

# Endangered Species Monitoring - Northern Coastline of New Jersey

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New York District  
Planning Division



*Richard Kuzminski*

*Young Piping Plover Chick*

# Presentation Format

- Project History
- Biological Monitoring Program
- Threatened & Endangered Species
- Piping Plover Stewardship Actions
- Piping Plover Data
- Piping Plover Data Results & Conclusions
- Future Stewardship Measures
- Interagency Team POCs

Photo by Dr. Steven Pinker

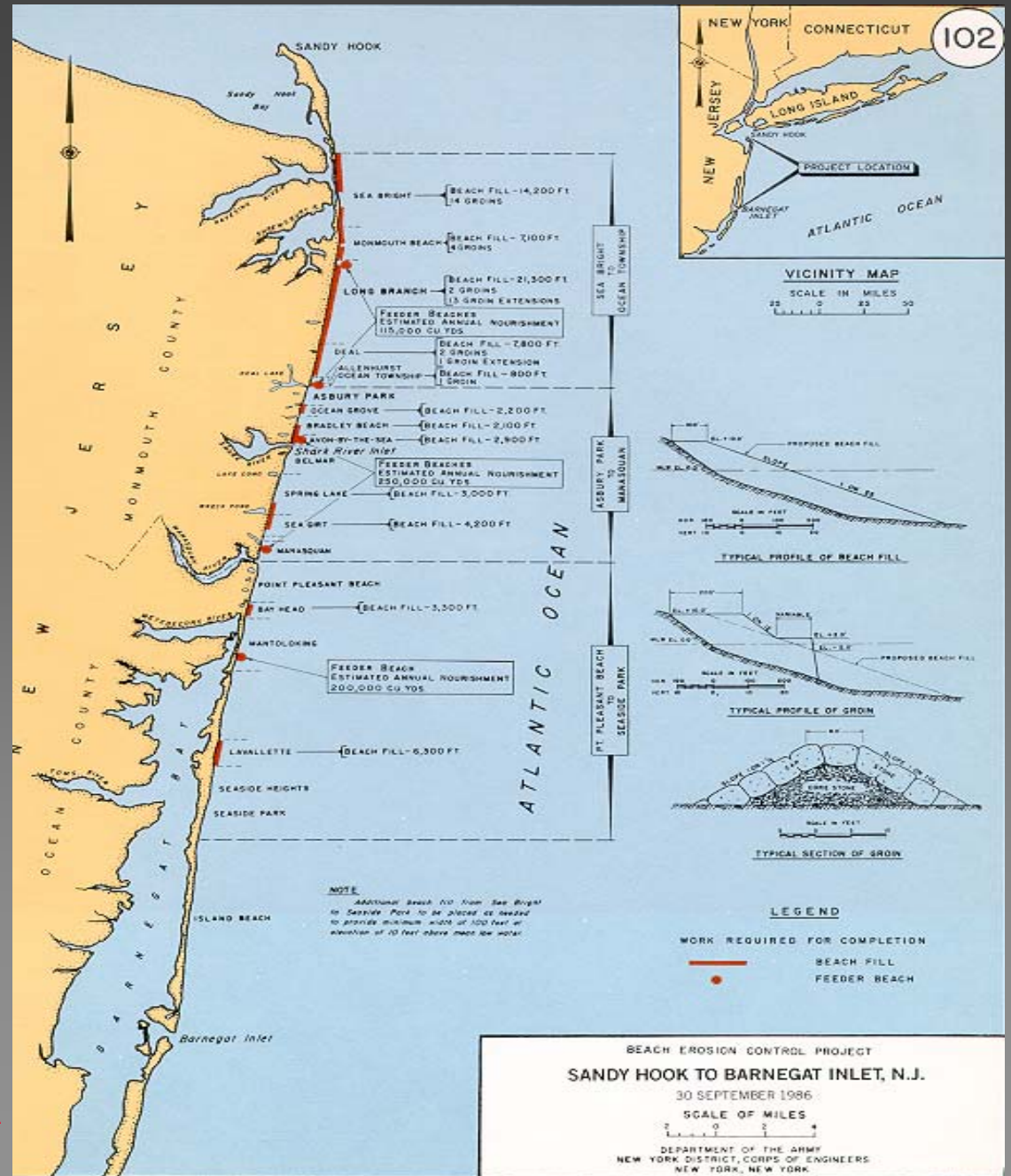


**Biological Monitoring Program  
Beach Erosion Control Project  
Atlantic Coast of New Jersey  
Section I – Sea Bright to Ocean Twp.  
Section II - Asbury Park to Manasquan**

Photo by Dr. Steven Pinker



**Project Area**  
 ~ 21 miles of coastline



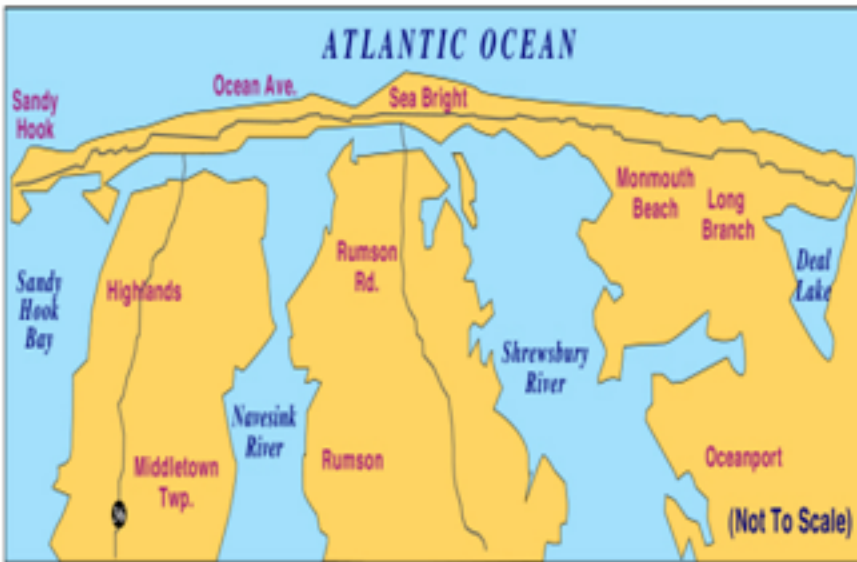
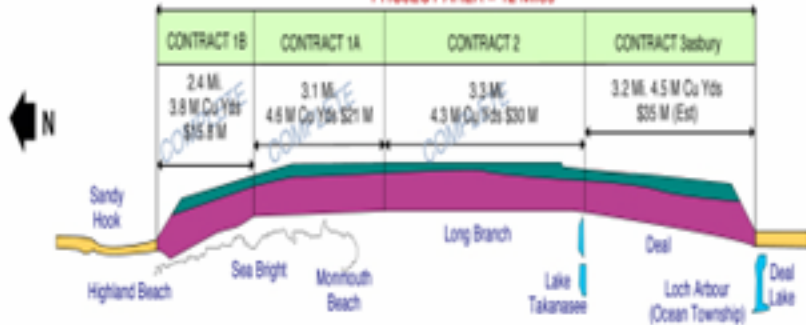
# Sandy Hook to Barnegat Inlet Beach Erosion Control Project

