Coastal Beach Water Quality

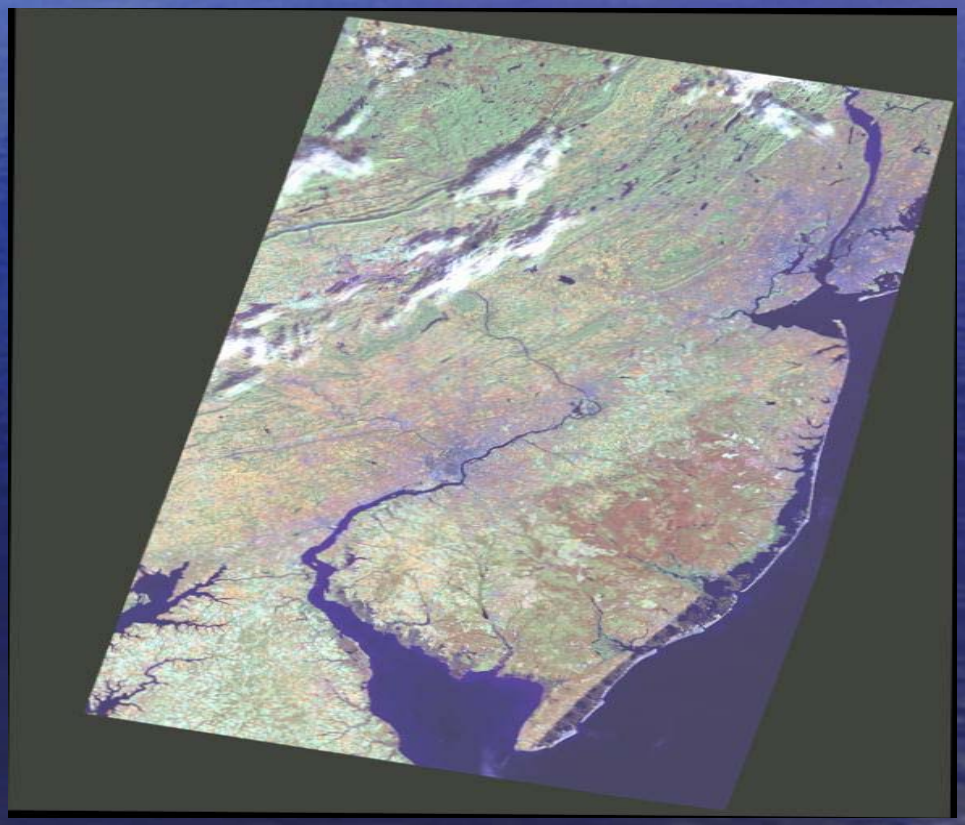
NJ's Cooperative Coastal Monitoring Program

Virginia Loftin

NJ Dept. of Environmental Protection

Water Monitoring & Standards

Bureau of Marine Water Monitoring



Cooperative Program Between:

NJ Department of Environmental Protection

NJ Department of Health and Senior Services

County Health Departments

- Monmouth County HD
- Ocean County HD
- Atlantic County HD
- Cape May County HD

Local Health Departments

- Middletown HD
- Northeast Monmouth Regional Health Commission
- Long Branch HD
- Long Beach Township HD
- Atlantic City HD

188

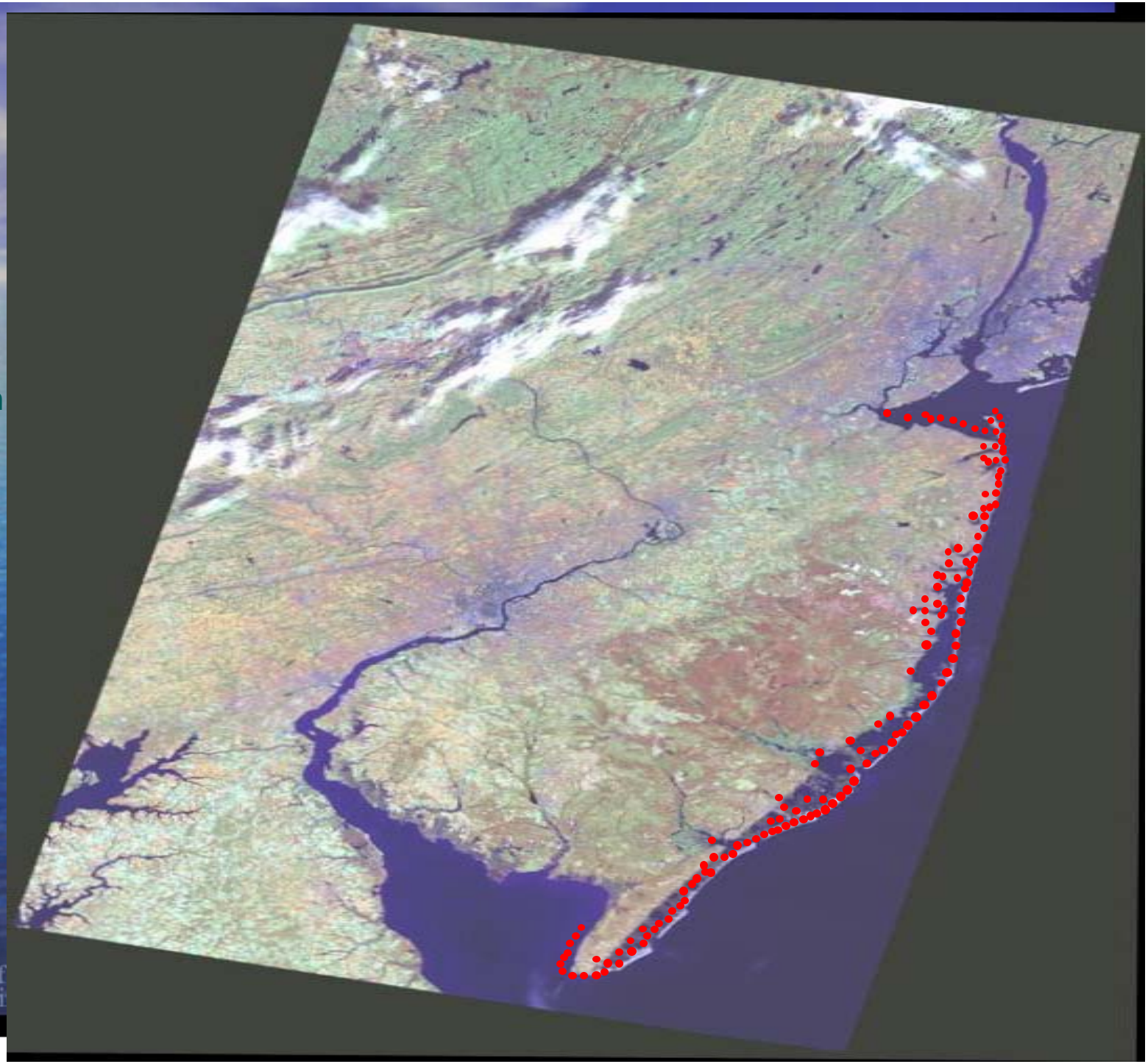
Ocean stations

Most ocean monitoring stations are associated with potential pollution sources

76 Bay

Stations

All bay beaches are monitored



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- County and local health departments collect and analyze approximately 5700 water quality samples each summer season

- Beach closings are mandatory for sewage overflows and other pollution events with potential to affect public health

- Monitoring conducted after all pollution events

Monitoring begins in mid-May and runs through early September. Samples are collected weekly on Mondays.

