Implementation of the Inland Bays CCMP

Work Plan for the period October 1, 2012 - September 30, 2013

Delaware Center for
the Inland Bays, Inc.

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Implementation of the Delaware Inland Bays CCMP

Abstract

The Delaware Center for the Inland Bays, Inc. will implement the Inland Bays Comprehensive Conservation and Management Plan (CCMP) through a series of new and ongoing projects in FY 2012 These projects implement various CCMP Action Plans and Tactics and may include, but are not limited to the following:

Completed

CIB09-005	Center for the Inland Bays Environmental Indicators Project
CIB10-002	James Farm Kiosk & Educational Signage
CIB11-004	Bethany Lakes Alternative Shoreline Stabilization Project
CIB11-005	Hopkins Diary Farm Headwater Stream Restoration - Phase I
CIB11-006	Baltimore Aquarium Partnership/Display
CIB11-009	Stockley Center Headwater Stream Restoration Project
CIB11-014	Anchorage Canal Drainage Area Stormwater Retrofit Implementation Project # 2: Highway Median Bioretention Areas
CIB12-017	Bays in Your Backyard Campaign
CIB12-021	Update of the Inland Bays Comprehensive Conservation & Management Plan

On-going

CIB09-002	Acreage and Condition Trends for Marshes of Delaware's Inland Bays as an Environmental Indicator and Management Tool (USEPA RARE GRANT)
CIB09-004	Long-term continuous saltmarsh monitoring in the Inland Bays
CIB10-004	1000 Raingardens for the Inland Bays
CIB10-005	Hard Clam Density and Distribution Survey
CIB13-001	Inland Bays CCMP Project Management & Oversight
CIB11-003	Eelgrass Habitat Suitability Mapping Project
CIB11-007	Massey's Landing Dredge Spoil Project
CIB11-010	Mini Oyster Demonstration Reef
CIB11-011	Bethany Beach Nature Center
CIB11-012	Schoolyard Habitats in the Inland Bays Watershed
CIB11-013	Shorezone Fish Community Volunteer Monitoring Program
CIB11-015	Seaweed Monitoring, Method Calibration, and Long Term Trend Analysis (2011 and 2013).
CIB11-016	Effects of Suburban Development on Shallow Groundwater Quality
CIB12-001	Inland Bays Clean Up
CIB12-003	Delaware Envirothon
CIB12-004	Oyster Gardening Program
CIB12-005	Stormwater Maintenance & Open Space Management Seminars
CIB12-007	Colonial Nesting Bird Survey
CIB12-008	Inland Bays Island Restoration
CIB12-009	Land Acquisition
CIB12-010	Landowner Habitat Technical Assistance
CIB12-011	Inland Bays Habitat Restoration Strategy Comparison to Draft CIB Habitat Plan
CIB12-012	Volunteers for the Bays
CIB12-013	Annual Inland Bays Horseshoe Crab Survey
CIB12-014	Children in Nature- Environmental Literacy Plan for Delaware

CIB12-015	CIB Speakers Bureau
CIB-12-016	Gardening for the Bays Native Plant Sale
CIB12-018	Burton's Island Toxic Bioaccumulation Study
CIB12-019	Inland Bays Nitrogen and Phosphorus Total Maximum Daily Load Modelling Assessment
CIB12-020	Eelgrass planting in Delaware Inland Bays
CIB12-022	Inland Bays Shellfish Aquaculture Initiative

Proposed

CIB13-001	Hopkins Dairy Farm Headwater Stream and Wetland Restoration-Phase 2
CIB13-002	Rain Garden Training for Professional Landscapers
CIB13-003	Enhancement of Education and Outreach Opportunities at the James Farm Ecological Preserve
CIB13-005	Demonstration and Training of Living Shoreline Techniques for Marine Contractors
CIB13-007	Inland Bays Migratory Fish Passage Restoration Feasibility and Planning Study

Preface

This document is written to meet EPA requirements for an annual work plan for award of funds pursuant to Section 320 of the Clean Water Act. This Work Plan serves as an agreement between the Center for the Inland Bays and the U.S. Environmental Protection Agency for work to be carried out during Fiscal Year 2012 (October 1, 2012 through September 30, 2013). The focus of this Work Plan is the implementation of the Delaware Inland Bays Comprehensive Conservation and Management Plan via research, demonstration, education/outreach, and habitat restoration activities.

Introduction

Delaware's Inland Bays and their encompassing watershed have been the subject of study since 1969. Since 1988, the Inland Bays have been part of the National Estuary Program, established under the Federal Clean Water Act and administered by the Environmental Protection Agency. This estuary program effort has culminated in a Comprehensive Conservation and Management Plan for the Inland Bays, which is in the implementation phase. To support this implementation effort and to ensure that an open and collaborative process continues for future conservation efforts in the watershed, the Center for the Inland Bays, Inc. was established by the Delaware General Assembly in 1994 under the auspices of the Inland Bays Watershed Enhancement Act.

The purposes of the Center are:

1. To build, maintain, and foster the partnership among the general public, the private sector, and local, state, and federal governments, which is essential for establishing and sustaining policy, programs, and the political will to preserve and restore the resources of the Inland Bays watershed;

2. To sponsor and support educational activities, restoration efforts, and land acquisition programs that lead to the present and future preservation and enhancement of the Inland Bays watershed; and

3. To serve as a neutral forum where Inland Bays watershed issues may be analyzed and considered for the purposes of providing responsible officials and the public with a basis for making informed decisions concerning the management of the resources of the Inland Bays watershed.

The mission of the Center is:

to promote the wise use and enhancement of Delaware's Inland Bays and their watersheds.

COMPLETED PROJECTS

Year Reported 2012

Date : 07/06/2012

DELAWARE
Limulus polyphemus
CENTER FOR THE INLAND BAYS
Rehoboth Indian River Little Assawoman

Project Report

Project Name: *Center for the Inland Bays Environmental Indicators Project*

Lead Contractor: Center for the Inland Bays

Responsible Partners, Contact Info, and Chris Bason -- CIB, 302 226-8105, Project Coordination
Sally Boswell -- CIB, Outreach and Publication Assistance
CIB STAC subcommittees, Project Support and publication review

Project Status: Completed **Work Pan ID :** CIB09-005

Project Description

Strategic Alignment:

CCMP Action Plan ID :	Primary Action Plan ID Title :
ED-A,IMS-A	Implement the Comprehensive Public Participation and Education Plan
CCMP Goal Objective ID :	**Primary Goal Objective ID Title :**
G2,G2E,G3,G8,G8C,G9,G9F	Enhance monitoring and response strategies

CWA Program Implementation: Controlling Nonpoint Source Pollution on a Watershed Basis, Improving Water Quality Monitoring

Overview:

The CIB STAC will update and assess the current environmental indicators, explore the need for and identify new indicators, and develop a strategy to effectively collect and report this information over time to the public and policy makers. This initiative will also include a comprehensive assessment of progress made towards implementing the CCMP. The purpose of this process is to develop the Inland Bays Environmental Indicators into the most complete and coherent explanation of the current ecological condition of the Bays and their watershed, and to relate this to the progress towards their restoration in a manner that regularly informs and involves the public.

Intended Results

1. Develop and implement a plan to revise and expand the existing environmental indicators into the most complete and coherent explanation of the current condition of the Inland Bays and their watershed.
2. Relate stressors and management actions to changes in bay health.
3. Develop and implement a long term indicator reporting strategy.

Outputs/Deliverables:

• Review and update existing environmental indicators (completed).
• Select and conceptually develop new environmental indicators (COMPLETED).
• Develop and implement an environmental indicators reporting strategy (completed).

Milestones:

1. Review and update existing environmental indicators (Completed: January 2011)
2. New indicator release (Interim Timeperiod): Recreational Water Quality and Wetland Condition (Completed December 2010)
3. Indicator release 2010 (Target: 3 Individual releases throughout 2010, Initiated: Recreational Water Quality Report 2nd ed. June 2010. Complted SEP 2011).
4. Final Indicator Report (Target: January 2011. Completed SEP 2011)

Short-Term Outcomes

Increased stakeholder understanding about trends in watershed health over time. Increased resource manager understanding of the interrelations between watershed stressors and condition.

Intermediate Outcomes:

Expected significantly more informed expectant attitudes in general public and policy makers for increased and maintained pollution control.

Long-Term Outcomes

Overall improved environmental condition (chemical and biological) in response to increased action from provision of easily understandable condition assessment.

Project Progress

Progress To Date:

Full production of the State of the Inland Bays 2011 report was completed in September 2011. The report included 31 environmental indicators in 6 subject matter chapters. The report received full review from the CIB STAC. The release occurred at a Center Press Release Event attended by 60 people and media representatives. The release received print and video news coverage. Over 1,000 reports were distributed and 240 individuals heard the presentation of the State of the Bays by June 2012. Information in the report is used consistently in testimony and grant proposals.

Additional Project Information

Project Financing

Funding Determination : Sole Source

Amendment: ☐

Amendment Source:

CIB FUNDS: $10,000.00
OTHER FUNDS: $5,000.00
MATCHING FUNDS: $0.00
AMENDMENT FUNDS:
TOTAL: $15,000.00

Project Location

Municipality : All Coastal Communities

Watershed/Waterbody : All Bays

Latitude:

Longitude:

Project Leveraging Role

Primary

Year Reported 2012

Date : 07/06/2012

Report Information

Report Title:

Author :

Abstract :

Restoration ☐	**QAPP** ☐
Habitat Type :	**Date Completed :**
Restoration type :	**Date Approved :**
Acreage :	**Location :**
Partners :	
Completion Date:	
Cost :	

Year Reported 2012

Date : 07/06/2012

Project Report

Project Name: *James Farm Kiosk & Educational Signage*

Lead Contractor: Center for the Inland Bays

Responsible Partners, Contact Info, and

Sally Boswell -- Project Manager
E.J. Chalabala
Center for the Inland Bays
39375 Inlet Road
Rehoboth Beach, DE 19971
(302) 226-8105
outreach@inlandbays.org

Project Status: Completed

Work Pan ID : CIB10-002

Project Description

Strategic Alignment:

CCMP Action Plan ID :	Primary Action Plan ID Title :
ED-A	Implement the Comprehensive Public Participation and Education Plan
CCMP Goal Objective ID :	**Primary Goal Objective ID Title :**
G9,G9C,G9F	Ensure, to the maximum extent possible, all planning and management activities related to the Inland Bays involve public participati, iniInformation and education e

CWA Program Implementation: Improving Water Quality Monitoring

Overview:

The James Farm Ecological Preserve is owned by Sussex County and managed by the Center for the Inland Bays. It is open to the public every day of the year from sun up to sun down. In addition to thousands of visits by residents and visitors each year, James Farm is host to about 1,000 7th and 8th grade middle school students who come to the Farm for a full day of instruction each school year. A kiosk was built next to the parking lot as a point for providing information to visitors, but permanent signage, waterproof 'cabinets' for posting information, and waterproof brochure racks need to be designed, built and installed to make the kiosk functional for its intended use.

Intended Results

Improve the education of visitors to the James Farm through an updated educational kiosk.

Outputs/Deliverables:

Improved educational kiosk at the James Farm.
Permanent trail markers to direct students and visitors

Milestones:

1. Assess and evaluate current information provided on signage at the James Farm Target: Summer 2010
2. Contract with sign fabricator for design and fabrication of new signage for the James Farm Ecological Preserve Target: Spring 2011
3.Install new signage and complete needed improvements on existing kiosk. TARGET: Fall 2012.

Short-Term Outcomes

1. Provide citizens and students with timely, seasonal information about conditions and opportunities at the James Farm Ecological Preserve.

Intermediate Outcomes:

1. Change the behavior of visitors through education and awareness regarding their impact on the Ecological Preserve and the watershed.

Long-Term Outcomes

1. Provide a 'satellite location' for watershed education and citizen awareness.
2. Increase in watershed education for residents and out of state visitors

Project Progress

Progress To Date:

1. Exhibit panels and hardware delivered
2. Painting and cleaning of existing kiosk structure completed
3. Installation of brick surface in kiosk complete
4. Installtion of hardware and panels complete
5. Brochures placed in brochure holders in the kiosk
6. Current notices placed in bulletin cabinet
7. Project complete

Additional Project Information

Project Financing

Funding Determination : Sole Source

Amendment: ☐

Amendment Source:

CIB FUNDS: $11,174.00
OTHER FUNDS:
MATCHING FUNDS:
AMENDMENT FUNDS:
TOTAL: $11,174.00

Project Location

Municipality : Ocean View

Watershed/Waterbody : Indian River Bay, Indian River Bay WS

Latitude:

Longitude:

Project Leveraging Role

Primary

Year Reported 2012

Date : 07/06/2012

Report Information

Report Title:

Author :

Abstract :

Restoration ☐	**QAPP** ☐
Habitat Type :	**Date Completed :**
Restoration type :	**Date Approved :**
Acreage :	**Location :**
Partners :	
Completion Date:	
Cost :	

Year Reported 2012

Date : 07/06/2012

Project Report

Project Name: *Bethany Lakes Alternative Shoreline Stabilization Project*

Lead Contractor: Delaware Center for the Inland Bays

Responsible Partners, Contact Info, and

Eric Buehl
EJ Chalabala
Delaware Center for the Inland Bays
39375 Inlet Road
Rehoboth Beach, Delaware 19971

Robert Collins, HOA Rep.
Bethany Lakes Subdivision

Project Status: Completed

Work Pan ID : CIB11-004

Project Description

Strategic Alignment:

CCMP Action Plan ID :	Primary Action Plan ID Title :
HP-F	Promote natural alternatives to bulkheading
CCMP Goal Objective ID :	**Primary Goal Objective ID Title :**
G1,G1E,G2,G7	Protect, restore, and enhance living resources by improving water quality and protecting and enhancing habitat

CWA Program Implementation: Controlling Nonpoint Source Pollution on a Watershed Basis

Overview:

The goal of the project is to stabilize 600 linear feet of eroding shoreline to protect active Great Blue Heron nesting habitat. Coir fiber logs and vegetative plantings will be used to stabilize the shoreline.

Intended Results

1. Reduce shoreline erosion.
2. Promote the use of alternative shoreline stabilization techniques.
3. Protect nesting habitat for Great Blue Heron.
4. Enhance water quality through sediment reduction.

Outputs/Deliverables:

1.600 linear feet of stabilized shoreline.
2.Aquatic vegetation established on 600 linear feet of shoreline.

Milestones:

1.October 2010-Secure landowner permission.
2.November 2010-Submit cost-share request and state permits.
3.February 2011-Begin construction.
4.March 2011-Begin plantings.
5.April 2011-Project plantings complete.

Short-Term Outcomes

1.Residents and project visitors will be made aware of alternatives to using bulkheads and rip-rap.

Intermediate Outcomes:

1.Through exposure to the project, those undertaking shoreline stabilization projects will implement alternative shoreline stabilization techniques in lieu of more 'hardened' techniques.

Long-Term Outcomes

1.Water quality enhancement due to a decrease in erosion and sedimentation.
2.600 linear feet of shoreline properly stabilized.
3.Upland (Great Blue Heron) nesting habitat protected from loss through erosion

Project Progress

Progress To Date:

1. Site selection completed and preliminary design started on 500 linear feet of eroded shoreline.
2. Written landowner permission received.
3. Additional project funding secured.
4. Final project design complete and bids for materials solicited.
5. State permit submitted
6. State wetland permit approved.
7. Additional financial assistance (cost-share) committed to the project's completion.
8. Pending authorization from a state wildlife biologist to allow the project to start.
9. Project anticipated completion in September 2012.

Additional Project Information

Project Financing

Funding Determination :

Amendment: ☐

Amendment Source:

CIB FUNDS: $2,500.00
OTHER FUNDS: $0.00
MATCHING FUNDS: $2,000.00
AMENDMENT FUNDS:
TOTAL: $4,500.00

Project Location

Municipality : Bethany Beach

Watershed/Waterbody : Indian River Bay

Latitude:

Longitude:

Project Leveraging Role

Year Reported 2012

Date : 07/06/2012

Report Information

Report Title:

Author :

Abstract :

Restoration ☐	**QAPP** ☐
Habitat Type :	**Date Completed :**
Restoration type :	**Date Approved :**
Acreage :	**Location :**
Partners :	
Completion Date:	
Cost :	

Year Reported 2012

Date : 07/06/2012

DELAWARE CENTER FOR THE INLAND BAYS
Rehoboth Indian River Little Assawoman

Project Report

Project Name: *Hopkins Diary Farm Headwater Stream Restoration - Phase I*

Lead Contractor: Delaware Center for the Inland Bays

Responsible Partners, Contact Info, and

Eric Buehl
Delaware Center for the Inland Bays
39375 Inlet Road
Rehoboth Beach, Delaware 19971

Kurt Anderson
Ducks Unlimited
34 Defense Highway
Suite 200
Annapolis, Maryland 21401

Richard McCorkle
U.S. Fish & Wildlife Service
2610 Whitehall Neck Road
Smyrna, Delaware 19977

Project Status: Completed

Work Pan ID : CIB11-005

Project Description

Strategic Alignment:

CCMP Action Plan ID :	Primary Action Plan ID Title :
AG-C	Manage and plant forested/vegetative buffers
CCMP Goal Objective ID :	**Primary Goal Objective ID Title :**
G2,G3,G3B,G7,G7B	Protect, restore, and enhance living resources by improving water quality and protecting and enhancing habitat

CWA Program Implementation: Controlling Nonpoint Source Pollution on a Watershed Basis

Overview:

This project was previously conceptualized as the West Millsboro Wetland Enhancement Project. After that project fell through, funds were reappropriated to this project. The goal of this project is to enhance approximately one-half acre of marginal farmed wetlands and to enhance approximately one-half acre of adjacent upland area. Enhancement will be accomplished through plantings, water diversion, and other projects based on site conditions.

Year Reported 2012

Date : 07/06/2012

Intended Results

1. Enhance wetland habitat for important wildlife species.
2. Enhance upland habitat for important wildlife species.
3. Protect nesting habitat for Great Blue Heron.
4. Enhance water quality by enhancing degraded wetlands.

Outputs/Deliverables:

1.One-half acre of degraded wetlands enhanced.
2.One-half acre of upland wildlife habitat enhanced or restored.

Milestones:

1.October 2010-Secure landowner permission.
2.November 2010-Submit cost-share request.
3.March 2011-Begin upland habitat plantings.
4.June 2011-Begin work on wetland enhancement.
5.September 2011-Complete wetland plantings.

Short-Term Outcomes

1.Project visitors will be made aware of the restoration potential of degraded wetlands and farmed upland areas.

Intermediate Outcomes:

1.Those seeking to enhance or restore degraded habitats on their property will implement appropriate practices learned by visiting this project.

Long-Term Outcomes

1.Water quality will be improved.
2.Wetland and upland wildlife habitat will be improved.
3.One acre of combined wetland and upland habitat will be enhanced.

Project Progress

Progress To Date:

1. Final design, materials list, and preliminary construction estimate completed.
2. Additional funding for project approved.
3. Requested DNREC Jurisdictional Determination.
4. DNREC determines they have no jurisdiction over project area.
5. Additional permit requirements being investigated.
6. Approvals received from Cultural & Historical Resources, Federal wetlands, and federal endangered species.
7. Estimated load reductions will see a decrease in Nitrogen of 314 pounds per year and Phosphorus of 15 pounds per year.
8. Via the use of fenciing, 850 linear feet of channel will be protected.
9. A total of 1.5 acres of riparian area will be restricted from access by the cattle.
10. Project scheduled for completion by September 2012.

Additional Project Information

Year Reported 2012

Date : 07/06/2012

Project Financing

Funding Determination :

Amendment: ☐

Amendment Source:

CIB FUNDS:	$12,000.00
OTHER FUNDS:	$0.00
MATCHING FUNDS:	$1,000.00
AMENDMENT FUNDS:	
TOTAL:	$13,000.00

Project Location

Municipality : Millsboro

Watershed/Waterbody : Indian River Bay, Indian River Bay WS

Latitude:

Longitude:

Project Leveraging Role

Report Information

Report Title:

Author :

Abstract :

Restoration ☐

Habitat Type :

Restoration type :

Acreage :

Partners :

Completion Date:

Cost :

QAPP ☐

Date Completed :

Date Approved :

Location :

Year Reported 2012

Date : 07/06/2012

DELAWARE CENTER FOR THE INLAND BAYS
Rehoboth Indian River Little Assawoman

Project Report

Project Name: *Baltimore Aquarium Partnership/Display*

Lead Contractor: Center for the Inland Bays

Responsible Partners, Contact Info, and
Edward A. Lewandowski
Center for the Inland Bays
39375 Inlet Road
Rehoboth Beach, DE 19971
(302) 226-8105

Project Status: Completed

Work Pan ID : CIB11-006

Project Description

Strategic Alignment:

CCMP Action Plan ID : AG-C

Primary Action Plan ID Title :

CCMP Goal Objective ID : G2,G3,G3B,G7,G7B

Primary Goal Objective ID Title :

CWA Program Implementation: Controlling Nonpoint Source Pollution on a Watershed Basis

Overview:

The National Aquarium Conservation Center (NACC) recently identified Coastal and Estuarine Conservation as a target in its revised Action Plan. The National Estuary Program (NEP) has been operating for more than two decades to protect and restore ocean and coastal ecosystems by promoting watershed-based coastal management, preventing pollution of the marine environment, monitoring and assessing coastal conditions, and establishing effective partnerships. The NEP is an ideal partner for the NACC as it is the U.S. Environmental Protection Agency's "flagship" watershed effort to restore and protect coastal waters and "estuaries of national importance."

Since the National Aquarium in Baltimore already has the communication channels in place to implement an enhanced outreach effort, an interactive display at the Aquarium that features the NEP and also highlights two local estuaries- Delaware's Inland Bays and Maryland's Coastal Bays- would be an ideal vehicle for expressing a collective coastal conservation message. Major emphasis in the region is on the resources of the Chesapeake Bay, and deservedly so. However, the smaller estuarine systems along the Delaware and Maryland coasts attract millions of tourists annually and are also of national significance. These systems also deserve the attention necessary to ensure that their economic viability is maintained as well as the guarantees that they can continue to be productive ecosystems. In return, the National Estuary Program offers the National Aquarium in Baltimore an opportunity to diversify its message and further increase its national profile by having access to a broad range of stakeholder

representation in 28 estuaries in eighteen states and Puerto Rico.

Intended Results

1.To establish a collaborative partnership between the National Estuary Program and the NACC/National Aquarium in Baltimore
2.To develop and disseminate a shared conservation message concerning coastal and estuarine resources

Outputs/Deliverables:

1.An attractive exhibit/display focusing on the National Estuary Program and highlighting both Delaware's Inland Bays and Maryland's Coastal Bays
2.Press release to highlight the partnership and opening of the National Estuary Program display
3.An "Estuaries Day" at the National Aquarium as part of its 30th anniversary celebration/activities.
4.Public presentation(s) at the aquarium concerning Delaware's Inland Bays and Maryland's Coastal Bays

Milestones:

Short-Term Outcomes

1.Raise the profile and capabilities of the partners
2.An education/outreach presence for the National Estuary Program at the National Aquarium in Baltimore
3.Increase public understanding and knowledge about the fragile Delaware Inland Bays and Maryland Coastal Bays ecosystems
4.Increase awareness about both the ecological and economic importance of healthy estuaries
5.Increase citizen interest in local estuary restoration efforts
6.Increased public support for policies that restore and protect estuaries of national importance

Intermediate Outcomes:

Long-Term Outcomes

Project Progress

Progress To Date:

-Testing of the model completed
-Teleconference to discuss changes based on testing response scheduled for May 2012
-Production of the two display carts to be completed by September 2012
-Carts will be displayed at the National Estuary Program 2013 annual meeting in Washington D.C.

Additional Project Information

Year Reported 2012

Date : 07/06/2012

Project Financing

Funding Determination : Sole Source

Amendment: ☐

Amendment Source:

CIB FUNDS: $20,000.00

OTHER FUNDS:

MATCHING FUNDS:

AMENDMENT FUNDS:

TOTAL: $20,000.00

Project Location

Municipality : Millsboro

Watershed/Waterbody : Indian River Bay, Indian River Bay WS

Latitude:

Longitude:

Project Leveraging Role

Primary

Report Information

Report Title:

Author :

Abstract :

Restoration ☐

Habitat Type :

Restoration type :

Acreage :

Partners :

Completion Date:

Cost :

QAPP ☐

Date Completed :

Date Approved :

Location :

Year Reported 2012

Date : 07/06/2012

DELAWARE CENTER FOR THE INLAND BAYS
Rehoboth Indian River Little Assawoman

Project Report

Project Name: *Stockley Center Headwater Stream Restoration Project*

Lead Contractor: DE CIB

Responsible Partners, Contact Info, and E.J. Chalabala
Eric Buehl
DE Center for the Inland Bays

Project Status: Completed

Work Pan ID : CIB11-009

Project Description

Strategic Alignment:

CCMP Action Plan ID :	Primary Action Plan ID Title :
AG-B,AG-C,HP-F,IMS-A	Manage and plant forested/vegetative buffers
CCMP Goal Objective ID :	**Primary Goal Objective ID Title :**
G2,G2F,G3,G3B,G4,G4E, G5,G5C	Protect, restore, and enhance living resources by improving water quality and protecting and enhancing habitat

CWA Program Implementation: Improving Water Quality Monitoring, Strengthening Water Quality Standards

Overview:

A degraded headwater stream would be identified and assesed for function. Pre and post project water sampling would occur to justify and compare the work that was done.

The goal of this project is to restore, enhance and demonstrate how a headwater stream and it's immediate surroundings can be improved to better habitat and water quality.

This can be as inexpensive or expensive as we want to go. From just allowing a mowed edge to grow, to reducing erosoin of the channel using bio logs and plantings. Also the eradication of non-native species will be done.

We hope to make this a public demonstation project that will have good public visibility.

Intended Results

1. Increase water quality at a head water stream
2. Increase beneficial habitat for wildlife and aquatic species
3. Obtain baseline data for water quality before and after project implementation

4. Serve as a public demonstration project for stream channel restoration

Outputs/Deliverables:

1. Approx 300 feet for headwater stream restored to a more natural state
2. 1+ acres of riparian/vegetative buffer restored
3. Water quality improvements and erosion control
4. Creating a more natural stream and environment
5. Demonstration project and public awareness

Milestones:

October 2010- Secure landowner permission
November-December 2010- Refine scope of project and determine needs and availiability of partners
March 2011- asses location and begin water quality monitoring
April 2011- Begin actual planting and improving project
June-Sept 2011- Monitor water quality

Short-Term Outcomes

1. The public will see and be made aware how important it is to maintain our headwater streams.
2. Transforming unproteductive buffer
3. Improve erosion

Intermediate Outcomes:

1. The public will get an idea of how beatiful the natural environment can be.
2. Increased understanding and a learning tool for resource managers involved in planning protection and restoration strategies for wetlands and buffers.
3. Basline data to help understand how buffers around headwater streams help water quality.

Long-Term Outcomes

1. Headwater stream protection and better water quality
2. Wildilfe, plants, and aquatic organism habitat
3. Water quality data to be used in determining future headwater stream restoration
4. A public awareness and demonstration project.
5. Solidifying partnerships

Project Progress

Progress To Date:

Prepared request for project funding.
Preliminary site evaluation and design underway.
Prepared and submitted information related to cultural and historic resource impacts.
Finding of no impact received from cultural and historic resources.
Requested Jurisdictional Determination from DNREC.
Funding request approved.
Received notification that DNREC claims jurisdiction over stream channel.
Additionall permitting underway.
Riparian buffer native planting plan nearly complete.
Evaluation of instream BMP design by state engineer ongoing.
Draft operation and maintenance plan developed and under review.
Estimated load reduction will see a decrease in Nitrogen of 62 pounds per year and Phosphorus of 2 pounds per year.
Via implementation of 1.9 acres of riparian buffer reestablishment, 1,000 linear feet of stream channel will be enhanced.

Year Reported 2012

Date : 07/06/2012

Project scheduled for completion in September 2012.

