New York Bight Water Quality Monitoring Program

USEPA Region 2

Division of Environmental Science and Assessment

Helen Grebe, Regional Coastal Monitoring Coordinator

History

- 1974 program initiates
- 1976 massive algae blooms, fish kills, wash-up of debris
- 1977 sampling from a helicopter
- 1985 extensive low dissolved oxygen
- 1987 & 1988 extensive garbage wash-ups
- 1989 floatable surveillance began
- 1995 went contract
- 1996 “Coastal Crusader”
- 1998 EPA 1600

EPA
UNITED STATES
ENVIRONMENTAL PROTECTION AGENCY

EPA
N1079U

N5796T
EPA

Objectives: Region 2's Response to EPA's Mandated Responsibilities

Marine Protection, Research and Sanctuaries Act of 1972
Water Pollution Control Act Amendments of 1972 and 1977
Water Quality Act of 1987

Basic Networks

- The Beach Station Network - water quality data on swimmability.
- The Perpendicular Station Network - predict environmental crises
- The Floatables Surveillance Network - prevent floatable wash-ups
  - Develop Trends
  - Phytoplankton Sampling
  - Emergency Response, Oil Spill Response
  - Superfund/Wetland assessment
  - Educational/Public Outreach

Partnerships

- NJDEP & NYSDEC National Shellfish Sanitation Program
- DRBC Water Quality Program