Standard is 104 enterococci bacteria per 100 mL of sample

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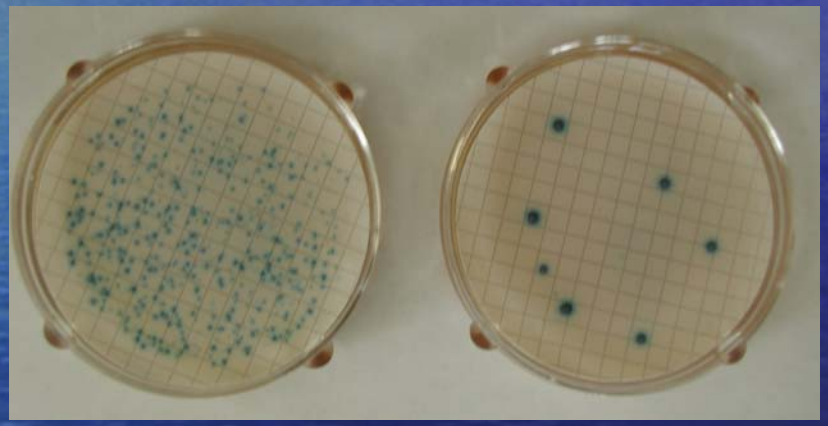
Current testing method:

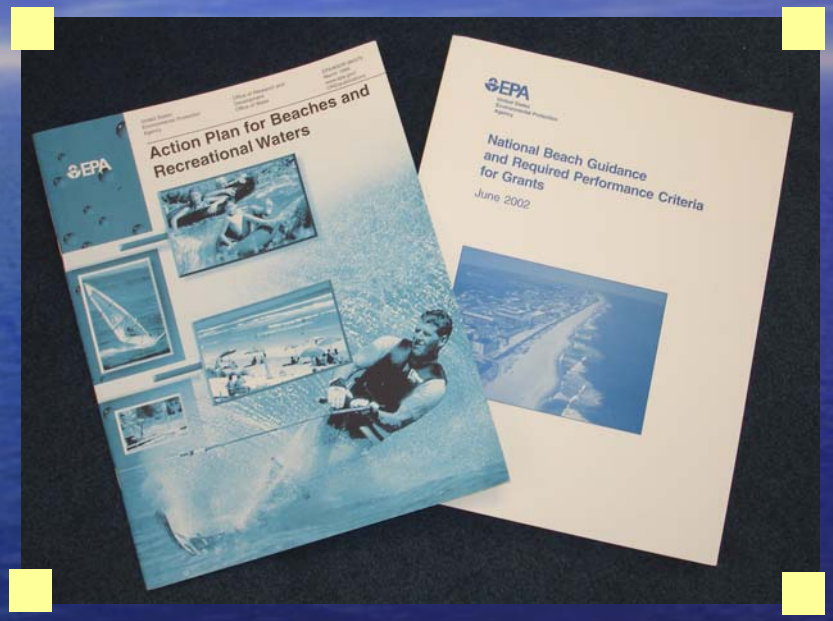
EPA Method 1600: Enterococci in water by membrane filtration – results in 24 hours



Future?

- qPCR – quantitative polymerase chain reaction – results in 4- 6 hours

EPA Beaches Environmental Assessment and Coastal Health (BEACH) Act based on New Jersey's Cooperative Coastal Monitoring Program

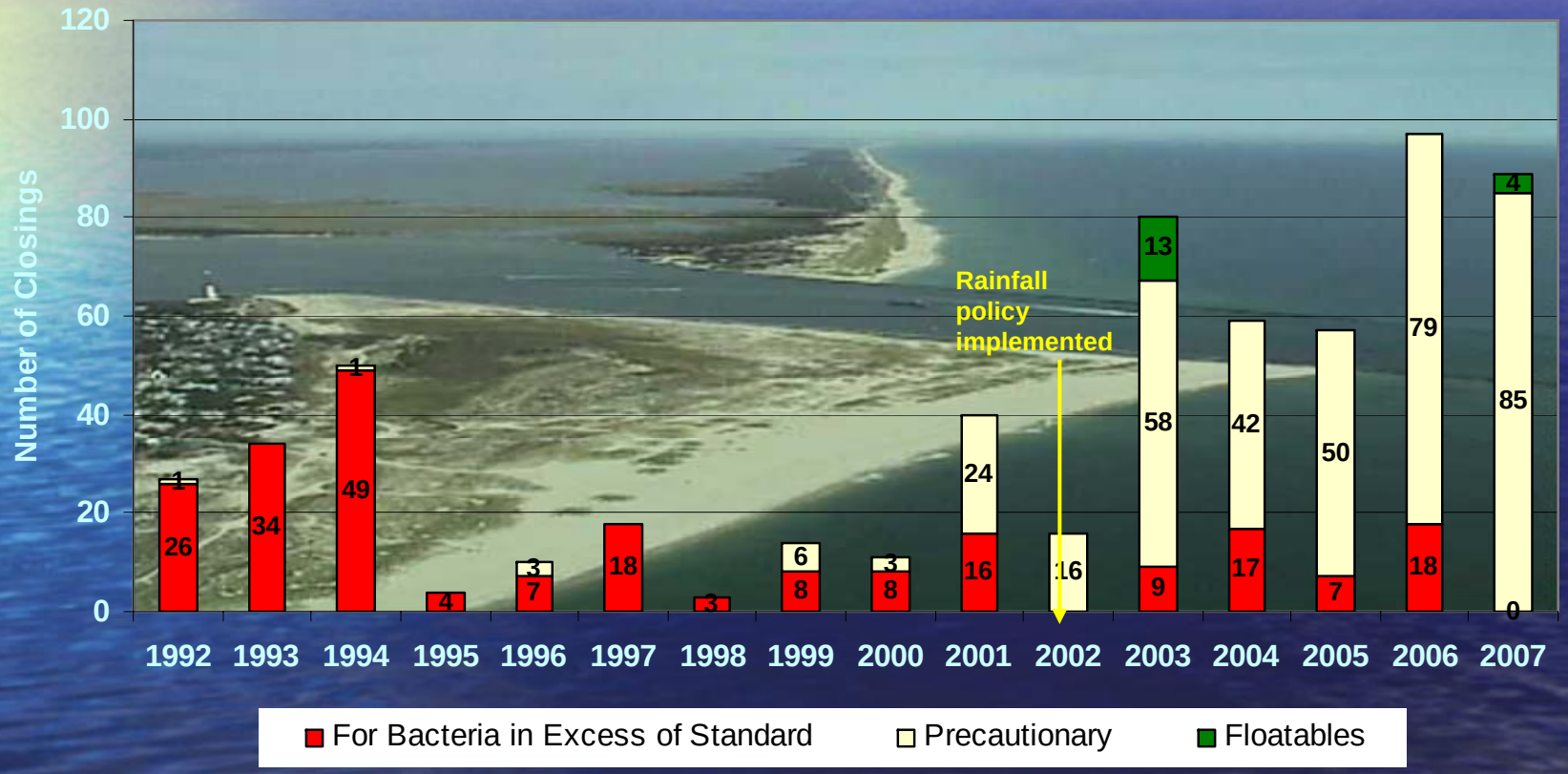


Provides grant $ for monitoring water quality and public notification of beach conditions