## Section I - Sea Bright To Ocean Township, New Jersey

US Army Corps of Engineers  
New York District

- Initial Fill - 100' Berm @ B. +10 MLW/2' Cap
- Advance Fill - 38' Wide Over Entire 12 Mi. Project Area

PROJECT AREA = 12 Miles



Approximately 12 miles in length



US Army Corps of Engineers  
New York District

# Sandy Hook to Barnegat Inlet Beach Erosion Control Project

## Section II - Asbury Park to Manasquan, New Jersey

Project Area = 9 Miles

ATLANTIC OCEAN



CONTRACT 2 (Complete)

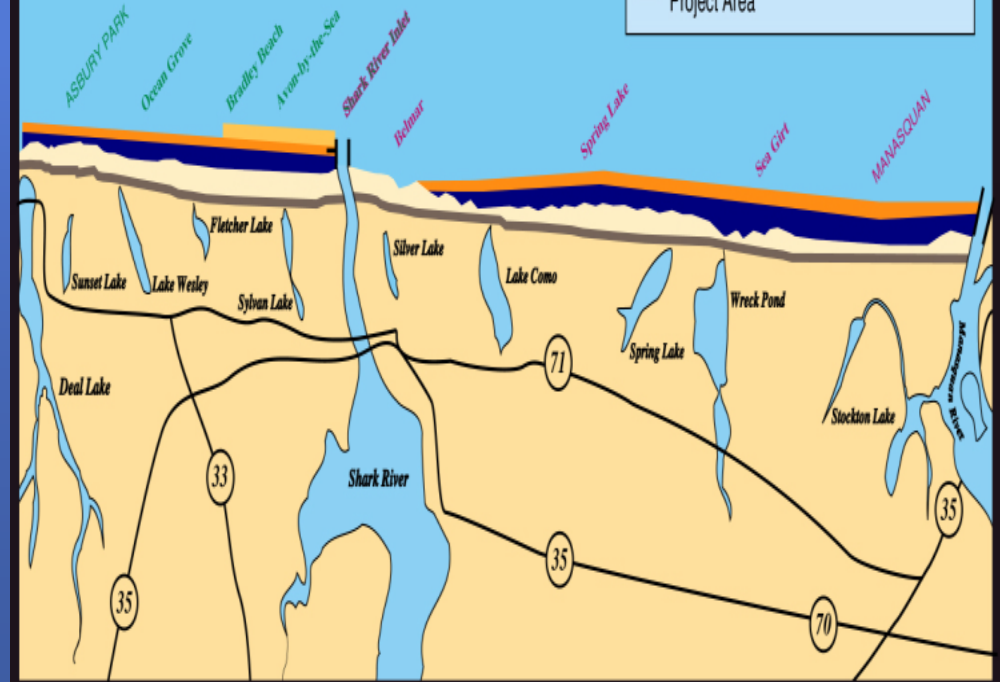
Asbury Park to Shark River Inlet  
3.1 Miles 3.1 million Cu. Yds.  
Cost: \$24 million

CONTRACT 1 (Complete)

Shark River Inlet to Manasquan  
5.9 Miles 4.1 million Cu. Yds.  
Cost: \$29.0 million

LEGEND

- Initial Fill - 100' Berm @ +10 MLW/2' Cap
- Advanced Fill - 38' Wide Over Entire 9 Mi. Project Area