- Time Frame: Pre-Memorial Day to Labor Day

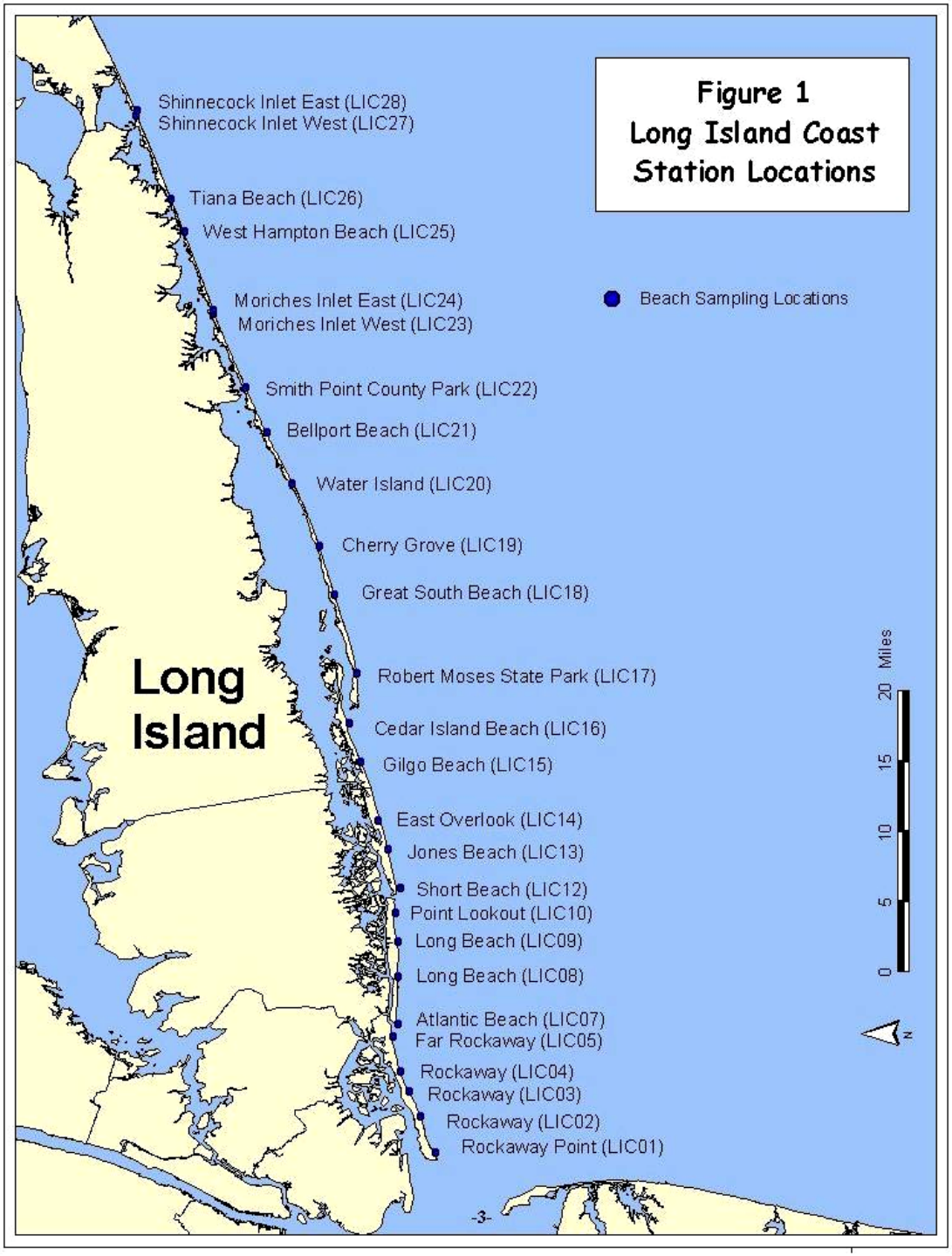


Figure 1
Long Island Coast
Station Locations
Beach Sampling Locations
Shinnecock Inlet East (LIC28)
Shinnecock Inlet West (LIC27)
Tiana Beach (LIC26)
West Hampton Beach (LIC25)
Moriches Inlet East (LIC24)
Moriches Inlet West (LIC23)
Smith Point County Park (LIC22)
Bellport Beach (LIC21)
Water Island (LIC20)
Cherry Grove (LIC19)
Great South Beach (LIC18)
Robert Moses State Park (LIC17)
Cedar Island Beach (LIC16)
Gilgo Beach (LIC15)
East Overlook (LIC14)
Jones Beach (LIC13)
Short Beach (LIC12)
Point Lookout (LIC10)
Long Beach (LIC09)
Long Beach (LIC08)
Atlantic Beach (LIC07)
Far Rockaway (LIC05)
Rockaway (LIC04)
Rockaway (LIC03)
Rockaway (LIC02)
Rockaway Point (LIC01)
Long Island
0 5 10 15 20 Miles
N

Figure 2
New Jersey Coast Station Locations
New Jersey
Sandy Hook (JC01A)
Sandy Hook (JC03)
Sandy Hook (JC05)
Sea Bright (JC08)
Monmouth Beach (JC11)
Long Branch (JC13)
Long Branch (JC14)
Asbury Park (JC21)
Bradley Beach (JC24)
Shark River Inlet (JC26)
Belmar (JC27)
Spring Lake (JC30)
Sea Girt (JC33)
North Manasquan Inlet (JC35)
South Manasquan Inlet (JC37)
Bay Head (JC41)
Mantoloking (JC44)
Silver Beach (JC47A)
Lavallette (JC49)
Seaside Heights (JC53)
Island Beach State Park (JC55)
Island Beach State Park (JC57)
Island Beach State Park (JC59)
Barnegat (JC61)
Harvey Cedars (JC63)
Ship Bottom (JC65)
Beach Haven Terrace (JC67)
Beach Haven Heights (JC69)
Brigantine (JC73)
Absecon Inlet (JC74)
Atlantic City (JC75)
Ventnor City (JC77)
Longport (JC79)
Ocean City (JC81)
Peck Beach (JC83)
Strathmere (JC85)
Sea Isle City (JC87)
Avalon (JC89)
Hereford Inlet (JC92)
Wildwood (JC93)
Two Mile Beach (JC95)
Cape May Inlet (JC96)
Cape May (JC97)
Cape May Point (JC99)
Beach Sampling Locations
0 10 20 Miles
N