$ to counties

October 10, 2000

Ocean Beach Closings
1992 - 2007



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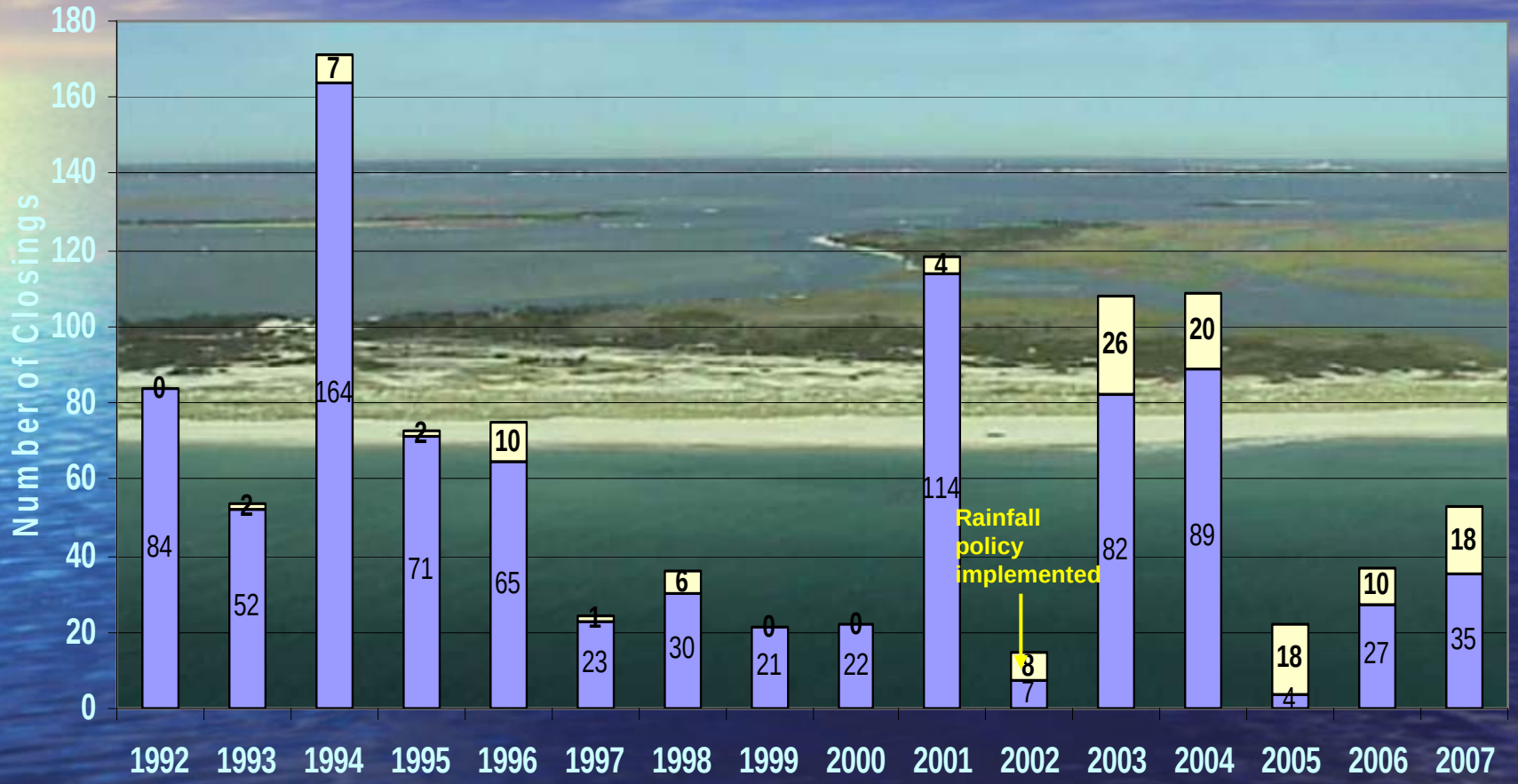
Bay Beach Closings

1992 - 2007



for bacteria in excess of standard

precautionary

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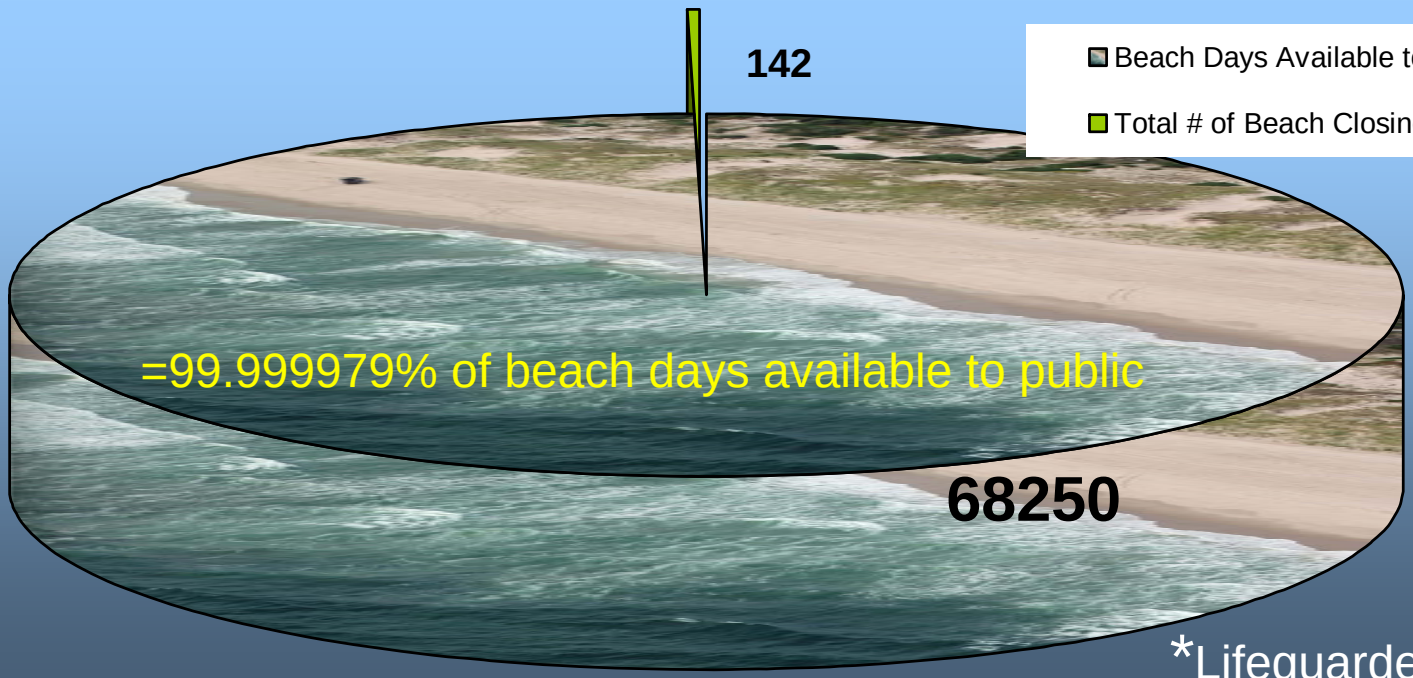
Beach Days Available to Public
2007