Additional Project Information

Project Financing

Funding Determination :

Amendment: ☐

Amendment Source:

CIB FUNDS: $10,000.00
OTHER FUNDS: $5,000.00
MATCHING FUNDS: $0.00
AMENDMENT FUNDS:
TOTAL: $15,000.00

Project Location

Municipality : All Coastal Communities

Watershed/Waterbody : All Bays, All Watersheds

Latitude:

Longitude:

Project Leveraging Role

Report Information

Report Title:

Author :

Abstract :

Restoration ☐

Habitat Type :

Restoration type :

Acreage :

Partners :

Completion Date:

Cost :

QAPP ☐

Date Completed :

Date Approved :

Location :

Year Reported 2012

Date : 07/06/2012

Project Report

Project Name: *Anchorage Canal Drainage Area Stormwater Retrofit Implementation Project # 2: Highway Median Bioretention Areas*

Lead Contractor: DE Center for the Inland Bays

Responsible Partners, Contact Info, and

Chris Bason -- Project Manager
DE Center for the Inland Bays
39375 Inlet Road
Rehoboth Beach, DE 19970
302 226-8105
chrisbason@inlandbays.org

Marriane Walch -- Project Partner Lead
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Dave Wiecking -- Project Partner Lead
Middlesex Beach Association
PO Box 173
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Town of South Bethany
402 Evergreen Road
South Bethany, DE 19930
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Sharon Webb -- Funding Agency Contact
DNREC -- Nonpoint Source Program
89 Kings Highway
Dover, DE 19901
(302) 739-9922
Sharon.Webb@state.de.us

Project Status: Completed **Work Pan ID :** CIB11-014

Project Description

Year Reported 2012

Date : 07/06/2012

Strategic Alignment:

CCMP Action Plan ID :	Primary Action Plan ID Title :
IMS-A	Meet the nutrient reduction goals of the Pollution Control Strategy
CCMP Goal Objective ID :	**Primary Goal Objective ID Title :**
G1,G1C,G1E,G2	Develop and implement a comprehensive stormwater management program

CWA Program Implementation: Controlling Nonpoint Source Pollution on a Watershed Basis

Overview:

This project will contstruct bioretention and infiltration areas in the State Highway One median strips that lie within the anchorage canal drainage area and further south within the Town of South Bethany for the purposes of treating polluted runoff from the highway and connected areas of impervious surface. These retrofits were identified as the highest priority projects in the Anchorage Canal Drainage Area Pollution and Stormwater Control Strategy. Additional work designed 7 of the areas that lie within the drainage area and estimated their pollution removal which ranged from 0.16 to 0.39 lbs of phosphorus and 1.35 to 3.22 lbs of total nitrogen per year. Additional areas will be constructed as funds allow. The project partners will work together towards standardization of the design and maintenance among the communities. The project contributes towards the Inland Bays pollution control strategy goal of 4,500 acres of stormwater retrofits for pre-1990 development.

Intended Results

1. Construction of at least 7 bioretention and infiltration areas to treat polluted runoff from highway one and areas of connected impervious surface.
2. Established Maintenance Agreements for the facilities

Outputs/Deliverables:

1. Planting plans and additional survey as needed.
2. Construction of at least 7 biorentention and infiltration areas. Established 16.
2. Established maintenance agreement for the facilities

Milestones:

1. Conduct kickoff meeting. TARGET: APR 2011. COMPLETED: MAY 2011.
2. Solicit and hire work contractor. TARGET: MAY 2011. COMPLETED: JUN 2011.
3. Finalize designs and planting schemes. TARGET: JULY 2011. COMPLETED: AUG 2011
4. Hold preconstruction meeting. TARGET: OCT 2011. COMPLETED: SEP 2011
5. Finish Contruction and planting. TARGET: OCT 2011. COMPLTED: OCT 2011.

Short-Term Outcomes

1. Increased awareness of general public and participating communities of stormwater impacts to water quality and their remediation.
2. Potential site for BMP effectiveness monitoring.

Intermediate Outcomes:

1. Potential for increased interest from other communities to construct stormwater retrofits.

Long-Term Outcomes

1. Estiamted 30 year reduction of nitrogen loads to Little Assawoman Bay of 429 lbs.
2. Estimated 30 year reduction of phosphorus loads to Little Assawoman Bay of 50.7 lbs.

3. Reduction of pathogen and hydrocarbon loads to Little Assawoman Bay.
4. Progress towards restoration of less-flashy flow regime to Little Assawoman Bay.

Project Progress

Progress To Date:

1. Funds allocated from Delaware Division of Forestry, Middlesex Beach, and Town of South Bethany for bioretention area vegetation establishement.
2. Additional funds allocated from Town of South Bethany for construction.
3. Planting plan contracted and completed by University of Delaware with community input.
4. Coordinating meetings resulted in a minimal amount of necessary traffic control.
5. Design completed for 19 bioretention areas, 16 were able to be completed due to utility conflicts.
6. Construction and major planting completed in OCT 2011.
7. Project received multiple local press coverages and was presented at technical conferences.
8. Maintanence assumed by Middlesex Beach and Town of South Bethany.

Additional Project Information

Project Financing

Funding Determination : Sole Source

Amendment:

☐

Amendment Source:

CIB FUNDS: $21,000.00

OTHER FUNDS:

MATCHING FUNDS: $63,182.00

AMENDMENT FUNDS:

TOTAL: $84,182.00

Project Location

Municipality : Bethany Beach, South Bethany Beach

Watershed/Waterbody : Little Assawoman Bay, Little Assawoman Bay WS

Latitude:

Longitude:

Project Leveraging Role

Primary

Report Information

Report Title: Anchorage Canal Drainage Area Stormwater Retrofit Project 2: Highway Bioretention Areas, Final Rpt.

Author : Chris Bason

Abstract :

Year Reported 2012

Date : 07/06/2012

Restoration ☑		**QAPP** ☐	
Habitat Type :	freshwater wetland	**Date Completed :**	
Restoration type :	Establishment	**Date Approved :**	
Acreage :	2	**Location :**	
Partners :	Town of South Bethany, DelDOT, Middlesex Beach, UD		
Completion Date:	12/30/2012		
Cost :	$0.00		

Year Reported 2012

Date : 07/06/2012

Project Report

Project Name: *Bays in Your Backyard Campaign*

Lead Contractor: Center for the Inland Bays

Responsible Partners, Contact Info, and

Sally Boswell
CIB
39375 Inlet Road
Rehoboth Beach, DE 19971
302-226-8105
outreach@inlandbays.org
Project Director

Project Status: Completed

Work Pan ID : CIB12-017

Project Description

Strategic Alignment:

CCMP Action Plan ID :	Primary Action Plan ID Title :
ED-A	Implement the Comprehensive Public Participation and Education Plan
CCMP Goal Objective ID :	**Primary Goal Objective ID Title :**
G9,G9F	Ensure, to the maximum extent possible, all planning and management activities related to the Inland Bays involve public participati, iniInformation and education e

CWA Program Implementation: Controlling Nonpoint Source Pollution on a Watershed Basis

Overview:

The Bays in Your Backyard Campaign was created to capture the energy and concern that was generated by the Gulf Aid Event in the aftermath of the Gulf Oil Disaster, and deploy it for the benefit of our own Inland Bays---the Bays in our Backyard.

An outreach campaign to build on the momentum created by the highly successful Gulf Aid Event with residents and visitors to the Inland Bays watershed. Attended by about 3,000 people, with many more reached through advertising, publicity, and social marketing media, this event created a high awareness of the importance of and fragility of wetlands and estuaries with the age 20-40 demographic group. The objective of the campaign is to raise awareness within this group of our own wetlands and estuary as the Bays in Your Backyard

Intended Results

1. Increased name recognition for the Inland Bays
2. Greater participation and support of our work by businesses in the watershed
3. Increase in the number of community partners working with the CIB
4. Increase in the number of age 25-45 demographic participating and supporting Inland Bays work

Outputs/Deliverables:

1.Design and produce Bays in Your Backyard brochure
2.Develop “Bays in your Backyard” exhibit for use at community events 2010 theme of CIB Coast Day
3.Produce 'Bays in your Backyard' kiosks/brochure racks for use at businesses throughout the watershed
4. Develop and implement a billboard campaign
5. Implement a monthly 'Bays in your Backyard' Email Blast…this month’s special place
6. Post “the Bays in your Backyard…this month’s special place on Facebook
7. Produce videos for use on website and upload to Youtube
8. Develop at public radio campaign on our local stations to raise awareness

Milestones:

1. Create print materials for the campaign
2. Create exhibit for use at community events
3. Increase presence on local public radio station
4. Present the exhibit at community events and farmer's markets throughout the watershed
5. Implement a social marketing campaign using our website, Facebook account, YouTube and email blasts
6. Schedule the “Bays in your Backyard” exhibit for displays at all libraries in the watershed: Lewes, Rehoboth, South Coastal, Georgetown, Millsboro, Frankford, Selbyville
7. Plan and implement a billboard campaign…the Inland Bays…the Bays in your Backyard

Short-Term Outcomes

1. Build awareness and name recognition among local residents, homeowners and visitors about the Inland Bays…the 'bays in their backyard'
2. Attract new community partners to the work of protecting and restoring the Bays

Intermediate Outcomes:

1. Increase awareness of the Inland Bays; more familiarity with their attributes and amenities; increase in participation in low impact use such as hiking and paddling.
2. Increase awareness and support of the Inland Bays among businesses in the watershed

Long-Term Outcomes

1. Create connection and familiarity with our Bays that translates to a sense of ownership and responsibility for our bays in our backyard that results in increased public participation in public policy issues affecting the Inland Bays.

Project Progress

Progress To Date:

1. No progress was reported during 2012.
2. This project was closed in lieu of developing a larger outreach and marketing strategy for the CIB.

Additional Project Information

Year Reported 2012

Date : 07/06/2012

Project Financing

Funding Determination :

Amendment: ☐

Amendment Source:

CIB FUNDS: $0.00
OTHER FUNDS: $0.00
MATCHING FUNDS: $0.00
AMENDMENT FUNDS:
TOTAL: $0.00

Project Location

Municipality : All Coastal Communities

Watershed/Waterbody : All Watersheds

Latitude:

Longitude:

Project Leveraging Role

Report Information

Report Title:

Author :

Abstract :

Restoration ☐

Habitat Type :

Restoration type :

Acreage :

Partners :

Completion Date:

Cost :

QAPP ☐

Date Completed :

Date Approved :

Location :

Year Reported 2012

Date : 07/06/2012

Project Report

Project Name: *Update of the Inland Bays Comprehensive Conservation & Management Plan*

Lead Contractor: Center for the Inland Bays

Responsible Partners, Contact Info, and

Roy Miller
Environmental Policy Coordinator
CIB
39375 Inlet Road
Rehoboth Beach, DE 19971
(302) 226-8105

Project Status: Completed

Work Pan ID : CIB12-021

Project Description

Strategic Alignment:

CCMP Action Plan ID :	Primary Action Plan ID Title :
ED-A	Implement the Comprehensive Public Participation and Education Plan
CCMP Goal Objective ID :	**Primary Goal Objective ID Title :**
G3,G3C,G3E,G9,G9B	Coordlnatemanagement decisions among all levels of government

CWA Program Implementation: Controlling Nonpoint Source Pollution on a Watershed Basis

Overview:

The current Inland Bays Comprehensive Conservation & Management Plan (CCMP) was adopted more than 15 years ago. The Inland Bays watershed has undergone dramatic change during this period as a result of expansive residential growth. In addition, new and emerging issues such as climate change and sea level rise were not emphasized in the current document. An update of the CCMP is overdue. Language proposed in a recent bill to reauthorize the National Estuary Program would require an update of the CCMP to be completed every five years.

Intended Results

1. An updated and revised CCMP that clearly defines the purpose and articulates the goals of the CCMP for the next five years
2. A management plan for the CIB that prioritizes and narrows the scope of the organization's efforts to increase effectiveness

Outputs/Deliverables:

1. CCMP tracking and evaluation matrix tool
2. Updated CCMP document.

Milestones:

Assemble Steering Committee
Create CCMP tracking and evaluation matrix tool
Assess CCMP implementation progress during the past 15 years
Host public listening session to obtain critical feedback from stakeholders about CCMP progress
Review recommended actions with implementation partners
Write draft version of updated CCMP for public consumption
Organize public forum to review draft CCMP
Design/publish draft updated CCMP
Seek Board, State and Environmental Protection Agency approval
Host CCMP Reaffirmation Ceremony

Short-Term Outcomes

An updated management plan for Delaware's Inland Bays with measurable goals and objectives that address the identified priority problems.

Intermediate Outcomes:

Reengaged stakeholders and renewed commitment from implementation partners.

Long-Term Outcomes

Improved water quality and restored habitats in the Inland Bays.

Project Progress

Progress To Date:

1. Additional two Steering Committee meetings held.
2. Progress on original CCMP actions summarized.
3. New CCMP focus areas developed.
4. Ongoing and new objectives, actions, and performance measures created.
5. Objectives reviewed and prioritized.
6. Public input session on draft objectives and actions held.
7. Editing underway.
8. Final CCMP update document to be produced in September.

Additional Project Information

Year Reported 2012

Date : 07/06/2012

Project Financing

Funding Determination : Sole Source

Amendment: ☐

Amendment Source:

CIB FUNDS: $5,000.00
OTHER FUNDS: $0.00
MATCHING FUNDS: $0.00
AMENDMENT FUNDS:
TOTAL: $5,000.00

Project Location

Municipality : All Coastal Communities

Watershed/Waterbody : All Bays

Latitude:

Longitude:

Project Leveraging Role

Primary

Report Information

Report Title:

Author :

Abstract :

Restoration ☐

Habitat Type :

Restoration type :

Acreage :

Partners :

Completion Date:

Cost :

QAPP ☐

Date Completed :

Date Approved :

Location :

ON-GOING PROJECTS

Year Reported 2012

Date : 07/06/2012

DELAWARE CENTER FOR THE INLAND BAYS
Rehoboth Indian River Little Assawoman

Project Report

Project Name: *Acreage and Condition Trends for Marshes of Delaware's Inland Bays as an Environmental Indicator and Management Tool (USEPA RARE GRANT)*

Lead Contractor: University of Delaware -- Center for Remote Sensing

Responsible Partners, Contact Info, and Chris Bason, CIB, (302) 226-8105
Bart Wilson, CIB
Marty Chintala, EPA, (401) 782-3090
Richard Field, UDCMES

Project Status: On-going

Work Pan ID : CIB09-002

Project Description

Strategic Alignment:

CCMP Action Plan ID :	Primary Action Plan ID Title :
ED-A,HP-D,HP-F,LU-B	Implement the Comprehensive Public Participation and Education Plan
CCMP Goal Objective ID :	**Primary Goal Objective ID Title :**
G1,G1E,G2,G2E,G2F,G3, G3B,G7,G7A,G7B,G7E,G9	Integrate projected sea level rise into shoreline planning and activities

CWA Program Implementation: Improving Water Quality Monitoring

Overview:

This project will integrate remote sensing tools including historical and contemporary aerial photography and satellite imagery at different spatial resolutions to provide a comprehensive history of acreage and condition change in the Inland Bays watershed and attempt to identify the major factors influencing these rates. Rates and causes will allow informed predictions about marsh acreage and condition in the future and lead to the development of management strategies for the resource. The study's methodology and results will be directly transferable to other mid-Atlantic watersheds and communicated at science and technical meetings such as NEP meetings, Society of Wetland Scientists, and the Estuarine Research Federation.

Intended Results

1.Spatially explicit rates of marsh loss and change in condition
2.An assessment of the factors influencing these rates with a particular focus on the sudden wetland dieback event of 2006.
3.Informing state policy and restoration strategies with this information.
4.Development of an established and affordable environmental indicator for the Inland Bays.

5.Potential map of marsh migration rates for state and county landuse planning purposes.

Outputs/Deliverables:

1. Full research quality assurance project plan
2. Final report of data assemblage and analysis leading to a comprehensive history of acreage and condition change in the Inland Bays watershed and analysis of potentially influential factors
3. Arragned data sharing agreement (possible data transfer on harddrive as solution).
4. Marsh acreage and condition environmental indicator results and SOP
5. Management and research recommendations

Milestones:

1. Acquisition of imagery and preprocessing (Initiated: April 2010. Completed: APR 2011)
2. Imagery analaysis and database development (Initiated: August 2010, Completed: MAY 2012)
3. Historical analysis of aerial photography (Target: August 2011, Completed MAY 2012)
4. Begin Analysis of process factors (Target: August 2011, Ongoing)
5. Complete factor and time series analyses (Target: August 2012)
6. Complete interview process (Target: August 2012)
7. Final Report (Target: January 2013)

Short-Term Outcomes

Increased scientific understanding of the rates of saltmarsh acreage and condition change and factors influencing these changes.

Intermediate Outcomes:

Increased public understanding of trends in acreage and condition for a valuable public resource. Increased understanding and a learning tool for resource managers involved in planning protection and restoration strategies for wetlands.

Long-Term Outcomes

Probable reduction in wetland loss due to better informed planning and policy. Potential for higher level of protection for saltmarsh resources in this and other watersheds of the State.

Project Progress

Progress To Date:

1. CIB contributed additional unallocated funds ($3,860) upon request of UD to continue employment of GIS student technician.
2. Reclassification of 2007 & 1992 for compability.
3. Delineated hardened shorelines and internal marsh pooling for all time periods.
4. Digitized, vecotrized, and classified 1972 wetland maps, a new addition to project scope that provides an extra year for change analysis.
5. Analsysis of wetland change using Landsat TM completed.
6. Lewes water level data coordinated with Inland Bays data.
7. Rates of sea level change determined for pre-1994, 1992-1995, and after 1995 time periods (all accelerations).
8. Sea level rise of Delaware coast characterized from 1993 to 2011 using satellite altimetry.

Additional Project Information

Year Reported 2012

Date : 07/06/2012

Project Financing

Funding Determination : RFP

Amendment: ☐

Amendment Source:

CIB FUNDS: $3,860.00
OTHER FUNDS: $60,000.00
MATCHING FUNDS:
AMENDMENT FUNDS:
TOTAL: $63,860.00

Project Location

Municipality : All Coastal Communities

Watershed/Waterbody : All Bays

Latitude:

Longitude:

Project Leveraging Role

Primary

Report Information

Report Title:

Author :

Abstract :

Restoration ☐

Habitat Type :

Restoration type :

Acreage :

Partners :

Completion Date:

Cost :

QAPP ☑

Date Completed : 4/1/2010
Date Approved : 4/1/2010
Location : CENTER FOR THE INLAND BAYS

Year Reported 2012

Date : 07/06/2012

Project Report

Project Name: *Long-term continuous saltmarsh monitoring in the Inland Bays*

Lead Contractor: Center for the Inland Bays

Responsible Partners, Contact Info, and Bart Wilson -- CIB: Project Coordination, Data Collection, Data Analysis and Reporting, Monitoring Setup
Chris Bason, CIB, Project Oversight and Asssistance.
Andy Howard -- DNREC, WAS, WMAP: Project Coordination

Project Status: On-going **Work Pan ID :** CIB09-004

Project Description

Strategic Alignment:

CCMP Action Plan ID :	Primary Action Plan ID Title :
ED-A	Implement the Comprehensive Public Participation and Education Plan
CCMP Goal Objective ID :	**Primary Goal Objective ID Title :**
G2,G2E,G3,G7,G7B,G7E, G9	Enhance monitoring and response strategies

CWA Program Implementation: Improving Water Quality Monitoring

Overview:

A long-term continuous monitoring site is being managed in a representative fringing saltmarsh of the Inland Bays to gather baseline data on weather, hydrology, chemistry, and marsh elevation and to relate these parameters to each other, sea level rise, and any potential new sudden wetland dieback events that may occur in this or other marshes of the Inland Bays. Two continuous monitoring stations will record ground water and surface water depth, pH, salinity and water temperature. Regular chemistry sampling will also occur for selected parameters. Three sediment elevation tables will be installed. One weather station is installed. The project will provide needed background data on the natural variation in the above parameters and their interactions. The project will attempt to relate these parameters to each other, sea-level rise and potential new sudden wetland dieback events to better understand the stressors affecting the highly impacted saltmarshes of the inland Bays.

Intended Results

1. Purchase and install all monitoring instruments (partially completed).
2. Collect data and maintain instruments.
3. Develop long-term monitoring plan.

4. Summarize and publish data at regular intervals for the scientific community.
5. Pursue funding to expand the site to a continuous monitoring network for Inland Bays saltmarshes.
6. Opportunity to use information in formulation of wetland protection and restoration strategy for the Inland Bays.

Outputs/Deliverables:

1. Fully operational, long-term, continuous hydro-metero marsh monitoring site
2. Baseline monitoring data on marsh processes
3. Capacity for continuous monitoring data during SWD event.
4. Network of 4 marsh elevation monitoring stations in the Inland Bays.
5. Monitoring data to inform wetland management.

Milestones:

1. Initial monitoring station setup (Completed: September 2009)
2. Begin and maintain data collection (Ongoing)
3. Initial data analysis (Ongoing)
4. Complete installation of additional Sediment Elevation Tables (Target: March 2011. Completed: DEC 2010)
5. First data report (Target: February 2011. Initiated: MAY 2011.)

Short-Term Outcomes

Increased knowledge of local saltmarsh hydrophysiochemistry and marsh elevation using continuous monitoring techniques.

Intermediate Outcomes:

Increased knowledge of local saltmarsh hydrophysiochemistry using continuous monitoring techniques. Technical transfer to larger scientific community. Increased understanding of inter-relation of study parameters.

Long-Term Outcomes

Increased knowledge of local saltmarsh hydrophysiochemistry using continuous monitoring techniques. Increased understanding of inter-relation of study parameters. Use of this information in future restoration projects and in restoration and protection strategy for Inland Bays saltmarshes.

Project Progress

Progress To Date:

1. Sampling of SET tables at all three marshes completed for the Spring of 2012.
2. Water level data collection continued.
3. Investigation of pH monitors revealed that both meters were faulty and this portion of the project was abandoned due to insufficient funds to obtain additional meters.
4. Project management changed with Bart Wilson assuming project management for CIB in Spring of 2012 and Andy Howard assuming project responsibilities for DNREC in Spring of 2011. DNREC will continue to aggregate elevation data for the State of Delaware.

Additional Project Information

Year Reported 2012

Date : 07/06/2012

Project Financing

Funding Determination : Sole Source

Amendment: ☐

Amendment Source:

CIB FUNDS: $2,500.00
OTHER FUNDS: $25,800.00
MATCHING FUNDS:
AMENDMENT FUNDS:
TOTAL: $28,300.00

Project Location

Municipality : All Coastal Communities

Watershed/Waterbody : Indian River Bay, Rehoboth Bay

Latitude:

Longitude:

Project Leveraging Role

Primary

Report Information

Report Title: NA

Author : NA

Abstract : NA

Restoration ☐

Habitat Type :

Restoration type :

Acreage :

Partners :

Completion Date:

Cost :

QAPP ☑

Date Completed : 12/1/2008
Date Approved : 12/1/2008
Location : Center for the Inland Bays

Year Reported 2012

Date : 07/06/2012

Project Report

Project Name: *1000 Raingardens for the Inland Bays*

Lead Contractor: Center for the Inland Bays

Responsible Partners, Contact Info, and

Sally Boswell -- Project Manager
Center for the Inland Bays
39375 Inlet Road
Rehoboth Beach, DE 19971
(302) 226-8105
outreach@inlandbays.org

Project Status: On-going

Work Pan ID : CIB10-004

Project Description

Strategic Alignment:

CCMP Action Plan ID :	Primary Action Plan ID Title :
ED-A	Implement the Comprehensive Public Participation and Education Plan
CCMP Goal Objective ID :	**Primary Goal Objective ID Title :**
G1,G1C,G1E,G2,G3	Adopt the most effective Best Management Practices's to provide maximum ground and surface water protection

CWA Program Implementation: Controlling Nonpoint Source Pollution on a Watershed Basis

Overview:

The CIB, in collaboration with EPA Region III, will engage in an ambitious three year initiative to create 1,000 rain gardens in the Inland Bays watershed. Preliminary activities have already started in the spring of 2009 with the launch of the Center for Inland Bays local campaign. This will be followed by intensive efforts to promote and install rain gardens in 2010 and 2011.

Intended Results

1. Coordination with other partnerships and stakeholders with activities such as programs such as the Delaware Nature Society's Backyard Habitat program, Project NEMO, etc.
2. Increased community and neighborhood involvement in improving water quality
3. Promotion of low-impact development
4. Dissemination of information about rain gardens and green solutions
5. Promotion of native plants and local biodiversity

6. Training for partners and participants
7. Education of students, Scouts, clubs, and related groups
8. Raiin garden registration and monitoring
9. Marketing through the media
10. Outreach at farmers' markets, fairs, and festivals
11. Friendly cross-jurisdictional competitions,
12. Special outreach efforts to reach youth, at-risk youth, the elderly, the disabled and foreign-language communities
13. Adoption of policies and/or ordinances that promote green best management practices to prevent pollution and mitigate stormwater run-off to our Estuaries

Outputs/Deliverables:

1.Creation of the Millville Town Hall Demonstration Rain Garden
2. Partnerships with churches, town halls, libraries and schools to create demonstration habitats on public land throughout the Inland Bays watershed.
3. Creation of rain gardens on private property through outreach and education events and speaking engagements that inform and educate homeowners about the benefits of rain gardens for on site management of storm waterer
4. Develop a power point presentation that CAC Outreach members and DNS Habitat Stewards can take to community groups

Milestones:

Coordination and Collaboration:
1. Continue to convene Partners Forum to assist in Campaign design and implementation
2. Identify funding and technical partners to building a demonstration rain gardens at town halls and other public locations in the watershed
2. Identify sponsors and fundraising opportunities

Education and Outreach:
1. Udate/distribute outreach/marketing materials, as needed
2. Maintain Campaign website
3. Update media packets
4. Conduct training workshop (by request)

Implementation:
1. Identify partners and sites for demonstration rain gardens and seek needed authorities and permission to install them
2.Provide education/how to materials at demonstration sites
3. Work with willing local governments to integrate 'green design' into policies and programs
4. Intiate a Corporate Lands RG focus in coordination w/partners working w/corporations (DNS, etc.)
5. Develop incentives: Intiate a Rain Garden Competition (Estuary – wide)

Short-Term Outcomes

1. educate property owners, businesses, developers, and students about water quality, native plants, and green solutions
2. engage citizens in practical "backyard" solutions for water quality improvement

Intermediate Outcomes:

1. increased community and neighborhood involvement in improving water quality
2. adoption of policies and/or ordinances that promote green best management practices to prevent pollution and mitigate stormwater run-off

Long-Term Outcomes

1. Increase in the number of rain gardens implemented in the Inland Bays watershed
2. Decrease in nutrient contributions to the Inland Bays

Project Progress

Progress To Date:

-Demonstration Rain Garden Completed in the Town of Dagsboro at Katie Helms Town Park. Provided technical assistance in plant selections and provided the interpretive signage at the site, and Rain Booklets for distribution at the Town Hall.
-Demonstration Rain Garden designed and installed at the Bethany Beach Nature Center. A community planting day was held to raise awareness and education residents about rain gardens. An interpretive sign was produced and installed onsite. Rain Garden booklets are provided for distribution at the BBNC. Obtained funding for the project from Rain Gardens for the Bays
-Demonstration Rain Garden- Town of Fenwick Island. Provided technical assistance in the siting and planning. Design is nearly complete. Installation planned for summer 2012. Obtained funding to assist with the project from Rain Gardens for the Bays.
-Demonstration Rain Garden in front of the City Hall and Convention Center in the Town of Rehoboth Beach. Provided presentation on rain gardens and other green infrastructure opportunities to the Town of Rehoboth Beach. Provided technical assistance through the Rain Gardens for the Bays program. An interpretive sign is being produced for installation at the site and Rain Garden booklets are provided for distribution at the City Hall.
-Demonstration Rain Garden at Good Earth Market in Clarksville, DE. Technical assistance provided by DNREC and Rain Gardens for the Bays. Design is underway. A community planting day is planned for installation of the rain garden in late June 2012 to provide attendees a hands on opportunity to learn about rain gardens. An interpretive sign wiil be produced and installed on site and Rain Garden Booklets will be distributed at the store. Obtained funding for the project through the Rain Gardens for the Bays Program.
-Demonstration Rain Garden at the community of Angola by the Bay on Herring Creek. Design and engineering support from DNREC. Obtained funding from the Rain Gardens for the Bays program. Completed one rain garden in a cul de sac in November 2011. Ten additional gardens are planned for the swales in the right of ways on each side of the street. Presentations and rain garden booklets were provided to the Board of Directors of the HOA.