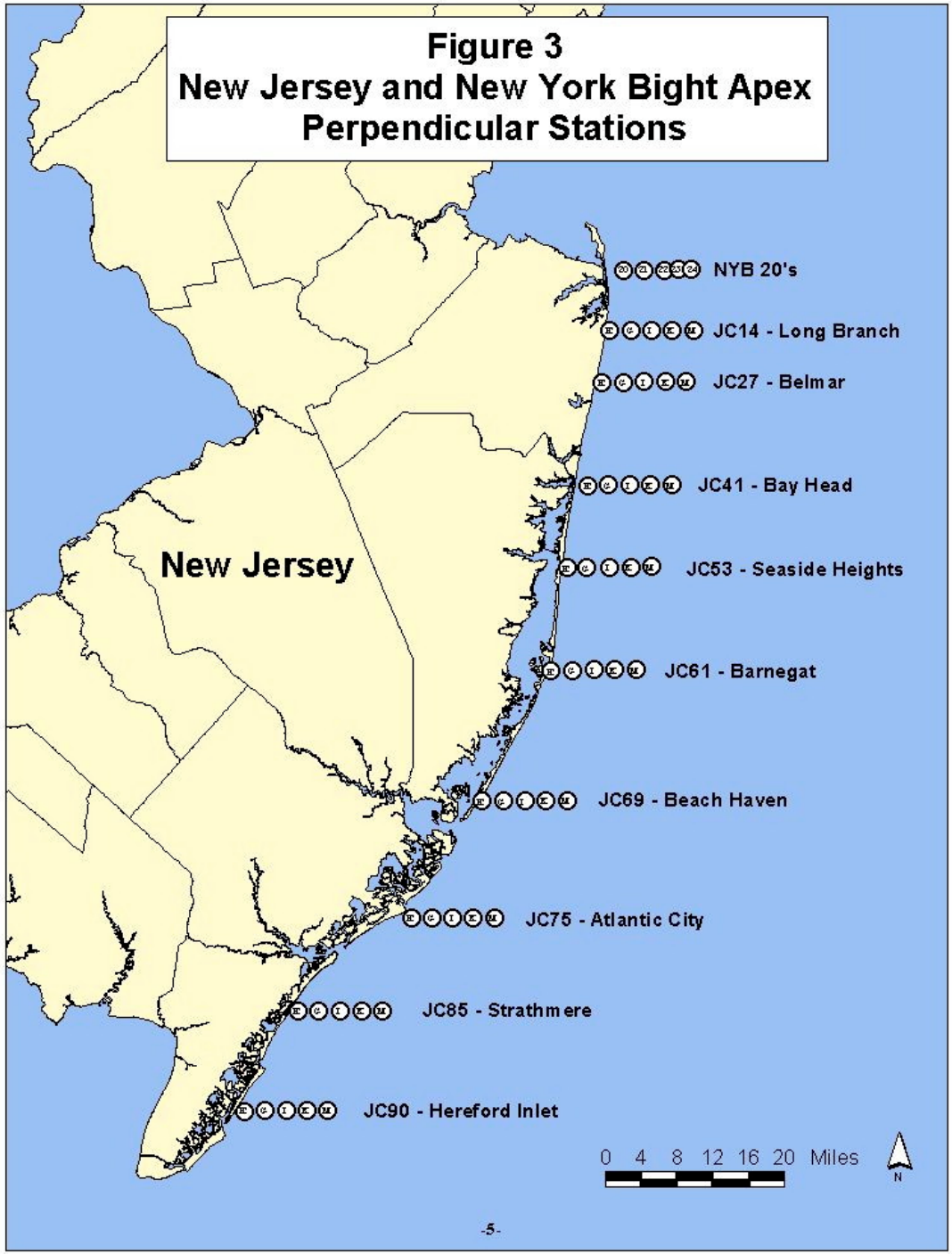


Figure 3
New Jersey and New York Bight Apex
Perpendicular Stations
New Jersey
NYB 20's
JC14 - Long Branch
JC27 - Belmar
JC41 - Bay Head
JC53 - Seaside Heights
JC61 - Barnegat
JC69 - Beach Haven
JC75 - Atlantic City
JC85 - Strathmere
JC90 - Hereford Inlet
0 4 8 12 16 20 Miles
N

Floatable Surveillance Network

Floatable Action Plan (EPA, NJDEP, NYSDEC, NYCDEP, NYCDOH, USCG, USACOE)

Clean-up

- Corps of Engineers
- NYCDEP (Cormorant & Boom and Skim Program)
- NJDEP (Clean Shores Program & Adopt-A-Beach Program)