*Lifeguarded days

NO ocean beach closings due to high bacteria in 2007

8 ocean beach closings due to rain-related precaution

4 ocean beach closings due to floatables wash-ups

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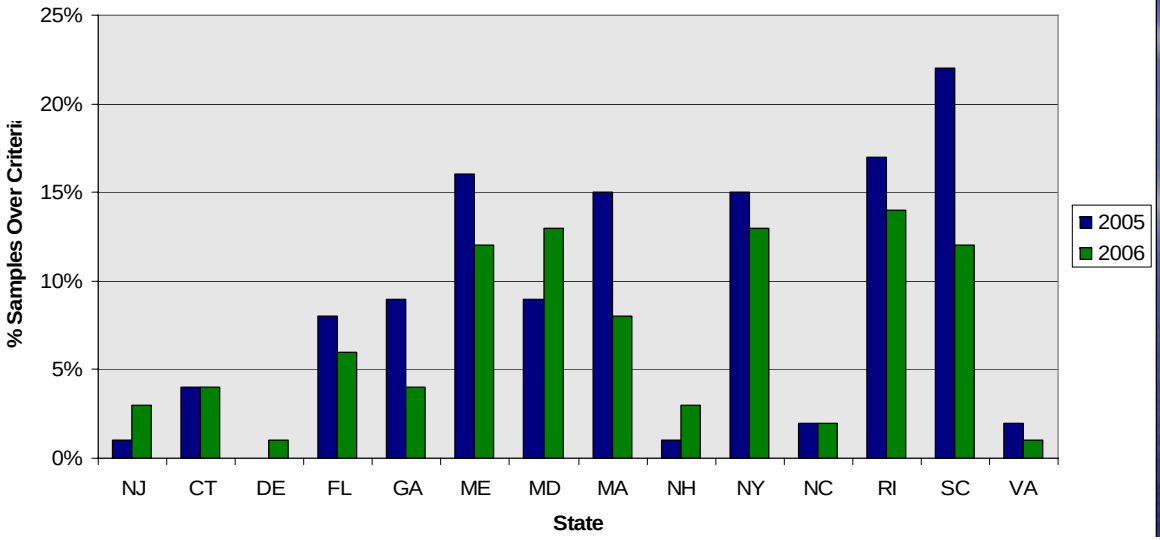
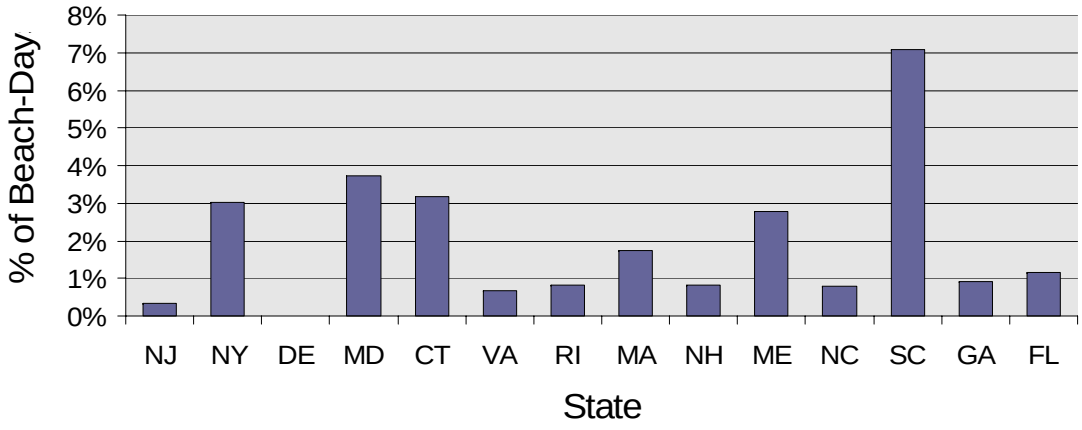
East Coast Bathing Beach Water Quality



% of Beach-Days affected by a Closure/Advisory



Source: NRDC Testing the Waters, A Guide to Water Quality at Vacation Beaches, Seventeenth Edition

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Sources of bacteria include:

Stormwater outfalls on beach

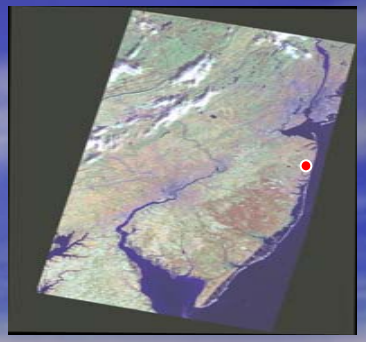
Stream discharge to ocean

Coastal Lake Discharges

Deal Lake, Loch Arbour

Sylvan Lake, Avon

Monmouth County Health Department
Rain Provisional Policy (2002)



