



## The Delaware Inland Bays

Rehoboth Bay | Indian River Bay | Little Assawoman Bay

*By the Numbers...*

## BOARD OF DIRECTORS

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## CIB STAFF

**Mr. Chris Bason**  
Executive Director

**Mr. Edward Lewandowski**  
Executive Director until October 1, 2011

**Dr. Dennis Bartow**  
Schoolyard Habitat Coordinator

**Ms. Sally Boswell**  
Education & Outreach Coordinator

**Mr. Eric Buehl**  
Habitat Coordinator

**Mr. E.J. Chalabala**  
Restoration Coordinator

**Ms. Pat Drizd**  
Volunteer Coordinator

**Ms. Jennifer Jones**  
Development Coordinator

**Mr. Roy Miller**  
Policy Coordinator

**Ms. Loretta Smith**  
Administrative Assistant

## Mission

To promote the wise use and enhancement of the Inland Bays and their watershed...

To support and sponsor education activities, restoration efforts, demonstration projects and applied research...

To foster partnerships with all stakeholders to restore and protect the resources...

To serve as a neutral forum for consideration of Inland Bays issues; where informed decisions can lead to sound public policy regarding the protection and restoration of the Inland Bays watershed.

*Cover photo: Juvenile Atlantic menhaden, an important food source for predatory fish such as Bluefish and Striped bass. Photo credit: Bob Edelen  
Photo credit for Great Blue Heron and fisherman on Ingram Pond: Dennis Bartow*

# Working for Better Bays Ahead...

This past September, the first ever State of the Inland Bays Report was released to an enthusiastic audience gathered in the Center's sunny community room next to the Indian River Inlet.

At the reception for the release, some special friends were asked to say a few words about how the Bays have affected their lives. The speakers included an ecotourism business owner, a farmer, a realtor, a bait & tackle shop owner, and a retired Navy Captain who has made his home on the Bays. Each related their own unique stories of the Bays while together conveying a singularly clear dedication to the waters that support them personally and economically.

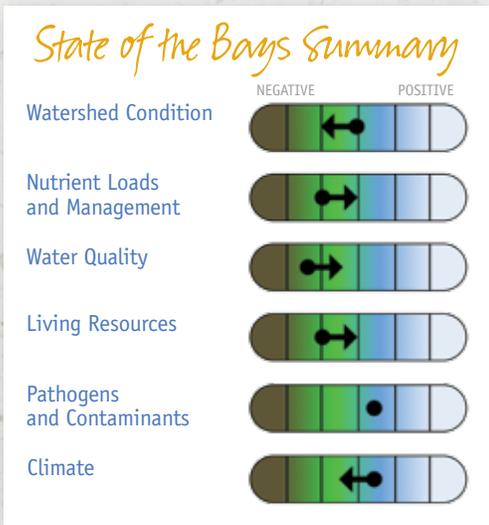
Though I had known them all for years, hearing their unfiltered appreciation for the water was moving.

This is the basis of our program. The love of the Bays is a shared interest that has for decades brought us together to work and sacrifice for the protection of this unique coastal environment that both defines us and supports us. The State of the Bays report demonstrated that the sacrifices made to clean up pollution are bearing fruit, but that great strides are still needed for the Bays.

This year, your support will allow those strides to continue. Efforts to restore underwater bay grass meadows and oyster reefs will increase. Stakeholders will come together to determine how oyster aquaculture can work for everyone using the Bays. And with your input the first ever update of our Comprehensive Conservation and Management Plan will be completed.

As the new Executive Director of the Center, I hope this is the first of many reports detailing the past years' numerous successes. As a scientist, the theme of this year's report, *By the Numbers*, is close to my heart. Numbers, in the form of good data, have a way of showing us the path forward. I intend to focus on numbers, both economic and environmental, to guide choices for how the Bays are restored and to diversify the funding that sustains us in this important work.