Aerial Surveillance by NJDEP

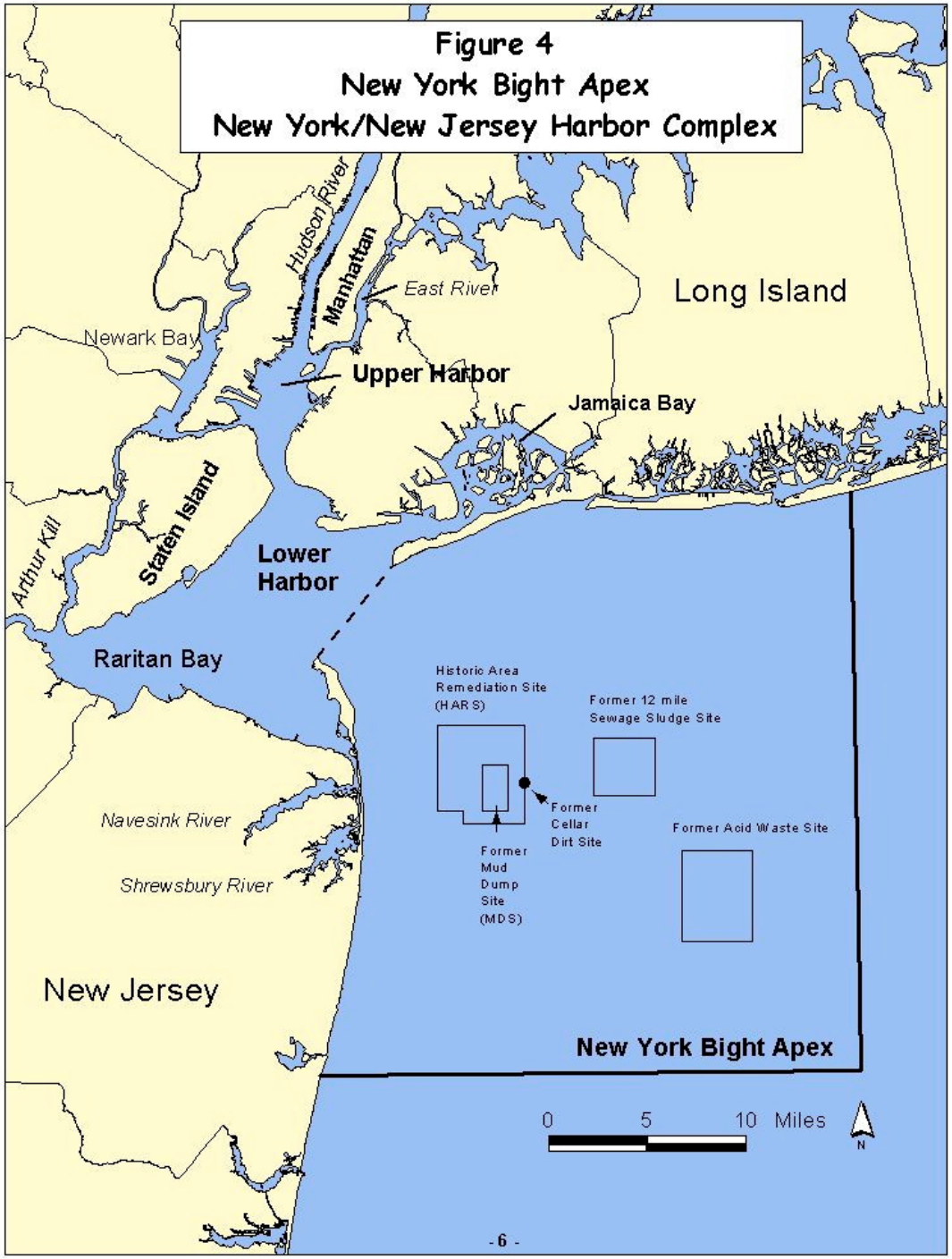


Figure 4
New York Bight Apex
New York/New Jersey Harbor Complex
Hudson River
Manhattan
East River
Long Island
Newark Bay
Upper Harbor
Jamaica Bay
Staten Island
Arthur Kill
Lower Harbor
Raritan Bay
Historic Area Remediation Site (HARS)
Former 12 mile Sewage Sludge Site
Former Cellar Dirt Site
Former Mud Dump Site (MDS)
Former Acid Waste Site
Navesink River
Shrewsbury River
New Jersey
New York Bight Apex
0 5 10 Miles
N

Results and Trends

Beach Station Network Trends

Five Years of Data (2001 – 2005)

Bacteriological Water Quality Exceedances						
	Long Island			New Jersey		
	# of samples	Entero.	FC	# of Samples	Entero.	FC
2001	337	0	1	464	1	0
2002	337	0	1	372	2	0
2003	295	1	0	301	2	0
2004	234	1	0	442	1	*
2005	180	1	1	327	3	*