Wreck Pond, Spring Lake

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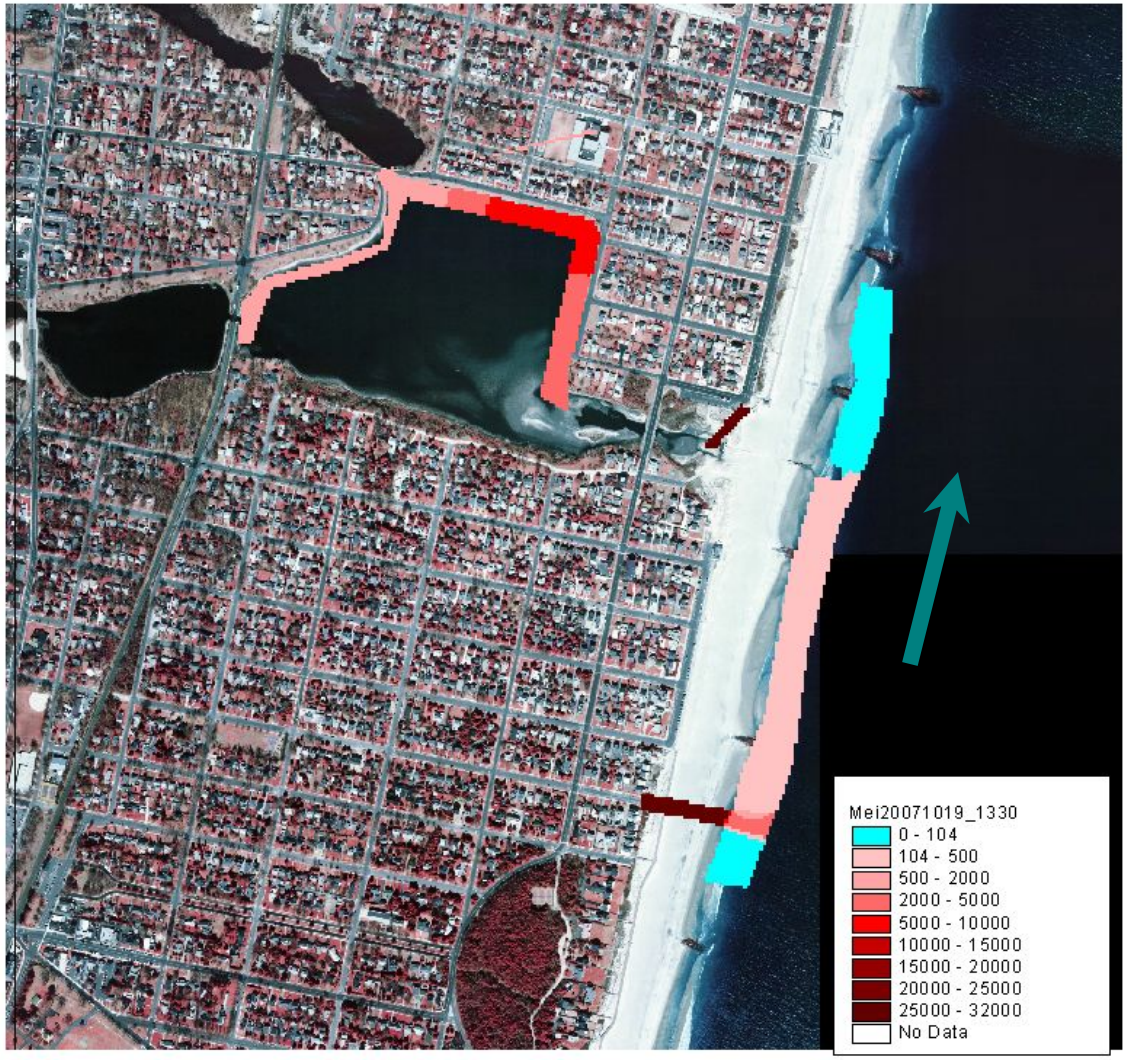
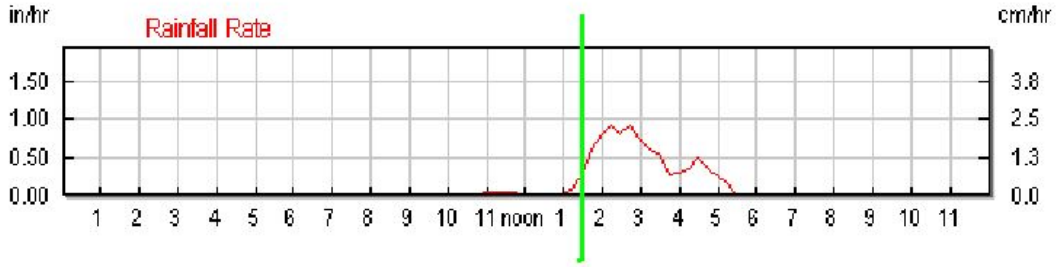
Enterococcus Levels
Spring Lake / Sea Girt
10/19/2007 @ 1:30 PM

- Pollution source tracking in the vicinity of Spring Lake and Sea Girt to identify predominant sources impacting the ocean bathing beaches in these towns.



2007, NJDEP, Bureau of Marine Water Monitoring Levels reported as Enterococcus CFU/100 mL



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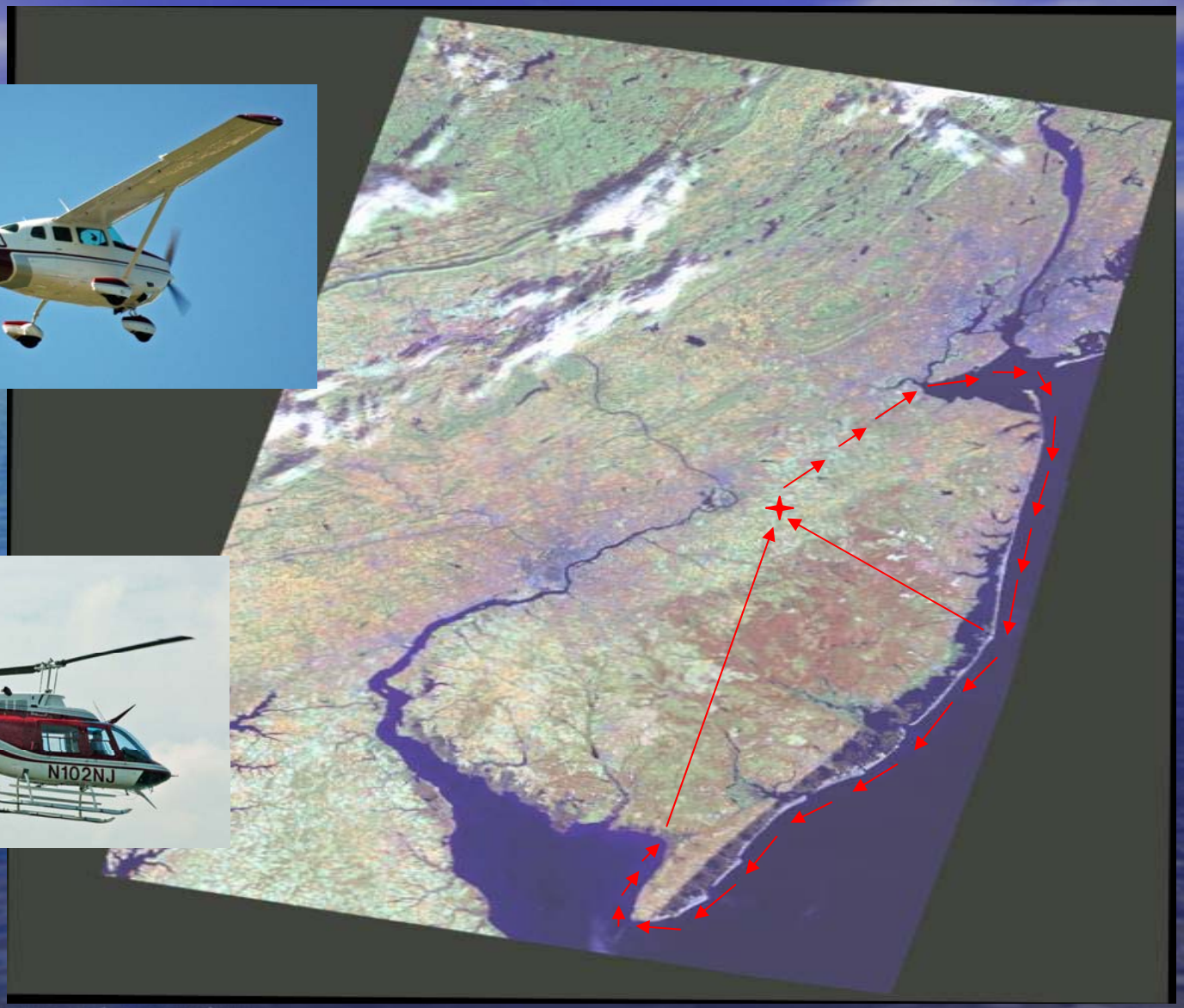
Coastal Sewage Treatment Plant Inspections

