Quality Monitoring. This funding will be utilized to contract with appropriately skilled labor in support of data collection efforts for IRL water quality including sampling of IRL physical, chemical and biological parameters. The project also continues the IRL seagrass monitoring program capturing data on changes in seagrass extent, determining the maximum depth of the of beds and percentage of sunlight reaching established targets.</td>
<td>310,320</td>
<td>Water quality samples will be submitted monthly including blanks and duplicates with Field Data Entry forms. Reports will be generated and submitted detailing changes in seagrass acreage (gain or loss), maximum depth of seagrass growth and percent of sunlight reaching depth targets.</td>
<td>9/30/2011</td>
<td>On Schedule</td>
</tr>
<tr>
<td>Indian River Lagoon National Estuary Program</td>
<td>FI-1 (High); Program operational cost.</td>
<td>14,500</td>
<td>N/A</td>
<td>9/30/2011</td>
<td>On Schedule</td>
</tr>
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**CWA Funding Total** $706,977
Section C.3. IRLNEP Clean Water Act Implementation

The IRLNEP CCMP established under Section 320 of the Clean Water Act (CWA) and in compliance with the CWA has developed partnerships with federal, state and local governments, private corporations, non-profit organizations, academia and the IRL region citizens. These partnerships form the framework for consensus, ecosystem based management strategies designed to restore and maintain IRL water quality and habitat.

The FY 2011-2012 IRLNEP Work Plan directly or indirectly supports all of the CWA core programs. Highlighted in this section are specific examples of programs and projects implemented in the IRL basin that are directly related to CWA.

Activity 6

PC (Pollution Control) South’s Algal Turf Scrubber (ATS) System. This project will treat 10 million gallons per day of polluted water from IRFWCD’s South Relief Canal. The South Relief Canal flow averages 26 MGD with nutrient-rich contributions from a 12,500-acre drainage basin that is a mix of developed industrial, residential, commercial, and agricultural land. PC South’s ATS will remove dissolved nitrogen and phosphorus from the canal water. A final polishing filter, similar to a wastewater treatment type filter will be included in the treatment train downstream of the ATS to remove all remaining solid particles from the treated water. Initially, up to three million gallons per day of treated canal water will be disinfected and placed into a new County reuse water system. The remaining water will be returned to the South Relief Canal where it will continue its journey to the Indian River Lagoon.

Clean Water Act Implementation Information

The IRLNEP has a significant role in this project. The project complies with CWA to restore and maintain the chemical, physical and biological integrity of the Nation’s waters and to control point and non-point sources of pollution.

Activity 15

Grants Writer/ Facilitator. The project is funded entirely by the IRLNEP as a mechanism to assist local governments in meeting the challenges of financing projects that implement the IRL CCMP. Many local governments have utilized the services of the IRLNEP grant writer to identify new funding sources, prepare grant proposals and join with other partners to help implement CCMP Action Plans. In Martin County, the lagoon’s southern most county, the IRL NEP funded grants writer has submitted 31 grant applications on behalf of the county garnering over $32.6 million in state and federal funds supporting over $81.5 million in total CCMP implementation projects. This service to local governments will continue through September 30, 2012.

This project directly supports the IRLNEP goal to identify and develop long-term funding sources to implement CCMP prioritized projects. Without offering grant writing assistance to IRL local governments via this project, it is highly unlikely that these activities would be completed.

Clean Water Act Implementation Information

IRLNEP role- Primary. This project directly supports the objectives of the CWA to restore and maintain the chemical, physical and biological integrity of the Nation’s waters and to control point and non-point sources of pollution. The grants writer has submitted Florida Department of Environmental Protection 319 and TMDL funding applications for projects that include the development of stormwater parks, installation of treatment train methodology systems in older, highly urbanized areas and for the purchase of environmentally sensitive lands through the Florida Forever/ Florida Communities Trust Program.
C.4. Discussion of External Factors Impacting the IRLNEP FY 2011-2012 Work Plan Implementation

At the present time all IRLNEP funded FY 2011-2012 Work Plan projects are being scoped for contracting or are already being implemented and are on schedule. However, the State of Florida is still not rebounding from the economic malaise that began in 2008. Florida relies heavily on tourism and the housing industry for revenue primarily through sales and property tax collections. When tourism and housing starts and existing property values experience a downturn as is continuing, state and local revenue are reduced substantially. Florida does not employ a state income tax.