Finally, I'd like to take the opportunity to thank all of the folks who have been so supportive during the CIB's leadership transition this past year...the Board, our staff, and the amazing community of individuals who work with us on the Bays. I'm looking forward to a great year in which I get to know many of you better by listening to your interests and aspirations for your unique and beautiful Inland Bays.



Chris Bason, Executive Director

*"The 2011 State of the Bays Report provides the public with the most comprehensive assessment of the health of the Inland Bays yet. And it paints a picture of Inland Bays that are showing signs of recovery but facing great threats.*

*There is still a lot of work to do to protect and restore the Inland Bays. It will require the support and cooperation of all stakeholders and a spirit of innovation and commitment."*

# Citizen Science...



*Hundreds of shining silversides and mummichogs filled the seine net; the two most abundant species found in the 2011 survey.*

*Photo credit: Dennis Bartow*

*Photo Credit: Peggy Hepburn*

# Volunteers do the science on the Bays



Photo credit: Dennis Bartow

## 4<sup>th</sup> Annual Inland Bays Horseshoe Crab Survey Posts a Record Count

The 2011 count once again demonstrated that horseshoe crab spawning densities on Inland Bays beaches rival those found on the world-renowned Delaware Bay beaches. The surveys were conducted on dates around the New Moon and Full Moon May and June, and, at the James Farm beach, in July as well.

The annual survey is a partnership of the CIB and Dr. Doug Miller at the University of Delaware, College of Earth, Ocean and the Environment in Lewes. Graduate students from CEOE participate in the surveys and are using the data in their research.

### Horseshoe Crab Survey *By the Numbers*



**3,840** Horseshoe crabs—Highest one night count on June 1 under a New Moon

Number **1** site where most horseshoe crabs were counted—James Farm Ecological Preserve

**86** volunteers participated in the 2011 Survey collecting data at **7** survey sites on beaches around the Inland Bays.

## Inland Bays Inshore Fish Survey Launched

Mummichogs, bluefish, pipefish, and thousands of silversides were hauled to shore in seine nets all over the Inland Bays this summer—the first year of a long-term study of the fishes of the inshore areas of the Inland Bays.

Led by volunteer fish biologist, Ron Kernehan, teams of volunteers captured, counted, sized, and returned the fish to the Bays. The survey will provide information about the species of fish that use the inshore areas of the bays as nursery and/or adult habitat, and monitor how the numbers change as the bays change over time.

### Fish Survey *By the Numbers*



**39** volunteers worked on the study at **17** sites around the Bays

**47** species of fish were identified

**59,029** individual fish were counted

**54** juvenile striped bass counted—strongly suggesting that these commercially important fish are spawning in the tributaries of the Inland Bays!



Photo credit: Dennis Bartow

# Restoring Habitat...



*Once a ditch to convey stormwater runoff, this area was widened, deepened, and planted with native vegetation to detain runoff so that less sediment, nitrogen, and phosphorus enters Little Assawoman Bay. Photo credit: Chris Bason*

## Anchorage *By the Numbers*



**16** bioretention areas were constructed in the Coastal Highway median; each designed to trap and filter **0.15** pounds of phosphorus and **1.5** pounds of nitrogen annually.

**6,815** native plants were planted in the Sea Colony wetswale project area

## Anchorage Canal Project

Increases in bacteria concentrations, chemical contaminants, and changes in water flow have been found when watersheds of some estuaries reach 10% impervious surface coverage. We have crossed that threshold in two of our watersheds., Rehoboth and Little Assawoman Bay.

In partnership with South Bethany, Bethany Beach, Middlesex Beach, Sea Colony, and the DE Department of Transportation, a plan was developed to decrease the amount of untreated stormwater entering residential canals on Little Assawoman Bay.

Implementation began with a project to treat storm water from the Sea Colony high rise complex. Wet-swale bio-retention areas were created, and a series of infiltration pits were established along South Pennsylvania Avenue. In phase 2 of the project, 16 bio-retention areas were created in the median of Coastal Highway; designed to slow down and filter runoff from the highway.