DEP inspects 17 coastal STPs and monitors discharges to coastal waters

Aerial Surveillance for Ocean Conditions



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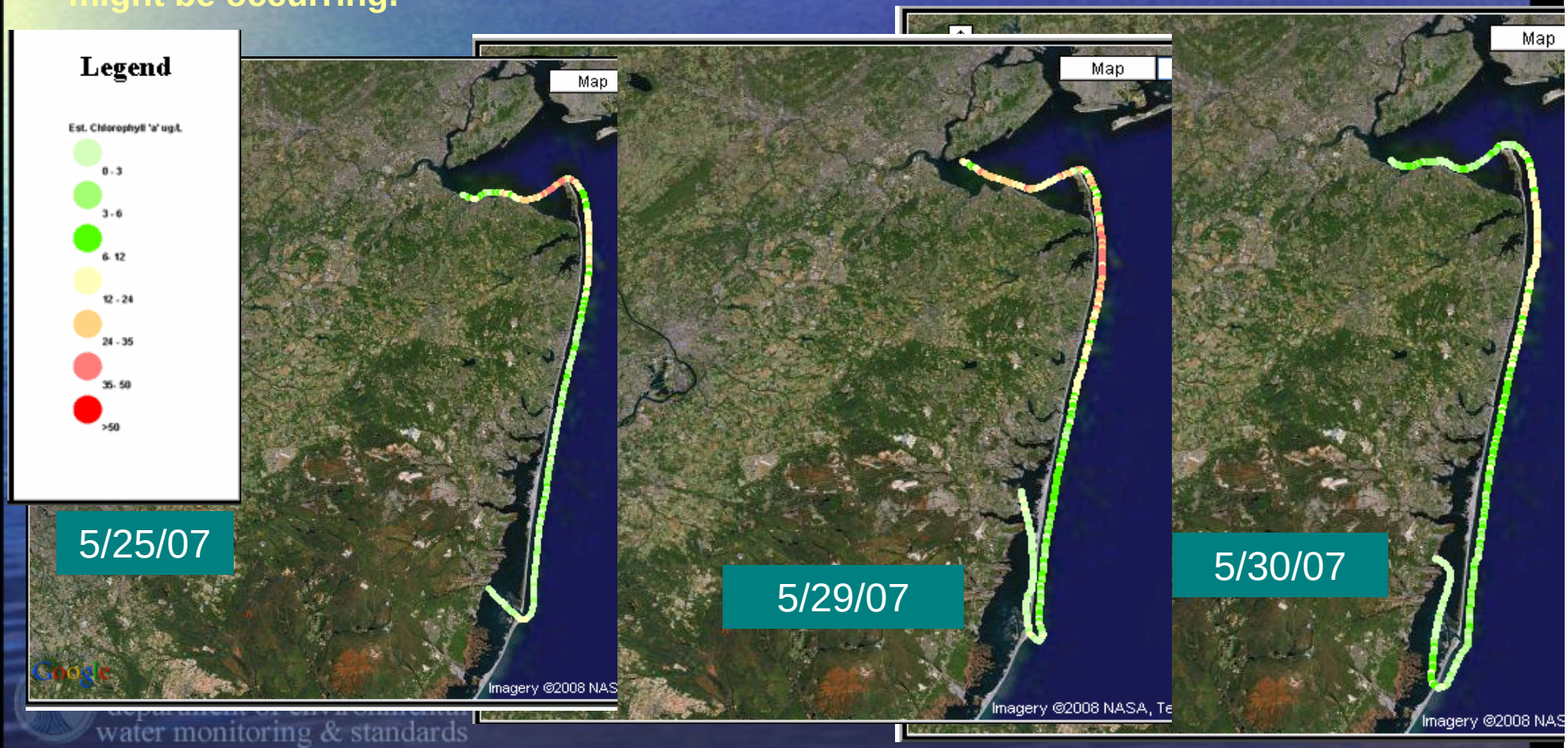
Remote Sensing for Algal Blooms

A sensor permanently mounted on the surveillance aircraft estimates chlorophyll levels in NJ's coastal waters. Since chlorophyll is a plant pigment, high levels in the water are typically associated with an algal bloom. This information provides a valuable perspective on water conditions and trends and enables the Bureau to target boat sampling to locations where algal blooms might be occurring.



DEP Flight Crew

What we're looking for…

Middlesex County Utilities Authority

Raritan Bay outfall
~95-150 mgd

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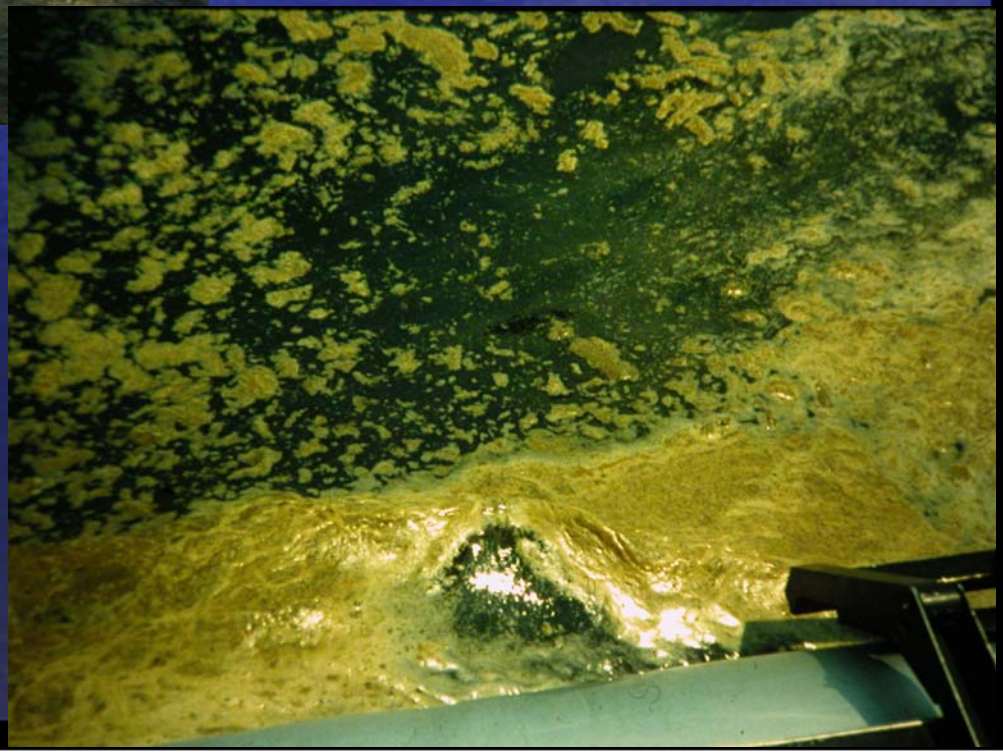