Additional Project Information

Project Financing

Funding Determination : Sole Source

Amendment: ☐

Amendment Source:

CIB FUNDS: $10,000.00
OTHER FUNDS:
MATCHING FUNDS:
AMENDMENT FUNDS:
TOTAL: $10,000.00

Project Location

Municipality : All Coastal Communities

Watershed/Waterbody : All Watersheds

Latitude:

Longitude:

Project Leveraging Role

Report Information

Report Title:

Author :

Abstract :

Restoration ☐	**QAPP** ☐
Habitat Type :	**Date Completed :**
Restoration type :	**Date Approved :**
Acreage :	**Location :**
Partners :	
Completion Date:	
Cost :	

Year Reported 2012

Date : 07/06/2012

Project Report

Project Name: *Hard Clam Density and Distribution Survey*

Lead Contractor: DNREC - WAS

Responsible Partners, Contact Info, and

Mike Bott -- Project Manager
DNREC - WAS

Chris Bason -- Project QA Manager
Center for the Inland Bays

Seasonal Intern -- Research Assistant
Center for the Inland Bays

Rick Cole -- Data Modeler
DNREC -- FWS

Project Status: On-going

Work Pan ID : CIB10-005

Project Description

Strategic Alignment:

CCMP Action Plan ID :	Primary Action Plan ID Title :
ED-A	Implement the Comprehensive Public Participation and Education Plan
CCMP Goal Objective ID :	**Primary Goal Objective ID Title :**
G2,G2B,G2E,G3,G3D	Enhance monitoring and response strategies

CWA Program Implementation: Improving Water Quality Monitoring

Overview:

This two year project will resurvey the Inland Bays for hard clam and other shellfish density and distribution. Hard clams are the bays most valuable commercial and recreational fishery and have not been surveyed since the 1980s. Their biomass, year class, and distribution will be repeat surveyed in Rehoboth Bay in 2010 and in Indian River and Little Assawoman Bay in 2011. Data will be compared with previous measurements and provided to the DNREC FWS for use in management models and the Inland Bays Shellfish Management Plan. Final report and a report for public consumption will be prepared. Data will be used as an environmental indicatorData is necessary for any aquaculture practices to occur.

Intended Results

1. Biomass and distribution survey of hard clam resource in the Inland Bays.
2. Ancillary information on other shellfish speices in the Inland Bays.
3. Scientific and public reports.

Outputs/Deliverables:

1. Final report
2. Full data delivery to DNREC FWS
3. Public education product/indicator product
4. Potential scientific journal article.

Milestones:

1. Develop QAPP (Initiated: October, 2009; Target: March, 2010, Completed: March, 2010)
2. Finalize Inland Bays Boat use procedures (Initiated: October 2009; Target: March 2010, Completed: March, 2010).
3. Complete sampling for Rehoboth Bay (Initiated: May 2010, Target: October 2010, Extended: July, 2011, Completed: October 2011)
4. Complete data analysis and preparation for Rehoboth Bay (Target: April, 2011, Extended: October, 2011, Completed: June 2012)
5. Complete sampling for Indian River and Little Assawoman Bay (Target: October, 2011). LAB sampling may be dropped or Target moved to October 2012.
6. Complete data analysis and preparation for Indian River and Little Assawoman Bay (Target: April, 2012)

Short-Term Outcomes

1. Increased understanding of the status of hard clam resource by resource managers and decision makers.
2. Increased awareness by public of the economic and environmental importance of hard clam resoure.

Intermediate Outcomes:

1. Development of improved hard clam management models using new data through contemporary information that can set limits for sustainable harvest and other management goals
2. Improved monitoring capacity for hard clams.
3. Information necessary to decide on feasibility of aquaculture operations.

Long-Term Outcomes

1. Support increases in economic and ecological benefits of native shellfish populations through aquaculture.

Project Progress

Progress To Date:

1. Sampling for Rehoboth Bay completed.
2. Reorganization of sampling plan for Indian River Bay completed.
3. Sampling for Indian River Bay completed.
4. Data entry and initial analyses completed.
5. Data delivered to CIB.
6. Spatial data prepared for incorporation to marine spatial planning.
7. Data collection and summary for Little Assawoman Bay to be completed by end of October 2012.
8. Final Report to be completed by end of 2012

Additional Project Information

Year Reported 2012

Date : 07/06/2012

Project Financing

Funding Determination : Sole Source

Amendment: ☑

Amendment Source: CE9939900

CIB FUNDS: $10,000.00

OTHER FUNDS:

MATCHING FUNDS:

AMENDMENT FUNDS: $5,500.00

TOTAL: $15,500.00

Project Location

Municipality : All Coastal Communities

Watershed/Waterbody : All Bays

Latitude:

Longitude:

Project Leveraging Role

Primary

Report Information

Report Title:

Author :

Abstract :

Restoration ☐

Habitat Type :

Restoration type :

Acreage :

Partners :

Completion Date:

Cost :

QAPP ☑

Date Completed : 3/1/2010

Date Approved : 3/1/2010

Location : CIB

Year Reported 2012

Date : 07/06/2012

Project Report

Project Name: *Inland Bays CCMP Project Management & Oversight*

Lead Contractor: Center for the Inland Bays

Responsible Partners, Contact Info, and

Center for the Inland Bays
39375 Inlet Road
Rehoboth Beach, DE 19971
(302) 226-8105

Chris Bason
Executive Director
chrisbason@inlandbays.org

Project Status: On-going

Work Pan ID : CIB13-001

Project Description

Strategic Alignment:

CCMP Action Plan ID :	Primary Action Plan ID Title :
IMS-A	Meet the nutrient reduction goals of the Pollution Control Strategy
CCMP Goal Objective ID :	**Primary Goal Objective ID Title :**
G1,G1A,G1E,G2,G2E,G9	Establish and Implement a comprehensive nonpoint source pollution control program

CWA Program Implementation: Controlling Nonpoint Source Pollution on a Watershed Basis, Developing Total Maximum Daily Loads, Improving Water Quality Monitoring, Strengthening National Pollutant Discharge Elimination System Permits, Strengthening Water Quality Standards, Supporting Sustainable Wastewater Infrastructure

Overview:

The Center for the Inland Bays, Inc. is an innovative management approach to watershed restoration and protection. Critical to the success of CCMP implementation activities is effective research and demonstration project oversight, grant development and management, contract administration, and coordination with organizations responsible for various work elements as well as tracking and communication of progress. The Board of Directors, the office of the Executive Director and other appropriate staff, will be responsible for these tasks.
The Delaware Inland Bays National Estuary Program was established in 1988 through a Congressional designation and is under the administration of the U.S. Environmental Protection Agency/Office of Water/Office of Wetlands, Oceans & Watersheds/Oceans & Coastal Protection Division/Coastal Management Branch. The non-profit Center for the Inland Bays, Inc., enabled by the Delaware General Assembly in July 1994, oversees implementation of the Inland Bays Comprehensive Conservation and Management Plan.

The CIB is administered by a nine member Board of Directors consisting of the following members: Secretary of the Department of Agriculture, Secretary of Dept of Natural Resources & Environmental Control, a representative from the Sussex Conservation District, the Sussex County Council, a representative from the Sussex County Association of Towns, the Chair of the Scientific and Technical Advisory Committee, the Chair of the Citizens Advisory Committee, a designee of the President Pro-Tem of the Delaware State Senate, and a designee of the Speaker of Delaware State House of Representatives. The EPA is an Ex-Officio member.

Intended Results

•Provide for effective project management and oversight
•Engage in restoration, research/demonstration, education & outreach projects and the development of sound public policy
•Coordinate with responsible organizations and partners
•Track and communicate progress

Outputs/Deliverables:

CCMP inclusive

Milestones:

Task 1: Secure state funding and other match sources to support the Section 320 grant and CIB Work Plan

Task 2: Pepare and distribute program updates and associated progress reports to the Board of Directors and EPA (quarterly)

Task 3: Hiire and/or retain appropriate support staff as needed (on-going).

Task 4: Monitor budgetary and financial reconciling procedures; secure annual A-133 audit; report results to Environmental Protection Agency and Board of Directors

Task 5: Provide administrative (meeting arrangements, notifications, minutes, etc) support for the Board of Directors, Scientific and Technical Advisory Committee, Citizen's Advisory Committee and other CIB committees (on-going).

Task 6: Provide communication documents, including the Inland Bays Journal (three times per annum-spring/summer/fall), to public and private groups/individuals, state, county, and local governments.

Task 7: Publish a CIB annual report and distribute to select audiences, including the Delaware General Assembly, as required by HB540- the Inland Bays Watershed Enhancement Act.

Task 8: Facilitate implementation and monitor/track the progress of lead agencies responsible for implementation of CCMP tactics (on-going).

Task 9: Provide educational programs to schools, homeowners, and other publics to show better management practices within the Inland Bays watershed; methods will include programs, lectures, slide shows, seminars, as well as media interaction (radio, TV, news articles, etc).

Task 10: Continue to support the promulgation of Inland Bays Pollution Control Strategy regulations in cooperation with the Delaware Department of Natural Resources & Environmental Control.

Task 11: Continue restoration initiatives at the James Farm Ecological Preserve as well as other public and private sites.

Task 12: Serve on state-wide and regional committees and task-forces to promote sound environmental policies

based on best available science.

Task 13: Continue oversight and management of the Inland Bays Shellfish Restoration Program in cooperation with the College of Marine Studies (U.D.) and Delaware State University

Task 14: Travel to national and regional EPA meetings and estuary-related conferences; provide technical assistance to other programs.

Task 15: Serve in an advisory capacity to elected officials, public policy makers and civic leaders.

Task 16: Organize and host special events, such as the Governor's Wade-In, the Native Plant Sale, the Inland Bays Clean-up, and other public outreach activities.

Task 17: Augment the CIB's membership program and sustain opportunities for volunteer participation.

Task 18: Collaborate with the Inland Bays Water Use Plan Implementation Committee to develop strategies to reduce user conflicts and protect/restore habitats

Task 19: Collaborate with the Inland Bays Citizens' Advisory Committee to expand the activities of its Outreach and Public Policy subcommittees

Task 20: Diversify sources of non-federal income to support the CIB's programs and activities.

Short-Term Outcomes

CCMP inclusive

Intermediate Outcomes:

CCMP inclusive

Long-Term Outcomes

CCMP inclusive

Project Progress

Progress To Date:

Task 1: Secure $190,000 in State of Delaware funding in the FY2012 State Budget -- Completed.

Task 2:Prepare and distribute program updates and associated progress reports to the Board of Directors and EPA (quarterly)- Ongoing

Task 4: Produce required A-133 Audit-Ongoing

Task 5:Provide administrative (meeting arrangements, notifications, minutes, etc) support for the Board of Directors, Scientific and Technical Advisory Committee, Citizen's Advisory Committee and other CIB committees- Ongoing

Task 6:Provide communication documents, including the Inland Bays Journal (three times per annum-spring/summer/fall), to public and private groups/individuals, state, county, and local governments- Ongoing

Task 7:Publish a CIB annual report and distribute to select audiences, including the Delaware General Assembly, as required by HB540- the Inland Bays Watershed Enhancement Act- Ongoing

Task 8:Facilitate implementation and monitor/track the progress of lead agencies responsible for implementation of

CCMP tactics- Ongoing

Task 9:Provide educational programs to schools, homeowners, and other publics to show better management practices within the Inland Bays watershed; methods will include programs, lectures, slide shows, seminars, as well as media interaction (radio, TV, news articles, etc)- Ongoing

Task 10:Continue to support the implementation of Inland Bays Pollution Control Strategy in cooperation with the Delaware Department of Natural Resources & Environmental Control- Ongoing

Task 11:Continue restoration initiatives at the James Farm Ecological Preserve as well as other public and private sites- Ongoing

Task 12: Serve on state-wide and regional committees and task-forces to promote sound environmental policies based on best available science- Ongoing

Task 13: Continue oversight and management of the Inland Bays Shellfish Restoration Program in cooperation with the College of Marine Studies (U.D.) and Delaware State University- Ongoing

Task 14: Travel to national and regional EPA meetings and estuary-related conferences; provide technical assistance to other programs- Ongoing

Task 15: Serve in an advisory capacity to elected officials, public policy makers and civic leaders- Ongoing

Task 16: Organize and host special events, such as the the Native Plant Sale, the Inland Bays Clean-up, and other public outreach activities- Ongoing

Task 17: Augment the CIB's membership program and sustain opportunities for volunteer participation- Ongoing

Task 18: Ccollaborate with the Inland Bays Water Use Plan Implementation Committee to develop strategies to reduce user conflicts and protect/restore habitats - Ongoing

Task 19: Collaborate with the Inland Bays Citizens' Advisory Committee to support and expand its activities -- Ongoing.

Task 20: Diversify sources of non-federal income to support the CIB's programs and activities- Ongoing

Additional Project Information

Project Financing

Funding Determination : Sole Source

Amendment:

☐

Amendment Source:

CIB FUNDS: $591,013.00

OTHER FUNDS: $118,961.00

MATCHING FUNDS: $0.00

AMENDMENT FUNDS:

TOTAL: $709,974.00

Project Location

Municipality : Bethany Beach, Middlesex Beach, South Bethany Beach

Watershed/Waterbody : Little Assawoman Bay, Little Assawoman Bay WS

Latitude:

Longitude:

Project Leveraging Role

Primary

Year Reported 2012

Date : 07/06/2012

Report Information

Report Title:

Author :

Abstract :

Restoration ☐	**QAPP** ☐
Habitat Type :	**Date Completed :**
Restoration type :	**Date Approved :**
Acreage :	**Location :**
Partners :	
Completion Date:	
Cost :	

Year Reported 2012

Date : 07/06/2012

DELAWARE CENTER FOR THE INLAND BAYS
Rehoboth Indian River Little Assawoman

Project Report

Project Name: *Eelgrass Habitat Suitability Mapping Project*

Lead Contractor:

Responsible Partners, Contact Info, and Bart Wilson, CIB -- Project Coordinator

Project Status: On-going **Work Pan ID :** CIB11-003

Project Description

Strategic Alignment:

CCMP Action Plan ID :	Primary Action Plan ID Title :
AG-B,HP-A	Develop nutrient utilization and distribution alternatives
CCMP Goal Objective ID :	**Primary Goal Objective ID Title :**
G2,G2A	Protect, restore, and enhance living resources by improving water quality and protecting and enhancing habitat

CWA Program Implementation: Controlling Nonpoint Source Pollution on a Watershed Basis

Overview:

The most basic objective of the Inland Baysmanagement plan is to reverse eutrophication and habitat loss. Submerged vascular plant (SVP) meadows are keystone species of coastal lagoons and are signature habitats for fish and shellfish. They also control water qaulity and bottom sediment movement. The Total Maximum Daily Loads and the Pollution Control Strategy for the Inland Bays were developed in part to achieve conditions that allow for the growth and re-establishment of SVPs. Eelgrass and widgeon grass meadows may once have covered a majority of Rehoboth Bay and much of Indian River Bay. Unfortunately, the Inland Bays is nearly devoid of these keystone species after disease and eutrophic conditions caused their extirpation.

A concerted restoration initiative in the late 1990s and early 2000s was succesful in restoring one known acre of eelgrass in Indian River Bay. Water quality data suggest that eutrophic conditions have subsided to the extent that SVP could re-establish. The limiting factor for their self re-establishment is likely the lack of a sufficient seed source. Interest exists to renew a SVP restoration program in the Inland Bays. However, information is needed to identify the locations within the Bays that would most likley allow re-establishment. The primary factors affecting re-establishment include water clarity and sediment type. Water clarity is determined by suspended sediment and phytoplankton concentrations and water depth. Sediment type varies by location within the Bays. Water velocity and macroalgal accumulation have a secondary affects on re-establishment and growth. In the Maryland Coastal Bays, habitat suitability maps for eelgrass have been generated using these variables.

This project proposes to develop eelgrass habitat suitability maps for the Inland Bays using existing data sources including bathymetry, water clarity, suspended solids concentrations, and chlorophyll concentrations; and sediment type for which data is needed. The maps will be used to 1.) identify and prioritize areas for eelgrass restoration projects, 2.) develop an ecologically relevant long-term goal for eelgrass restoration and coverage, 3.) develop a environmental indicator for eelgrass that communicates bay condition and program success, and 4.) inform the selection and establishment of resource protection areas (RPAs) in the Inland Bays. The project will primarily focus on eelgrass about which the most is known and could be continued to develop maps for widgeon grass.

Intended Results

1. Aggregation of existing data relevant to SVP habitat suitability.
2. Cooperation with DNREC to map sediment type within Rehoboth and Indian River Bay. ELIMINATED.
3. Production of habitat suitability maps for eelgrass.
4. Development of a restoration goal (acreage) and environmental indicator.
5. Inform RPA selection.
6. Exploration of mapping for widgeon grass.

Outputs/Deliverables:

1. GIS project with aggregated data on eelgrass habitat suitability.
2. Sediment type data for Rehoboth and Indian River Bay
3. Final report and suitability maps.
4. Environmental indicator draft for eelgrass.

Milestones:

1. Explore avenues for collecting sediment type data with DNREC CP or other agencies (Target: February 2011, Extended: July 2011).
2. Solicit contractor to prepare maps (Target: February 2011, Extended: September 2012).
3. Project partner meeting (Target: March 2011. Eliminated.).
4. Begin aggregation and provision of existing data (Target: March 2011, Extended January 2013).
5. Begin map construction (Target: April 2011, Extended: JAN 2013).
6. Complete sediment type mapping (Target: October 2011 potentially Summer 2012).
7. Complete final maps and reports (Target: January 2013, Extended: SEP 2013)
8. Complete environmental indicator (Target: January 2013, Extended: JAN 2013)

Short-Term Outcomes

1. Increased understanding of areas within the Bays that are suitable for eelgrass re-establishment.
2. Increased awareness within the DNREC Coastal Programs of the goals and objectives of the CIB.
3. Increased understanding of the public and CIB partners about the importance of SVP.
4. Updated understanding of the sediment dynamics within the Inland Bay by CIB STAC and other scientists.

Intermediate Outcomes:

1. Improve the efficiency and success of SVP restoration efforts.
2. Better informed establishment of Resource Protection Areas.
3. Potential for shoreline practices that are conducted with more sensitivty towards eelgrass restoration goals.

Long-Term Outcomes

1. Should lead to the more successful restoration of SVP and thus improved water quality, less variable sediment dynamics, increased fish diversity, and improved shellfish habitat.

Project Progress

Year Reported 2012

Date : 07/06/2012

Progress To Date:

1. Due inability to obtain the necessary data to complete the project, funds were reallocated to the Anchorage Canal Drainage Area Stormwater Retrofit Project Phase 2: Median Bioretention Areas during the Fall of 2011.
2. This project remains viable but unfunded.
3. Project management assumed by Bart Wilson, Science Coordinator, in 2012.
4. Additionaly bathymetry data obtained in 2012.
5. Work on Marine Spatial Planning in the Inland Bays primarily for shellfish aquaculture has provided a larger framework to place this forthcoming analysis into.
6. Subaqeous soils data from the Natural Resource Conservation Service is needed for project completion. The NRCS has assured us this data will be available in 2012.

Additional Project Information

Project Financing

Funding Determination : RFP

Amendment: ☐

Amendment Source:

CIB FUNDS: $0.00
OTHER FUNDS:
MATCHING FUNDS:
AMENDMENT FUNDS:
TOTAL: $0.00

Project Location

Municipality : All Coastal Communities

Watershed/Waterbody : Indian River Bay, Rehoboth Bay

Latitude:

Longitude:

Project Leveraging Role

Primary

Report Information

Report Title:

Author :

Abstract :

Restoration ☐

Habitat Type :

Restoration type :

Acreage :

Partners :

Completion Date:

Cost :

QAPP ☐

Date Completed :

Date Approved :

Location :

Year Reported 2012

Date : 07/06/2012

Project Report

Project Name: *Massey's Landing Dredge Spoil Project*

Lead Contractor: Delaware Center for the Inland Bays

Responsible Partners, Contact Info, and

Eric Buehl
Delaware Center for the Inland Bays
39375 Inlet Road
Rehoboth Beach, Delaware 19971

Chuck Williams
Delaware Department of Natural Resources and Environmental Control
Division of Soil & Water Conservation
89 Kings Highway
Dover, Delaware 19901

Project Status: On-going

Work Pan ID : CIB11-007

Project Description

Strategic Alignment:

CCMP Action Plan ID :	Primary Action Plan ID Title :
HP-G	Review, update, and codify the Inland Bays Dredge Plan
CCMP Goal Objective ID :	**Primary Goal Objective ID Title :**
G2,G2B,G2F,G6,G6D	Enhance and restore impacted shallow and nearshore habitats

CWA Program Implementation: Controlling Nonpoint Source Pollution on a Watershed Basis

Overview:

The goal of this project is to restore or enhance a shallow-water or intertidal area near Massey's Landing through the beneficial re-use of dredge spoil. The project accomodates public use of the waterway while creating or enhancing habitat for birds and reptiles.

Intended Results

1. Protect and restore underwater and shallow water habitat areas.
2. Promote the beneficial re-use of dredge spoil.
3. Enhance upland habitat for colonial nesting bird species.
4. Enhance boating safety.

Year Reported 2012

Date : 07/06/2012

Outputs/Deliverables:

1.A safe, navigable channel will be re-established.
2.Beneficial re-use of dredge spoil will be promoted.
3.Underwater and shallow water habitat areas will be protected.
4.Upland and inter-tidal habitat will be restored or enhanced.

Milestones:

1.October 2010-Secure landowner permission.
2.November 2010-Refine scope project.
3.November 2010 thru February 2011-prepare state and federal permits.
4.Fall 2011/Winter 2012-Complete project dredging.
5.Spring 2012-Complete plantings if required.

Short-Term Outcomes

1.A safe, navigable channel will be re-established.
2.Project visitors will see that there are beneficial uses for dredge spoils.

Intermediate Outcomes:

1.Aquatic habitat areas will be protected from boat groundings and prop scarring.
2.Habitat for reptiles and nesting birds will be restored or enhanced.

Long-Term Outcomes

1.Key species numbers will be enhanced through protected nesting and breeding areas.

Project Progress

Progress To Date:

Prepared presentation and project funding request.
Project funding request denied.
Sediment sampling completed.
CIB to contract with DNREC to complete feasibility study.
Copies of agreements for completion of the Feasibility Study were executed.
CIB is working closely with the state to look for funding to complete the project once the study and final design are complete.
Feasibilty Study due to be completed by September 1.

Additional Project Information

Year Reported 2012

Date : 07/06/2012

Project Financing

Funding Determination :

Amendment: ☐

Amendment Source:

CIB FUNDS: $15,700.00
OTHER FUNDS: $0.00
MATCHING FUNDS: $80,000.00
AMENDMENT FUNDS:
TOTAL: $95,700.00

Project Location

Municipality : Millsboro

Watershed/Waterbody : Rehoboth Bay

Latitude:

Longitude:

Project Leveraging Role

Report Information

Report Title:

Author :

Abstract :

Restoration ☐

Habitat Type :

Restoration type :

Acreage :

Partners :

Completion Date:

Cost :

QAPP ☐

Date Completed :

Date Approved :

Location :

Year Reported 2012

Date : 07/06/2012

DELAWARE CENTER FOR THE INLAND BAYS
Rehoboth Indian River Little Assawoman

Project Report

Project Name: *Mini Oyster Demonstration Reef*

Lead Contractor: DE Center for the Inland Bays

Responsible Partners, Contact Info, and

E.J. Chalabala
DE Center for the Inland Bays
39375 Inlet Road
Rehoboth Beach, DE 19971
302-228-8954

Project Status: On-going

Work Pan ID : CIB11-010

Project Description

Strategic Alignment:

CCMP Action Plan ID :	Primary Action Plan ID Title :
AG-B,HP-F,IMS-A	Develop nutrient utilization and distribution alternatives
CCMP Goal Objective ID :	**Primary Goal Objective ID Title :**
G2,G2B,G2F,G3,G3B,G4, G9,G9F,G9G	Protect, restore, and enhance living resources by improving water quality and protecting and enhancing habitat

CWA Program Implementation: Improving Water Quality Monitoring, Strengthening Water Quality Standards

Overview:

This project will use spat on shell to grow oysters in a suitable location to further demonstrate how well our bays can produce healthy oysters. The project intends for an increase in natural oyster recruitment. A safe location will be determined that has acceptable water flow and quality and shell will be placed on bottom and later monitored for oyster survival.

Intended Results

1. Establish a productive off bottom oyster reef
2. Document and demonstrate how well oysters can grow in our Inland Bays
3. Provide beneficial habitat for numerous organisms
4. Document natural recruitment

Outputs/Deliverables:

1. Approx 100 feet of off bottom oyster reef with approx 15 bushels of oysters

2. Approx 100 feet of aquatic habitat enhancement
4. Large, healthy oysters with the potential for natural recuruitment
5. Prove that oyster reef can be beneficial in closed waters

Milestones:

October 2010- locate optimal spot for establishment
November 2010- refine scope of project
December-March 2010/2011- Design and build structure for oysters
April-June 2011- Distribute oysters
Aug-2012- Document size, weight

Short-Term Outcomes

1. Aquatic habitat
2. Substantial amount of oysters in location than ever before
3. Public outreach and awareness

Intermediate Outcomes:

1. Increased understanding of Inland Bays ecological trends, increased understanding and a learning tool for resource managers involved in planning protection and restoration strategies.

Long-Term Outcomes

Enhance monitoring capabilities of partner programs and agencies. Potential for increased resource condition due to increased public awareness. Healthy oysters grown in an 'unhealthy' part of our bays. Prove that oysters can grow on reefs in the Inland Bays.

Project Progress

Progress To Date:

Oyster shell distributed on bay bottom.
Juvenile spat on shell distributed on oyster shell.
Adult spat on shell distributed on oyster shell.
Documented number of bushels planted and a sample size.
Monitored reef and document random sections for growth and survival.

Additional Project Information

Project Financing

Funding Determination :

Amendment: ☐

Amendment Source:

CIB FUNDS:	$0.00
OTHER FUNDS:	$3,000.00
MATCHING FUNDS:	$0.00
AMENDMENT FUNDS:	
TOTAL:	$3,000.00

Project Location

Municipality : All Coastal Communities

Watershed/Waterbody : All Bays, All Watersheds

Latitude:

Longitude:

Project Leveraging Role

Primary

Year Reported 2012

Date : 07/06/2012

Report Information

Report Title:

Author :

Abstract :

Restoration ☑		**QAPP** ☐	
Habitat Type :	shellfish bed	**Date Completed :**	
Restoration type :	Establishment	**Date Approved :**	
Acreage :	1	**Location :**	
Partners :			
Completion Date:	09/30/2013		
Cost :	$0.00		

Year Reported 2012

Date : 07/06/2012

Project Report

Project Name: *Bethany Beach Nature Center*

Lead Contractor: CIB

Responsible Partners, Contact Info, and

Sally Boswell, Project Manager
Center for the Inland Bays
39375 Inlet Road
Rehoboth Beach, DE 19971

Cliff Graviet & Lisa Daisey
Bethany Nature Center
Garfield Parkway
Bethany Beach, DE 19930
(302) 537-7680

Project Status: On-going

Work Pan ID : CIB11-011

Project Description

Strategic Alignment:

CCMP Action Plan ID :	Primary Action Plan ID Title :
ED-A	Implement the Comprehensive Public Participation and Education Plan
CCMP Goal Objective ID :	**Primary Goal Objective ID Title :**
G2,G2A,G9,G9C,G9F	Promote education of out-of-state users and visitors

CWA Program Implementation: Controlling Nonpoint Source Pollution on a Watershed Basis

Overview:

The Bethany Beach Nature Center is located at the heart of the Inland Bays watershed in a rapidly developing area. It is the largest parcel of undeveloped land within the Town of Bethany Beach and includes 3 acres of forested uplands, 9.6 acres of federal jurisdictional wetlands and 13.8 acres of Delaware-designed wetlands.

In 2006, the CIB partnered with the Town of Bethany Beach to create a native plant demonstration garden at the Center to educate long time local residents, new residents, and the thousands of annual visitors to the watershed about the environmental benefits of gardening and landscaping with species indigenous to the coastal area.

In 2007, the town sought our assitance in creating an Inland Bays interactive exhibit for the Nature Center. Out of that work, the CIB formed a formal partnership with the Town of Bethany Beach at their Bethany Beach Nature Center to have a point of contact for education and outreach in the southern resort area of the Inland Bays watershed

to reach residents and visitors to the coastal area of our watershed.