# Acres restored on the land and in the Bays



Grass shrimp is one of many species that use eelgrass habitat; others include blue crabs, bivalves such as hard clams, gastropods (snails), and numerous fish species, such as winter flounder, tautog and cod. Photo credit: John Carroll

## Bringing Back the Grasses

By the late 1970's, eelgrass could not be found in the Inland Bays. Restoration efforts in the 1990's yielded only one acre of eelgrass, but conditions for bay grasses appear to have improved in parts of Rehoboth and Indian River Bays.

In response, the CIB is stepping up efforts to restore this critical habitat by identifying favorable areas for eelgrass reestablishment, and testing techniques for seeding and planting.

Eelgrass seed collected in Sinepuxent Bay just south of Ocean City, Maryland that was planted in the Inland Bays.

Photo credit: E.J. Chalabala

## Eelgrass

### By the Numbers



**120,000** eelgrass seeds were planted in the Rehoboth and Indian River.

The Maryland Coastal Bays south of the Inland Bays had over **10,000** acres of bay grass in 2006.

## Work continued this year to restore wetlands in the Great Cypress Swamp

At 10,000 acres, the Great Cypress Swamp along Delaware's southern border is the largest remaining contiguous tract of forest on Delmarva, and supports state endangered bird species and globally rare insects and plant communities. It is owned and managed by Delaware Wild Lands, our partner on a project to restore wetlands and re-establish native Atlantic White Cedar to the swamp.

The Great Cypress Swamp is the headwaters of Pepper Creek and Vines Creek, two tributaries of the Bays so the hydrologic restoration aims to improve water quality in the Inland Bays.

## Acres Restored at Great Cypress Swamp

### By the Numbers



**47,000** Atlantic White Cedars were planted on a **47** acres section of the swamp.

In pre-Colonial times, the Great Cypress Swamp covered more than **60,000** acres, from western Sussex County to the Atlantic coast.



Photo Credit: Sally Boswell



*Above: A 5th grader collects macro invertebrates in her net to learn about the ecology of the headwater ponds and streams of the Inland Bays.*

*Photo credit: Dennis Bartow*



*Left: Students at E. Millsboro Elementary test the waters in their Schoolyard Habitat.*

*Photo credit: Dennis Bartow*

# More than 3,000 children had a watershed experience in 2011



Four students from the Southern Delaware School for the Arts identify the plant and animal species in the salt marsh to study the salt marsh food web *Photo credit: Karen Knight*

At the James Farm Ecological Preserve and Ingram Pond Outdoor Education Center, at the Bethany Beach Nature Center and at schools throughout the watershed, thousands of children learned about the Inland Bays watershed, in their schoolyard habitats, their classrooms, on the Bays and in their communities.

Our on-going partnerships with the Indian River School District and the Bethany Beach Nature Center have helped us give thousands of students 'hands-on' watershed experiences.

## Education

### *By the Numbers*



**750** 7<sup>th</sup> & 8<sup>th</sup> grade students from Millsboro Middle School, Georgetown Middle School and the Southern DE School of the Arts attended the James Farm Watershed Education Program in 2011.

**850** 5<sup>th</sup> grade students from Indian River School District received instruction in water quality analysis and collected data for the international database World Water Monitoring Day in 2011.

More than **841** children and their families attended the Saturday morning program and Friday afternoon programs at the Bethany Beach Nature Center in 2011.



45 children and their families helped plant the demonstration rain garden, one of a 1000 Rain Gardens for the Inland Bays at the Bethany Beach Nature Center.