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What we see…

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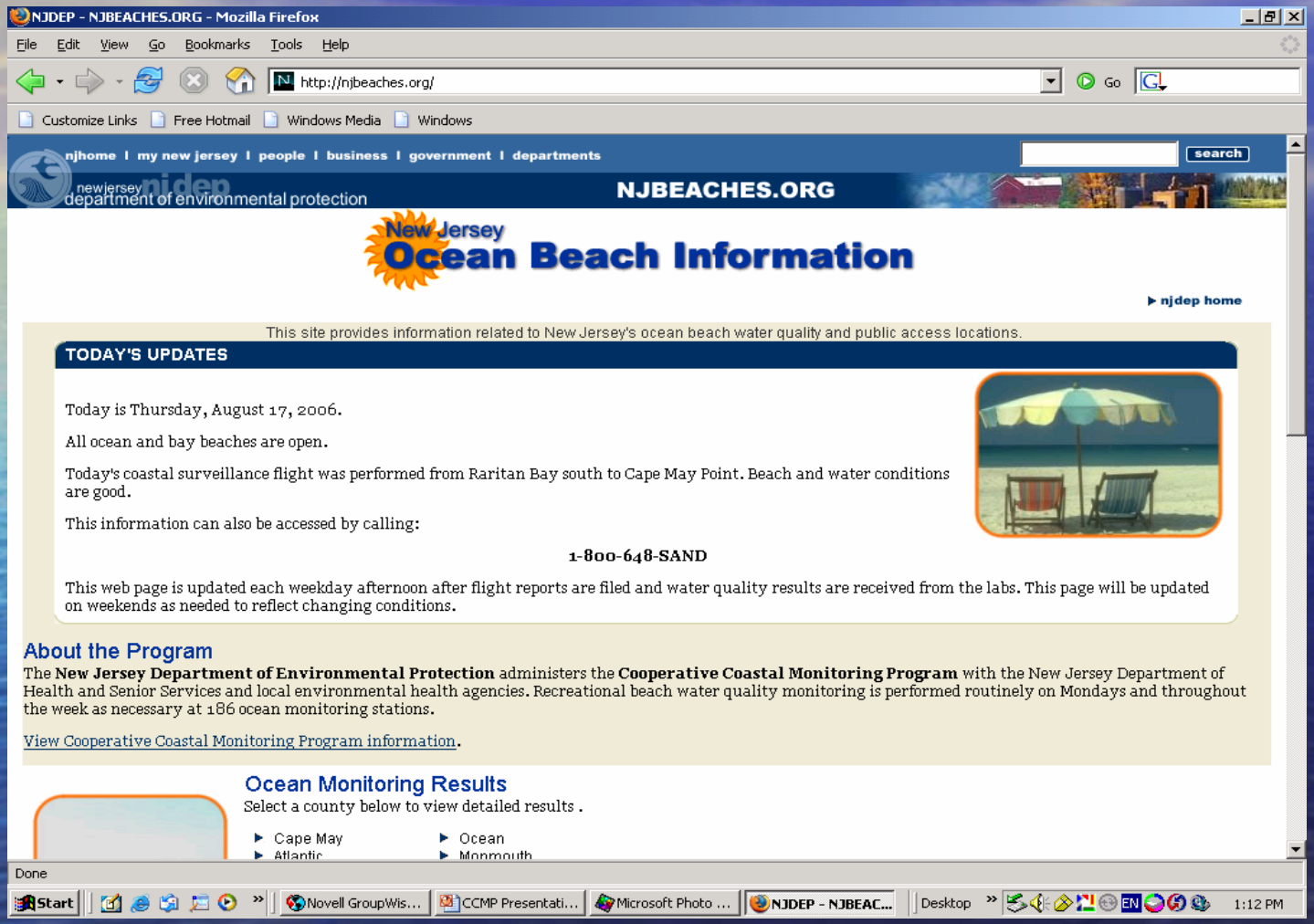
www.njbeaches.org



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Ocean County Ocean Monitoring Results

- May 21, 2007
- May 28, 2007
- June 4, 2007
- June 11, 2007
- June 18, 2007
- June 25, 2007
- July 2, 2007
- July 9, 2007

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Ocean County Ocean Monitoring Results for the Week of July 9, 2007

Ocean and bay recreational beaches (R) are subject to opening and closing procedures of the State Sanitary Code and must be resampled when bacteria concentrations exceed the primary contact standard of 104 enterococci per 100 mL of sample. Consecutive samples that exceed the standard require the closing of the beach until a sample is obtained that is within the standard. **Environmental stations (E)** are not bathing beaches and do not require resamples.

Date	Station	Municipality	Location	Entero	
7/9/2007	CCMPOC0124	Barnegat	Bay Beach	10	R
7/9/2007	CCMPOC1048	Barnegat Light	10th	10	R
7/9/2007	CCMPOC1050	Barnegat Light	24th	10	R
7/9/2007	CCMPOC0142	Barnegat Light	25th Street	160	R
7/10/2007	CCMPOC0142	Barnegat Light	25th Street	10	R
7/9/2007	CCMPOC1005	Bay Head	Johnson	10	R
7/9/2007	CCMPOC1004	Bay Head	Mount	10	R
7/9/2007	CCMPOC1102	Beach Haven	14th St.	10	R
7/9/2007	CCMPOC1092	Beach Haven	Berkeley Ave	10	R
7/9/2007	CCMPOC1080	Beach Haven	Leeward Ave.	10	R
7/9/2007	CCMPOC1078	Beach Haven	Taylor Ave. (Ocean)	10	R
7/9/2007	CCMPOC1093	Beach Haven	Webster	10	R
7/9/2007	CCMPOC0116	Beachwood	Beachwood Beach West	97	R
7/9/2007	CCMPOC0120	Berkeley	Amhearst Dr	20	E
7/9/2007	CCMPOC0122	Berkeley:County Park	Berkeley Island	31	R
7/9/2007	CCMPOC1020	Brick	7th	10	R