Intended Results

To provide resources and programming to educate and inform residents and visitors about the unique coastal habitats that have been preserved and protected at the Bethany Beach Nature Center

Outputs/Deliverables:

1. Develop a partnership with the Town of Bethany Beach at the Bethany Nature Center
2. Develop and deliver a weekly children's program that incorporates watershed education
3. Develop and deliver summer programs for visitors to the watershed

Milestones:

1. Assist the town manager in identifying a director for the Bethany Beach Nature Center
2. Assist with developing exhibits to tell the Inland Bays story
3. Provide brochures and other materials for distribution at the BBNC
4. Hire a CIB Lead Teacher to develop watershed-focused educational activities and assist with children's programs
Provide CIB teacher volunteers to lead and assist with programs

Short-Term Outcomes

1. Raise awareness about the work of the CIB through our identification with and presence at the Bethany Beach Nature Center.
2. Development of Inland Bays exhibits and displays at the BBNC

Intermediate Outcomes:

1. Provide a location for distribution of Inland Bays outreach/education materials to residents and tourists who visit BBNC.
2. Launch of programs for children and adults that highlight watershed education and inform and educate these residents and visitors

Long-Term Outcomes

1. An on-going outreach/education center in the south coastal area of the watershed through partnership with a local municipality.
2. A center for outreach to summer visitors to the watershed.

Project Progress

Progress To Date:

-Continue our year-around program offered every Saturday morning to children and their families which includes a walk, a story and an activity centered on a watershed theme.
-Supported the start of a new after school program for children 8 and up held every Friday afternoon. Working with the staff to provide the group with projects in support of our mission. They are planning for a bluebird trail at James Farm.
-Completed a Demonstration Rain Garden at BBNC and installed an interpretive sign at the site.
-Participated in an Earth Day event in April 2012 at BBNC where we had an exhibit on rain gardens and distributed the Rain Gardens Booklet and information on our citizen science research projects.
-Continue to provide the lead teacher for the Friday and Saturday children's programs and to assist with the summer program as an outreach to visitors to the watershed.

Year Reported 2012

Date : 07/06/2012

Additional Project Information

Project Financing

Funding Determination : Sole Source

Amendment: ☑

Amendment Source: CE993990-

CIB FUNDS:

OTHER FUNDS: $3,000.00

MATCHING FUNDS: $0.00

AMENDMENT FUNDS: $3,600.00

TOTAL: $6,600.00

Project Location

Municipality : All Coastal Communities

Watershed/Waterbody : All Bays, All Watersheds

Latitude:

Longitude:

Project Leveraging Role

Report Information

Report Title:

Author :

Abstract :

Restoration ☐	**QAPP** ☐
Habitat Type :	**Date Completed :**
Restoration type :	**Date Approved :**
Acreage :	**Location :**
Partners :	
Completion Date:	
Cost :	

Year Reported 2012

Date : 07/06/2012

Project Report

Project Name: *Schoolyard Habitats in the Inland Bays Watershed*

Lead Contractor: Sally Boswell, Project Coordinator

Responsible Partners, Contact Info, and Center for the Inland Bays
Indian River School District

Project Status: On-going

Work Pan ID : CIB11-012

Project Description

Strategic Alignment:

CCMP Action Plan ID :	Primary Action Plan ID Title :
ED-A	Implement the Comprehensive Public Participation and Education Plan
CCMP Goal Objective ID :	**Primary Goal Objective ID Title :**
G2,G2A,G9,G9E	Ensure, to the maximum extent possible, all planning and management activities related to the Inland Bays involve public participati, iniInformation and education e

CWA Program Implementation: Controlling Nonpoint Source Pollution on a Watershed Basis

Overview:

In 2006, CIB created a partnership with the Indian River School District to bring a Schoolyard Habitat Program (SHP) to every district school in the watershed so that watershed education becomes a part of every student's learning experience throughout the entire school year. As of spring 2010, Cib will have introduced this program to ten (10) schools. In 2009, with the support of a grant from the Chichester duPont Foundation to build capacity for this growing program, CIB hired a part-time Schoolyard Habitat Coordinator. Responsibilities for this position include overseeing introduction of the program to new schools; working with existing SHP schools and their graduating students on legacy programs each spring to expand the habitats; developing curriculum-aligned activities for each grade level for outdoor experiential education; and, providing oversight of volunteer educators and community volunteers who assist teachers and their students in these activities. A supplemental grant from the Chichester duPont Foundation in 2010 allowed CIB to continue to build capacity to support the growth of this successful program. Because Foundation support is not likely to be sustained beyond 2010, CIB needs to support this position from its operating funds so that additional schools can be added and existing schools can continue to grow their schoolyard habitats.

Intended Results

1. To develop and implement schoolyard habitat programs at every school in the Inland Bays watershed
2. To bring watershed awareness and education to teachers/students
3. To create awareness within the schools of their connection to the watershed and their impacts on the Inland Bays

Outputs/Deliverables:

1. Habitat enhancement at schools in the watershed
2. Greater awareness of stormwater management and stormwater impacts at schools
3. Increased opportunities for watershed education for students

Milestones:

1. Create schoolyard habitat wetlands at two schools each spring to begin their SHP
2. Develop leadership within the SHP
3. Develop and pilot curriculum-aligned activities for each grade level in support of watershed education for use in outdoor learning
4. Create a Legacy Program at each school and work with graduating students to expand the footprint of their schoolyard habitat

Short-Term Outcomes

Through engagement of the teachers, students, administrators and groundskeepers, create awareness of stormwater management on the school property; create a wetland habitat; remove non native plant species and introduce a diversity of native plant species.

Intermediate Outcomes:

Provide students with experiential outdoor learning opportunities by working with teachers to introduce curriculum-aligned lesson plans on water quality, habitat diversity, and other ecological concepts for use in the habitats

Long-Term Outcomes

Change the culture of schools and the awareness of students to regard the school and its grounds as the schoolyard habitat so that understanding of their place in the watershed and the impacts of their decisions and actions at their schools is part of their every day experience.

Project Progress

Progress To Date:

1. 90 2nd grade students at Long Neck Elem School participated in an outdoor schoolyard habitat activity learning insect structures and life cycles, using hand lenses, observing diversity of insects present.
2. 88 students at Lord Baltimore Elem School participated in the World Water Monitoring Program; testing the water quality of the stream adjacent to the school that flows into White's Creek, a tributary of the Inland Bays that receives stormwater runoff from nearby developments and agricultural fields.
3. With the assistance of CIB volunteers, we provided hands-on instruction in water quality analysis to 750 5th grade students in the schoolyard wetlands at seven elementary schools and the Southern DE School of the Arts.
4. Conducted 36 lessons to 388 students at the Ingram Pond Outdoor Education Center where students collected data on macro invertebrates to assess the water quality of the pond that flows into Indian River, then into Indian River Bay.
5. We provided instruction in water quality testing to more than 1,500 students in the Indian River School District through the Schoolyard Habitat Program this year.

Additional Project Information

Year Reported 2012

Date : 07/06/2012

Project Financing

Funding Determination :

Amendment: ☑

Amendment Source: CE993990-

CIB FUNDS: $20,000.00

OTHER FUNDS: $0.00

MATCHING FUNDS: $0.00

AMENDMENT FUNDS: $3,000.00

TOTAL: $23,000.00

Project Location

Municipality : All Coastal Communities

Watershed/Waterbody : All Bays

Latitude:

Longitude:

Project Leveraging Role

Report Information

Report Title:

Author :

Abstract :

Restoration ☐

Habitat Type :

Restoration type :

Acreage :

Partners :

Completion Date:

Cost :

QAPP ☐

Date Completed :

Date Approved :

Location :

Year Reported 2012

Date : 07/06/2012

Project Report

Project Name: *Shorezone Fish Community Volunteer Monitoring Program*

Lead Contractor: Center for the Inland Bays

Responsible Partners, Contact Info, and

Bart Wilson -- CIB Project Lead
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39375 Inlet Road
Rehoboth Beach, DE 19971
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chrisbason@inlandbays.org

Ron Kernehan -- CIB Volunteer Project Coordinator
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Lewes, DE 19958-1025
(302) 645-6254
rkernehan@earthlink.net

Project Status: On-going **Work Pan ID :** CIB11-013

Project Description

Strategic Alignment:

CCMP Action Plan ID :	Primary Action Plan ID Title :
ED-A	Implement the Comprehensive Public Participation and Education Plan
CCMP Goal Objective ID :	**Primary Goal Objective ID Title :**
G2,G2E,G9	Enhance monitoring and response strategies

CWA Program Implementation: Improving Water Quality Monitoring

Overview:

This is a long-term volunteer monitoring program to study the shorezone fish community of the Inland Bays. The shorezone fish community has its own unique characteristics and responses to water quality. In the past it has been studied sporadically, but no long term data exists to analyze for trends in community composition. This study will use volunteers supervised by the Center's scientist to accomplish long-term monitoring of this important community. The volunteer project coordinator is a fish biologist who will work with the Deputy Director to develop a sampling plan and implement the plan using volunteer labor. Volunteers will use beach seines to capture fish and enumerate them by species and size at approximately one dozen sites spanning a gradient of water quality around the Bays and their tributaries. Data will be entered, analyzed, and reported, by the project leads. Analyses will focus on fish diversity and numbers in relation to estuarine conditions. Data will be compared to past studies and analyzed for trends when

enough data years have been collected. The project will have an education and outreach component.

Intended Results

1. Development of long-term shorezone fish community monitoring plan.
2. Implementation of long-term shorezone fish community monitoring plan.
3. Outreach to general public through volunteer involvement and education of local public.

Outputs/Deliverables:

1. Long-term shorezone fish community monitoring plan.
2. Monitoring database.
3. Annual monitoring reports and presentation.
4. Pubic outreach through informal communication, formal presentation, and distribution of study educational brochures.

Milestones:

1. Consult science advisory committee. INITIATED: JAN 2011. COMPLETED: JAN 2011
2. Develop monitoring plan. INITIATED: JAN 2011. TARGET: APR 2011. DRAFT COMPLETED: MAY 2011.
3. Purchase study supplies. INITIATED: JAN 2011. TARGET: APR 2011. COMPLETED: APR 2011.
4. Develop volunteer corps. INITIATED: MAR 2011. TARGET: APR 2011. COMPLETED: APR 2011
5. Complete first year of data collection and analysis. TARGET: MAY 2011. ONGOING

Short-Term Outcomes

1. Increased scientific understanding of the shorezone fish community.
2. Increased public awareness of the diversity of natural resources of the Inland Bays.

Intermediate Outcomes:

1. Increased consideration of natural resources when making decisions on shoreline modification, dredging, and other landuse decisions.
2. Increased awareness of the Center for the Inland Bays and its mission among the general public.

Long-Term Outcomes

1. Potential for related gains or reduction in losses of a balanced and diverse shorezone fish community.

Project Progress

Progress To Date:

1. The first season of twice a month sampling was fully completed in 2011 from April to November at 17 sites.
2. Approximately 40 volunteers are participating in the program on 9 sampling teams.
3. Data entry, checking and initial analysis is completed for 2011.
4. A fish identification training program was held in 3rd quarter of 2011.
5. Final report preparation for 2011 is underway and will be completed by September 2012.
6. A study educational brochure was produced and teams distribute the brochure to interested individuals that observe field work.
7. The 2012 season is underway with one site that had to be dropped due to loss of permission.
8. The Science advisory committee for the study met in Spring of 2012.
9. Study received press coverage in state and local newspapers and altered fishing community to a large year class for Spot an important recreational and commerical catch.

Year Reported 2012

Date : 07/06/2012

Additional Project Information

Project Financing

Funding Determination : Sole Source

Amendment: ☐

Amendment Source:

CIB FUNDS: $12,000.00
OTHER FUNDS: $0.00
MATCHING FUNDS: $0.00
AMENDMENT FUNDS:
TOTAL: $12,000.00

Project Location

Municipality : Bethany Beach, South Bethany Beach

Watershed/Waterbody : All Bays

Latitude:

Longitude:

Project Leveraging Role

Primary

Report Information

Report Title:

Author :

Abstract :

Restoration ☐

Habitat Type :

Restoration type :

Acreage :

Partners :

Completion Date:

Cost :

QAPP ☑

Date Completed : 3/1/2011
Date Approved : 3/1/2011
Location : CIB

Year Reported 2012

Date : 07/06/2012

Project Report

Project Name: *Seaweed Monitoring, Method Calibration, and Long Term Trend Analysis (2011 and 2013).*

Lead Contractor: DNREC -- Division of Water

Responsible Partners, Contact Info, and

Robin Tyler -- DNREC Principal Investigator
DNREC -- Division of Water
Environmental Laboratory
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Dover, DE 19901
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Chris Bason -- CIB Principal Investigator
Delaware Center for the Inland Bays
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Rehoboth Beach, DE 19971
302 226-8105
chrisbason@inlandbays.org

Project Status: On-going

Work Pan ID : CIB11-015

Project Description

Strategic Alignment:

CCMP Action Plan ID :	Primary Action Plan ID Title :
ED-A	Implement the Comprehensive Public Participation and Education Plan
CCMP Goal Objective ID :	**Primary Goal Objective ID Title :**
G2,G2E	Enhance monitoring and response strategies

CWA Program Implementation: Improving Water Quality Monitoring

Overview:

This is joint research project between DNREC and CIB will determine the community composition and abundance of seaweeds at established monitoring locations within the Inland Bays and calibrate two seaweed sampling methods which will allow an analysis of trends in seaweed composition and abundance from 1969 to 2011. Seaweeds, or macroalage, are often an important and sometimes the dominant primary producers in the Inland Bays, yet the are often overlooked when assessing changes in the condition of the estuary. Seaweed abundance is a good indicator of eutrophication. The amount of seaweed locally controls habitat quality and can prevent the reestablishment of bay grasses -- a major restoration goal. This project will allow the assessment of a long term dataset on seaweed

abundance and composition. Twelve fixed stations will be sampled once a month from April to November while including an exercise to statistically calibrate the previously used dredge sled sample method to the curretnly used hook sample method. Short term and long term changes in composition and abundance will be analyzed, related to changes in nutrient loads and other potentially influential factors, and reported. This project intends to result in a peer reviewed publication.

NOTE: The method calibration and long term trends analysis were dropped because of the contractor's inability to complete these project tasks. Effort was reallocated to to complete an additional year of data collection for all established sites and new sites in Little Assawoman Bay in 2012.

Intended Results

1. Seaweed monitoring data for 2011 & 2012
2. Statistical calibration of the dredge sled seaweed monitoring method results to the hook method results (RESULT DROPPED DUE TO INABILITY OF CONTRACTOR TO PERFORM).
3. Long term trend analysis of macroalgae biomass and composition (RESULT DROPPED DUE TO INABILITY OF CONTRACTOR TO COLLECT NECESSARY DATA).
4. Final report and peer reviewed journal article publication.

Outputs/Deliverables:

1. Final report.
2. Presentation to STAC.
3. Peer Reviewed Journal article.

Milestones:

1. Hire seasonal research assistant. INITIATED: JAN 2011. TARGET: APR 2011. COMPLETED: MAR 2011.
2. Complete sampling and method calibration. TARGET: NOV 2011. DROPPED.
3. Analyze data and produce final report. TARGET: DEC 2012.
4. Complete manuscript for journal submission and present data at STAC: JUN 2013.

Short-Term Outcomes

1. Understading of the long term trends in seaweed composition and abundance.
2. Potential identification of potential relationship between changes in the seaweed community and estuarine condition.

Intermediate Outcomes:

1. Potential for formalized inclusion of a seaweed monitoring program by DNREC.

Long-Term Outcomes

Project Progress

Progress To Date:

1. Data collection, entry, and analysis for 2011 season completed.
2. Method calibration dropped due to contractor's inability to complete the task.
3. Sampling sites established in Little Assawoman Bay and data collection started.
4. Data collection for 2012 to be completed by SEP 2012.
5. Final report to be completed by DEC 2012.

Year Reported 2012

Date : 07/06/2012

Additional Project Information

Project Financing

Funding Determination : Sole Source

Amendment: ☐

Amendment Source:

CIB FUNDS: $7,000.00
OTHER FUNDS:
MATCHING FUNDS:
AMENDMENT FUNDS:
TOTAL: $7,000.00

Project Location

Municipality : Bethany Beach, South Bethany Beach

Watershed/Waterbody : Indian River Bay, Rehoboth Bay

Latitude:

Longitude:

Project Leveraging Role

Primary

Report Information

Report Title:

Author :

Abstract :

Restoration ☐

Habitat Type :

Restoration type :

Acreage :

Partners :

Completion Date:

Cost :

QAPP ☑

Date Completed : 3/1/2009
Date Approved : 3/1/2009
Location : CIB

Year Reported 2012

Date : 07/06/2012

DELAWARE CENTER FOR THE INLAND BAYS
Rehoboth Indian River Little Assawoman

Project Report

Project Name: *Effects of Suburban Development on Shallow Groundwater Quality*

Lead Contractor: USGS

Responsible Partners, Contact Info, and

Judy Denver -- USGS Principal Investigator
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1289 McD Drive
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DNREC -- Division of Water
Groundwater Discharges Section
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joshua.kasper@state.de.us

Project Status: On-going **Work Pan ID :** CIB11-016

Project Description

Strategic Alignment:

CCMP Action Plan ID :	Primary Action Plan ID Title :
AG-E	Continue research to determine relationship between nutrient movement and poultry houses
CCMP Goal Objective ID :	**Primary Goal Objective ID Title :**
G1,G1A,G1D,G1E	Manage urban and rural applications and handling of fertilizers, pesticides, herbicides, manure, sediment, animal carcasses, and other contaminants

CWA Program Implementation: Controlling Nonpoint Source Pollution on a Watershed Basis, Developing Total

Year Reported 2012

Date : 07/06/2012

Maximum Daily Loads

Overview:

This joint USGS-DNREC-UDCEOE research project will compare shallow groundwater quality between suburban development and agricultural lands in the well drained region of the Inland Bays watershed. The comparison aid in quantifying differences in pollutant loading to groundwater from different landuses which can helpt to improve loading models and pollutant reduction management stragies. The Inland Bays watershed has recently undergone extensive landuse changes whereby agricultural lands, forests, and wetlands are converted to developments. These changes are planned to continue in the future as defined by the Sussex County Landuse Plan. Various types of shallow groundwaters in Winding Creek Village, a development on Guinea Creek in the well drained Rehoboth Bay watershed, will be quantified for major nutrients and ions. Groundwater types include those influenced by septics, lawns influenced by previous agriculture, lawn fertilization, no lawn fertilization, and wooded developments. Isotopic analysis of nitrogen species will help to characterize the sources of groundwater under the development. The Center for the Inland Bays is supporting the data collection, analysis, and reporting of the nitrogen isotopic portion of the project.

Intended Results

1. Quantification of differnces in shallow groundwater quality between landuse types.
2. Quantification of differences in shallow groundwater quality within a development served by septic systems.
3. Identiication of sources of nitrogen under development using both major ion characterization and isotopic analyses.
4. Relation of findings to pollution loading models, management stratgies, and timing of changes in groundwater quality after landuse conversion.

Outputs/Deliverables:

1. Final project report.
2. Published peer reivewed journal article.

Milestones:

1. Complete QAPP. TARGET: APR 2011. INITIATED: APR 2011. COMPLETED: APR 2011.
2. Obtain permissions to sample. TARGET: MAR 2011. INITIATED: MAR 2011. COMPLETED: MAR 2011.
3. Complete Sampling. TARGET: JUNE 2011. COMPLETED: JULY 2011.
4. Complete Report. TARGET: JANUARY 2012. COMPLETED: MAR 2012.
5. Published Peer Reviewed Journal Article. TARGET: JAN 2013.

Short-Term Outcomes

1. Improved qunatification of the variation within suburban development's effect on shallow groundwater quailty by the scientific and management community.
2. Potential improvement in understanding of the timing of effects of landuse changes on groundwaters delivered to the estuary.

Intermediate Outcomes:

1. Improvement in accuracy of pollutant loading models.
2. Potential improvement in management decisions to meet TMDLs.

Long-Term Outcomes

1. Potential for improvement in management decisions to improve pollutant reduction to the Bays.

Project Progress

Year Reported 2012

Date : 07/06/2012

Progress To Date:

1. Sixty-two shallow groundwater samples collected, processed, and QA'd
2. Final progress report on analysis submitted.
3. Work continues on preparation of full study results for a peer reviewed journal article.

Additional Project Information

Project Financing

Funding Determination : Sole Source

Amendment: ☐

Amendment Source:

CIB FUNDS: $17,000.00

OTHER FUNDS:

MATCHING FUNDS:

AMENDMENT FUNDS:

TOTAL: $17,000.00

Project Location

Municipality : All Coastal Communities

Watershed/Waterbody : Rehoboth Bay, Rehoboth Bay WS

Latitude:

Longitude:

Project Leveraging Role

Primary

Report Information

Report Title:

Author :

Abstract :

Restoration ☐

Habitat Type :

Restoration type :

Acreage :

Partners :

Completion Date:

Cost :

QAPP ☑

Date Completed : 4/25/2011

Date Approved : 4/25/2011

Location : CIB

Year Reported 2012

Date : 07/06/2012

DELAWARE CENTER FOR THE INLAND BAYS
Rehoboth Indian River Little Assawoman

Project Report

Project Name: *Inland Bays Clean Up*

Lead Contractor: Center for the Inland Bays

Responsible Partners, Contact Info, and E.J. Chalabala
DE Center for the Inland Bays
39375 Inlet Road
Rehoboth Beach, DE 19971
302-228-8954

Project Status: On-going

Work Pan ID : CIB12-001

Project Description

Strategic Alignment:

CCMP Action Plan ID :	Primary Action Plan ID Title :
ED-A,HP-C	Implement the Comprehensive Public Participation and Education Plan
CCMP Goal Objective ID :	**Primary Goal Objective ID Title :**
G2,G2C,G4,G4D,G6,G8,G 8C,G9,G9F	Protect, restore, and enhance living resources by improving water quality and protecting and enhancing habitat

CWA Program Implementation: Controlling Nonpoint Source Pollution on a Watershed Basis, Developing Total Maximum Daily Loads

Overview:

The annual Inland Bays Clean-up is a partnership between the CIB's Water Use Plan Implementation Committee, the Division of Fish & Wildlife's Enforcement Section, and Delaware State Parks. Volunteers are encouraged to join the host agencies for a one-day clean-up of Delaware's three Inland Bays. Fish & Wildlife Enforcement Agents, CIB staff, and volunteer boat captains transport participants to selected areas around the Inland Bays for targeted clean up. Staging areas are the public boat ramps at Massey's Landing between Rehoboth and Indian River Bay and Mulberry Landing at the Assawoman Wildlife Area.

Since 2005 the event has attracted more than 500 volunteers, who collected a large quantity of debris, including soda bottles and cans, tires, hot water heaters, and a lot of plastic. Participants identified and recorded the debris that was collected for reporting to the National Marine Debris Monitoring Program. Numerous local businesses and organizations provided financial support for the event. Local delegates from the Delaware General Assembly also contributed grant assistance to fund the clean-ups.

Year Reported 2012

Date : 07/06/2012

Intended Results

1. Engage the public in an effort to clean our bays.
2. Collect and record as much trash as we possibly can.

Outputs/Deliverables:

Public Awareness for the future
Completed trash collection data sheets
At least 40 cubic yards of trash and debri collected
A cleaner, healthier Inland Bays

Milestones:

-Maintain a total of 2 sites to work out of. One in the upper bays and one in the lower bay.
-Strive for 150 volunteers per year
-Fill a 30 yard dumpster and a 10 yard dumpster with trash and debri found throughout the Inland Bays

Short-Term Outcomes

The clean-up raises awareness about the need for waste minimization and pollution reduction.

Intermediate Outcomes:

Decreases the potential for the dumping of trash, junk and debris by residents and visitors in the Inland Bays.

Long-Term Outcomes

The Inland Bays Clean-up is set to continue for the years to come. It such a positive event that yields significant results.

Project Progress

Progress To Date:

1. Inland Bay Clean Up conducted on June 23, 2012.
2. Over 100 volunteers and over a dozen vessels collected trash from around the Bays.
3. Local television media coverage attained.

Additional Project Information

Project Financing

Funding Determination : Sole Source

Amendment: ☑

Amendment Source: CE993990-

CIB FUNDS:	$1,000.00
OTHER FUNDS:	$1,000.00
MATCHING FUNDS:	$0.00
AMENDMENT FUNDS:	$1,000.00
TOTAL:	$3,000.00

Project Location

Municipality : All Coastal Communities

Watershed/Waterbody : All Bays

Latitude:

Longitude:

Project Leveraging Role

Primary

Year Reported 2012

Date : 07/06/2012

Report Information

Report Title:

Author :

Abstract :

Restoration ☐	**QAPP** ☐
Habitat Type :	**Date Completed :**
Restoration type :	**Date Approved :**
Acreage :	**Location :**
Partners :	
Completion Date:	
Cost :	

Year Reported 2012

Date : 07/06/2012

Project Report

Project Name: *Delaware Envirothon*

Lead Contractor: DNREC

Responsible Partners, Contact Info, and

Michelle Jacobs
Community Relations Officer
DNREC - Division of Watershed Stewardship
89 Kings Highway, Dover, DE 19901
302-739-9921 Phone
302-739-6724 Fax

E.J. Chalabala -- Committee Lead
DE Center for the Inland Bays
39375 Inlet Road
Rehoboth Beach, DE 19971
302-228-8954

Project Status: On-going

Work Pan ID : CIB12-003

Project Description

Strategic Alignment:

CCMP Action Plan ID :	Primary Action Plan ID Title :
ED-A	Implement the Comprehensive Public Participation and Education Plan
CCMP Goal Objective ID :	**Primary Goal Objective ID Title :**
G2,G2A,G9,G9D,G9F	Provlde educatlon programs statewlde

CWA Program Implementation: Improving Water Quality Monitoring, Strengthening Water Quality Standards

Overview:

The ENVIROTHON provides students with an integrated approach to exploring five natural resource categories. It tests their creativity, analytical thinking, and team-building skills in a competitive format. ENVIROTHON is a 'day-in-the-field' where teams visit testing stations for problem solving opportunities in:

AQUATIC ECOLOGY
FORESTRY
ORAL PRESENTATION
SOIL/LAND USE
WILDLIFE

CURRENT ENVIRONMENTAL ISSUE
AIR QUALITY - new for 2011

Written questions and hands-on activities at each station are developed by resource conservation experts. Agencies and interested groups help devise, time, and monitor testing stations during the day of the challenge.

DELAWARE STATE ENVIROTHON CHALLENGE…

Themes, written questions and problem-solving tasks will be site specific to that year's event. Each ENVIROTHON will be new and different. When the teams arrive at the event, they will register, confirm pre-registration information, and receive an orientation briefing on contest format, rules, and scoring.

Teams will be assigned a test station rotation. At each station, the category experts or specialists will provide an overview of that particular station. Each team will complete one collective answer sheet for each test station. Cooperative decision making, free exchange of ideas, and information pooling are desirable and give ENVIROTHON much of its unique appeal.

All test stations are staffed by resource specialists who have helped prepare the test challenges in their field of expertise. Each test station requires approximately 25-30 minutes. Completed test sheets are graded either at the station or off-site and scores rechecked.

After the competition and scoring is completed, all participants assemble for results, announcements, and award presentations. The top team is announced and plans begin to send them to the Canon ENVIROTHON to represent Delaware. This is a challenging four-day event. The Delaware ENVIROTHON Planning Committee will work closely with this team to help prepare them for the National contest and for trip arrangements.

Intended Results

-Promote environmental awareness and stewardship.
-Develop students' critical thinking, cooperative problem solving,
and decision-making skills.
-Present balanced options for management of our renewable
and non-renewable natural resources.
-Provide awareness of and accessibility to resource organizations
offering assistance in environmental issues.