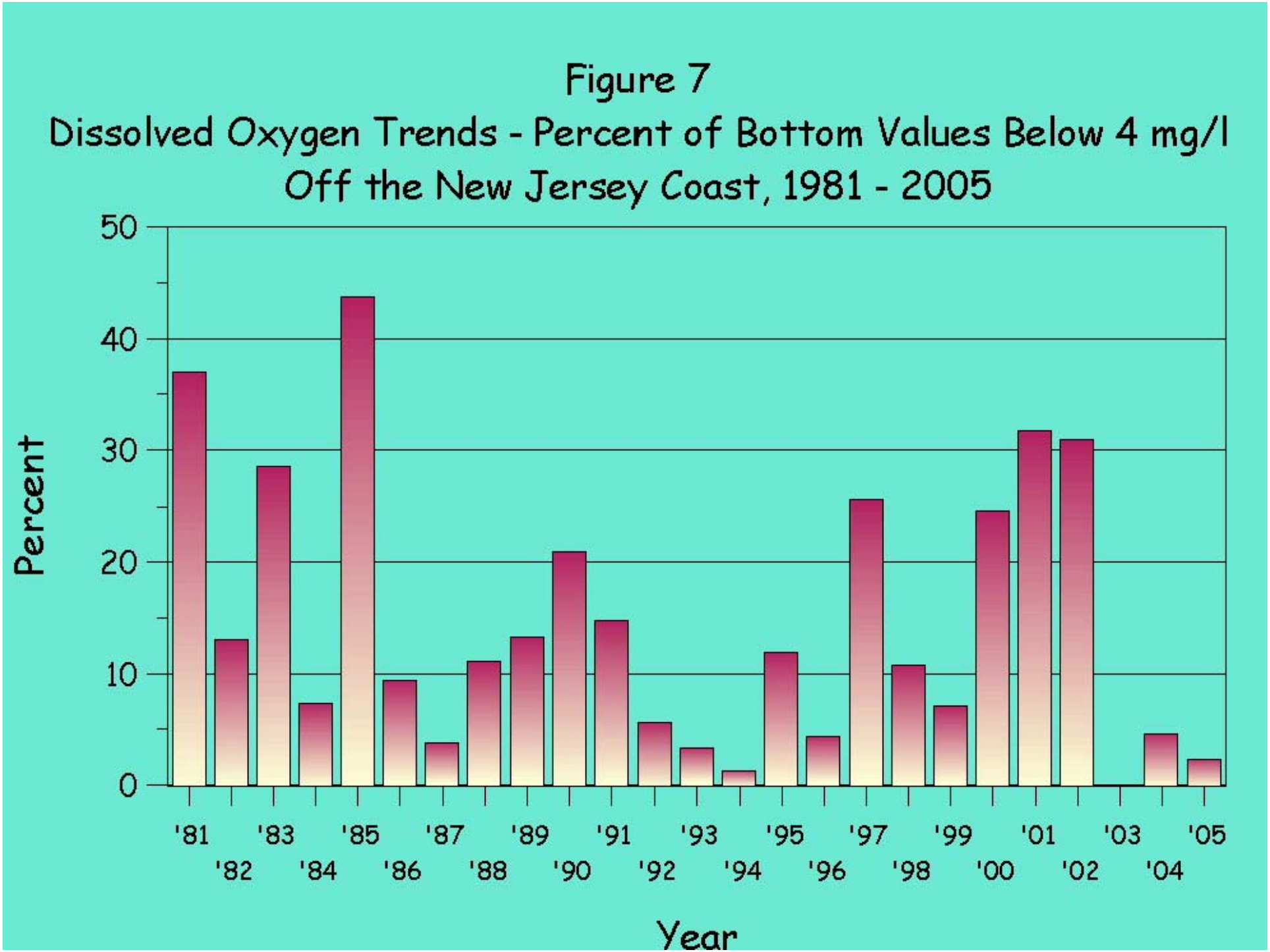


Figure 7
Dissolved Oxygen Trends - Percent of Bottom Values Below 4 mg/l
Off the New Jersey Coast, 1981 - 2005
Percent
50
40
30
20
10
0
'81
'82
'83
'84
'85
'86
'87
'88
'89
'90
'91
'92
'93
'94
'95
'96
'97
'98
'99
'00
'01
'02
'03
'04
'05
Year