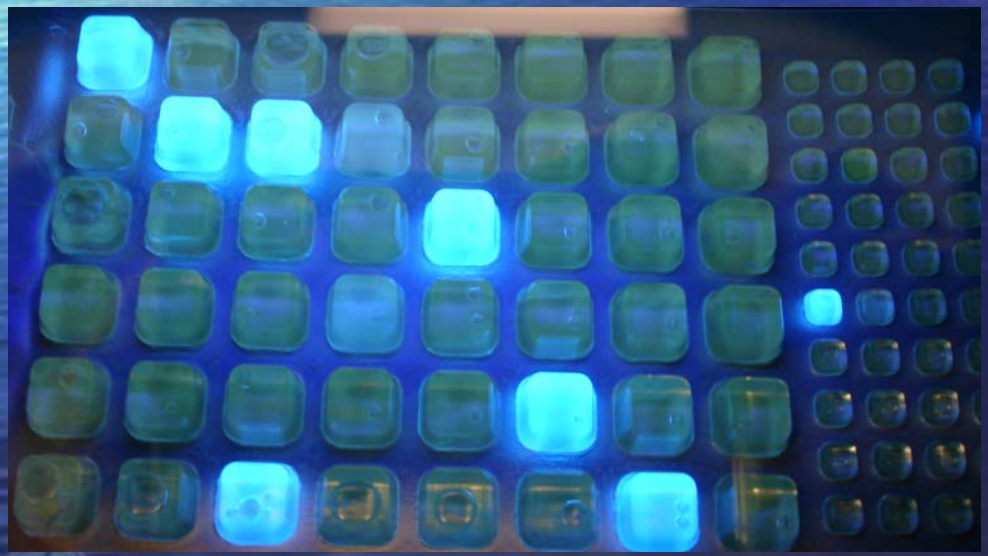
Done

Start | Novell... | CCMP | Micro... | Mail F... | Picasa2 | Photo... | NJDE... | Desktop | 1:10 PM

Summer 2007

Joint Agency qPCR Project

Comparison of Enterococcus Measurements in New Jersey Beach and Bay Samples by qPCR, Membrane Filtration and Defined Substrate Technology (DST®) for the Development of Rapid Assessment Protocols for Recreational Water Quality



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Cepheid SmartCycler

New in 2008:

•Provided additional funding to coastal counties for the purchase of fluorometers to use in source trackdown

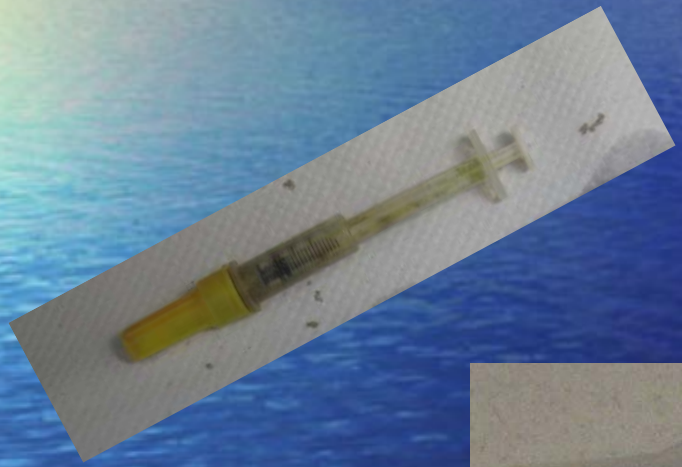
•Direct additional BEACH grant funds to Monmouth and Ocean Counties

•Continue qPCR project with EPA and Monmouth and Ocean Counties

1-877-WARN DEP

CCMP staff on call 24/7 from early May through late September for all pollution events and reports in tidal waters

Bureau staff respond to pollution reports



August/September 2008

More medical supplies on beaches

Medical equipment was found washed up Wednesday at the 34th Street beach in Brigantine, prompting a temporary closing. Individually wrapped insulin syringes were also found under the Steel Pier in Atlantic City.

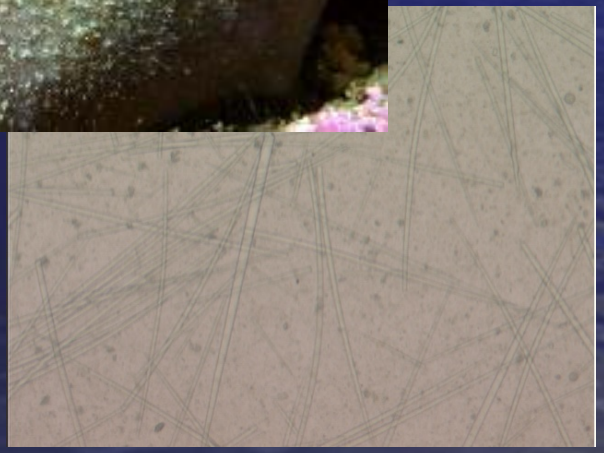
Other local beaches with medical waste found since Aug. 23.

*Atlantic City Press

Press graphic by Krishna Mathias

Greaseballs ???

NO!!



Clean Shores

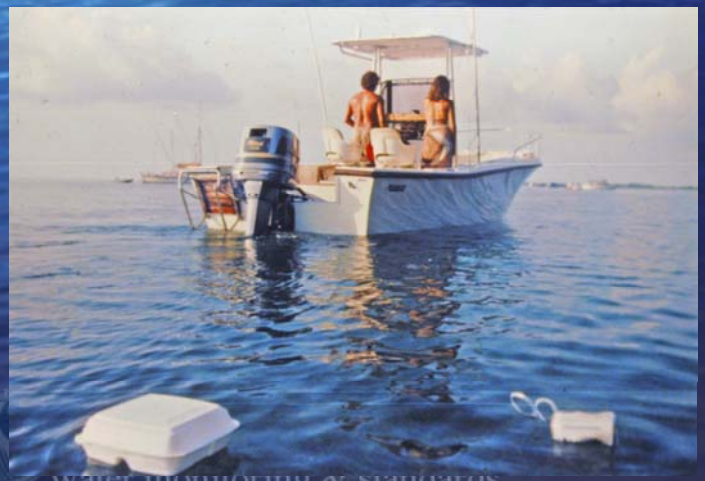
Project was initiated in 1989 in response to medical waste and garbage related beach closings in 87- 88

Cooperative effort between:

NJDEP
Department of Corrections
Local Governments

Past Sources of Floatable Debris…

Current Sources of Floatable Debris…



Funding Sources

Up to $200K for CCMP and $600K for Clean Shores from the sale of the Shore Protection License Plate

~ 275K each year from annual EPA BEACH grants
80-90% is passed through to counties

GOAL of

Cooperative Coastal Monitoring

&

Clean Shores …

Clean and healthy beaches!

New Jersey Department of Environmental Protection

Water Monitoring & Standards

Bureau of Marine Water Monitoring

www.njbeaches.org

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