Approximately 9 miles in length



# Construction Completion Dates & Cost



**Monmouth Beach (MB) – November 1995**

**Sea Bright (SB) – December 1996**

**Asbury Park to Avon-By-The-Sea – October 1997**

**Long Branch – December 1998**

**Belmar to Manasquan – December 1999**

**1<sup>st</sup> Renourishment (MB and SB) – November 2002**

**Deal, Loch Arbour, Allenhurst – Awaiting Construction**

**To Date ~ \$200 million Project Cost (Feasibility, PED & Construction)**

**Federal \$130 million (65%)**

**Non-Federal \$70 million (35%)**

**~ 19.5 million cubic yards of sand placed**



# Biological Monitoring Program Interagency Partners



## Scoping

## Study

CENAN

CENAN

ERDC

ERDC

USFWS

USFWS

NJDEP, DFW

NJDEP, DFW

NMFS

Rutgers University

USEPA

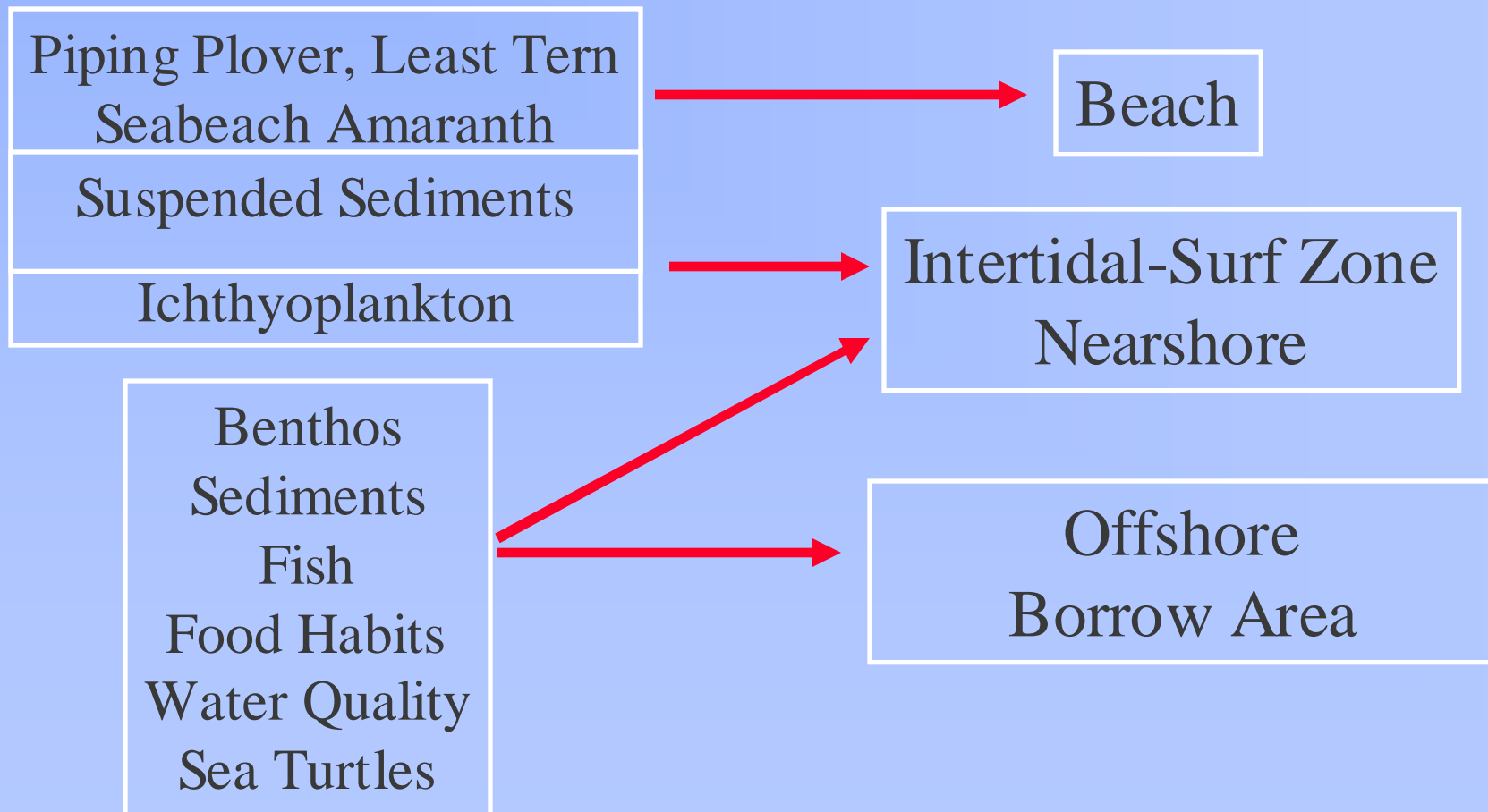


# Biological Monitoring Program



## Component

## Habitat





## **Piping plover** (*Charadrius melodus*)

Status: Federal – Threatened &

Migratory Bird



### **Adult Plover on a Nest**

Photo by USFWS, Midwest



### **Plover Chick**

Photo by Dr. Steven Pinker



**Least tern** (*Sterna antillarum*)

Status: Federal - Migratory Bird

New Jersey - Endangered



**Least tern 9-year (1996-2004) Estimated Totals**

**Peak Adults – 5517**

**Peak Adult Pairs Sitting – 3060**

**Fledges – 2825**

Data collected and compiled by NJDEP, Division of Fish and Wildlife –  
Endangered and Nongame Species Program

Photos courtesy of Atlantic Highlands Herold

# Vegetative Success

## Looking in a Southern Direction at the Border of Sea Bright & Monmouth Beach



1996, 1 yr  
post-construction



2000, 5 yrs post-construction



2001, 6 yrs post-construction

# ENDANGERED SPECIES OFFSHORE BORROW AREA



## ◆ SEA TURTLE COMPONENT

- 3000 Loads monitored

1 Take - Juvenile Loggerhead 1996

- June 15 to November 15
- 50% monitoring
- 100% overflow and inflow screening
- Hopper dredges only
- NMFS Biological Opinion

## Kemp's ridley (*Lepidochelys kempii*)

Status: Federal - Endangered



Photos Courtesy NOAA and USFWS

## Loggerhead (*Caretta caretta*)

Status: Federal - Threatened



Photo Courtesy South Carolina DNR

# Seabeach amaranth (*Amaranthus pumilus*)

Status: Federal - Threatened



Seabeach Amaranth - Seedlings  
(*Amaranthus pumilus*)



Seabeach Amaranth  
(*Amaranthus pumilus*)



Seabeach amaranth (*Amaranthus pumilus*)

Photograph, USFWS / Gene Nieminen 2003

Photos Courtesy of the USFWS



# Seabeach amaranth – Rediscovered in 2000 (~90 yr. absence)



By: Dag Madara, Geographer; USACE



**Seabeach Amaranth**  
*(Amaranthus pumilus)*

## Number of Plants

	<b>MCN</b>	<b>MCS</b>	<b>Total</b>
<b>2005</b>	2344	0	2344
<b>2004</b>	5039	32	5071
<b>2003</b>	4393	11	4404
<b>2002</b>	9901	92	9993
<b>2001</b>	5183	23	5205
<b>2000</b>	919	0	919
<b>Total</b>	<b>27,779</b>	<b>158</b>	<b>27,936</b>
<b>Average/Yr.</b>	4630	40	4670

Photo and Data collected and compiled by the USFWS



## Piping Plover Actions To Date

- ✓ **Plover Monitoring & Stewardship - 1996 to Present**
- ✓ **ESA USFWS Biological Opinion - September 2002**
- ✓ **Streamlined Biological Opinion – April 2004**
- ✓ **Funding 1996 to Present ~ \$600,000**
  - USACE ~ \$200,000**
  - USFWS ~ \$400,000**