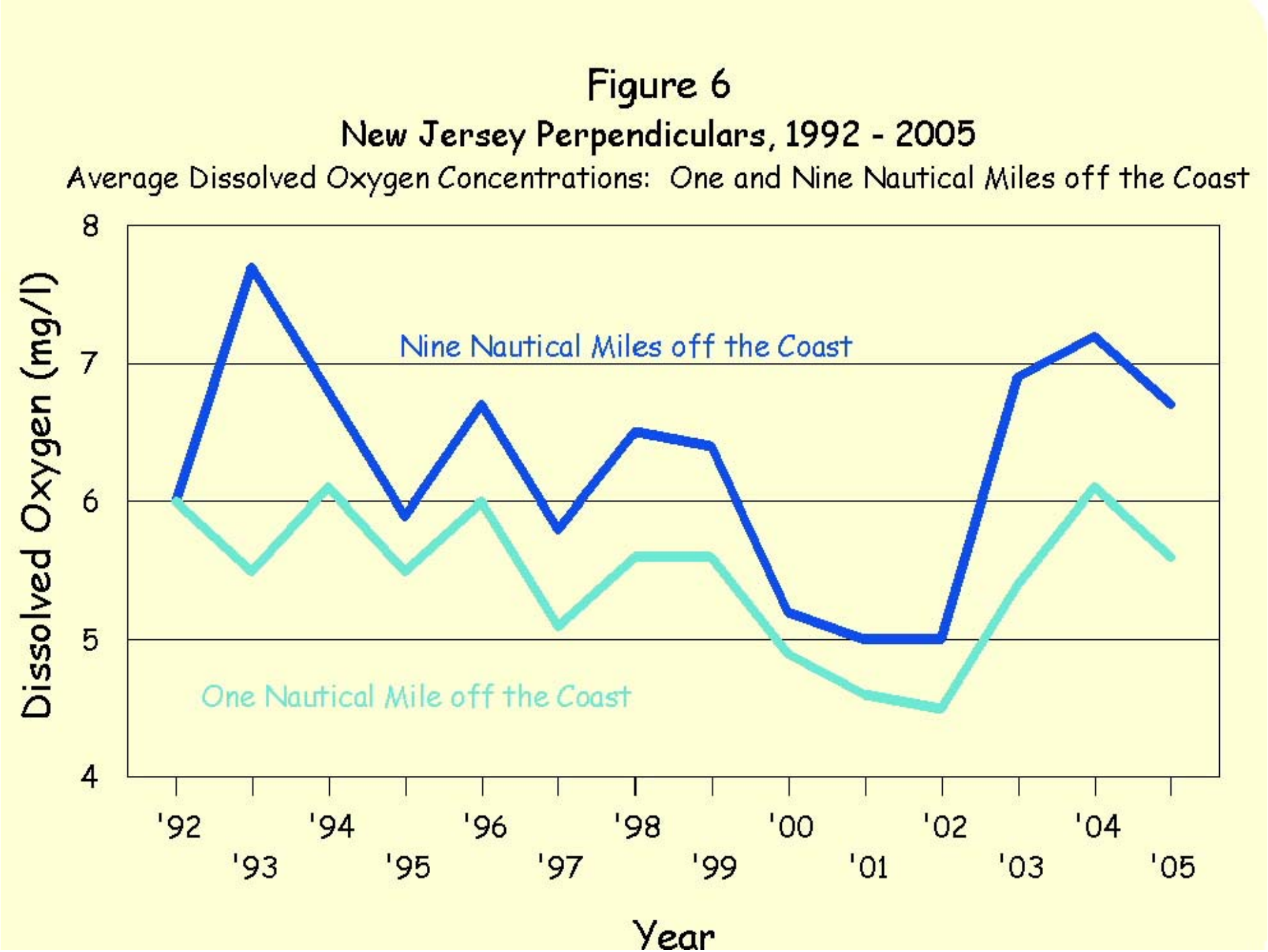


Figure 6
New Jersey Perpendiculars, 1992 - 2005
Average Dissolved Oxygen Concentrations: One and Nine Nautical Miles off the Coast
Dissolved Oxygen (mg/l)
8
7
6
5
4
Nine Nautical Miles off the Coast
One Nautical Mile off the Coast
'92
'93
'94
'95
'96
'97
'98
'99
'00
'01
'02
'03
'04
'05
Year