*The programs at the Nature Center are a partnership between the Town of Bethany Beach and the Center for the Inland Bays.*  
*Photo Credit: Sally Boswell*



# Thanks! Your support is essential to healthy Inland Bays.

## GRANTS AND CONTRACTS

The Chichester duPont Foundation  
Delaware Clean Water Advisory Council Community Water Quality Grants Program  
Delaware Department of Agriculture, Forest Service  
Delaware Department of Natural Resources and Environmental Control, Division of Fish and Wildlife  
Delaware Department of Natural Resources and Environmental Control, Division of Parks and Recreation  
Delaware Department of Natural Resources and Environmental Control, Division of Watershed Stewardship  
Delaware State University  
Ducks Unlimited  
Natural Resources Conservation Service  
State of Delaware, Division of Motor Vehicles  
Town of South Bethany  
U.S. Environmental Protection Agency  
University of Delaware Sea Grant College Program  
Wesley College, Environmental Studies Program

## EVENT SPONSORS

Artesian Water Company  
Atlantic Refrigeration and Air Conditioning  
Bank's Wines and Spirits  
Delaware Department of Natural Resources and Environmental Control  
Delaware Seashore Preservation Foundation  
Delmarva Power  
Green Stone Engineering  
The Greene Turtle Restaurants  
Gary and Barbara Jayne  
NRG Indian River Power Plant  
Susan Moerschel and John Schneider  
Perdue Farms Inc.  
PNC Bank  
Red Bull America  
South Bethany Property Owners Association  
The Starboard

## BUSINESSES FOR THE BAYS MEMBERS

Alesi Construction & Renovation  
AMI  
Artesian Water Company  
Atlantic Refrigeration and Air Conditioning  
Bank's Wines and Spirits  
Betty's Classic American  
Charitable Games of Delaware  
The Cottage Cafe  
Delaware Sports League  
Delaware Department of Natural Resources and Environmental Control  
Delmarva Power  
Drace Insurance & Investment Services  
European Coach Werkes  
The Greene Turtle Ocean City North, Lewes and Salisbury

Green Stone Engineering  
Jake's Seafood House Restaurant  
Jake's Seafood II  
Jamshirtz  
John F. Kleinstuber & Associates  
Just Hooked  
NRG Indian River Power Plant  
Peninsula Dental  
Perdue Farms  
Port  
South Bethany Property Owner's Association  
The Starboard  
Surf Fishing Specialties

## \$1000 AND UP

Reverend Elizabeth Carl  
Charitable Games of Delaware  
Dewey Beach Lions Club  
Cynthia Flynn and Deirdre Boyle  
Barbara and George Junkin  
Just Hooked

## \$500 TO \$999

Becky Brewer  
Frances Hart  
Edward and Betsy Henifin  
In Honor of Elaine and Erik Rifkin  
Lillian and Montford Smith Family Fund  
Vickie York

## \$250-\$499

Thomas Adams  
Robert Crim and Suzanne Schwartz  
Edward D. Harner  
Ann Ludwig and David Dotzert  
Roy and Diane Miller  
Rehoboth Bay Foundation  
Edward Seyfried  
Bob and Mary Ellen Williams

## \$150-\$249

Mark and Joanne Anderson  
Mary Appollina and Pamela Petill  
Lisa Aramony  
In Memory of Garylee Cox  
Glenn and Madolyn Dallas  
Richard and Wanda Drnec  
Richard Fisher  
William Janson and Lori Shmukler  
Robert and Joanne Levy  
In Honor of Edward Henifin  
Mary Perkins and Kenneth Hooker  
In Memory of Kenneth Keller  
M.Q. Riding  
Nancy Steckel and Mark Caraccia  
Jim Stuart  
Jack and Maggie Tarburton