# Plover Stewardship Action – Educational Signs

Photo by USACE

7/7/20



# Plover Stewardship Action Symbolic Fencing

Photo by USACE

7/7/2000



## **Plover Stewardship Action – Predator Exclosure Cage**

Photo by USACE



## Plover Stewardship Action – Local Mgmt Plans



➤ **USFWS & NJDEP, DFW – Lead (T. Pover; D. Jenkins)**

➤ **USACE – Environmental Operating Principals**

**Support, but not a Requirement**

➤ **Sea Bright, Monmouth Beach, Sea Girt, NJNGTC**



Photos by Dr. Steven Pinker





# Piping Plover Nesting Locations



## ➤ **Monmouth County North (MCN)**

Sea Bright North (SBN) – 1998 to Present

Sea Bright South (SBS)/Monmouth Beach North (MBN) - 1997 to Present

Monmouth Beach South (MBS) – 2000 to 2002

Seven Presidents Oceanfront Park – 2003 to Present

Long Branch - 2003

## ➤ **Monmouth County South (MCS)**

Sea Grit/NJ National Guard Training Center - 2002

Sea Grit/Wreck Pond – 2003 to Present

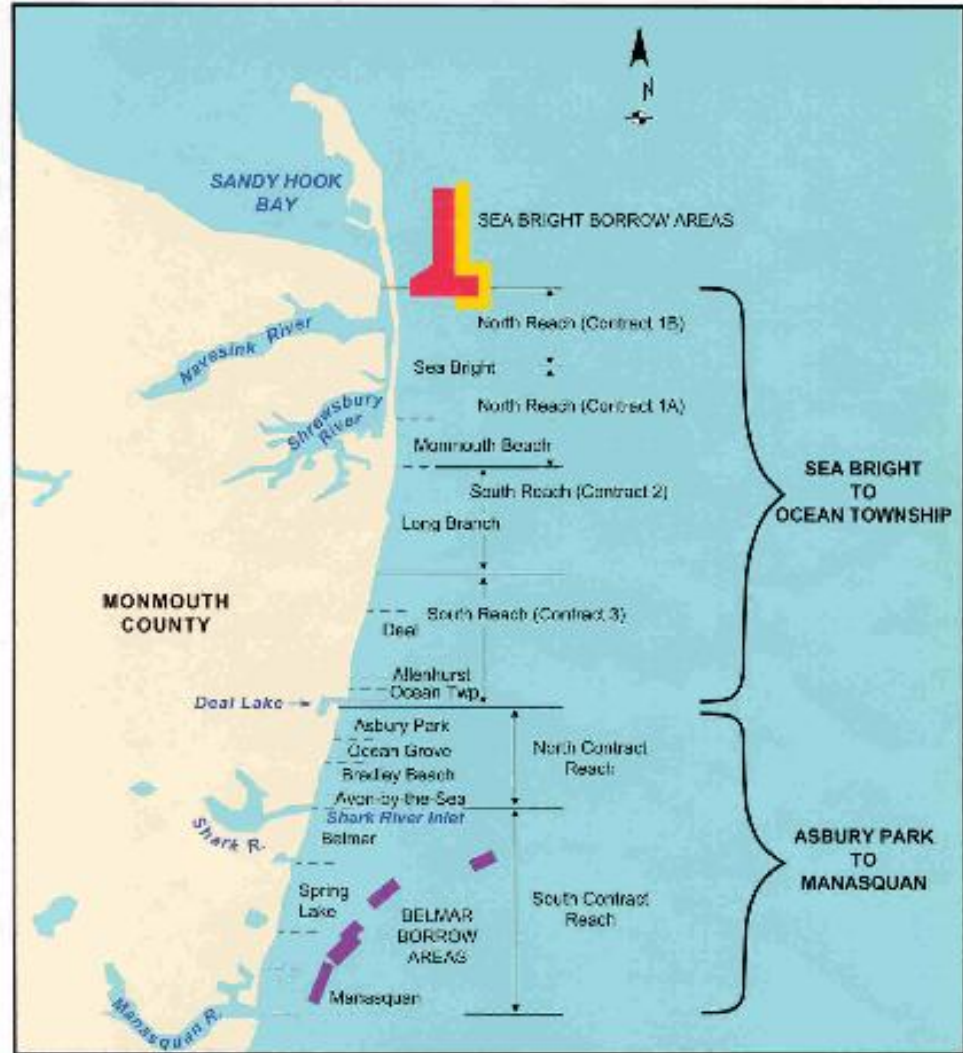


Photo by USFWS/Midwest



# Project Area

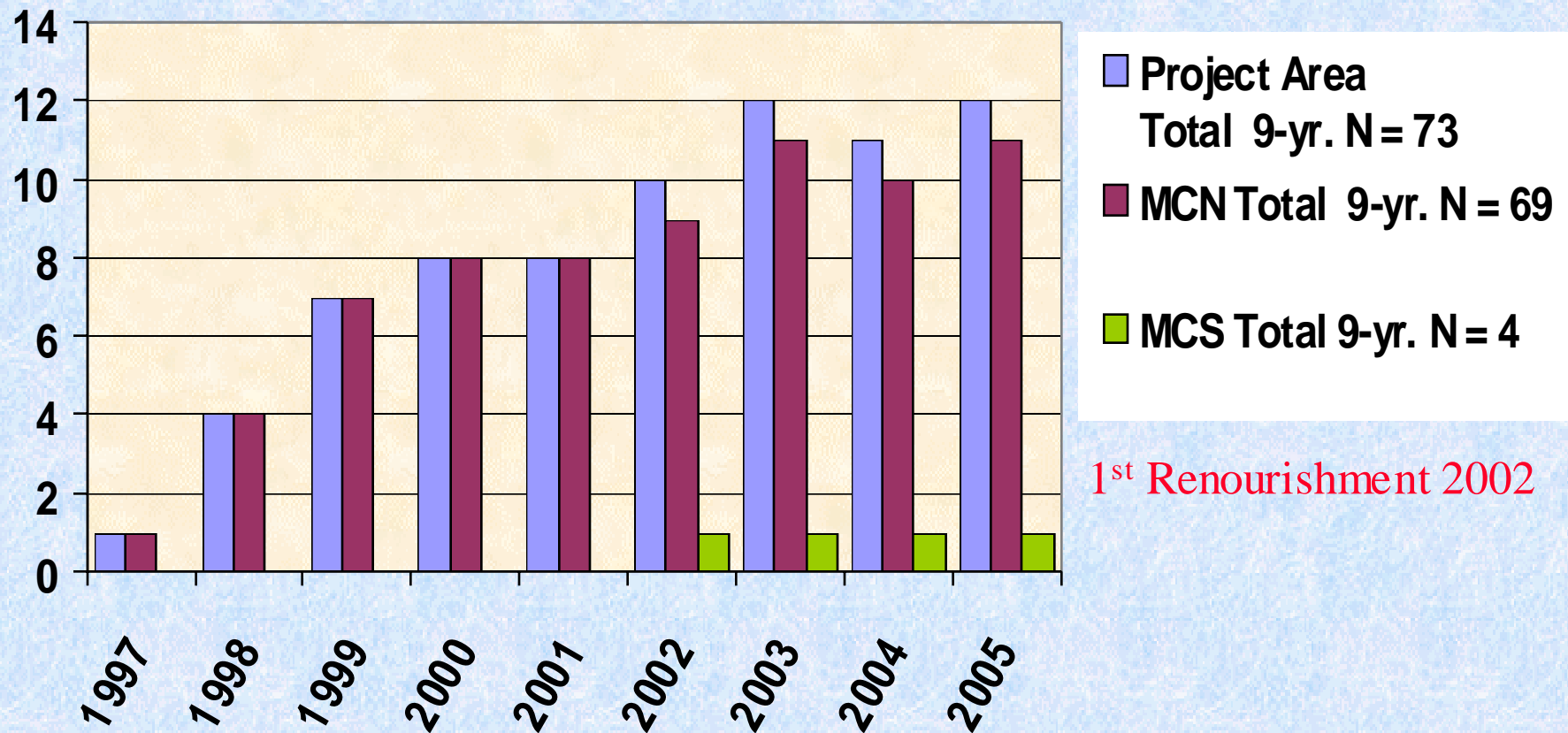
~ 21 miles of coastline



Borrow area locations for the Sea Bright to Manasquan projects.