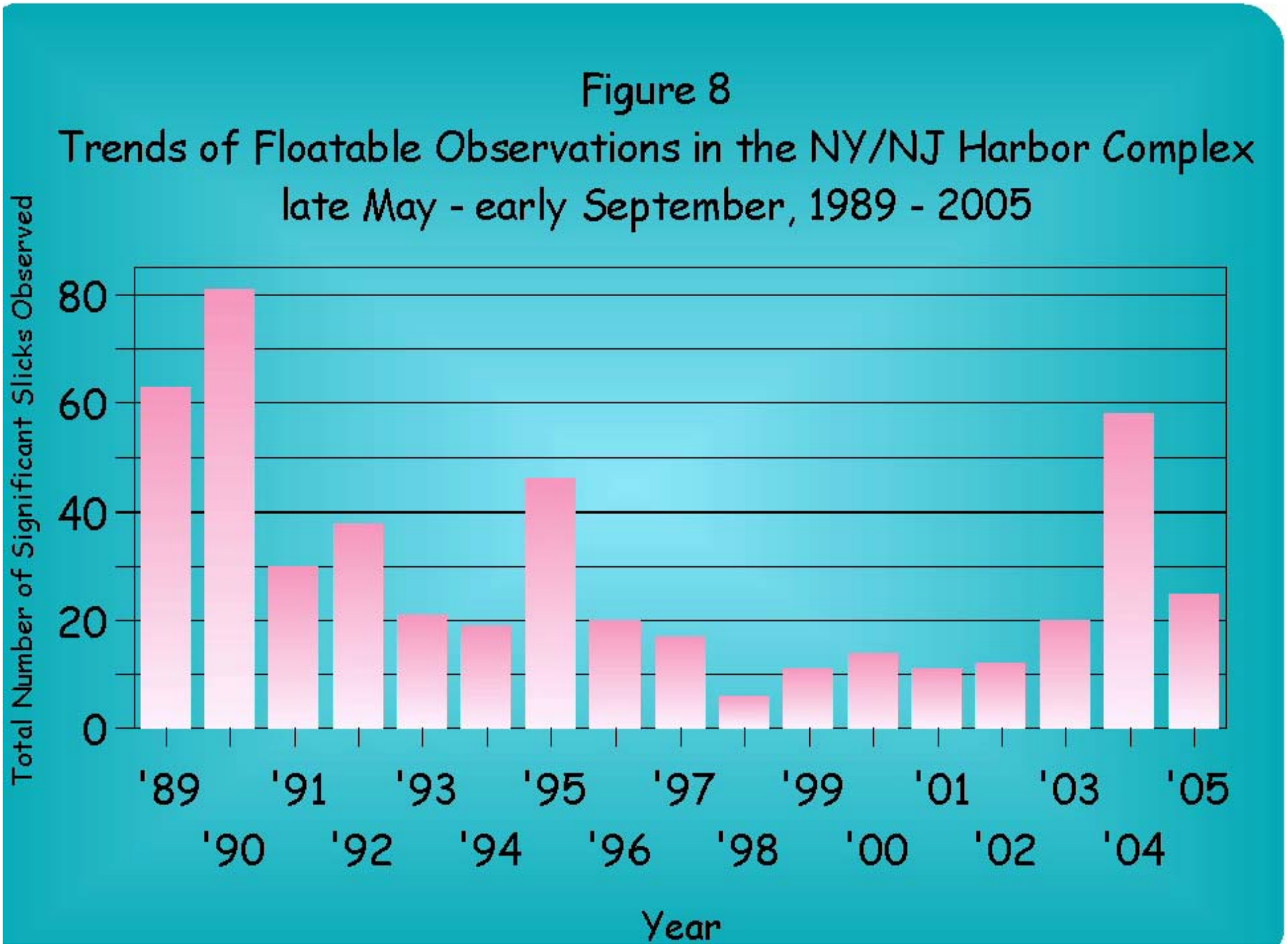
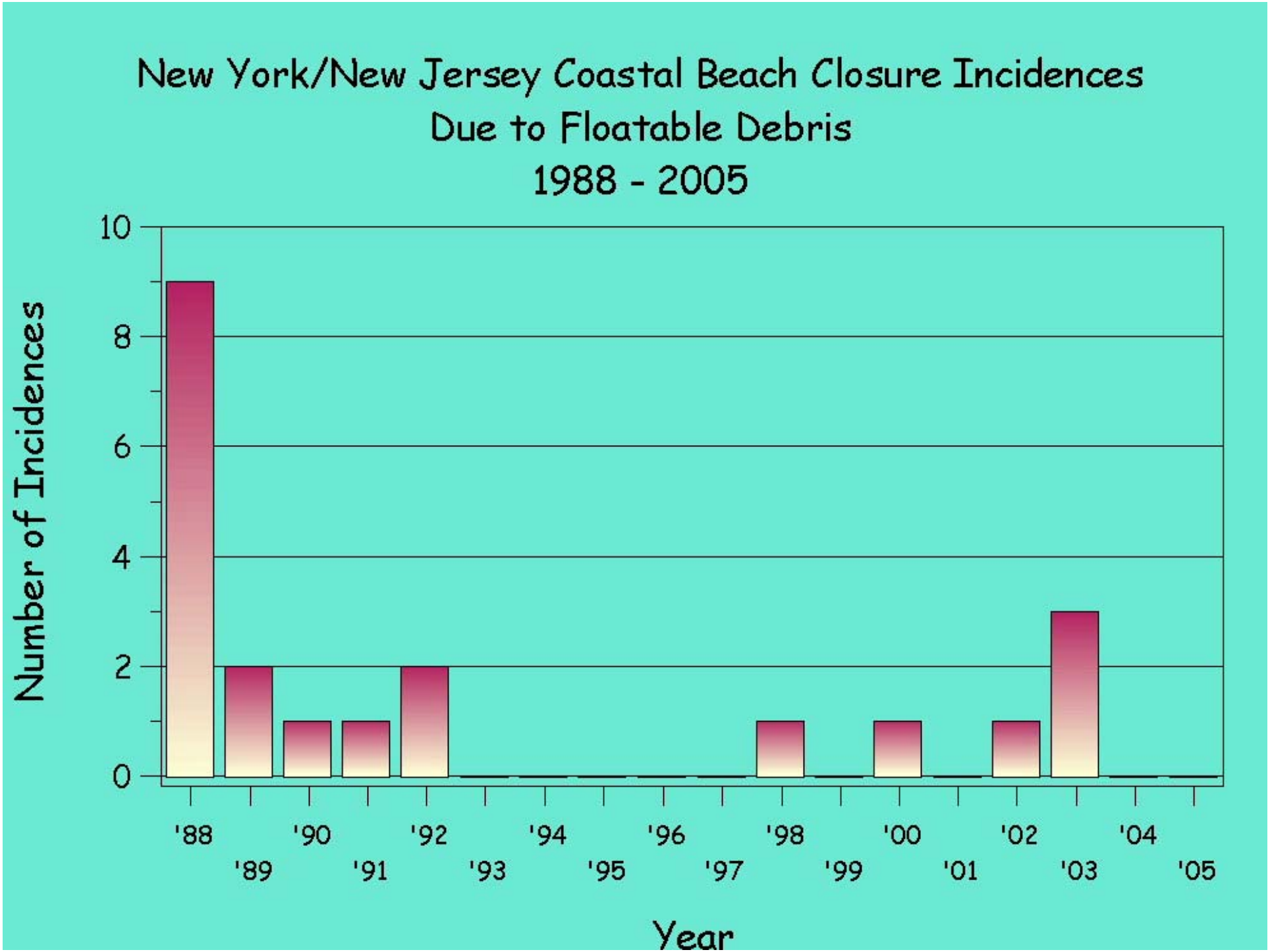


Figure 8
Trends of Floatable Observations in the NY/NJ Harbor Complex
late May - early September, 1989 - 2005
Total Number of Significant Slicks Observed
80
60
40
20
0
'89
'90
'91
'92
'93
'94
'95
'96
'97
'98
'99
'00
'01
'02
'03
'04
'05
Year


New York/New Jersey Coastal Beach Closure Incidences
Due to Floatable Debris
1988 - 2005
Number of Incidences
10
8
6
4
2
0
'88
'89
'90
'91
'92
'93
'94
'95
'96
'97
'98
'99
'00
'01
'02
'03
'04
'05
Year

Benefits

- Prevents wash-ups of wood, household and medical debris on bathing beaches
- Provides maximum monitoring coverage to protect the health of the bathing public
- Economic benefits derived by maintaining open beaches

- Allows for early detection of potentially low dissolved oxygen episodes and potential phytoplankton blooms
- Promotes partnerships with states
- Promotes public awareness
- Establishes good community relations, press
- Provides a platform for environmental education

STORET

NY Bight Report

http://www.epa.gov/region02/desa/nybight/