Outputs/Deliverables:

-Educate High School students about Delaware's renewable and non-renewable natural resources
-Organize a one day competion where a winner is declared and sent to the National Competition

Milestones:

-Have at least 15 High School teams in the competition
-Complete training days for each topic with all teams present
-Send the winnig team to the National Competition to compete for first place

Short-Term Outcomes

-Get High School students and their professors interested in learning about Delaware's ecosystems.
-Bring resource agencies together to disucuss Delaware's environments and how they can be used to educate students

Intermediate Outcomes:

-Train High School students about what they need to know regarding Delaware's ecosystems and have a

competition where they are tested on what they know/learned.
-Fundraiser opportunities by making this competion known to the public

Long-Term Outcomes

-A winner will be declared after the State Competion is over.
-The winner will go to the National Competion as the Delaware representative
-Public Awareness

Project Progress

Progress To Date:

-Competition was held on April 26, 2012 in Lewes, Delaware.
-This years topic was Nonpoint Source Pollution - Low Impact Development (LID)
-It was the 17th annual Delaware Envirothon competition with 14 teams competing, 70 students, 10 advisors, and 87 volunteers.

Additional Project Information

Project Financing

Funding Determination : Sole Source

Amendment: ☐

Amendment Source:

CIB FUNDS:	$500.00
OTHER FUNDS:	
MATCHING FUNDS:	$30,000.00
AMENDMENT FUNDS:	
TOTAL:	$30,500.00

Project Location

Municipality : All Coastal Communities

Watershed/Waterbody : All Bays

Latitude:

Longitude:

Project Leveraging Role

Support

Report Information

Report Title:

Author :

Abstract :

Restoration ☐	**QAPP** ☐
Habitat Type :	**Date Completed :**
Restoration type :	**Date Approved :**
Acreage :	**Location :**
Partners :	
Completion Date:	
Cost :	

Year Reported 2012

Date : 07/06/2012

DELAWARE CENTER FOR THE INLAND BAYS
Rehoboth Indian River Little Assawoman

Project Report

Project Name: *Oyster Gardening Program*

Lead Contractor: Center for the Inland Bays

Responsible Partners, Contact Info, and
E.J. Chalabala -- Project Manager
Center for the Inland Bays
39375 Inlet Road
302-226-8105
restoration@inlandbays.org

Project Status: On-going

Work Pan ID : CIB12-004

Project Description

Strategic Alignment:

CCMP Action Plan ID :	Primary Action Plan ID Title :
ED-A,IMS-A	Meet the nutrient reduction goals of the Pollution Control Strategy
CCMP Goal Objective ID :	**Primary Goal Objective ID Title :**
G2,G2B,G2C,G4,G4E,G5, G5D,G6,G6D,G9,G9F	Restore finfish and shellfish populations

CWA Program Implementation: Controlling Nonpoint Source Pollution on a Watershed Basis

Overview:

Oyster gardening is the nursery culture of small, hatchery-produced oysters, called “seed” or “spat” to a larger “juvenile” size. This larger size is preferred for stocking artificial oyster reefs and for other shellfish restoration projects. Experience shows that larger oysters generally have better predator survival rates. The bigger the oyster, the more difficult it is for crabs and other natural predators to have them for lunch.

The Oyster Gardening Program, initiated during the summer of 2003, is a cooperative effort among the Delaware Center for the Inland Bays (CIB), the Delaware Sea Grant Marine Advisory program, Delaware State University and citizen volunteers living along the waterfront on one of Delaware’s three coastal or “Inland” Bays: Rehoboth, Indian River and the Little Assawoman. Volunteer gardeners support the program by caring for small 0.25 inch spat attached to old oyster shell by holding them in baskets placed in Taylor floats tied to their docks. The gardeners keep the oyster spat clean and protected from predators. Oysters held off the bottom have better conditions for growth - increased water flow and greater access to particulate food - so they reach a planting size of 1-2 inches much more rapidly than oysters on the bottom. Losses to predators are greatly reduced resulting in larger and hardier oysters for field planting and for other restoration work. During the 2007 season more than 150 volunteer oyster gardeners helped to grow oysters at over 95 locations around the three Inland Bays.

Oysters used in the gardening program are hatchery produced using broodstock lines bred for resistance to MSX and Dermo disease. In the hatchery, a million or more microscopic oyster larvae are exposed to bags of aged oyster shell to imitate the natural “setting” or attachment process that occurs annually in the bay. During early to mid-summer, the bags of oyster shell now with fingernail sized spat (see photo at left) are then distributed throughout the Inland Bays to the gardeners for grow-out in their Taylor Floats until the end of the season in late October and November. From deploying oysters at locations all around the Inland Bays we have learned that oysters grow well throughout the estuary and that seasonal growth ranges from good to excellent depending on location. This includes the Little Assawoman Bay where native oyster populations no longer exist. Juvenile oysters produced by the gardening program are kept in the floats for two seasons to give them a chance to mature and spawn before transplantation to an oyster reef established at the James Farm during summer 2002 or to other Inland Bay locations.

Besides their value to commercial and recreational fisheries, oysters, hard clams and other bivalve shellfish feed by filtering bay water to remove phytoplankton and other suspended particles. By serving as natural biological filters they perform an important ecological service to maintain water clarity and quality and to re-cycle nitrogen and phosphorous, two nutrients responsible for over-enrichment of the Inland Bays. Oysters and the shell clusters they form (above and left) provide habitat that attracts communities of small bottom dwelling organisms like grass shrimp and worms which in turn support populations of crabs, larger fish and other predators. Developing annually spawning adult oyster populations improves the potential for natural recruitment. Increased filtration of plankton by healthy shellfish populations can also help to keep Harmful Algal Blooms (HAB) from occurring.

Intended Results

1. Prove that oysters can grow anywere in our Inland Bays
2. Improve the habitat and water quality of our Inland Bays
3. Engage the public in a program that involves them "hands on" in our/their Inland Bays
4. Restore the native oyster population to our Inland Bays

Outputs/Deliverables:

-Plant an average of 60 bushels of oysters per year in our Inland Bays
-A total of 130 site locations with over 200 volunteers
-Hold 1-3 orientation meetings per year
-Produce 250 bags of spat every other year
-Have identified locations where natural spat set has occurred from OUR oysters
-Numerous thesis projects have been published
-49 species of fish and invertabrates has been documented living in the gear

Milestones:

-Program has doubled the number of volunteers since 2003 and has leveled off in the last two years
-Plant numerous bushels of oysters in the Inland Bays each year

Short-Term Outcomes

-Public Awareness and contribution
-Create habitat for fish and invertebrates

Intermediate Outcomes:

-Producing market size oysters in less than two growing seasons to be used for restoration purposes
-Making new partnerships with numerous organiziations

Long-Term Outcomes

-Restoring native oysters to our Inland Bays
-Educating the public about the importance of oysters in our Inland Bays and getting them known to the CIB
-Proving oysters can grow anywhere in our Inland Bays

-Identifying many financial contributors
-Improving the quality of our waters through the filtering effect of these oysters

Project Progress

Progress To Date:

1. Buillt 50 new oyster gardener traps.
2. Added 30 new participants to the program.

Additional Project Information

Project Financing

Funding Determination :

Amendment: ☐

Amendment Source:

CIB FUNDS:	$10,000.00
OTHER FUNDS:	
MATCHING FUNDS:	$20,000.00
AMENDMENT FUNDS:	
TOTAL:	$30,000.00

Project Location

Municipality : All Coastal Communities

Watershed/Waterbody : All Bays

Latitude:

Longitude:

Project Leveraging Role

Primary

Report Information

Report Title:

Author :

Abstract :

Restoration ☐

Habitat Type :

Restoration type :

Acreage :

Partners :

Completion Date:

Cost :

QAPP ☐

Date Completed :

Date Approved :

Location :

Year Reported 2012

Date : 07/06/2012

Project Report

Project Name: *Stormwater Maintenance & Open Space Management Seminars*

Lead Contractor: Center for the Inland Bays

Responsible Partners, Contact Info, and

Eric Buehl, Habitat Coordinator
E.J. Chalabala, Restoration Coordinator
Center for the Inland Bays
39375 Inlet Road
Rehoboth Beach, DE 19971

Jessica Watson, Program Manager
Sussex Conservation District
23818 Shortly Road
Georgetown, DE 19947

Project Status: On-going

Work Pan ID : CIB12-005

Project Description

Strategic Alignment:

CCMP Action Plan ID :	Primary Action Plan ID Title :
ED-A,LU-B	Implement the Comprehensive Public Participation and Education Plan
CCMP Goal Objective ID :	**Primary Goal Objective ID Title :**
G1,G1C,G8,G8C,G9,G9F	Promote education of out-of-state users and visitors

CWA Program Implementation: Controlling Nonpoint Source Pollution on a Watershed Basis

Overview:

Presentation(s) will be provided at a centrally-located facility for representatives from local Homeowners' Associations (HOA). Information will be provided about the need for stormwater facility inspection and maintenance requirements and options to manage their open space areas.

Intended Results

Educate Communites and/or their Homeowners' Association concerning stormwater maintanence issues and open space management options.

Outputs/Deliverables:

1. Output would include a well-attended seminar(s).
2. Packets include information on stormwater maintenance requirements, native plants, and other information sources for HOA members to draw upon.

Milestones:

1. Coordinate with the Sussex Conservation District to select date(s) and location(s) for HOA seminar(s) (Winter 2011/2012).
2. Prepare presentations and packets of information (Spring 2012).
3. Hold seminar(s) (Spring/Summer 2012).

Short-Term Outcomes

1. Providing HOA members with information to share with other homeowners in their respective subdivision.

Intermediate Outcomes:

1. Implementation of a stormwater maintenance program and open space management projects that benefit wildlife habitat and water quality.

Long-Term Outcomes

1. Improved water quality and wildlife habitat resulting in an increase in the abundance and diversity of plant and animal species.

Project Progress

Progress To Date:

Coordinating with Sussex Conservation District about 2012 seminar(s).
Held a meeting with Conservation District Stormwater Program staff to discuss potential dates and locations for the seminar.

Additional Project Information

Project Financing

Funding Determination :

Amendment: ☐

Amendment Source:

CIB FUNDS: $0.00
OTHER FUNDS: $0.00
MATCHING FUNDS: $0.00
AMENDMENT FUNDS:
TOTAL: $0.00

Project Location

Municipality : All Coastal Communities

Watershed/Waterbody : All Watersheds

Latitude:

Longitude:

Project Leveraging Role

Support

Report Information

Report Title:

Author :

Year Reported 2012

Date : 07/06/2012

Abstract :

Restoration ☐	**QAPP** ☐
Habitat Type :	**Date Completed :**
Restoration type :	**Date Approved :**
Acreage :	**Location :**
Partners :	
Completion Date:	
Cost :	

Year Reported 2012

Date : 07/06/2012

Project Report

Project Name: *Colonial Nesting Bird Survey*

Lead Contractor: Center for the Inland Bays

Responsible Partners, Contact Info, and

Eric Buehl, Habitat Coordinator
Center for the Inland Bays
39375 Inlet Road
Rehoboth Beach, DE 19971

Matthew Bailey, Biologist
DNREC Division of Fish & Wildlife
89 Kings Highway
Dover, DE 19901

Project Status: On-going

Work Pan ID : CIB12-007

Project Description

Strategic Alignment:

CCMP Action Plan ID :	Primary Action Plan ID Title :
HP-A	Create a Resource Protection Area management plan
CCMP Goal Objective ID :	**Primary Goal Objective ID Title :**
G2,G2E	Protect, restore, and enhance living resources by improving water quality and protecting and enhancing habitat

CWA Program Implementation: Controlling Nonpoint Source Pollution on a Watershed Basis

Overview:

Provide assistance to the DNREC Division of Fish & Wildlife's Heritage Program in monitoring the nesting success of avian species such as American Oystercatcher, Black Skimmer, and Terns.

Intended Results

Increase the knowledge base regarding key species of birds that nest on islands in the Inland Bays.

Outputs/Deliverables:

1. Data prepared by DNREC made available to regional avian workroups(s).
2. Summary report from DNREC to CIB.

Year Reported 2012

Date : 07/06/2012

Milestones:

1. Identify nesting locations (Spring 2012).
2. Monitor nesting success (Spring/Summer 2012).
3. Tag fledglings (Spring 2012).
4. Tag adults (Summer 2012).

Short-Term Outcomes

1. Increase in knowledge of nesting success.

Intermediate Outcomes:

1. A better understanding about the species distribution and survival rate.

Long-Term Outcomes

1. Development of strategies (by others) on how best to protect the species and/or enhance habitat.

Project Progress

Progress To Date:

April 2012-start of monitoring season. Completed 2 site visits to locate nesting sites.
Identified 6 American Oystercatcher nesting sites at 3 locations.
4 of the 6 nests survived predation or abandonment to produce chicks.
2 of the 5 total chicks banded.
Scouted a Tern colony south of the Indian River Inlet.
Plan to scout additional Tern and Gull nesting sites prior to the end of the season.

Additional Project Information

Project Financing

Funding Determination :

Amendment: ☐

Amendment Source:

CIB FUNDS: $0.00
OTHER FUNDS: $0.00
MATCHING FUNDS: $0.00
AMENDMENT FUNDS:
TOTAL: $0.00

Project Location

Municipality : All Coastal Communities

Watershed/Waterbody : Indian River Bay, Rehoboth Bay

Latitude:

Longitude:

Project Leveraging Role

Report Information

Report Title:

Author :

Abstract :

Year Reported 2012

Date : 07/06/2012

Restoration ☐	**QAPP** ☐
Habitat Type :	**Date Completed :**
Restoration type :	**Date Approved :**
Acreage :	**Location :**
Partners :	
Completion Date:	
Cost :	

Year Reported 2012

Date : 07/06/2012

DELAWARE CENTER FOR THE INLAND BAYS
Rehoboth Indian River Little Assawoman

Project Report

Project Name: *Inland Bays Island Restoration*

Lead Contractor: Center for the Inland Bays

Responsible Partners, Contact Info, and

Eric Buehl, Habitat Coordinator
Center for the Inland Bays
39375 Inlet Road
Rehoboth Beach, DE 19971

DNREC
Division of Watershed Stewardship
Division of Water Resources
Coastal Management Program
89 Kings Highway
Dover, DE 19901

Project Status: On-going

Work Pan ID : CIB12-008

Project Description

Strategic Alignment:

CCMP Action Plan ID :	Primary Action Plan ID Title :
HP-G	Review, update, and codify the Inland Bays Dredge Plan
CCMP Goal Objective ID :	**Primary Goal Objective ID Title :**
G2,G6	Protect, restore, and enhance living resources by improving water quality and protecting and enhancing habitat

CWA Program Implementation: Controlling Nonpoint Source Pollution on a Watershed Basis

Overview:

Evaluate the potential to re-establish or enhance islands in the Inland Bays watershed and determine the feasibility of using dredge spoil on projects.

Intended Results

The development of a strategy to restore or enhance islands in the Inland Bays and determine if dredge spoils are a feasible source of material to be used on certain projects.

Outputs/Deliverables:

1. A project list of feasible island restoration and enhancement projects that benefit key wildlife species.

Milestones:

1. Develop screening criteria for enhancement and re-establishment projects (Fall 2011).
2. Evaluate the use of dredge spoil on restoration projects (Fall/Winter 2011).
3. Develop a project list based on previous milestones Winter/Spring 2012).

Short-Term Outcomes

1. Development of a project list and increased awareness about the beneficial re-use of dredge materail.

Intermediate Outcomes:

1. Implementation of a demonstration project.

Long-Term Outcomes

1. The beneficial re-use of dredge material becomes a standard practice.

Project Progress

Progress To Date:

Developed requirements for a Feasiblity Study in cooperation with DNREC. The final Study will provide insight on specific site design that can be used by the workgroup as a framework to evaluate potential projects and considerations to use in preliminary site evaluations and to aid in developing restoration criteria.
Waiting for completion of Feasibility Study since material from Massey's Ditch will be used on/around Middle Island as the demonstration project approved by the workgroup.
Workgroup will meet in late summer to discuss project funding options and alternatives.

Additional Project Information

Project Financing

Funding Determination :

Amendment: ☐

Amendment Source:

CIB FUNDS: $0.00
OTHER FUNDS: $0.00
MATCHING FUNDS: $0.00
AMENDMENT FUNDS:
TOTAL: $0.00

Project Location

Municipality : All Coastal Communities

Watershed/Waterbody : All Bays

Latitude:

Longitude:

Project Leveraging Role

Report Information

Report Title:

Author :

Abstract :

Year Reported 2012

Date : 07/06/2012

Restoration ☐	**QAPP** ☐
Habitat Type :	**Date Completed :**
Restoration type :	**Date Approved :**
Acreage :	**Location :**
Partners :	
Completion Date:	
Cost :	

Year Reported 2012

Date : 07/06/2012

Project Report

Project Name: *Land Acquisition*

Lead Contractor: Center for the Inland Bays

Responsible Partners, Contact Info, and

Eric Buehl, Habitat Coordinator
Center for the Inland Bays
39375 Inlet Road
Rehoboth Beach, DE 19971

Kurt Anderson, Biologist
Ducks Unlimited
34 Defense Highway #200
Annapolis, MD 21401

Project Status: On-going

Work Pan ID : CIB12-009

Project Description

Strategic Alignment:

CCMP Action Plan ID :	Primary Action Plan ID Title :
HP-E	Expand public land acquisition, protection, and access
CCMP Goal Objective ID :	**Primary Goal Objective ID Title :**
G6,G6G	Implement an agress1ve program to acquire public access lands

CWA Program Implementation: Controlling Nonpoint Source Pollution on a Watershed Basis

Overview:

Acquire lands through fee simple purchase for habitat and open space protection, education, and public use and enjoyment.

Intended Results

The fee simple purchase of land for open space and/or habitat protection as well as the education and use and enjoyment by the public.

Outputs/Deliverables:

1. Fee simple ownership of key property in the watershed that showcases open space/habitat protection and public use and access.

Year Reported 2012

Date : 07/06/2012

Milestones:

1. Acquire a key property to be used to leverage additional purchases (Spring/Summer 2012).
2. Promote property to showcase CIB's ability to purchase and protect open space (Summer/Fall 2012).

Short-Term Outcomes

1. Protection of valuable habitat and open space.

Intermediate Outcomes:

1. Emergence of CIB as a viable organization for land protection.

Long-Term Outcomes

1. Enhancement of water quality and increases in wildlife and plant species diversity and abundance.
2. Increase in public access to land for educational purposes.

Project Progress

Progress To Date:

Investigated appraisal requirements.
Met with the landowner to discuss easement stipulations and operation and maintenance requirements.
Evaluated alternatives to direct (fee simple) ownership.
Status updates on additional funding sources.
Spoke with real estate appraiser regarding recent trends in local land values.

Additional Project Information

Project Financing

Funding Determination :

Amendment: ☐

Amendment Source:

CIB FUNDS: $0.00
OTHER FUNDS: $0.00
MATCHING FUNDS: $0.00
AMENDMENT FUNDS:
TOTAL: $0.00

Project Location

Municipality : All Coastal Communities

Watershed/Waterbody : All Bays, All Watersheds

Latitude:

Longitude:

Project Leveraging Role

Report Information

Report Title:

Author :

Abstract :

Restoration ☐	**QAPP** ☐
Habitat Type :	**Date Completed :**
Restoration type :	**Date Approved :**
Acreage :	**Location :**
Partners :	
Completion Date:	
Cost :	

Year Reported 2012

Date : 07/06/2012

Project Report

Project Name: *Landowner Habitat Technical Assistance*

Lead Contractor: Center for the Inland Bays

Responsible Partners, Contact Info, and Eric Buehl, Habitat Coordinator
Center for the Inland Bays
39375 Inlet Road
Rehoboth Beach, DE 19971

Project Status: On-going **Work Pan ID :** CIB12-010

Project Description

Strategic Alignment:

CCMP Action Plan ID :	Primary Action Plan ID Title :
ED-A	Implement the Comprehensive Public Participation and Education Plan
CCMP Goal Objective ID :	**Primary Goal Objective ID Title :**
G1,G1A,G1E,G2,G8,G8C	Manage urban and rural applications and handling of fertilizers, pesticides, herbicides, manure, sediment, animal carcasses, and other contaminants

CWA Program Implementation: Controlling Nonpoint Source Pollution on a Watershed Basis

Overview:

Upon request, meet with landowners that express a desire to protect, restore, or enhance wildlife habitat on their property. This may include private land, public land, or land in community open space.

Intended Results

Meet with willing landowners and provide them with information and/or resources to protect, enhance, or restore wildlife habitat on their property.

Outputs/Deliverables:

1. Packets of relevant information will be delivered to landowners based on their individual request or need.

Milestones:

1. Meet with willing landowners upon request or as the need arises (Fall 2011 thru Fall 2012).

Short-Term Outcomes

Year Reported 2012

Date : 07/06/2012

1. Increased awareness by landowners about issues affecting wildlife habitat.

Intermediate Outcomes:

1. Protection, restoration, or enhancement of wildlife habitat.

Long-Term Outcomes

1. An increase in the abundance and diversity of native plant and animal species.

Project Progress

Progress To Date:

Met with landowners in a waterfront subdivision near Clarksville to discuss options for their individual property as well as community open space.
Spoke with Homeowners' Association representatives about setting up a site visit later in the year to look at habitat alternatives and ideas.

Additional Project Information

Project Financing

Funding Determination :

Amendment: ☐

Amendment Source:

CIB FUNDS: $0.00
OTHER FUNDS: $0.00
MATCHING FUNDS: $0.00
AMENDMENT FUNDS:
TOTAL: $0.00

Project Location

Municipality : All Coastal Communities

Watershed/Waterbody : All Watersheds

Latitude:

Longitude:

Project Leveraging Role

Report Information

Report Title:

Author :

Abstract :

Restoration ☐	**QAPP** ☐
Habitat Type :	**Date Completed :**
Restoration type :	**Date Approved :**
Acreage :	**Location :**
Partners :	
Completion Date:	
Cost :	

Year Reported 2012

Date : 07/06/2012

DELAWARE CENTER FOR THE INLAND BAYS
Rehoboth Indian River Little Assawoman

Project Report

Project Name: *Inland Bays Habitat Restoration Strategy Comparison to Draft CIB Habitat Plan*

Lead Contractor: Center for the Inland Bays

Responsible Partners, Contact Info, and
Eric Buehl, Habitat Coordinator
Center for the Inland Bays
39375 Inlet Road
Rehoboth Beach, DE 19971

Project Status: On-going

Work Pan ID : CIB12-011

Project Description

Strategic Alignment:

CCMP Action Plan ID :	Primary Action Plan ID Title :
HP-A	Create a Resource Protection Area management plan
CCMP Goal Objective ID :	**Primary Goal Objective ID Title :**
G2	Protect, restore, and enhance living resources by improving water quality and protecting and enhancing habitat

CWA Program Implementation: Controlling Nonpoint Source Pollution on a Watershed Basis

Overview:

When work is completed on the multi-agency Inland Bays Habitat Restoration Strategy, a comparative analysis will be performed on the Strategy and the Draft CIB Plan to make necessary revisions/updates as needed and appropriate.

Intended Results

Work being done on the Inland Bays Habitat Restoration Strategy has identified areas and goals similar to those in the Draft CIB Habitat Plan. The development of the goals and objectives in the Strategy utilized GIS and by comparing and updating the Draft CIB Plan, additional confidence and support can be gained.

Outputs/Deliverables:

1. Revised/Updated CIB Habitat Plan.

Milestones:

1. Initiate comparative analysis of Strategy and Draft Plan (Winter 2011).

2. Develop recommended revisions to CIB Draft Plan (Spring/Summer 2012).
3. Update Draft CIB Plan (Fall 2012).

Short-Term Outcomes

1. Updated CIB Habitat Plan.

Intermediate Outcomes:

1. Increases in wildlife habitat protection, restoration, and enhancement projects being completed throughout the watershed.

Long-Term Outcomes

1. Increases in the abundance and diversity of wildlife and habitat.

Project Progress

Progress To Date:

Spoke with DNREC GIS Specialist about status of Habitat element raster analsyis. Reported that other Departmental priorities were placed ahead of Habitat project.

GIS Specialist reports that they are unable to perform Habitat raster analysis as requested.
Effort underway to select another qualified GIS Specialist.
Selected 3 local water quality experts to peer review Water Quality element scoring process and variable weights.

Peer review of Water Quality Elements and Weights by local resources experts was completed.
Selection process to find a qualified and available GIS specialist to complete the habitat and water quality analysis is underway.

Additional Project Information

Project Financing

Funding Determination :

Amendment: ☐

Amendment Source:

CIB FUNDS: $0.00
OTHER FUNDS: $0.00
MATCHING FUNDS: $0.00
AMENDMENT FUNDS:
TOTAL: $0.00

Project Location

Municipality : All Coastal Communities

Watershed/Waterbody : All Bays, All Watersheds

Latitude:

Longitude:

Project Leveraging Role

Report Information

Report Title:

Author :

Abstract :

Year Reported 2012

Date : 07/06/2012

Restoration ☐	**QAPP** ☐
Habitat Type :	**Date Completed :**
Restoration type :	**Date Approved :**
Acreage :	**Location :**
Partners :	
Completion Date:	
Cost :	

Year Reported 2012

Date : 07/06/2012

Project Report

Project Name: *Volunteers for the Bays*

Lead Contractor: Center for the Inland Bays

Responsible Partners, Contact Info, and

Sally Boswell
CIB
39375 Inlet Road
Rehoboth Beach, DE 19971
302-226-8105
outreach@inlandbays.org
Project Director

Project Status: On-going

Work Pan ID : CIB12-012

Project Description

Strategic Alignment:

CCMP Action Plan ID :	Primary Action Plan ID Title :
ED-A	Implement the Comprehensive Public Participation and Education Plan
CCMP Goal Objective ID :	**Primary Goal Objective ID Title :**
G9,G9C,G9F	Ensure, to the maximum extent possible, all planning and management activities related to the Inland Bays involve public participati, iniInformation and education e

CWA Program Implementation: Controlling Nonpoint Source Pollution on a Watershed Basis

Overview:

Volunteers for the Bays is a public participation program to provide opportunities for citizen involvement in all areas of the CIB mission. Through this program, citizens actively support the research, education, restoration, and public policy efforts of the CIB.

Volunteers bring their life experience and skills, and through their engagement, gain in knowledge about issues affecting water quality in the Inland Bays and become better informed and empowered to act on their concerns as citizens in the watershed. The work of volunteers increases our capacity, extending our reach and into communities throughout the watershed.

Science and Research: Volunteers provide both leadership and support to projects such as our annual Horseshoe Crab Survey and the Inland Bays Fish Study
Restoration: Volunteers assist with native planting projects, oyster gardening and schoolyard wetlands
Education and Outreach programs: Volunteers represent us at community events, assist with creation of

demonstration rain gardens and serve on our Speakers Bureau

Intended Results

To create a formal Volunteers for the Bays program that provides an opportunity for citizen participation in the work of the CIB mission, that extends our reach into the watershed and raises the awareness and knowledge about Inland Bays issues among all residents and visitors to the Inland Bays watershed.

Outputs/Deliverables:

1. A corp of volunteers trained and available to serve in all areas of the CIB mission
2. Establishment of a volunteer Speakers Bureau
3. Increase in the number of annual community events that we can participate in around the watershed

Milestones:

1.Create the organizational structure for the Volunteers for the Bays program.
2. Recruit and train a volunteer Volunteer Coordinator
3. Create a database and enter information on all CIB volunteers regarding their interests, their experience, their availability and other data that will help us to match them successfully to work that it beneficial to CIB and satisfying to the volunteer. Create an email file so that volunteers can be grouped and contacted about events and assignments.
4. Create job descriptions of CIB work needs that volunteers could assist with.
5. Recruit and interview volunteers
6. Create training modules for volunteers
7. Create an Annual Volunteer Recognition Event
e have a volunteer opportunity sheet which lists volunteer opportunities by project, site, and time of year and frequency needed.

Short-Term Outcomes

1. As volunteers participate in training and assist with projects, they increase their knowledge about the issues affecting the Bays.
2. Volunteers take the CIB message to neighbors, friends and civic groups throughout the watershed
3. Volunteers assume leadership on outreach/education events and citizen science projects.

Intermediate Outcomes:

1. Many more citizens are informed about the Inland Bays as volunteers represent the CIB at community events
2. Volunteers grow in their knowledge about water quality in the Inland Bays as they work with us on citizen science and restoration projects
3. New citizen science projects are established with the leadership and assistance of trained, knowledgeable volunteers.

Long-Term Outcomes

1. The indicators for the State of the Inland Bays are showing improved water quality as citizens and visitors become more informed about their impact on the Inland Bays and work with us in the attainment of our mission.
2. Hundreds of citizens participate in every area of the mission who have a high level of understanding about the Inland Bays watershed and who are participating as citizens scientists and outreach ambassadors.