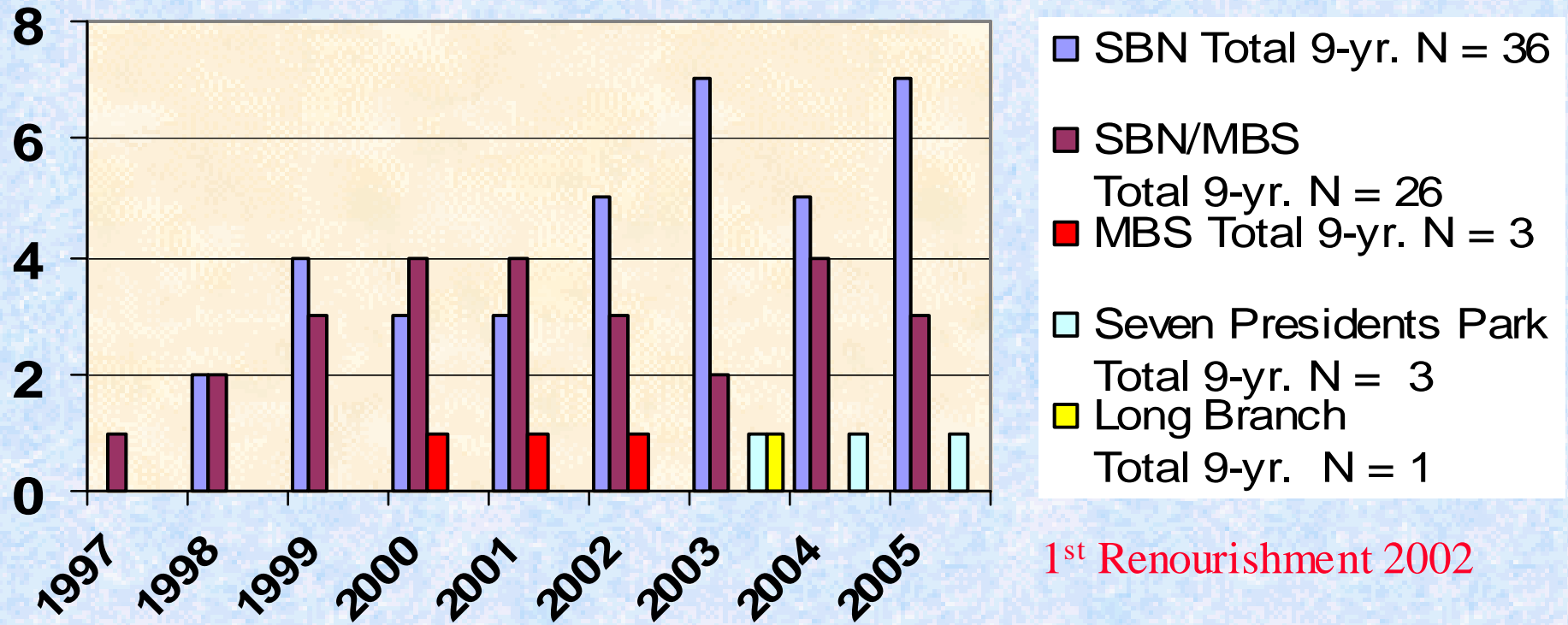
## Piping Plover - Number of Nesting Pairs / Year



Data collected and compiled by NJDEP, Division of Fish and Wildlife – Endangered and Nongame Species Program



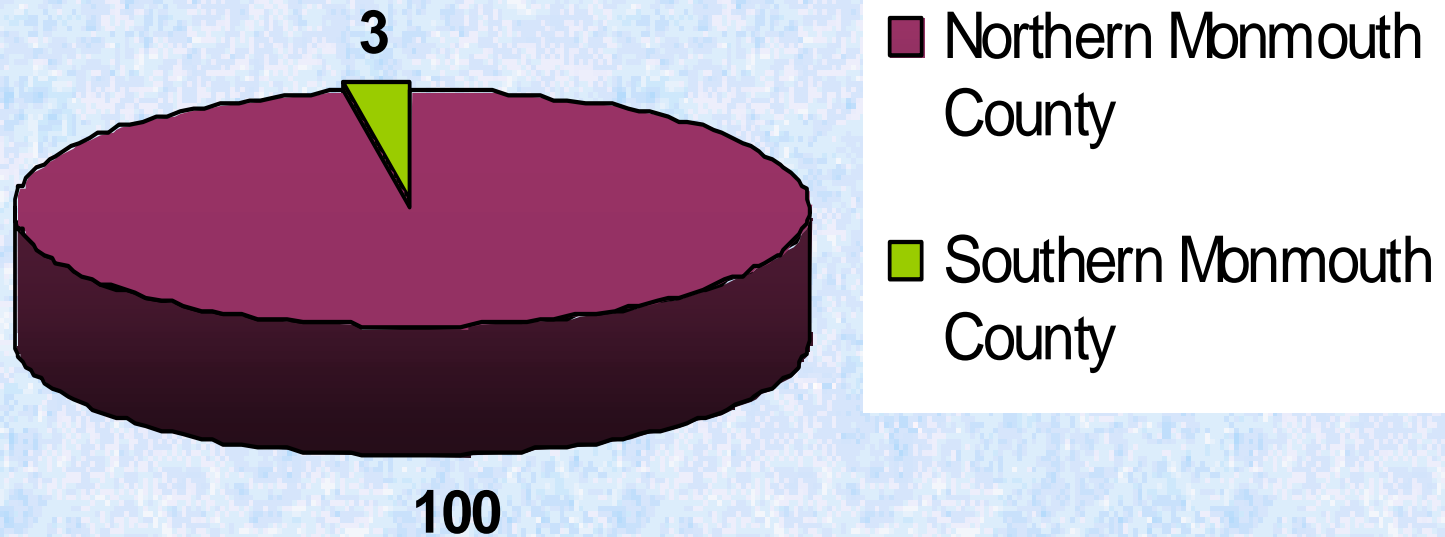
## Northern Monmouth County - Number of Nesting Pairs / year