The IRLNEP’s host agency, the St Johns River Water Management District (SJRWMD) is a regional ad valorem taxing agency and as such, has seen a dramatic reduction in revenue. As with the last three year’s of IRLNEP funding, SJRWMD asked the IRLNEP to continue to fund the major monitoring and research project that benefits the IRL. This project was historically funded entirely by SJRWMD utilizing ad valorem revenue. The IRLNEP management conference continues to believe that this project is highly beneficial to the IRL and recommended that funds be provided from the CWA Sec 320 funds for this activity. On May 25, 2011, the Advisory Board approved the recommendation.

In addition, the Florida legislature and Governor capped the SJRWMD’s taxing authority at $85.3 million for FY11-12, requiring a $26 million reduction in District projects and a reduction in workforce of over 100 employee and contractor positions. This RIF resulted in the early retirement of the program’s 20-year project scientist and the layoff of the program’s 20-year business resources specialist. It has also required that all staff salaries and benefits be covered with the CWA Sec 320 grant funds equaling seventy-eight (79%) percent of the grant funds, supporting five employees plus the program’s contracted education coordinator. Fortunately, sufficient IRL license plate funds and unexpended FY10-11 funds are available to support all previously approved work plan projects plus several additions.

The IRL license plate sales have continued to decline over the past six years, as have the majority of the state’s 100+ specialty license plates. The IRLNEP believes this is a direct result of Floridians adjusting family budgets to prioritize expenses and will continue until the Florida economy stages a comeback. Unfortunately, the lull in license plate sales has been compounded since 2009, when the Florida legislature increased the fees for all license plates, and those increases coupled with the additional cost of a specialty license plate are causing drivers to reconsider the purchase of any specialty plate.

In another extremely tight budget year, funding from the State of Florida to the SJRWMD has been eliminated. The SJRWMD historically received funding from the state for projects that benefit state identified priority water bodies. While the IRL is one of those priority water bodies, zero state dollars were appropriated for IRL projects for FY 2011-2012.

Therefore, the future fiscal year promises to be another challenging one economically for the IRLNEP. However, our host agency the SJRWMD in spite of revenue reductions, continues its on-going commitment to support the IRLNEP with overhead, offices, pool vehicles, computers, contracting services, technical support, employee training and development, legal counsel, human resources and outreach support through the production and distribution of the quarterly IRL Newsletter. We believe that continuing SJRWMD support coupled with our funding source diversification, will allow the IRL NEP to continue CCMP implementation activities at a moderate level and positions the IRLNEP to continue to meet challenges to lagoon resources, and partner on critical, high priority projects.
### Section D. Clean Water Act Travel Funds

<table>
<thead>
<tr>
<th>Personnel</th>
<th>Travel Dates</th>
<th>Purpose</th>
<th>Location</th>
<th>Cost</th>
</tr>
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<tbody>
<tr>
<td>Garland, &amp; Robert</td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Day</td>
<td>11/11/2010</td>
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<tr>
<td>Troy Rice &amp; Frank</td>
<td>02/28/2011 to 03/03/2011</td>
<td>ANEP/EPA Spring Conference</td>
<td>EPA Headquarters, Washington DC</td>
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<td>Sakuma</td>
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<td>Total</td>
<td></td>
<td></td>
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<td>$5,547.59</td>
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Indian River Lagoon National Estuary Program FY 2010-2011 Travel Cost