Project Progress

Progress To Date:

Year Reported 2012

Date : 07/06/2012

Volunteers have assumed leadership on projects in every area of our mission:
1. A volulnteer fish biologist is leading the IB Inshore Fish Survey for the second year, leading seven teams of volunteers at sites throughout the Inland Bays
2. Volunteer Site Leaders are leading tems of volunteers at six sites on all three Inland Bays for the IB Horseshoe Crab Survey
3. Volunteers staffed the CIB booth at 20 events this year, presenting displays and information on rain gardens, citizen science research projects, our 2011State of the Bays Report and other CIB issues and projects.
4. Two volunteers took the lead in developing and scheduling a traveling library exhibit on the CIB and the State of the Bays that was displayed at the regional South Coastal Library in February, and will go on display for the month of June in Rehoboth Beach and the month of September in Lewes.
5. A volunteer Volunteer Coordinator is providing leadership to our volunteer program for the 8th year bringing new volunteers into the program, scheduling volunteers, training new volunteers and maintaining records.

Additional Project Information

Project Financing

Funding Determination : Sole Source

Amendment: ☐

Amendment Source:

CIB FUNDS: $0.00
OTHER FUNDS: $0.00
MATCHING FUNDS: $0.00
AMENDMENT FUNDS:
TOTAL: $0.00

Project Location

Municipality : All Coastal Communities

Watershed/Waterbody : All Bays, All Watersheds

Latitude:

Longitude:

Project Leveraging Role

Report Information

Report Title:

Author :

Abstract :

Restoration ☐

Habitat Type :

Restoration type :

Acreage :

Partners :

Completion Date:

Cost :

QAPP ☐

Date Completed :

Date Approved :

Location :

Year Reported 2012

Date : 07/06/2012

Project Report

Project Name: *Annual Inland Bays Horseshoe Crab Survey*

Lead Contractor: Center for the Inland Bays

Responsible Partners, Contact Info, and

Sally Boswell
CIB
39375 Inlet Road
Rehoboth Beach, DE 19971
302-226-8105
outreach@inlandbays.org

Project Director
Dr. Doug Miller
UD College of EOE
Lewes, DE

Project Status: On-going

Work Pan ID : CIB12-013

Project Description

Strategic Alignment:

CCMP Action Plan ID :	Primary Action Plan ID Title :
ED-A	Implement the Comprehensive Public Participation and Education Plan
CCMP Goal Objective ID :	**Primary Goal Objective ID Title :**
G2,G2E,G9,G9C	Enhance monitoring and response strategies

CWA Program Implementation: Controlling Nonpoint Source Pollution on a Watershed Basis

Overview:

In 2008, the CIB in partnership with Dr. Doug Miller at University of Delaware, EOE in Lewes began an annual Inland Bays Horseshow Crab Survey modeled after the Delaware Bay program to . The surveys are conducted by CIB volunteers at seven sites on all three bays. Surveys are done for three nights around the New Moon and Full Moons in May and June for a total of twelve surveys. There are seven volunteer site leaders and about 45 volunteers involved in the survey.

Intended Results

Evidence of spawning, egg-laying and larval development definitely suggests that James Farm's and other sandy

shorelines in the Inland Bays are important mating and nesting sites. But more data was needed to confirm this tentative conclusion.

Outputs/Deliverables:

1. Posting of horseshoe crab protection area signs on productive spawning beaches throughout the Inland Bays.
2. Training of a corp of volunteers with knowledge and experience to conduct citizen-science on the Inland Bays
3. Annual publicity about the Survey each year in local media when volunteers are recruited and the results of the annual survey are reported

Milestones:

1. Design a survey based on the Delaware Bay horseshoe crab survey program and initiate an annual Inland Bays Horseshoe Crab Survey- Spring 2009
2. Identify sites on all three Inland Bays to conduct the surveys- Spring 2009
3. Recruit volunteers to serve as site leaders and data collectors- Spring 2009
4. Train volunteers to conduct surveys-Spring 2009
5. Add additional survey sites- yearly

Short-Term Outcomes

1. Creation of inform and trained CIB volunteers about this species and the habitats required for its protection
2.Greater public awareness about horseshoe crabs in the Inland Bays and the impact of hardened shorelines such as bulkheading and rip rap on species such as the horseshoe crab that are dependent on sandy beach habitats

Intermediate Outcomes:

1. Establishment of posted horseshoe crab conservation areas on surveyed beaches around the Inland Bays.
2. Expansion of the survey and available data as new survey sites are added.

Long-Term Outcomes

1. Use data on horseshoe crab spawning on Inland Bays beaches to support conservation of sandy beach habitats on the Inland Bays
2. Use data from the Inland Bays and Delaware Bays to better manage the resource for protection of horseshoe crabs and shorebird populations

Project Progress

Progress To Date:

-35 volunteers attended the 2012 Inland Bays Horseshoe Crab Orientation and Training Meeting in April 2012, more than half of them new volunteers to the program.
-A citizen science exhibit focusing on the IB Horseshoe Crab Survey and Fish Monitoring Study was designed and produced and was exhibited at the Horseshoe Crab and Shorebird Festival, the Rehoboth Farmers Market and other community outreach events.
-A brochure about the IB Horseshoe Crab Survey was produced to use at outreach events and to recruit new volunteers for our citizen science research.
-The 5th Annual IB HSC Survey began in April 2012.

Additional Project Information

Year Reported 2012

Date : 07/06/2012

Project Financing

Funding Determination :

Amendment: ☐

Amendment Source:

CIB FUNDS: $0.00
OTHER FUNDS: $0.00
MATCHING FUNDS: $0.00
AMENDMENT FUNDS:
TOTAL: $0.00

Project Location

Municipality : All Coastal Communities

Watershed/Waterbody : All Bays

Latitude:

Longitude:

Project Leveraging Role

Report Information

Report Title:

Author :

Abstract :

Restoration ☐

Habitat Type :

Restoration type :

Acreage :

Partners :

Completion Date:

Cost :

QAPP ☐

Date Completed :

Date Approved :

Location :

Year Reported 2012

Date : 07/06/2012

Project Report

Project Name: *Children in Nature- Environmental Literacy Plan for Delaware*

Lead Contractor: DNREC

Responsible Partners, Contact Info, and

Project Status: On-going **Work Pan ID :** CIB12-014

Project Description

Strategic Alignment:

CCMP Action Plan ID :	Primary Action Plan ID Title :
ED-A	Implement the Comprehensive Public Participation and Education Plan
CCMP Goal Objective ID :	**Primary Goal Objective ID Title :**
G9,G9D,G9E	Provlde educatlon programs statewlde

CWA Program Implementation: Controlling Nonpoint Source Pollution on a Watershed Basis

Overview:

In April 2010, the Delaware Secretary of the Department of Natural Resources and Environmental Control and the Delaware Secretary of Education The mission of the Children in Nature in Delaware initiative is to improve environmental literacy, create opportunities for children to participate in outdoor experiences, promote healthy lifestyles and provide better access to green space through schools and community programs.

Objective: To create a comprehensive plan with recommendations to the Secretary of Education and the Secretary DNREC. Deliverables to include: Draft a 'Children in Nature' Executive Order; Inventory existing research/data, initiatives, program and best practices; Develop a recommendation report to include measurable goals and performance measures; Support the DOE in the development of an Environmental Literacy plan for the State of DE as required in the re-authorization of the Elementary and Secondary Education Act; Identify potential funding for implementation; Identify messages and marketing strategies for Children in Nature.

I was asked to chair the 'Greener Schools' sub-committee. The scope of the 'Greener Schools' sub-committee is to further the CIN mission by proposing a model 'Greener Schools for Delaware' statewide program to encourage and recognize schools that become models of greener management and practices; to create opportunities for all children from pre-school to graduation to participate in outdoor experiences at their schools; and demonstrate the connection between healthy living and healthy environment.

Year Reported 2012

Date : 07/06/2012

Intended Results

The Greener Schools Committee under the CIN initiative seeks to further the CIN mission by encouraging and recognizing schools that become models of greener management and practices; that create opportunities for all children from pre-school to graduation to participate in outdoor experiences at their schools; that demonstrate the connection between healthy living and healthy environment.

1.To create opportunities for children to go outside as part of their school day experience by creating and maintaining 'schoolyard habitats'; a natural outdoor environment for experiential learning at schools throughout Delaware;
2.To
3.To reward schools for their participation in a "Greener Schools for Delaware" program; so that our

Outputs/Deliverables:

1, Propose a Greener Schools for Delaware program that is right for Delaware.
2. Propose a 'clearinghouse' web-based library of curriculum-aligned activities for teachers, that get students outside, connecting with nature and learning by discovery

Milestones:

-1. Identify model programs for green school practices, schoolyard habitats and schoolyard gardens inside and outside of Delaware
-2. Inventory curriculum-aligned activities, teacher training and other existing resources around the state; consider how a 'resource bank' could be created
-3. Identify community partners and funding resources for these programs
-4. Assemble the research to make the case: greener schools promote improved student achievement
-Evaluate gaps and barriers to implantation of a Greener Schools for Delaware program; what needs to be SWOTed? (Strengths, Weaknesses, Opportunities and Threats/Challenges)

Short-Term Outcomes

1. Publicity about the Children in Nature initiative raises awareness of the general public about the importance of 'outdoor time' for children
2. Environmental organizations work together to identify programs and resources that can be shared and disseminated
3. Teachers and administators are informed about resources available to them for 'greener schools'

Intermediate Outcomes:

1. A Greener School program is sanctioned by the Governer and the Department of Education
2. A Greener School program provides incentives and encouragement for schools to create schoolyard habitats, recycling programs, to conduct energy audits, manage stormwater and manage their facilities in a manner that protects the health of students and the watershed.

Long-Term Outcomes

Schools become places where students learn ecological principles by example and practice, and understand stewardship of the environment.

Project Progress

Progress To Date:

September 2012 The Green Schools for Delaware Committee completed their work and a report of the committee recommendations was given to the Children in Nature Task Force.
December 2012 The Task Force reviewed the 1st draft of the report
May 2012 The Delaware Children in Nature Task Force report went to the Secretary of DNREC and the DE

Year Reported 2012

Date : 07/06/2012

Secretary of Education for their review

Additional Project Information

Project Financing

Funding Determination :

Amendment: ☐

Amendment Source:

CIB FUNDS: $0.00
OTHER FUNDS: $0.00
MATCHING FUNDS: $0.00
AMENDMENT FUNDS:
TOTAL: $0.00

Project Location

Municipality : All Coastal Communities

Watershed/Waterbody : All Bays

Latitude:

Longitude:

Project Leveraging Role

Report Information

Report Title:

Author :

Abstract :

Restoration ☐

Habitat Type :

Restoration type :

Acreage :

Partners :

Completion Date:

Cost :

QAPP ☐

Date Completed :

Date Approved :

Location :

Year Reported 2012

Date : 07/06/2012

Project Report

Project Name: *CIB Speakers Bureau*

Lead Contractor: Center for the Inland Bays

Responsible Partners, Contact Info, and

Sally Boswell
CIB
39375 Inlet Road
Rehoboth Beach, DE 19971
302-226-8105
outreach@inlandbays.org
Project Director

Project Status: On-going

Work Pan ID : CIB12-015

Project Description

Strategic Alignment:

CCMP Action Plan ID :	Primary Action Plan ID Title :
ED-A	Implement the Comprehensive Public Participation and Education Plan
CCMP Goal Objective ID :	**Primary Goal Objective ID Title :**
G8,G8C,G9,G9A,G9C	Establish a speakers bureau

CWA Program Implementation: Controlling Nonpoint Source Pollution on a Watershed Basis

Overview:

To create a Center for the Inland Bays Speakers Bureau with the Outreach Committee of the Citizens Advisory Committee, made up a corp of CIB volunteers, to represent the CIB at speaking engagements throughout the watershed to raise awareness about the CIB and its mission.

Intended Results

1. To raise awareness about the CIB
2. To educate citizens about issues, concerns and opportunities for participation in the work to restore and protect the Inland Bays
3. To promote citizen action in support of our mission through direct contact with homeowners associations and civic organizations throughout the watershed.

Outputs/Deliverables:

1. An annual schedule of speaking engagements at homeowners organizations and civic associations is established and executed
2. Information about the CIB and our mission is desseminated to citizens throughout the watershed
3. Nearly 1,000 stakeholders in the watershed were reached by the Speakers Bureau in its first year-2010

Milestones:

1. Develop a powerpoint for the use of the speakers bureau- Fall 2009
2. Recruit and train volunteers to use the equipment and power point Fall- 2009
3.Identify organizations in the watershed to take the CIB message. Fall 2009 and ongoing

Short-Term Outcomes

1. Volunteers serving on the Speakers Bureau expland their knowledge of the CIB and the Inland Bays as they prepare to inform fellow citizens.
2. Organizations and associations throughout the watershed become more aware of the CIB and its mission as they are contacted by the Speakers Bureau
3.

Intermediate Outcomes:

1. Civic organizations and homeowners associations are informed in greater detail about issues and needs on second visits by the Speakers Bureau
2. Civic organizations and homeowners associations become members of the CIB, becoming investors in our mission and program and receive invitations to events, opportunities to assist on projects, regular news and information from the CIB about the Inland Bays

Long-Term Outcomes

1. As more and more citizens are reached, awareness of the condition of water quality in the Inland Bays by more stakeholders leads to increased support for initiatives to improve water quality in the Inland Bays, more financial support of our mission, and enhanced understanding of what citizen's individually can do to help the Bays.

Project Progress

Progress To Date:

1. Completed a new powerpoint to include the "State of the Bays" report information
2. Trained a new volunteer speaker to assist with the program
3. Speakers bureau presented to 5 local groups.

Additional Project Information

Year Reported 2012

Date : 07/06/2012

Project Financing

Funding Determination :

Amendment: ☐

Amendment Source:

CIB FUNDS: $0.00
OTHER FUNDS: $0.00
MATCHING FUNDS: $0.00
AMENDMENT FUNDS:
TOTAL: $0.00

Project Location

Municipality : All Coastal Communities

Watershed/Waterbody : All Bays, All Watersheds

Latitude:

Longitude:

Project Leveraging Role

Report Information

Report Title:

Author :

Abstract :

Restoration ☐

Habitat Type :

Restoration type :

Acreage :

Partners :

Completion Date:

Cost :

QAPP ☐

Date Completed :

Date Approved :

Location :

Year Reported 2012

Date : 07/06/2012

DELAWARE CENTER FOR THE INLAND BAYS
Rehoboth Indian River Little Assawoman

Project Report

Project Name: *Burton's Island Toxic Bioaccumulation Study*

Lead Contractor: Smithsonian Environmental Research Center

Responsible Partners, Contact Info, and

Dr. Gerhardt Riedel/ SeniorScientist
Smithsonian Environmental
Research Center
PO Box 28
Edgewater, Maryland 21037
Phone: 443-482-2499
Fax: 443-482-2380
Email:riedelf@si.edu

Bart Wilson, CIB Project Manager

Project Status: On-going

Work Pan ID : CIB12-018

Project Description

Strategic Alignment:

CCMP Action Plan ID :	Primary Action Plan ID Title :
ED-A	Implement the Comprehensive Public Participation and Education Plan
CCMP Goal Objective ID :	**Primary Goal Objective ID Title :**
G2,G2C,G8,G8A	G2C

CWA Program Implementation: Improving Water Quality Monitoring, Strengthening National Pollutant Discharge Elimination System Permits

Overview:

Burtons Island on Indian River was used as a coal ash disposal site for the Indian River Generating Station from the 1950 to the 1980s. The State of Delaware Department of Natural Resources and Environmental Control has entered into a Voluntary Cleanup Agreement with the owner of the landfill, NRG Inc. Existing studies have identified high levels of heavy metals in sediments and groundwaters in and around the landfill. Studies have not determined the levels of the metals in the fish and shellfish on and around the island. This project seeks to explore if fish and shellfish on and around the landfill have elevated levels of contaminants. The information will be submitted to the Department as to be used to determine appropriate remediation efforts under the Voluntary Cleanup Program and to determine natural resource damages and their mitigation under the Natural Resources Damage Assessment process for the facility. This project was identified as a high priority by the Center's Strategic Planning Committee.

The Center will sample five sites in the Indian River in the area that has been affected by erosion from Burton's Island, and up to five sites with similar marsh habitat in the Indian River Estuary remote from the Burton's Island site and likely to be unaffected by the ash. Sampling is planned to collect composite samples (5 to 10 individuals per sample) of two organisms, the Ribbed Mussel, Geukensia demissa and Mummichog, Fundulus heteroclitus at each site, as well as a sample of the sediment at each site. At each site, a sample of surface sediment (0-2 cm deep) will be collected as well.

Intended Results

1. Determination of contamination in fish and shellfish on and around Burton's Island.
2. Submittal of information to DNREC and Resource Trustees for use in the Island's Remedial Investigation and Natural Resources Damage Assessment Process.
3. Determination if additional sampling would be warratned to benefit the investigation and process.

Outputs/Deliverables:

1. Final Report
2. Presentation to Inland Bays Scientific & Technical Advisory Committee

Milestones:

1. Scope of Work completed. TARGET: MAY 2012. COMPLETED: MAY 2012.
2. QAPP completed. TARGET: JUNE 2012. EXTENDED: JULY 2012.
3. Sampling permission obtained. TARGET: JUNE 2012.
4. Sampling completed. TARGET: AUG 2012.
5. Laboratory analysis completed. TARGET: NOV 2012
6. Final report issued and presentation to Scientific & Technical Advisory Committee. TARGET: FEB 2013

Short-Term Outcomes

1. Improved sampling regime and data set for toxics around and near an industrial site

Intermediate Outcomes:

1. Enhanced understanding of water quality conditions and organismal bioaccumulation around and near an industrial site.
2. Increased interest in research activities on a contaminated site affected by sea level rise.

Long-Term Outcomes

Information for resource managers to use in the determination of remedial alternatives and actions for hazardous substances and Natural Resources Damagae Assessment and Mitigation.

Potential use of information for determining fish and shellfish advisories.

Project Progress

Progress To Date:

1. Subrecipient selected to perform work.
2. Scope of work completed.
3. Draft QAPP sent for review by partner agencies.
4. Sampling permission requested.
5. Project presentations made to Citizen's Advisory Committee and Board of Directors.

Year Reported 2012

Date : 07/06/2012

Additional Project Information

Project Financing

Funding Determination : Sole Source

Amendment: ☐

Amendment Source:

CIB FUNDS: $15,000.00

OTHER FUNDS: $0.00

MATCHING FUNDS: $0.00

AMENDMENT FUNDS:

TOTAL: $15,000.00

Project Location

Municipality : All Coastal Communities

Watershed/Waterbody : Indian River Bay

Latitude:

Longitude:

Project Leveraging Role

Primary

Report Information

Report Title:

Author :

Abstract :

Restoration ☐

Habitat Type :

Restoration type :

Acreage :

Partners :

Completion Date:

Cost :

QAPP ☐

Date Completed :

Date Approved :

Location :

Year Reported 2012

Date : 07/06/2012

DELAWARE CENTER FOR THE INLAND BAYS
Rehoboth Indian River Little Assawoman

Project Report

Project Name: *Inland Bays Nitrogen and Phosphorus Total Maximum Daily Load Modelling Assessment*

Lead Contractor: University of Maine

Responsible Partners, Contact Info, and Damian Brady
University of Maine

Bart Wilson, CIB

Project Status: On-going **Work Pan ID :** CIB12-019

Project Description

Strategic Alignment:

CCMP Action Plan ID :	Primary Action Plan ID Title :
ED-A	Implement the Comprehensive Public Participation and Education Plan
CCMP Goal Objective ID :	**Primary Goal Objective ID Title :**
G2,G2B,G2C,G2E,G4,G4A ,G4C,G8,G8A	Enhance monitoring and response strategies

CWA Program Implementation: Controlling Nonpoint Source Pollution on a Watershed Basis, Improving Water Quality Monitoring

Overview:

The estuarine hydrodynamic and water quality models used to develop the Total Maximum Daily Loads (TMDLs) of Nitrogen and Phosphorus to Rehoboth Bay and Indian River Bay were some of the first sophisticated estuarine models created for this purpose. Originally developed in 1993, the models were updated with more current data to develop TMDLs for Little Assawoman Bay and the Tributaries of the Inland Bays in 2004. Since 1993, a great deal of advancement has occurred in estuarine modelling approaches and in the understanding the relationship between nutrient sources, loads, and response variables such as dissolved oxygen concentrations. Pepper Creek on Indian River Bay has since become the best studied system in the world for diel-cycling hypoxia and its affects on juvenile fishes. Additionally, a significant amount of new spot sampled and continuously monitorined water quality data has become available throughout the Bays. This project will examine the performance the existing TMDL model used by DNREC to determine the response of the estuary to nutrient loads as well as that of a newly draft model that integrates new knowledge on estuarine characteristics and function. Should the new model produce significantly different results, the CIB will 1) request that DNREC update the TMDLs and the TMDL regulations for the Inland Bays and 2) pursue the development of a publicly accessible estuarine model available to ask questions about management and climate change scenarios in the Inland Bays.

Intended Results

1. Final report comparing the performance of the orginal and new modelling approaches with recommendations on TMDL revision.

Outputs/Deliverables:

1. Final report comparing the performance of the orginal and new modelling approaches with recommendations on TMDL revision.
2. Presentation of the final report to STAC.
3. Workshop with DNREC Watershed Assessment Section to determine process for TMDL update if needed.

Milestones:

1. Select sub-recipient. TARGET: APR 2012. COMPLETED: APR 2012.
2. Compile updated data for models. TARGET: APR 2012. INITIATED: APR 2012.
3. Obtain DNREC's TMDL model. TARGET: JUN 2012.
4. Compare model outputs. TARGET: AUG 2012.
5. Report preparation. TARGET: SEP 2012.
6. STAC Presentation and DNREC Workshop. TARGET: DEC 2012.

Short-Term Outcomes

1. Increased understanding of the performance of existing TMDL models and new modelling approaches.

Intermediate Outcomes:

1. Information with which to determine if a TMDL estuarine and hydrodynamic model update is necessary.

Long-Term Outcomes

1. Reinvigorated research interest in modelling what was once one of the most sophisticatedly modelled esturaies in the country.

Project Progress

Progress To Date:

1. Sub-recipient, Dr. Damian Brady of the University of Maine selected.
2. Data compilation initiated.
3. Conversations with DNREC reveal that the DNREC TMDL model may no longer be available or functioning. Partial output data may be available. Deliberations on how to proceed given this unfortunate development are occuring.

Additional Project Information

Year Reported 2012

Date : 07/06/2012

Project Financing

Funding Determination : Sole Source

Amendment: ☐

Amendment Source:

CIB FUNDS: $15,000.00
OTHER FUNDS: $0.00
MATCHING FUNDS: $0.00
AMENDMENT FUNDS:
TOTAL: $15,000.00

Project Location

Municipality : All Coastal Communities

Watershed/Waterbody : Indian River Bay

Latitude:

Longitude:

Project Leveraging Role

Primary

Report Information

Report Title:

Author :

Abstract :

Restoration ☐

Habitat Type :

Restoration type :

Acreage :

Partners :

Completion Date:

Cost :

QAPP ☐

Date Completed :

Date Approved :

Location :

Year Reported 2012

Date : 07/06/2012

DELAWARE CENTER FOR THE INLAND BAYS
Rehoboth Indian River Little Assawoman

Project Report

Project Name: *Eelgrass planting in Delaware Inland Bays*

Lead Contractor: Center for the Inland Bays

Responsible Partners, Contact Info, and E.J. Chalabala -- Project Manager
Center for the Inland Bays
39375 Inlet Road

Project Status: On-going

Work Pan ID : CIB12-020

Project Description

Strategic Alignment:

CCMP Action Plan ID :	Primary Action Plan ID Title :
HP-A	Create a Resource Protection Area management plan
CCMP Goal Objective ID :	**Primary Goal Objective ID Title :**
G2,G2A	Promote recurrence of submerged aquatic vegetation

CWA Program Implementation: Controlling Nonpoint Source Pollution on a Watershed Basis

Overview:

The proposed project involves various stages of eelgrass lifecylce to end up with planted seeds in our Inland Bays at a suitable desired location.

Seed will be collected manually during late spring 2012 from healthy beds in Chincoteague Bay, MD. Reproductive stalks will be pulled from the plant, held in mesh bags in ambient seawater, and transferred for storage. Harvested stalks will be stored in flowing seawater at ambient temperatures until the seeds have ripened and dropped to the bottom of the storage tanks. We will then collect the seeds from the tanks, remove detritus and non-viable seeds, and store in bottom sediment in a flow through tank until treatment (October 2012).

After storage in bottom sediment, seeds will be thoroughly washed in ambient Bay water and coated using a mixture of clay, binders, fertilizers, and germination enhancing agents. This process is well established in agricultural practices, both to enhance seed germination, but also for ease of handling and distribution. This model has been proven for terrestrial applications and preliminary trials suggest that it will work well with aquatic seeds.

We will plant seeds in a suitable location in the Inland Bays in October or November 2012, covering an area of approximately 1 acre with a planned density of 100,000 seeds/acre. During planting we will take ambient water quality measurements (dissolved oxygen, salinity, temperature and turbidity) at mid-column depth using a YSI © 56 multiprobe system and Hach Turbidimeter at each grid site for a full picture of conditions at each site.

Following the winter season, we will return to the site in the spring (April 2013) to begin bimonthly monitoring for germination and growth through the summer growing season (May – August 2013). Ten randomly selected 1-m2 plots will be measured to determine areal coverage, shoot abundance, and shoot length of eelgrass in the restoration area. Water quality and habitat use by fish and invertebrates will be monitored seasonally and compared to unrestored control sites near Pasture Point Cove to determine changes in habitat resulting from the restoration planting. Monitoring will continue through November 2013.

Intended Results

• to increase the population of eelgrass within the Inland Bays
• provide for increased benthic habitat because eelgrass beds provide habitat for juvenile fisheries species.
• to establish a successful system for eelgrass seed collection, dispersal, and monitoring that can become an annual program with the CIB, DNREC…etc.

Outputs/Deliverables:

-Collection of seed stalks from healthy beds in MD.
-Harvested stalks will be stored in flowing seawater at ambient temperatures until the seeds have ripened and dropped to the bottom of the storage tanks.
-After storage in bottom sediment, seeds will be thoroughly washed in ambient Bay water and coated using a mixture of clay, binders, fertilizers, and germination enhancing agents. This process is well established in agricultural practices, both to enhance seed germination, but also for ease of handling and distribution. This model has been proven for terrestrial applications and preliminary trials suggest that it will work well with aquatic seeds.
-Plant seeds in the Inland Bays (Oct-Nov 2012)
-Return to site in April 2013 for monitoring…..Ten randomly selected 1-m2 plots will be measured to determine areal coverage, shoot abundance, and shoot length of eelgrass in the restoration area. Water quality and habitat use by fish and invertebrates will be monitored seasonally and compared to unrestored control sites near Pasture Point Cove to determine changes in habitat resulting from the restoration planting. Monitoring will continue through November 2013.

Milestones:

1. Seed stalks will be collected manually during late spring 2012 from healthy beds in Chincoteague Bay, MD.
2. Harvested reproductive stalks will be stored in mesh bags in flowing seawater (spring 2012)
3. Seeds that have dropped from the bags will then be colleted, remove detritus and non-viable seeds, and store in bottom sediment in a flow through tank until treatment (October 2012).
4. Seeds will then be planted in October-November of 2012 at pre detemined suitable location.
5. Bimonthly monitoring for germination and growth through the summer growing season (May – August 2013).

Short-Term Outcomes

-Form parnerships with Chincoteague Bay folks.
-Showing interest in planting eelgrass so others may follow.

Intermediate Outcomes:

-Collecting eelgrass seed and becoming familiar with the correct methods.
-Implementing a new method of encapsulating eelgrass seed.
-Actaully planting an acre of eelgrass in our Inland Bays.

Long-Term Outcomes

-Restore 1 acre of eelgrass which in turn provides beneficial benthic habitat for many organisims.
-Prove methods that can be used for restoring eelgrass successfully.
-Prove an encapsulation method for eelgrass seed works.