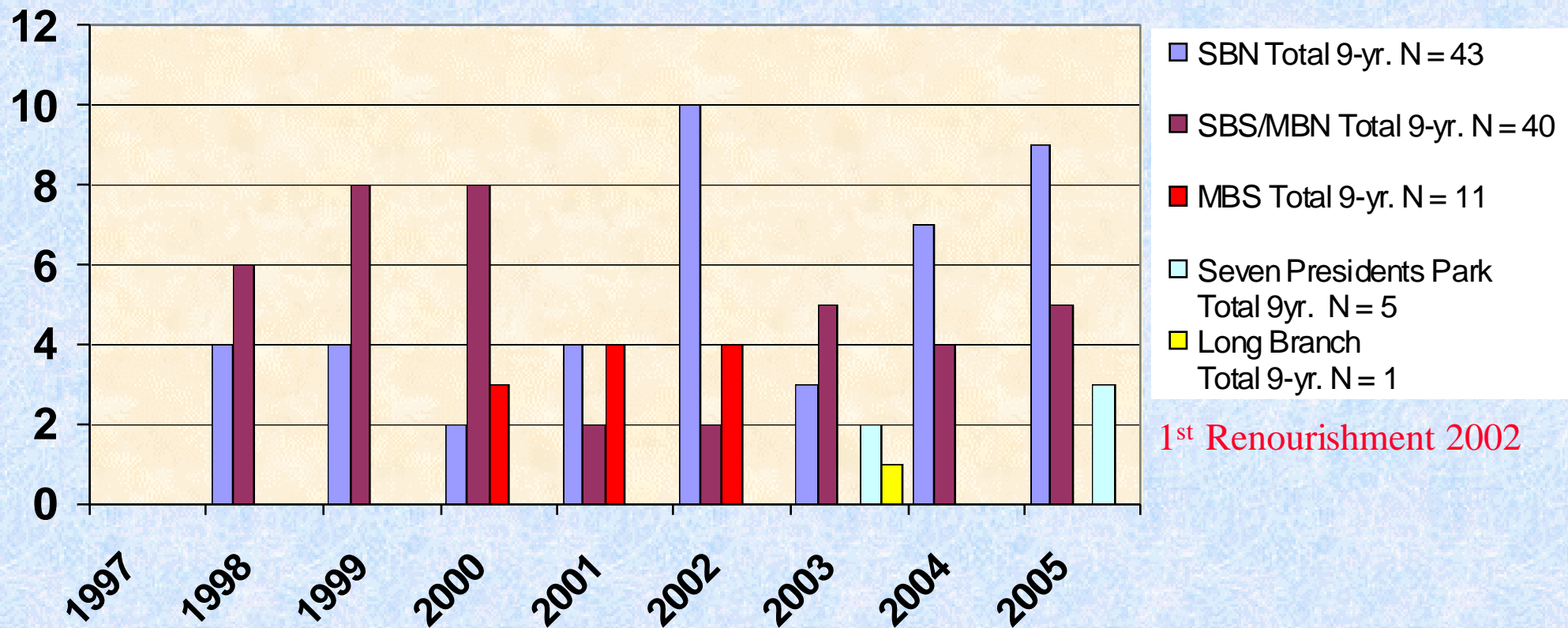
## Piping Plover: 9-year (1997- 2005) Total Number of Fledges



Data collected and compiled by NJDEP, Division of Fish and Wildlife – Endangered and Nongame Species Program



## Northern Monmouth County - Number of Fledges / Year





## Piping Plover - Fledging Rate (# of Fledged Chicks / Nesting Pair)

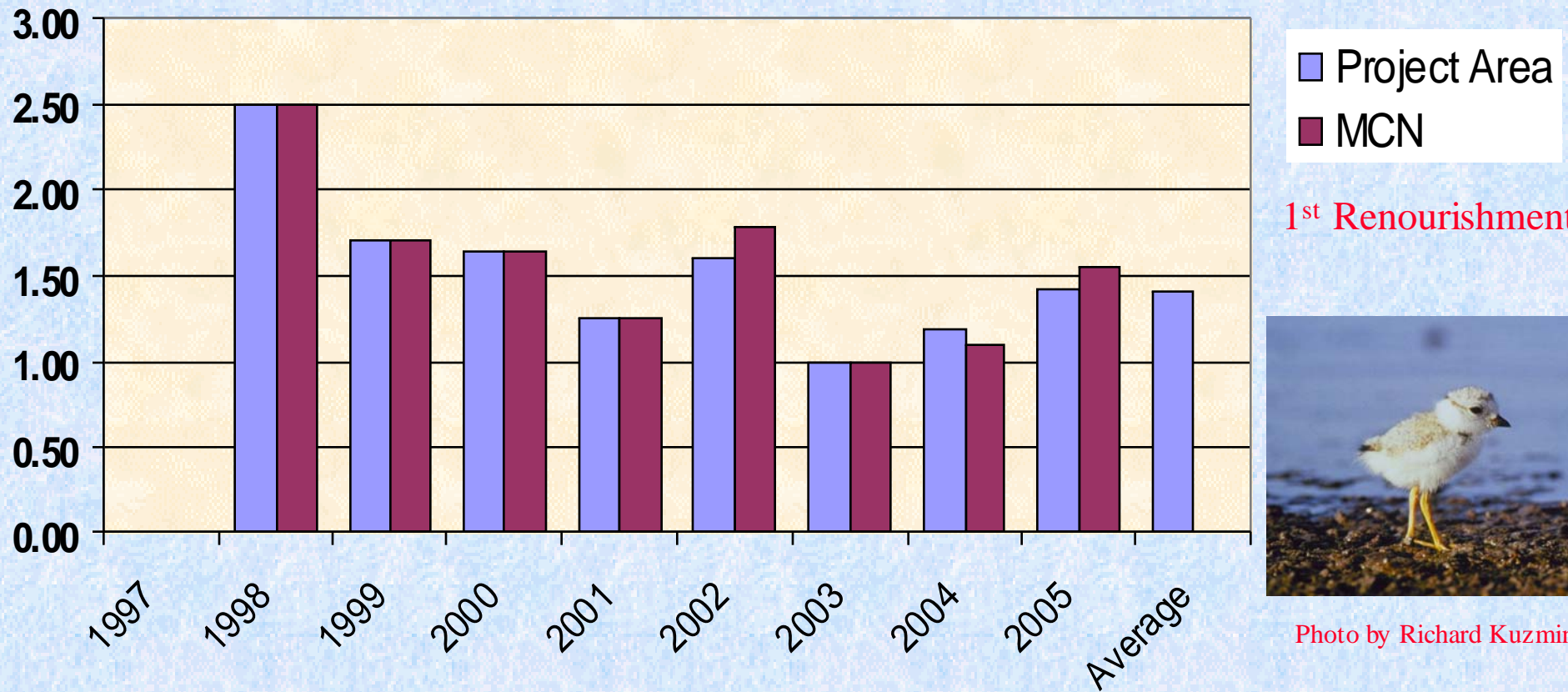
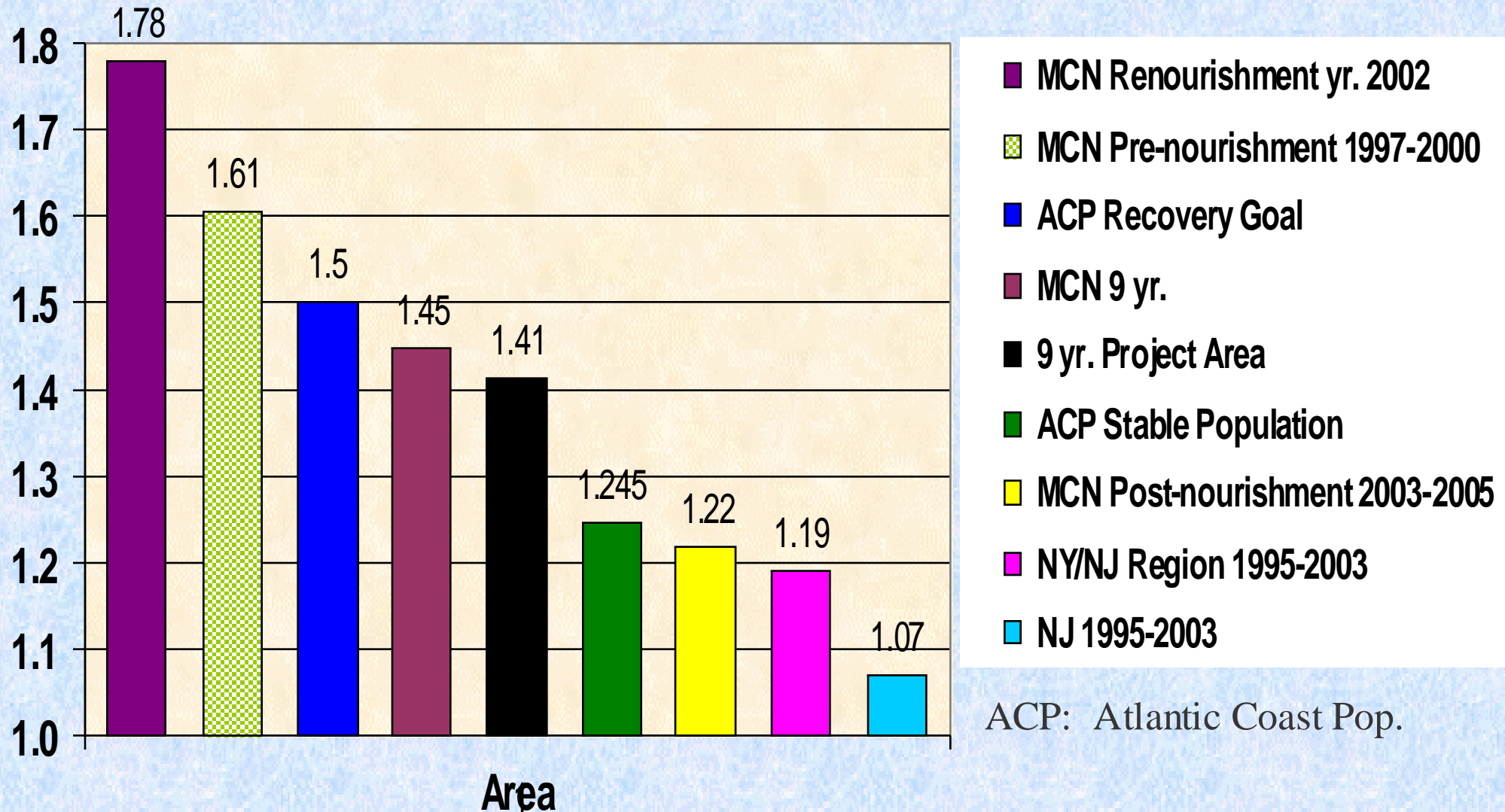