## \$75-\$149

Allan and Sue Allenspach  
Dennis and Anne Bartow  
Bob and Jo Batky  
Joanne and Jack Cabry  
David and Melinda Campbell  
Ed and Adele Chalabala  
William C. Clarke  
Beverly Corelle  
Pat and Terry Drizd  
Muns and Linda Farestad  
Margaret Forbes  
Robert and Trish Gable  
Bob Gallagher  
Tom and Cathy Greco  
Diane and Bill Hanson  
Mary Harahan  
Cynthia and Robert Hibbert  
Terry and Martha Higgins  
Gerald and Karen Hirst  
Kathy Jankowski and Robert Youngs  
Diane and Michael Kane  
Pete and Pat Keenan  
The Kiker Family  
John Kramer  
Katherine and Edward Lambert  
James C. Mankin  
Midway Lions Club  
Jean Morrison and Greg Knott  
Thomas and Mary Jo Murphy  
Lord Baltimore Women's Club  
Margaret LoVergine  
Sharon Lynn  
Mari Noster  
Alan Perantoni and Tracie Bunton  
Michael Polovina  
Ron Riegert  
Nancy Sager  
Paula Schneider  
Robert Schumm  
Joanne Shipley  
David and Cynthia Small  
Jan and Greg Thompson  
Rosalind Troupin  
William Ullman  
Joan Wallace  
Norine and George Watson  
Ed Whereat

## UP TO \$75

Jennifer Adkins  
Lynn and David Andrews  
Colin and Elizabeth Anolick  
Richard and Kathleen Brady  
Chris Bason and Chantal Bouchard  
Sally Boswell  
Lawrence A. Brown  
David and Melinda Campbell  
E.J. and Autumn Chalabala  
Glenn Christman  
Chris Clark  
John Cristea  
Henry Cohan  
William Cooper

Diana Cowell  
Bob Cubbison  
Michael Daniels  
Sharon and Tony Darden  
David and Linda Davidson  
Letitia Diswood  
Kevin Donnelly  
Richard Eakle and Mary Ann Hess  
Bert Edwards  
Joe Farrell  
Dick and Sharon Fox  
T and Gene Fullerton  
F. Gregory Gause  
John and Susan Gelb  
Lisa and Brad Ginder  
Susan and Charles Goorevich  
Renee Grillo  
Karen Hammer  
Don and Carol Hasson  
Jay and Mary Headman  
Michael and Cynthia Headman  
Ivy and Larry Hecker  
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Michelle Higgins  
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Ann Hobbs and Terry Noon  
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Denise Hoeksema  
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Dorothy and Patricia Jones  
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Kathy Krafft  
Hugh and Kathleen Leahy  
William S. Lee  
Robert Levy  
Edward and Barbara Lewandowski  
Eric Lienhard and Heidi Splane  
David Ludlow  
Anna Marsch  
Joseph and Carey McDaniel  
Ceda McGrew  
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Albert and Janice Osterholm  
Doug and Jan Parham  
Bruce and Myra Patner  
Larry and Sally Persa  
Carlo Pollio  
Amy Roe  
Cheryl Rehrig  
Virginia Rex  
Joan and James Rich  
Thomas and Felicetta Ryan  
John and Christine Sadowski  
Ellen Saether  
Chuck Schonder  
Robert Smiles  
Senator Liane Sorenson  
Michael and Donna Thomas  
Shuli Tor  
Dell and Larry Tush  
David Vineberg  
Pamela White  
James Williams  
Lisa Wool

## Statements of Assets, Liabilities and Fund Balances—Accrual Basis

September 30, 2011 and September 2010

### ASSETS

Current Assets	2011	2010
Cash	\$ 341,534	\$ 466,123
Grants receivable	190,000	—
Unbilled receivables	12,909	17,405
<b>Total Current Assets</b>	<b>544,443</b>	<b>483,528</b>
<b>Property and Equipment</b>		
Land	125,000	125,000
Building	872,508	872,508
Furniture and equipment	469,517	442,890
	1,467,025	1,440,398
Less accumulated depreciation	(451,472)	(398,589)
<b>Total Property and Equipment</b>	<b>1,015,553</b>	<b>1,041,809</b>
<b>Other Assets</b>		
Delaware Community Foundation Endowment Fund	68,267	70,145
<b>Total Assets</b>	<b>1,628,263</b>	<b>1,595,482</b>