Year Reported 2012

Date : 07/06/2012

Project Progress

Progress To Date:

1. ~100,000 eelgrass seeds collected from the Maryland Coastal Bays over three days and stored in Lewes facility.
2. Monitoring of distributed seed conducted, determining mixed results.
3. Seed distribution will occur in Fall 2012.
4. Preparation of a eelgrass restoration plan underdevelopment.

Additional Project Information

Project Financing

Funding Determination : Sole Source

Amendment: ☐

Amendment Source:

CIB FUNDS:	$10,000.00
OTHER FUNDS:	$0.00
MATCHING FUNDS:	$0.00
AMENDMENT FUNDS:	
TOTAL:	$10,000.00

Project Location

Municipality : All Coastal Communities

Watershed/Waterbody : All Bays

Latitude:

Longitude:

Project Leveraging Role

Primary

Report Information

Report Title:

Author :

Abstract :

Restoration ☑

Habitat Type : subtidal

Restoration type : Re-establishment

Acreage : 1

Partners : Ecosystem Solutions

Completion Date:

Cost : $0.00

QAPP ☐

Date Completed :

Date Approved :

Location :

Year Reported 2012

Date : 07/06/2012

DELAWARE CENTER FOR THE INLAND BAYS
Rehoboth Indian River Little Assawoman

Project Report

Project Name: *Inland Bays Shellfish Aquaculture Initiative*

Lead Contractor: Delaware Center for the Inland Bays

Responsible Partners, Contact Info, and
E.J. Chalabala -- Restoration Coordinator
Center for the Inland Bays
39375 Inlet Road
302-226-8105
restoration@inlandbays.org

Project Status: On-going

Work Pan ID : CIB12-022

Project Description

Strategic Alignment:

CCMP Action Plan ID : ED-A

Primary Action Plan ID Title :

CCMP Goal Objective ID : G3,G3C,G3E,G9,G9B

Primary Goal Objective ID Title :

CWA Program Implementation: Controlling Nonpoint Source Pollution on a Watershed Basis

Overview:

Delaware is the only coastal state with no commercial aquaculture. The Center for the Inland Bays in conjunction with the SeaGrant Advisory Service, Delaware Department of Natural Resources and Environmental Control, Delaware Department of Agriculture and numeruos other partners to be named as we work through various stages; will all work together to discuss, share and collect information that will help to develop a plan for commercial aquaculture in our Inland Bays, and ultimately change legislation that dates back to the 1970's.

The Delaware Center for the Inland Bays has had a successful oyster gardening program since 2003. We grow oysters from larvae at citizens' docks throughout the wateshed. We have demonstrated that oysters can grow well at all locations in the Inland Bays. We use these oysters for restortion efforts throughout our three Inland Bays and we are identifying areas where natural recruitment is taking place. Growing oysters successfully around the Bays as well as the public inquiring about commercial aquaculture in the Inland Bays, has lead to this effort.

Delaware is the only coastal state with no commercial aquaculture. The Center for the Inland Bays in conjunction with the SeaGrant Advisory Service, Delaware Department of Natural Resources and Environmental Control, Delaware Department of Agriculture and numerous other partners to be named as we work through various stages; will all work together to discuss, share and collect information that will help to develop a plan for commercial

aquaculture in our Inland Bays, and ultimately change legislation that dates back to the 1970's.

Delaware does have policy related to aquaculture activities in this state. The Delaware Aquaculture Act has a declaration of purpose that states the following….."The General Assembly finds and declares it to be in the interest of the general welfare and economic prosperity of the State to have a comprehensive and ongoing program to promote and encourage aquacultural activities. The General Assembly further declares aquaculture to be an agricultural activity and that the Department of Agriculture shall coordinate aquacultural activities in the State." This leads us to believe that the Department of Agriculture is the lead agency to coordinate aquaculture in the state.

The Delaware Center for the Inland Bays has had a successful oyster gardening program since 2003. We grow oysters from larvae at citizens' docks throughout the watershed. We have demonstrated that oysters can grow well at all locations in the Inland Bays. We use these oysters for restoration efforts throughout our three Inland Bays and we are identifying areas where natural recruitment is taking place. Growing oysters successfully around the Bays as well as the public inquiring about commercial aquaculture in the Inland Bays has lead to this "commercial aquaculture" effort.

The CIB hosted a Shellfish Aquaculture Workshop in June of 2011. This allowed stakeholders to participate and listen to professionals from around the Northeast and Mid Atlantic present on various shellfish aquaculture related topics. A white paper will be produced that will summarize the workshop; including our goals and objectives, policy issues, concerns and constrains, the advantages and disadvantages to commercial aquaculture and many other aspects related to our efforts. A video/CD will also be developed and distributed that will consist of the power points presented and the speakers discussing them in real time.

This effort is going to include a lot of information gathering. Where these "farms" are going to be located is a concern for everyone and will be addressed in almost every aspect of our work. Numerous GIS layers (already formed and those to be formed) will be used to identify water use in our Bays. This will include approved waters, existing resources, tide data and water depth, fishing "hot spots", sensitive shallow water areas, navigational data….etc. Many meetings will take place where stakeholders will discuss our efforts and planning. Public input and outreach will also be incorporated. Much political input and support will be needed finally get commercial aquaculture in our Inland Bays. Antiquated laws concerning shellfish aquaculture will need addressed and eventually changed.

Our overall goal, in regards to the CIB, is not to just get commercial shellfish aquaculture permitted in the Inland Bays, but to reap and document the environmental benefits that go along with it. This is a big effort and a lot of logistics are involved. We hope this proves to be a "green industry" that helps our economy, attracts interest to our bays and can be looked at as a positive effort as we work to make this dream a reality.

Intended Results

-White paper describing effort, goals and constraints
-Financial Support for a pilot scale experimental oyster farm

Outputs/Deliverables:

-Numerous GIS Layers
-Partnerships
-New legislation
-Public feedback and interview
-stakeholder reports on record
-Exact Nitrogen and Phosphorous uptake
-Possible N & P credits/trading

Milestones:

-Workshop
-Video documenting workshop presentations

-White paper that summarizes issues (goals, concerns, policy..etc)
-oyster gardening demonstrating value to oyster resources
-Garner political input and support
-New set of laws/guidelines

Short-Term Outcomes

-White Paper
-Stakeholder involvement

Intermediate Outcomes:

-Political input and support
-Funding for a pilot scale experimental farm

Long-Term Outcomes

-New legislation and laws allowing commercial shellfish aquaculture
-Harvestable commercial oysters that get sold at local restarurants
-Economy boost producing green jobs
-Water quality benefits

Project Progress

Progress To Date:

1. Formed a Shellfish Aquaculture Tiger Team with the goal of increasing the number of shellfish in our Inland Bays through commercial aquaculture activities
2. Tiger Team is made up of numerous agencies and stakeholders that have a job related or personal interest in this endeavor
3. Policy subcommittee of the tiger team has developed a strategy to draft legislative changes and this has begun.
4. Data subcommittee has developed aquaculture suitability scenarios using available datalayers.
5. Education and outreach subcommittee has drafted educational brochure on the initiative.

Additional Project Information

Project Financing

Funding Determination :

Amendment: ☐

Amendment Source:

CIB FUNDS: $2,000.00
OTHER FUNDS: $1,000.00
MATCHING FUNDS: $0.00
AMENDMENT FUNDS:
TOTAL: $3,000.00

Project Location

Municipality : All Coastal Communities

Watershed/Waterbody : All Bays

Latitude:

Longitude:

Project Leveraging Role

Report Information

Report Title:

Year Reported 2012

Date : 07/06/2012

Author :

Abstract :

Restoration ☐	**QAPP** ☐
Habitat Type :	**Date Completed :**
Restoration type :	**Date Approved :**
Acreage :	**Location :**
Partners :	
Completion Date:	
Cost :	

PROPOSED PROJECTS

Year Reported 2012

Date : 07/06/2012

Project Report

Project Name: *Hopkins Dairy Farm Headwater Stream and Wetland Restoration-Phase 2*

Lead Contractor: CIB

Responsible Partners, Contact Info, and

Eric Buehl, Habitat Coordinator
Center for the Inland Bays
39375 Inlet Road
Rehoboth Beach, DE 19971
302-226-8105
habitat@inlandbays.org
Project Lead
USDA Natural Resources Conservation Service
21315 Berlin Road, Unit 3
Georgetown, DE 19947
302-856-3990
Technical Assistance
Sussex Conservation District
23818 Shortly Road
Georgetown, DE 19947
302-856-2105
Construction
Delaware Department of Transportation (DelDOT)
23697 DuPont Highway
Georgetown, DE 19947
302-853-1300
Technical Assistance/Construction

Project Status: Proposed

Work Pan ID : CIB13-001

Project Description

Strategic Alignment:

CCMP Action Plan ID :	Primary Action Plan ID Title :
AG-C	Manage and plant forested/vegetative buffers
CCMP Goal Objective ID :	**Primary Goal Objective ID Title :**
G1,G1A,G2	Establish and Implement a comprehensive nonpoint source pollution control program

CWA Program Implementation: Controlling Nonpoint Source Pollution on a Watershed Basis

Year Reported 2012

Date : 07/06/2012

Overview:

Enhance habitat, water quality, and safety due to road and feedlot flooding by installing buffers and restoring wetlands as well as demonstrating the compatibility of infrastructure maintenance and environmental restoration.

This project is intended to occur in an area where historic attempts to drain the road and fields appears to have done little to alleviate the problem, nor does it appear that it has provided for any enhancement of water quality for the runoff from the paved surfaces, crop fields, and animal feedlot. By increasing field buffers, filtering roadside runoff, ehnacing an old animal waste filter strip, and improving the drainage system in the woods, water quality leaving the area should be enhanced.

Updated CCMP Reference:
Nutrient Management: Objective 1-Monitor effectiveness of the nutrient management law, program, and CAFO regulations, and suggest and implement any revisions as needed.
Action C-Conduct geographic and priority targeting.

Intended Results

1. Wetland Restoration/Enhancement.
2. Implement Buffers.
3. Improvement in Water Quality.

Outputs/Deliverables:

1. Completed Watershed Analyses.
2. Completed Project Design.
3. Permits Secured.
4. Construction Begins.
5. Construction Completed.

Milestones:

1. Initiate project survey, soils analysis, engineering design, and permitting; October 2012.
2. Coordinate with DelDOT about fence relocation, wetland restoration, and roadside drainage/configuration; November 2012.
3. Review project design/coordinate construction schedule; February 2013.
4. Secure all necessary permits; March 2013.
5. Begin fence relocation; April 2013.
6. Begin wetland restoration/construction; May 2013.
7. DelDOT begins roadside drainage construction; June 2013.
8. Plant grassed buffers; September 2013.
9. Project complete; October 2013.

Short-Term Outcomes

1. Demonstrate that required drainage infrastructure maintenance and habitat and water quality enhancement are mutually compatible.

Intermediate Outcomes:

1. Implement more projects that requiring the maintenance of drainage infrastructure to also enhance habitat and water quality.

Long-Term Outcomes

1. Implement 0.92 acres of buffers.
2. Implement 1.04 acres of restored or enhanced wetlands.
3. Decrease Nitrogen export by ABC pounds.

4. Decrease Phosphorous export by ABC pounds.

Project Progress

Progress To Date:

None

Additional Project Information

Project Financing

Funding Determination :

Amendment: ☐

Amendment Source:

CIB FUNDS:	$2,500.00
OTHER FUNDS:	$13,000.00
MATCHING FUNDS:	$0.00
AMENDMENT FUNDS:	
TOTAL:	$15,500.00

Project Location

Municipality : All Coastal Communities

Watershed/Waterbody : Rehoboth Bay, Rehoboth Bay WS

Latitude:

Longitude:

Project Leveraging Role

Primary

Report Information

Report Title:

Author :

Abstract :

Restoration ☐

Habitat Type :

Restoration type :

Acreage :

Partners :

Completion Date:

Cost :

QAPP ☐

Date Completed :

Date Approved :

Location :

Year Reported 2012

Date : 07/06/2012

Project Report

Project Name: *Rain Garden Training for Professional Landscapers*

Lead Contractor: Sally Boswell, Project Lead

Responsible Partners, Contact Info, and

Sally Boswell, Project Manager
Center for the Inland Bays
39375 Inlet Road
Rehoboth Beach, DE 19971
Ed Lewandowski
DE Sea Grant
Lara Allison
DNREC

Project Status: Proposed

Work Pan ID : CIB13-002

Project Description

Strategic Alignment:

CCMP Action Plan ID :	Primary Action Plan ID Title :
ED-A	Implement the Comprehensive Public Participation and Education Plan
CCMP Goal Objective ID :	**Primary Goal Objective ID Title :**
G1,G1C,G9,G9C,G9D	Develop and implement a comprehensive stormwater management program

CWA Program Implementation: Controlling Nonpoint Source Pollution on a Watershed Basis

Overview:

Through our 1000 Rain Gardens for the Inland Bays program we have raised awareness about using rain gardens for stormwater management and have created a need for expertise in our watershed for individuals and companies that are trained to design and install rain gardens. We propose to develop and market a workshop to train landscape professionals and interested HOA leaders and town officials in south coastal Delaware to design and install rain gardens.

Intended Results

1. To create awareness of rain gardens as an effective and attractive practice for stormwater management.
2. To increase the number of landscape professionals who possess the knowledge and expertise to design, install and maintain rain gardens.
3. To build capacity of achieving 1000 Rain Gardens for the Inland Bays by expanding the number of contractors

available to provide these services to homeowners, HOA's, businesses and towns.

Outputs/Deliverables:

1. Increase the number of landscape professionals who are knowledgeable and qualifed to design, install and maintain rain gardens to meet the growing demand for these services.
2. Create of list of landscape professionals that can be provided to homeowners, HOA's, businesses and other stakeholders who would like to install a rain garden.
3. Raise the level of awareness and knowledge among landscape professionals regarding 'bay friendly' landscape practices.

Milestones:

1. Seek additional partner(s)
2. Identify partner that can provide training and certification
3. Plan logistics of workshop
4. Identify potential attendees
5. Market the workshop
6. Conduct the workshop-Completion-Feb 2013
7. Compile a list of professionals who successfully complete the workshop that can be provided to communities and homeowners-Completion-March 2013

Short-Term Outcomes

Participants completing the workshop will be able to add rain garden installation services to the slate of products and services they presently offer, expanding their potential market and adding a service that will contribute to improved water quality in the Inland Bays.

Intermediate Outcomes:

An increase the number of landscape professionals [who are key influencers in our towns and communities in landscape planning, design and maintenance of open space] about landscape practices that mitigate stormwater pollution.

Long-Term Outcomes

Towns and communities in the watershed and the landscape companies that service them will be familiar with rain gardens as a stormwater practice that can improve water quality in the Inland Bays.

Project Progress

Progress To Date:

None

Additional Project Information

Year Reported 2012

Date : 07/06/2012

Project Financing

Funding Determination :

Amendment: ☐

Amendment Source:

CIB FUNDS: $0.00
OTHER FUNDS: $0.00
MATCHING FUNDS: $0.00
AMENDMENT FUNDS:
TOTAL: $0.00

Project Location

Municipality : All Coastal Communities

Watershed/Waterbody : All Bays, All Watersheds

Latitude:

Longitude:

Project Leveraging Role

Report Information

Report Title:

Author :

Abstract :

Restoration ☐

Habitat Type :

Restoration type :

Acreage :

Partners :

Completion Date:

Cost :

QAPP ☐

Date Completed :

Date Approved :

Location :

Year Reported 2012

Date : 07/06/2012

Project Report

Project Name: *Enhancement of Education and Outreach Opportunities at the James Farm Ecological Preserve*

Lead Contractor: CIB

Responsible Partners, Contact Info, and Sally Boswell, CIB, Education and Outreach Coordinator

Project Status: Proposed **Work Pan ID :** CIB13-003

Project Description

Strategic Alignment:

CCMP Action Plan ID :	Primary Action Plan ID Title :
ED-A	Implement the Comprehensive Public Participation and Education Plan
CCMP Goal Objective ID :	**Primary Goal Objective ID Title :**
G9,G9C,G9F	Ensure, to the maximum extent possible, all planning and management activities related to the Inland Bays involve public participati, iniInformation and education e

CWA Program Implementation: Improving Water Quality Monitoring

Overview:

The 150 acre James Farm Ecological Preserve offers many opportunities to provide additional education and outreach opportunities to residents and visitors to the watershed. Presently, it is a popular destination for walking, birding and beachcombing. It is also the location of our watershed education program serving approximately 800 middle school students annually. In order to plan for the long term protection of the ecology of the jf as it is host to an increasing number of visitors and to provide visitors with more opportunities to learn about the Inland Bays and its watershed, we prose to complete a site plan for the JFEP, install additional interepretive signage to enhance the visitor experience and persue partnerships with contractors to provide watershed experiences at the JFEP.

Intended Results

1. Protection of the ecosystems at the James Farm Ecological through timely and thorough site planning to accommodate the growing numbers of visitors
2. Enhancement of education and outreach to visitors through development of additional programming, interpretive signage and printed materials.

Outputs/Deliverables:

1. Completion of a comprehensive site plan-August 2013
2. Design and produce a James Farm Ecological Preserve brochure-April 2013
3. Design and produce a set of brochures highlighting the seasons at James Farm-June 13
4. Development of new scheduled visitor experiences such as 'owl prowls', birdwatching experiences, monarch butterfly migration experiences. Aug 2013
5.Development and installation of additional interpretive signage-Aug 2013

Milestones:

1. Develop an RFP to invite proposals from professional site planning firms
2. Select a firm and begin planning process
3. Implement the site plan
4. Develop brochures to inform and educate visitors and enhance their experience
5. Evaluate existing interpretive signage and plan for additional signage
6. Evaluate informal program opportunities at James Farm and implement

Short-Term Outcomes

Current regular visitors to the Farm will learn more about it and about the Inland Bays and their watershed

Intermediate Outcomes:

New visitors will be attracted to the Farm by informal program opportunities to learn more about the Inland Bays and their watershed

Long-Term Outcomes

Ecological protection of the James Farm property

Project Progress

Progress To Date:

None

Additional Project Information

Project Financing

Funding Determination :

Amendment: ☐

Amendment Source:

CIB FUNDS:	$2,712.00
OTHER FUNDS:	$13,288.00
MATCHING FUNDS:	$0.00
AMENDMENT FUNDS:	
TOTAL:	$16,000.00

Project Location

Municipality : Ocean View

Watershed/Waterbody : Indian River Bay, Indian River Bay WS

Latitude:

Longitude:

Project Leveraging Role

Report Information

Year Reported 2012

Date : 07/06/2012

Report Title:

Author :

Abstract :

Restoration ☐	**QAPP** ☐
Habitat Type :	**Date Completed :**
Restoration type :	**Date Approved :**
Acreage :	**Location :**
Partners :	
Completion Date:	
Cost :	

Year Reported 2012

Date : 07/06/2012

DELAWARE CENTER FOR THE INLAND BAYS
Rehoboth Indian River Little Assawoman

Project Report

Project Name: *Demonstration and Training of Living Shoreline Techniques for Marine Contractors*

Lead Contractor:

Responsible Partners, Contact Info, and Bartholomew Wilson--Science Coordinator
Center for the Inland Bays
39375 Inlet Road
Rehoboth Beach, De 19971

Project Status: Proposed **Work Pan ID :** CIB13-005

Project Description

Strategic Alignment:

CCMP Action Plan ID :	Primary Action Plan ID Title :
AG-C,HP-F	Manage and plant forested/vegetative buffers
CCMP Goal Objective ID :	**Primary Goal Objective ID Title :**
G2,G2F,G3,G3B,G7,G7E, G7F	Protect, restore, and enhance living resources by improving water quality and protecting and enhancing habitat

CWA Program Implementation: Improving Water Quality Monitoring

Overview:

Rehoboth, Indian River, and Little Assawoman Bays all have experienced extensive shoreline erosion as the result of boat wakes, sea-level rise, and storm wave action. Within the watershed, the common techniques used by marine contractors to halt this erosion or attempt to restore these impacted shorelines is to use shoreline hardening techniques.

Living or green shoreline techniques, can not only halt current and future shoreline erosion but also increase vegetated intertidal habitat. Living shorelines also can be more pleasing to the eye, than hardened shorelines, and can enhance landowners landscape with plantings of perennial and annual vegetation. The long-term effectiveness of living shoreline techniques used in Inland Bays will be monitored to evaluate the best practices for the Inland Bays.

Updated CCMP References:
Planning for Climate Change
Objective 1- Action E. Sub-Action E1. Conduct a demonstration project in the Inland Bays that employs living shorelines rather than hard structures for shoreline stabilization.
Outreach and Education Goals
Objective 1 - Action D. Seek opportunities to partner with Environmental and non-profit organizations,…….
Objective 3 - Action A. Administer and maintain and engaging, active website as a primary vehicle for disseminating

CIB information.

Intended Results

1.Demonstate different techniques available, when using living shoreline techniques for shoreline restoration.
2. Train and inform contractors about the benefits in using living shoreline techniques for ecological an permitting benefits.
3. Construct demonstration area to be used to educate the public and contractors about the importance of using living shorelines.

Outputs/Deliverables:

1. Complete demonstration area foe living shoreline techniques
2. Secure permits for shoreline restoration and modification.
3. Develop and complete outreach material of techniques and benefits.
4. Develop list of contractors that have been trained and have demonstrated their ability to install approved living shoreline techniques.
5. Develop list of potential sites for further demonstration site installation.

Milestones:

1. Coordinate with Wetlands and Subaqueous Lands Section (DNREC) and Partnership for the Delaware Estuary on techniques to outline or highlight in training.
2. Locate areas for potential restoration.
3. Review project design, site priorities, and list of contractors that could benefit for training.
4. Secure necessary permits.
5. Conduct pre-training meetings and outreach sessions with local contractors
6. Secure all necessary materials.
7. Conduct training and construction of living shorelines at demonstration site.

Short-Term Outcomes

1. Show utility of green or living shoreline to contractors
2. make new partnerships
3. Help cultivate new markets for marine contractors

Intermediate Outcomes:

1. Develop demonstration area through the Inland Bays that have been created by local contractors.
2. Create opportunities for public landowners to tour and evaluate potential alternatives for shoreline restoration at demonstration sites.
3. Cultivate the relationship between trained contractors and interested landowners.

Long-Term Outcomes

1. Restore eroding shorelines, to help provide intertidal habitat and provide a heightened level of protection to habitats landward of the shoreline restoration.
2. Increase utilization of living shorelines techniques within the Inland Bays watersheds.
3. Monitor long-term effectiveness of living shoreline techniques used in Inland Bays, to evaluate the best practices for the Inland Bays.

Project Progress

Progress To Date:

None

Additional Project Information

Project Financing

Funding Determination :

Amendment: ☐

Amendment Source:

CIB FUNDS:	$0.00
OTHER FUNDS:	$24,459.00
MATCHING FUNDS:	
AMENDMENT FUNDS:	
TOTAL:	$24,459.00

Project Location

Municipality : All Coastal Communities

Watershed/Waterbody : Indian River Bay, Rehoboth Bay

Latitude:

Longitude:

Project Leveraging Role

Primary

Report Information

Report Title:

Author :

Abstract :

Restoration ☐

Habitat Type :

Restoration type :

Acreage :

Partners :

Completion Date:

Cost :

QAPP ☐

Date Completed :

Date Approved :

Location :

Year Reported 2012

Date : 07/06/2012

DELAWARE CENTER FOR THE INLAND BAYS
Rehoboth Indian River Little Assawoman

Project Report

Project Name: *Inland Bays Migratory Fish Passage Restoration Feasibility and Planning Study*

Lead Contractor: TBD

Responsible Partners, Contact Info, and Roy Miller
Center for the Inalnd Bays

Project Status: Proposed

Work Pan ID : CIB13-007

Project Description

Strategic Alignment:

CCMP Action Plan ID :	Primary Action Plan ID Title :
AG-C,HP-F	
CCMP Goal Objective ID :	**Primary Goal Objective ID Title :**
G2	Protect, restore, and enhance living resources by improving water quality and protecting and enhancing habitat

CWA Program Implementation: Improving Water Quality Monitoring

Overview:

Seven millpond dams are present in the Inland Bays watershed and are to varying degrees restricting passage of migratory anadromous and catadromous fish species such as striped bass, blueback herring, american shad, alewife, white perch, and americal eel. Many of these fish species have suffered significant local population decreases thought to be due in part to reduction in lower salinity habitats associated with the increasing tidal prism of the Indian River Inlet beginning in earnest around 1970. The dams are affecting a significant portion of stream miles in the watershed. Regional population decreases of many of these species have also occurred, to the extent that some border on listing as threatened species under the Federal Endangered Species Act. Restoration of fish passage to streams for the purposes of spawning has become an important regional restroation action to improve fisheries. The Inland Bays are an important estuarine habitat for many anadromous and catadromous fishes.

This project will hire a consultant to assess the feasibility of fish passage restoration and develop restoration concepts where feasibile. Data on target species from the Inland Bays will be summarized and additional data needs identified and pursued as necessary. Restoration project concepts will be to 30% design where appropriate and include project alternatives and cost estimates as well as implementation plans. An Inland Bays fish passage restoration workgroup will be formed and managed to support this effort.

Year Reported 2012

Date : 07/06/2012

Intended Results

1. Development of a fish passage restoration feasibility study including restoration concepts.
2. Formation of an Inland Bays fish passage restoration workgroup.

Outputs/Deliverables:

1. Fish passage restoration feasibility study including restoration concepts.
2. Recommendations for project implementation funding sources.
3. Education and Outreach material on migratory fish species of the Inland Bays and fish passage restoration.

Milestones:

1. Formation of an Inland Bays fish passage restoration workgroup. TARGET: JAN 2013.
2. RFP for consultant services. TARGET: JAN 2013.
3. Consultant selection. TARGET: FEB 2013.
4. Advisory Committee project scoping meeting with Consultant. TARGET: MARCH 2013.
5. Necessary surveys to establish migration. TARGET: MAR-APR 2013.
6. Draft study submittal. TARGET: AUG 2013.
7. Final study approved and released. TARGET: SEP 2013.

Short-Term Outcomes

1. Increased understanding of the use of the estuary by migratory fish species by resrource agencies and the general public.
2. Increased communication between the public and resource agencies and among fisheries managers about fish passage restoration in the Inalnd Bays watershed.

Intermediate Outcomes:

1. Increases in the miles of streams accessbile for fish migration and general and spawning habitat.

Long-Term Outcomes

1. Increases in the populations of migratory fish species in the Inland Bays and their tributaries.

Project Progress

Progress To Date:

None

Additional Project Information

Year Reported 2012

Date : 07/06/2012

Project Financing

Funding Determination : RFP

Amendment: ☐

Amendment Source:

CIB FUNDS: $20,000.00

OTHER FUNDS:

MATCHING FUNDS:

AMENDMENT FUNDS:

TOTAL: $20,000.00

Project Location

Municipality : Millsboro

Watershed/Waterbody : Indian River Bay, Indian River Bay WS, Rehoboth Bay, Rehoboth Bay WS

Latitude:

Longitude:

Project Leveraging Role

Primary

Report Information

Report Title:

Author :

Abstract :

Restoration ☑

Habitat Type : subtidal

Restoration type : Re-establishment

Acreage :

Partners :

Completion Date:

Cost : $0.00

QAPP ☐

Date Completed :

Date Approved :

Location :

Summary of Major Project Changes from the 2012 Workplan

The following is a summary of major project changes from the 2012 CIB Workplan to the EPA. It is common occurrence that a small percentage of the total Comprehensive Conservation & Management Plan Projects intended for implementation during a given Fiscal Year are either altered significantly in their scope or abandoned due to a number of potentially unforeseen circumstances. The purpose of this summary is to track and briefly describe these instances by project and how funds were re-allocated to adjust.

Eelgrass Habitat Suitability Mapping

This project was placed on hold due to the inability of the Natural Resource Conservation Service to provide subaqueous sediment data needed for analysis and mapping. Other data layers have been aggregated. The $20,000 allocated for analysis and for report preparation was re-allocated to expand the extent of the project entitled Anchorage Canal Drainage Area Stormwater Retrofit Implementation Project #2: Highway Median Bioretention Areas, which has been completed. Once the data becomes available to project will seek a new funding source.

West Millsboro Wetland Enhancement Project

This project location was dropped due to the discovery that its location was outside of the Inland Bays watershed. The $12,000 was reallocated to the Hopkins Diary Farm Headwater Stream Restoration Project Phase I project.