Photo by Richard Kuzminski

# Piping Plover - Fledging Rate (# Fledged Chicks/Nesting Pair)



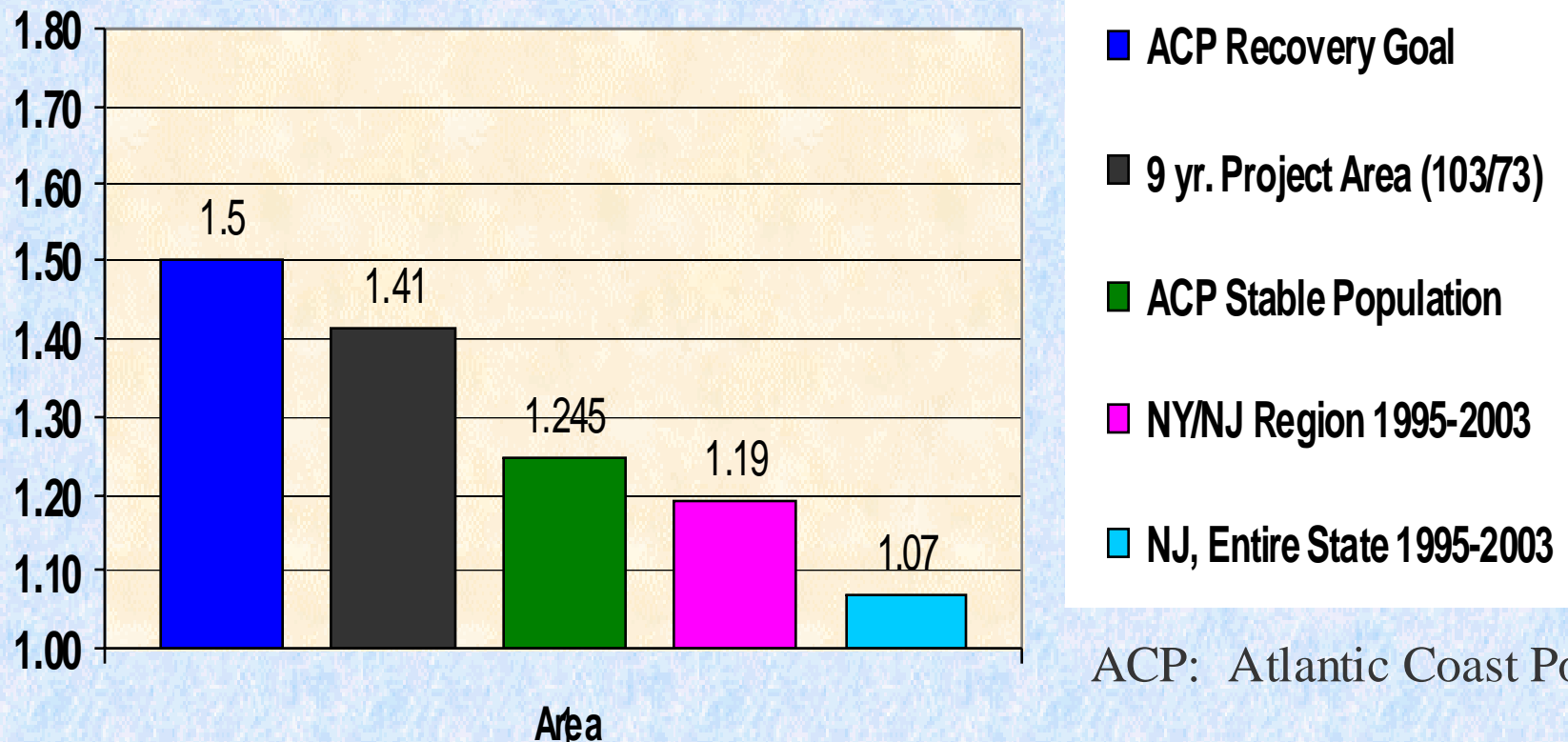
ACP: Atlantic Coast Pop.