### LIABILITIES

Current Liabilities	2011	2010
Accounts Payable	\$ 15,423	\$ 9,674
Accrued Salaries	21,964	36,971
Payroll taxes withheld	1,738	1,218
<b>Total Current Liabilities</b>	<b>39,125</b>	<b>47,863</b>

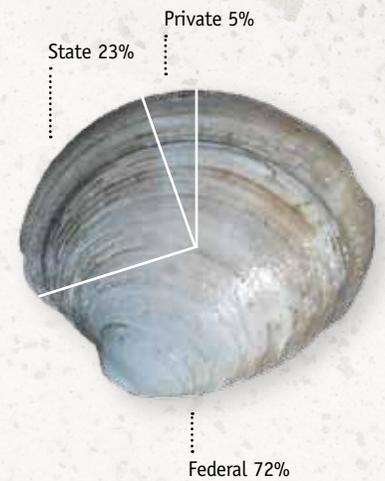
### NET ASSETS

Unrestricted		
Board designated	68,267	70,145
Invested in property and equipment	890,553	916,809
Undesignated	315,318	293,165
<b>Total unrestricted</b>	<b>1,274,138</b>	<b>1,280,119</b>
Temporarily restricted	190,000	142,500
Permanently restricted	125,000	125,000
<b>Total Net Assets</b>	<b>1,589,138</b>	<b>1,547,619</b>
<b>Total Liabilities and Net Assets</b>	<b>\$1,628,263</b>	<b>\$1,595,482</b>

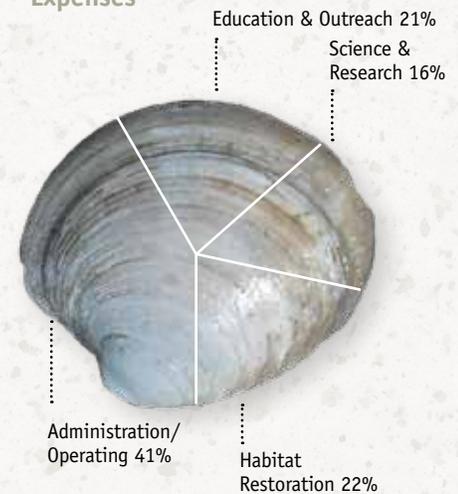
The Delaware Center for the Inland Bays is a nonprofit 501(c)(3). We need tax-deductible donations to support our work.

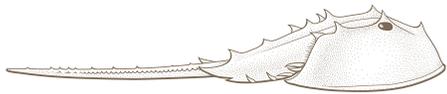
## 2011 Operating Budget

### Revenue



### Expenses





Delaware Center for the Inland Bays

39375 Inlet Road  
Rehoboth Beach, DE 19971

Return Service Requested

Nonprofit Org  
U.S. Postage  
PAID  
Wilmington, DE  
Permit No. 674



*"The estuary defines our lives today as it has for generations before us. The tributaries, farm fields, mill ponds and marshes have nourished us with their harvests and humbled us with their beauty. As farmers, we view the watershed as a life-sustaining tapestry—a back drop for our daily joys and struggles.*

*The Inland Bays enrich the lives of all of you as well, whether you are a teacher, a developer, a land manager, a county council member, a conservationist, a business owner or a legislator. It makes no difference whether you were born here or have chosen to call this piece of sand and salt and woods your own. You deserve this. But it is not free. It comes with a price. That price is a duty to preserve and protect the watershed for untold generations to come.*

*My husband and I have owned and operated Bennett Orchards for over 25 years. Our sons are the sixth generation of Bennett's to till this ground. We are a designated Delaware Century Farm. We are Sussex Countians. We are vested in the watershed."*

**Carrie Bennett...presented at the State of the Bays Press Conference on September 23, 2011.**