Martin's Way Shoreline Stabilization Project

This project was dropped due to the unwillingness of an adjacent landowner to allow permission for the work to occur. The $1,000 was reallocated to the Equipment budget line to fund replacement of a mower at the James Farm Ecological Preserve.

Resource Protection Area Development Plan

This project had experienced no progress. After the Center's leadership change, it was deemed a low priority and removed from the project list. The project had no dedicated funding. Aspects of the project are being implemented through the Shellfish Aquaculture Initiative.

Rehoboth Water Quality Changes Associated with Wastewater Management

This project was conceived without dedicated intent for completion. After the Center's leadership change, the project funds, $15,000, were reallocated to the project entitled Inland Bays TMDL Modeling Assessment.

Oyster Spat Setting

This project was removed because it was already being sufficiently reported on under the project entitled Inland Bays Oyster Gardening Program.

FS Code	Date	Name	Transaction Description	Expenditures
1085	10/5/2010	Sally Boswell	S Boswell local mileage Aug 2010 261.7 miles @ .5	$ 130.85
1085	10/5/2010	Sally Boswell	S Boswell local mileage Sept 2010 229.8 miles @ .5	$ 114.90
1085	10/5/2010	Eric H. Buehl	E Buehl local mileage, Sept 2010, 256.5 miles@ .5, tolls 1.75	$ 130.00
1085	10/5/2010	Chris Bason	C Bason local mileage, Sept 2010,241 miles @ .5	$ 121.50
1085	10/18/2010	Chris Bason	C Bason, Mid-Atlantic AFS, Registration, Lewes, De, 10-17-10	$ 85.00
1085	10/18/2010	E.J. Chalabala	EJ Chalabala, local mileage, Sept 2010, 168 miles @ .5	$ 84.00
1085	10/26/2010	Sally Boswell	S Boswell , DRPS Conference, 2-24-10 ,Rehoboth, De, Registration	$ 25.00
1085	10/26/2010	Chase Inc	E Lewandowski, ANEP mtg, Punta Gorda ,Fl ,Hotel, 11-7th-10th- (split)	$ 340.00
1085	11/1/2010	Chris Bason	C Bason local mileage Oct 2010 166 miles @ .5	$ 83.00
1085	11/1/2010	Eric H. Buehl	E Buehl local mileage Oct 2010, 268.6miles @ .5	$ 134.30
1085	11/5/2010	E.J. Chalabala	EJ Chalabala,Nov 9-10, Univ of MD, Aquaculture Conf. , Queenstown, MD, Registration	$ 75.00
1085	11/15/2010	E.J. Chalabala	EJ Chalabala local mileage Oct 2010, 268 miles @.5	$ 134.00
1085	11/24/2010	Sally Boswell	S Boswell ANEP mtg ,Punta Gorda, FL,11-6-10th ,Air fare $212.10, mileage 176.9 @.5, toll-$2	$ 303.05
1085	12/6/2010	E.J. Chalabala	EJ Chalabala local mileage, Nov 2010, 126 miles @ .5	$ 63.00
1085	12/20/2010	E.J. Chalabala	EChalabala, Univ MD ,Aquaculture Conf, Nov9-10, Quenstwn, MD, Hotel	$ 134.47
1085	2/4/2011	E.J. Chalabala	Chalabala E.J. local mileage,Jan 2011, 105 miles @ .51 ********	$ 53.55
1085	3/3/2011	E.J. Chalabala	EJ Chalabala local mileage, Feb 2011, 158 miles @ .51	$ 80.58
1085	5/3/2011	Sally Boswell	S Boswell local mileage March 2011 , 503.4 miles @ .51	$ 256.73
1085	5/3/2011	Eric H. Buehl	E Buehl local mileage Apr 2011, 95 miles @ .51	$ 48.45
1085	6/8/2011	E.J. Chalabala	EJ Chalabala local mileage, May 2011, 217 miles @ .51	$ 110.67
1085	7/19/2011	E.J. Chalabala	EJ chalabala local mileage June 2011, 238 miles @ .51	$ 121.38
1085	7/28/2011	E.J. Chalabala	EJ Chalabala Registration-Streams Symposium-Aug10-13,Westminster,M D	$ 25.00
1085	8/9/2011	Chris Bason	C Bason local mileage July 2011, 43 miles @ .51	$ 21.93
1085	9/12/2011	Chris Bason	C Bason, ANEP Mtg, Los Angeles, CA, October 15-20, Airfare	$ 701.40
1085	9/20/2011	E.J. Chalabala	EJ Chalabala, local mileage, August 2011, 280miles @ .51	$ 142.80
1085	9/22/2011	Sally Boswell	S Boswell local mileage August 2011, 571.9 miles @ .51	$ 131.15
1085	9/30/2011	Eric H. Buehl	E Buehl local mileage Sept, 76.2 miles @ .51	$ 38.86
1087	11/15/2010	Edward Lewandowski	E Lewandowski, NEP Mtg, Punta Gorda,FL, local M ileage to airport, 160@.5, toll, meal	$ 96.00
1087	11/29/2010	Edward Lewandowski	ELewandowski, ANEP, Punta Gorda , FL, 11-7-10, Car rental	$ 281.25
1087	11/29/2010	Sally Boswell	S Boswell, ANEP Mtg,11-7-10, Punta Gorda, FL, Shuttle, meal, hotel	$ 516.32
1087	11/29/2010	Sally Boswell	S Boswell local mileage 11-6, 37.4 miles @ .5	$ 18.70
1087	11/30/2010	Eric H. Buehl	E Buehl,local mileage,104.9miles @ .5	$ 52.45
1087	12/6/2010	Edward Lewandowski	E Lewandowski local mileage, Nov 2010, 232 miles @ .5	$ 116.00
1087	12/6/2010	Loretta Smith	L Smith local mileage, Nov 2010, 33 miles @ .5	$ 16.50
1087	12/6/2010	Chris Bason	C Bason local mileage, 70 miles @ .5, Nov 2010	$ 35.00
1087	12/16/2010	Eric H. Buehl	E Buehl, Dec 2010, local mileage 46 miles @ .5	$ 23.00
1087	12/20/2010	Sally Boswell	S Boswell ,ANEP Meeting, Punta Gorda, FL, Nov 7-10, Parking, meal,	$ 85.00
1087	12/20/2010	Edward Lewandowski	E Lewandowski, ANEP Mtg, Punta Gorda, FL, 11-7-10, Parking	$ 32.00

DE CENTER FOR THE INLAND BAYS
Expenditure Journal - EPA Travel 2011
From 10/1/2010 Through 9/30/2011

FS Code	Date	Name	Transaction Description	Expenditures
1087	1/25/2011	Sally Boswell	S Boswell, local mileage, N ov-Dec 2010, 468.6 miles @.5	$ 254.30
1087	1/25/2011	Sally Boswell	S Boswell, Registration, DAEE Mtg, Dover De, 2-26-11	$ 25.00
1087	1/31/2011	E Buehl	E Buehl local mileage Jan 2011, 66.6 miles @ .51	$ 33.97
1087	1/31/2011	Chris Bason	C Bason, ANEP Mtg ,ArlingtonVA , Registration, 3-2-11	$ 50.00
1087	1/31/2011	Edward Lewandowski	E Lewandowski, ANEP Mtg, 3-1 - 3, 2011, Arlington, VA, Registration	$ 100.00
1087	1/31/2011	Loretta Smith	L Smith local mileage, Jan 2011, 69 miles @ .51	$ 35.19
1087	2/1/2011	Edward Lewandowski	E Lewandowski, local mileage, Jan 2011, 223 miles @.51: Toll, Parking	$ 126.88
1087	2/1/2011	Chris Bason	C Bason local mileage, Jan 2011, 482 miles @ .51	$ 245.82
1087	2/16/2011	Eric H. Buehl	E Buehl local mileage 157.1 miles @ .51	$ 80.12
1087	2/23/2011	Sally Boswell	S Boswell, Partnrship DE Estuary Conf, Cape. May NJ, Jan-31-Feb-3, hotel, ferry	$ 270.86
1087	3/2/2011	Eric H. Buehl	E Buehl local mileage Feb 2011,110.5 miles @ .51	$ 56.36
1087	3/2/2011	Chris Bason	C Bason local mileage Feb 2011,342 miles@.51, toll $2	$ 176.42
1087	3/2/2011	Loretta Smith	L Smith local mileage Feb 2011 62.4 miles @ .51	$ 31.82
1087	3/3/2011	Chris Bason	C Bason ANEP Meeting, Wash DC, Mar-1-3, meal, 262 miles@.51 ,toll	$ 152.82
1087	3/4/2011	Edward Lewandowski	E Lewandowski ,ANEP Meeting,Wash DC Feb-28-Mar-3, 218 miles@.51, meals ,cab, metro	$ 231.47
1087	3/4/2011	Edward Lewandowski	E Lewandowski local mileage Feb 2011 393.88 miles @.51,	$ 200.88
1087	3/14/2011	Sally Boswell	S Boswell, Jan 2011, 317.5 miles@ .51	$ 161.93
1087	3/14/2011	Sally Boswell	S Boswell, Feb 2011 ,298.5 miles @ .51	$ 152.24
1087	3/23/2011	Chris Bason	C Bason, ANEP Mtg, Mar-1-2 2011,Wash DC, Hotel, 2 meals	$ 265.59
1087	4/5/2011	Chris Bason	C Bason local mileage March 2011, 381 miles @.51	$ 194.31
1087	4/5/2011	Eric H. Buehl	E Buehl March 2011 local travel, 141.1 miles @ .51	$ 71.96
1087	4/19/2011	Tom Greco	TGreco-Apr 2011-Transport Rain Barrels to CIB-100miles @ .51 (EPA 1000 Rain Barrel Prog)	$ 37.95
1087	5/5/2011	Chris Bason	C Bason local mileage Apr 2011 242 miles @ .51	$ 123.42
1087	5/18/2011	Sally Boswell	S Boswell local mileage Apr 2011, 390.4 miles @ .51	$ 199.10
1087	6/2/2011	Eric H. Buehl	E Buehl local mileage May 2011 310.8 miles @ .51	$ 158.51
1087	6/2/2011	Roy Miller	R Miller local mileage May 2011, 82 miles @ .51	$ 41.82
1087	7/11/2011	Chris Bason	C Bason local mileage June 2011, 250 miles @ .51	$ 127.50
1087	8/1/2011	Eric H. Buehl	E Buehl local mileage July 2011, 169.8 miles @ .51	$ 86.60
1087	8/15/2011	Sally Boswell	S Boswell local mileage, May, 388.9 @ .51	$ 198.34
1087	8/15/2011	Sally Boswell	S Boswell local mileage,June, 365.5 miles @ .51	$ 186.41
1087	8/15/2011	Sally Boswell	S Boswell local mileage,July, 266.6 miles @ .51	$ 135.97
1087	8/23/2011	Chris Bason	C Bason-Registration, 2011 Fall ANEP Mtg ,Los.Angeles, CA, Oct 15-20, 2011	$ 300.00
1087	9/6/2011	Chris Bason	C Bason local mileage August 2011 ,116 miles @ .51	$ 59.16
1087	9/6/2011	Eric H. Buehl	E Buehl local mileage August 2011, 44.7 miles @ .51	$ 25.55
1087	9/22/2011	Sally Boswell	S Boswell local mileage August 2011, 571.9 miles @ .51	$ 160.52
		Report Total		**$ 9,721.58**

CENTER FOR THE INLAND BAYS, INC.

Travel Budget

Estimated Travel Expenses for Fiscal Year 2013 (FED 2013)

Position	Event/Reason	Date(s)	Location	Mode	Cost
Executive Director	Fall National Estuary Program Meeting	OCT 20-24	Tampa, FL	Air fare/ Transportation Hotel/Food	$1,200
Restoration Coordinator	Fall National Estuary Program Meeting	OCT 20-24	Tampa, FL	Air fare/ Transportation Hotel/Food	$500
Science & Technical Coordinator	Fall National Estuary Program Meeting	OCT 20-24	Tampa, FL	Air fare/ Transportation Hotel/Food	$500
Executive Director	Spring National Estuary Program Meeting	Februrary?/March? 2013	Washington, D.C.	Transportation Hotel/Food	$900
Board Member (Trustees) (2)	Spring National Estuary Program Meeting	Februrary?/March? 2013	Washington, D.C.	Transportation Hotel/Food	$700
Education & Outreach Coordinator	Spring National Estuary Program Meeting	Februrary?/March? 2013	Washington, D.C.	Transportation Hotel/Food	$900
Executive Director & Administrative Assistant	CCMP Project Implementation	N/A	N/A	*Local Mileage	$3,400
Habitat Coordinator	CCMP Project Implementation	N/A	N/A	*Local Mileage	$1,500
Restoration Coordinator	CCMP Project Implementation	N/A	N/A	*Local Mileage	$1,500
Science & Technical Coordinator	CCMP Project Implementation	N/A	N/A	*Local Mileage	$1,000
Education & Outreach Coordinator	CCMP Project Implementation	N/A	N/A	*Local Mileage	$2100

TOTAL $14,200

Costs Expressed

Only the estimated travel expenses expected to be applied to the FY2013 federal grant are shown.

Allowance for Meals

Meals at authorized training functions will be reimbursed at Breakfast up to $7, Lunch up to $12, Dinner up to $20 unless covered with registration. In some cases, meal costs will be higher in certain cities.

* Mileage is calculated to exclude daily commute and is reimbursed at the established federal rate of $0.555/mile

ADMINISTRATIVE

Staff Descriptions

The **Executive Director**, under the supervision of the Board of Directors, is the administrative head of the Center charged with the responsibility of the day to day operations and business of the Center, and has responsibilities required by the Inland bays Watershed Enhancement Act, including but not limited to: 1) Board Administration and Support -- Supports operations and administration of Board and its committees by advising and informing members, interfacing between Board and staff, and supporting Board's evaluation of CIB performance; prepares and provides an annual/activity report and quarterly progress reports to the Board and Environmental Protection Agency, 2) Implementation of the *Inland Bays Comprehensive* Conservation & Management Plan -- Determines priorities for restoration, enhancement, and protection of resources in the watershed; prepares an annual plan of action in accordance with EPA guidance for approval by the Board of Directors; oversee efforts to implement the Program's annual work plan, including the development of partnerships with key stakeholders; tracks and monitors progress towards implementation of the CCMP, 3) Financial, Tax, Risk and Facilities/Properties Management – Prepares and recommends annual budget for Board approval and prudently manages the Program's resources within those budget guidelines according to current laws and regulations; monitor budgetary and financial reconciling procedures to ensure that generally accepted accounting practices are being followed; engage accountants and auditors to examine and report on financial status of the organization and prepare required tax documents; provide for effective care of CIB facilities and real properties, 4) Human Resource Management -- Effectively manages the human resources (personnel, salaries & benefits) of the organization according to authorized personnel policies and procedures that fully conform to current laws and regulations; hire and/or retain appropriate support staff as needed, 5) Community and Public Relations -- Assures the organization and its mission, programs, and services are consistently presented in a strong, positive image to relevant stakeholders; facilitates an ongoing dialogue on issues concerning Inland Bays protection; provides communication documents to public, private groups/individuals, state, county, and local government; serves on state-wide and regional committees and task-forces to promote sound environmental policies based on best available science; travels to national and regional EPA meetings, estuary-related conferences and meetings; provides technical assistance to other programs; serves in an advisory capacity to elected officials, policy makers, resource managers, and civic leaders; performs duties associated with the Board of Directors of the Association of National Estuary Programs, and 6) Fundraising & Membership -- Responsible for procurement and administration of federal, state and private monies to fulfill the responsibilities pursuant to implementation of the Inland Bays CCMP; oversees fundraising planning and implementation, including identifying resource requirements, researching funding

sources, establishing strategies to approach funding partners, and management of endowment fund and investments; identifies and cultivates individual donors for major gifts; in conjunction with the Finance Committee, develops an annual fundraising plan; leads efforts to position CIB in the community and attract new members and volunteers

The **Administrative Assistant** serves the Executive Director and provides program and office administrative services including development, reconciliation, and tracking of the operation budget; managing payroll and benefits packages; managing financial requirements for federal, state, and local assistance awards; maintaining membership and mailing lists; answering phones; drafting general letters and correspondence; ordering basic supplies; faxing; copying; maintaining program calendars and scheduling; filing; mailing; processing and tracking paperwork for staff travel authorizations and reimbursements; taking minutes of meetings; and other duties as assigned by the Executive Director.

The **Science & Technical Coordinator** serves the Executive Director of the Center for the Inland Bays by formulating, coordinating and implementing the research and demonstration project agenda of the Center for the Inland Bays, which includes building and maintaining relationships with scientists, resource professionals, and other associates responsible for analyzing and reporting on the condition of Delaware's Inland Bays. This individual will also assist in the planning and coordination of the activities of the Inland Bays Scientific & Technical Advisory Committee. The Science/Technical Coordinator provides vision, leadership, and experience to plan and execute those activities and tactics that satisfy implementation of the Inland Bays Comprehensive Conservation and Management Plan (CCMP) that pertain to the following: 1) Monitor existing research projects and provide guidance on future and potential research projects, 2) Analyze existing data and provide guidance and consultation on Inland Bays issues related to science and management, 3) Responsible for the CIB Quality Management Plan and creation, review, and approval Quality Assurance Project Plans for research projects, 4) Prepare regular State of the Inland Bays Reports and other ecosystem condition assessments, 5) Prepare other scientific reports and documents as needed, 6) Effectively communicate complex scientific data and understanding to multiple audiences including: the general public, decision makers, and special interest groups, 7) Implement demonstration projects that meet CCMP objectives, 8) Assist staff and CIB committees with science guidance, 9) Assist with the CCMP tracking database development and implementation, 10) Procure grants relative to science and demonstration project priorities, 11) Perform other duties as assigned by Executive Director.

The **Education and Outreach Coordinator** serves the Executive Director of the Center for the Inland Bays by managing the activities of the Inland Bays Comprehensive Public Participation and Education Plan component of the Inland Bays Comprehensive Conservation and Management Plan; Directs and supervises the on-going James Farm Education Program for middle school students in Indian River School District; recruits and trains teachers; maintains equipment and secures new equipment and supplies as needed; evaluates the program; coordinate school participation; maintains a partnership with the administration and schools to correlate our watershed/estuary education activities with the curriculum goals of the Delaware State Education Standards; Directs and supervises the part time Schoolyard Habitat Coordinator and manages the grant that supports the program; works with the superintendent, principals teachers and staff at Schoolyard Habitat Schools to promote the growth of their habitats and develop

curriculum-based activities for use in the Habitats; identifies schools to bring into the program; works with partners to bring the program to the school; provides Schoolyard Habitat outreach plan, planning of Wetlands training/plants in the classrooms, and oversees the design and planting of the new habitats; identifies CIB volunteers to support each Schoolyard Habitat Project; Directs and supervises the part time (volunteer) Volunteer Coordinator; works with her to recruit and interview new volunteers; places volunteers according to their skills, experience and interests; maintains regular contact with volunteers; develops and promotes volunteer participation and training opportunities, maintains volunteer records, plans the annual Volunteer recognition/thank you event; Responsible for CIB 'branding' to promote CIB name recognition and to raise awareness of the mission and work of the organization; works with a graphic designer to insure that new promotional products reinforce the brand in the graphic messages going out to the public; Editor of the Inland Bays Journal, published three times yearly; oversees distribution of the Inland Bays Journal to members, contributors, visitor centers and chambers of commerce, libraries, schools and community events; develops content, edit and publish the Annual Report; Oversees the Inland Bays website; works with the web consultant on design and updates as needed, develops new content and maintains the site; Produces and publishes brochures, flyers, postcards, exhibits, display elements, signage and other education/outreach tools and materials as needed; Serves as primary press liaison; develops and distributes press releases on CIB activities; invites the press to meetings and events; provides information and sources to them as needed; Coordinates CIB's participation in community events throughout the watershed and oversees the planning of the annual *Gardening for the Bays Native Plant Sale*; Provides presentations to community groups throughout the watershed as requested; Serves as staff liaison/advisor to the CAC Outreach Sub-committee; serves as staff advisor and coordinator of the Citizens' Advisory Committee Speakers Bureau; Assists with other projects and duties as assigned by the Executive Director

The **Habitat Coordinator** serves the Executive Director by managing the Habitat Protection Action Plan component of the Inland Bays Comprehensive Conservation and Management Plan. Primary responsibilities include the development and implementation of a watershed-wide habitat restoration plan which includes developing a plan consistent with the goals of the Comprehensive Conservation and Management Plan (CCMP) and development of programmatic infrastructure to secure funding and oversee project implementation to meet the goals stated in the plan; coordinating program and planning efforts of federal, state, county, and local governmental agencies and other non-governmental agencies and groups related to habitat and habitat restoration within the watershed with an emphasis on keeping Inland Bays habitat and environmental issues at the forefront of other agency/group planning and consideration; representing the CIB at meetings convened by federal, state, county, and local governmental agencies and other non-governmental agencies and groups for the purposes of addressing Inland Bays and other environmental issues which include but are not limited to the Delaware Invasive Species Council, Sussex County/DelDOT Transportation Plan Committees, USDA-Delaware State Technical Committee, CIB Habitat Plan Development Committee, the State Biodiversity Initiative Committee and related subcommittees, and on the CIB Finance Committee; Soliciting, identifying and developing grant proposals to pursue financial assistance to fund habitat restoration projects sponsored by the CIB; managing grant funded projects as awarded; Serving as assistant liaison the Citizens Advisory Committee, which includes preparing and announcing meeting agendas, facility preparation, and scheduling regular meetings; Assisting with outdoor learning activities at the James Farm Ecological Preserve, as requested; Submitting regular habitat and special topic articles to the Education and Outreach Coordinator

for the quarterly newsletter and other program publications, including brochures, technical reports, and issue papers; Developing and submitting press releases related to habitat to the Education and Outreach Coordinator for local media distribution, as necessary; Submitting information to the Education and Outreach Coordinator for use on CIB's web site, DISC web site, and CIB tracking system; Planning and developing topics of interest for participation in weekly radio broadcasts as scheduled; Attending to a variety of special support projects and other duties as assigned by the Executive Director.

The **Restoration Coordinator** serves the Executive Director and works to implement restoration projects, helps to coordinate internships at the Center for the Inland Bays, manages the Inland Bays Shellfish Restoration Program, including the oyster gardening program; coordinates with the State Forest Service to implement the Urban and Community Forestry Program in the Inland Bays watershed; represents the Center on committees including the State Forestry Council and the Board of Directors of the Delaware Quality Deer Management Association; participates in public relation/outreach activities sponsored by the CIB; represents the CIB at meetings convened by county, state, and federal agencies or organizations for the purposes of addressing Inland Bays and other environmental issues.

The **Development Coordinator** serves the Executive Director and is responsible for planning, coordinating and implementing the financial plan for the CIB, which includes building and maintaining relationships and securing financial support from current and prospective donors. This individual will also plan and coordinate special events activities. Principal duties and responsibilities include increasing "Friends of the Bays" memberships, organizing mailing lists, identifying donor base, developing prospect research tools, cultivating individual and corporate donors, managing the CIB's endowment fund and annual campaigns, developing, organizing and marketing programs and annual events to the community and target audiences, and identifying and pursuing grant funding opportunities.

The **Environmental Policy Coordinator** reports to the Executive Director and is responsible for working collaboratively with the Board of Directors, staff and committees to develop, disseminate and promote public policies dealing with issues of concern to Delaware's Inland Bays and the implementation of the Inland Bays Comprehensive Conservation & Management Plan (CCMP). The individual serves as a liaison between the CIB and decision-making groups, including legislators as well as county, municipal and other local elected officials, state agencies and other non-profit groups. Responsibilities include establishing and maintaining contact with decision-makers (Congressional Members, legislators, local elected and appointed officials, agency leaders, resource managers, etc.) to increase awareness of issues and initiatives identified for Delaware's Inland Bays; working with various Inland Bays stakeholder groups to assess current policy issues and needs and assists in designing public policy that leads to successful implementation of the Inland Bays CCMP; performing policy analyses and report preparation; providing policy guidance and technical support for Board and staff; assisting in developing and allocating financial resources in the form of grants and programmatic funding to ensure that Inland Bays policy implementation is effective and efficient.

The **Property Manager** serves the Executive Director and the Restoration Coordinator and is responsible for the management, care, and maintenance of CIB properties. The Property Manager is also responsible for assisting in the development of management plans and projects for CIB

properties. The Property Manager works independently and as part of a team of paid CIB employees and unpaid CIB volunteers to manage, care for, and maintain existing and newly acquired properties owned and/or managed by the CIB. The Property Manager will manage CIB properties for the purposes of natural resource conservation, water quality improvement, and outstanding recreational and educational visitor experiences by: 1) Serving as a positive and enthusiastic representative of the CIB and its mission to property visitors, 2) Encouraging the safe and respectful use of CIB properties by residents, visitors, and special interest groups, 3) Utilizing volunteer labor to maximize the successful management of properties, 4) Improving and maintaining the cleanliness of CIB properties, equipment, and facilities, 5) Maintaining and improving relationships between the CIB and property visitors, concessionaires, neighbors, and local communities, 5) Managing the natural resources of CIB properties to maximize conservation and the recreational and education experiences of visitors, 6) Assisting with special events, education programs, research, and conservation projects on the properties, 7) Assisting with the development of property management plans

The **Schoolyard Habitat Coordinator** works with the Education and Outreach Coordinator to manage the Schoolyard Habitat Program; activities including planning and constructing new schoolyard habitats at schools in the watershed and working with the schools where schoolyard habitats have already been established; responsibilities also include identifying and cultivating community volunteer Leaders, garden club partners, and coordinating school administration, staff and students.

Board of directors

MR. RICHARD EAKLE, CHAIR; APPOINTEE OF THE PRESIDENT PRO TEMPORE OF THE DELAWARE SENATE
DR. WILLIAM MCGOWAN, VICE-CHAIR; SUSSEX CONSERVATION DISTRICT REPRESENTATIVE
MS. NACNY CABRERAS-SANTOS, SECRETARY; CITIZENS' ADVISORY COMMITTEE CHAIR
MS. JOANNE CABRY, TREASURER; APPOINTEE OF THE SPEAKER OF THE DELAWARE HOUSE OF REPRESENTATIVES
DR. SCOTT ANDRES, SCIENTIFIC & TECHNICAL ADVISORY COMMITTEE CHAIR
MAYOR GORDON WOOD; SUSSEX COUNTY ASSOCIATION OF TOWNS
MR. TODD LAWSON; SUSSEX COUNTY ADMINISTRATOR
SECRETARY EDWIN KEE; DELAWARE DEPARTMENT OF AGRICULTURE
SECRETARY COLLIN O'MARA; DELAWARE DEPARTMENT OF NATURAL RESOURCES & ENVIRONMENTAL CONTROL
MR. ED AMBROGIO; U.S. EPA (EX-OFFICIO)

Staff directory

MR. CHRIS BASON, DEPUTY DIRECTOR .....*chrisbason@inlandbays.org*
MS. LORETTA SMITH, ADMINISTRATIVE ASSISTANT .....*office@inlandbays.org*
MR. ERIC BUEHL, HABITAT COORDINATOR .....*habitat@inlandbays.org*
MS. SALLY BOSWELL, EDUCATION & OUTREACH COORDINATOR .....*outreach@inlandbays.org*
MR. E.J. CHALABALA, RESTORATION COORDINATOR .....*restoration@inlandbays.org*
MS. JENN JONES, DEVELOPMENT COORDINATOR.....*development@inlandbays.org*
DR. DENNIS BARTOW, SCHOOLYARD HABITAT COORDINATOR..... *dennisbartow@inlandbays.org*
MR. ROY MILLER, ENVIRONMENTAL POLICY COORDINATOR.....*policy@inlandbays.org*
MR. BART WILSON, SCIENCE AND TECHNICAL COORDINATOR.....*science@inlandbays.org*
MR. BOBBY COLLINS, PROPERTY MANAGER.....*jamesfarm@inlandbays.org*

The CENTER FOR THE INLAND BAYS (CIB) is a private, non-profit organization dedicated to promoting the wise use and enhancement of Delaware's Inland Bays and associated watersheds. The CIB was established by the Delaware General Assembly in 1994 under the auspices of the Inland Bays Watershed Enhancement Act and is administered by the U.S. EPA's National Estuary Program.

CENTER FOR THE INLAND BAYS
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CENTER FOR THE INLAND BAY
Rehoboth Indian River Little Assawoman