# Comparison of Fledging Rates



## Piping Plover - Fledging Rates (# Fledged Chicks / Nesting Pair)



Data collected and compiled by NJDEP, Division of Fish and Wildlife – Endangered and Nongame Species Program



# Piping Plover Stewardship Results

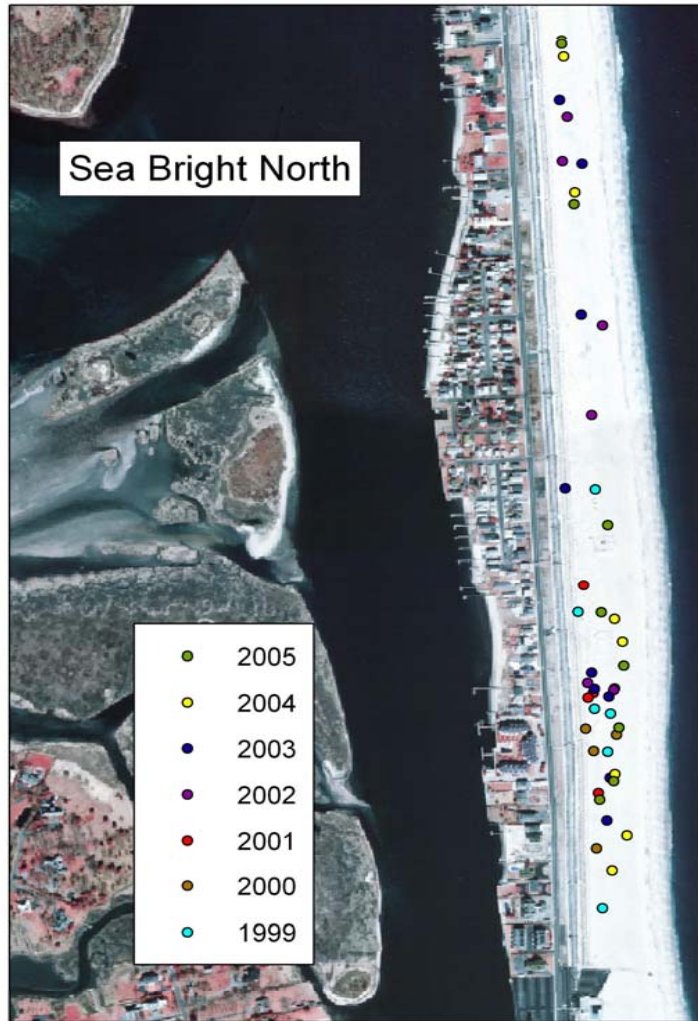


- ✓ 9-year Total # of Fledged Chicks (103) and Nesting Pairs (73)
- ✓ 9-year Productivity Rate of 1.41 is:
  - ~ to the ACP Recovery Goal of 1.50
  - > the ACP Stable Population Rate of 1.245
  - > the Entire NJ State Rate of 1.07 (1995-2003)
  - > the NY/NJ Regional Rate of 1.19 (1995-2003)
- ✓ Highest Number of Fledged Chicks was During Renourishment
- ✓ Majority of Nesting Occurs in Sea Bright and Monmouth Beach
- ✓ 9-year Stewardship Cost per Fledged Chick is ~ \$5,823.00
- ✓ Annual Stewardship Cost per Fledge Chick is ~ \$647.00
- ✓ Biomass Cost (Assuming 2 oz/chick) is ~ \$323.64/oz
- ✓ 9-year Stewardship Cost is 0.3% of the Total Project Cost to Date

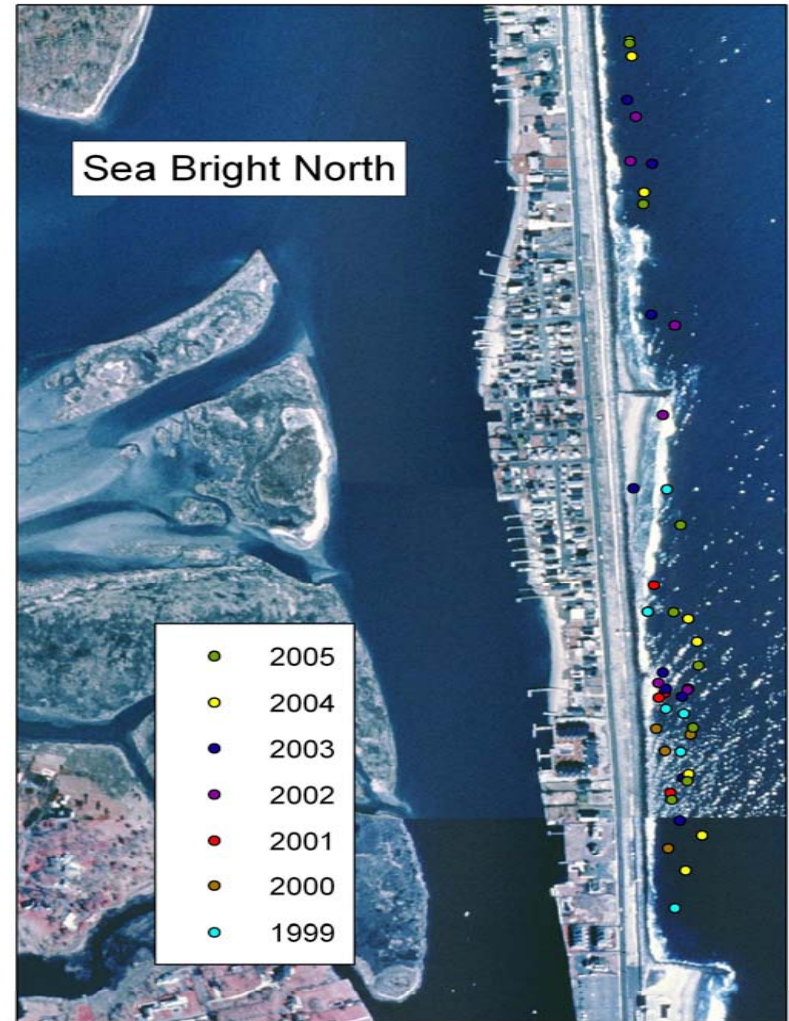


# CONCLUSION

## Can Beach Nourishment Benefit Piping Plovers?



After Nourishment - 2002



Before Nourishment-1994



# What's Next?



- ✓ **Continue Stewardship, Pending Availability of Funds**
- ✓ **Implement Local Management Plans**
- ✓ **Develop MOA with the NJDEP for Cost-Share Credit**
- ✓ **Implement Streamlined BO During Renourishments**

Photo by Dr. Steven Pinker





## Piping Plover - Interagency Team POCs



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