



# Highlights of the 2008

## Integrated Water Quality Monitoring and Assessment Report

New Jersey Dept. of Environmental Protection  
Water Monitoring and Standards  
Bureau of Water Quality Standards and Assessment  
PO Box 409  
Trenton, NJ 08625

[www.nj.gov/dep/wms/bwqsa/](http://www.nj.gov/dep/wms/bwqsa/)



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- *How Do We Assess Water Quality?*
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- *Discussion*

# Why Do We Assess Water Quality?



- Required under federal and state statutes:
  - Section 305(b) of Federal Clean Water Act
  - Section 303(d) of Federal Clean Water Act
  - Water Quality Planning Act at N.J.S.A. 59:11A

# Why Do We Assess Water Quality? (cont'd)



# Why Do We Assess Water Quality (cont'd)

- Necessary to determine appropriate regulatory, preventive, and restorative actions:
  - Permits
  - Enforcement
  - Research
  - Funding (e.g., 319 grants for restoration)



# Role of Water Quality Assessment in Water Resource Management



# How Do We Assess Water Quality?

- Compare Data Results to Surface Water Quality Standards (SWQS)
  - Develop Scientific Methods for Sample Collection and Data Analysis
  - Collect and Compile Water Quality Data
  - Evaluate Data Quality
- Evaluate Data Trends:
  - Improving or declining water quality
  - Threatened Waters



# Type of Data Needed

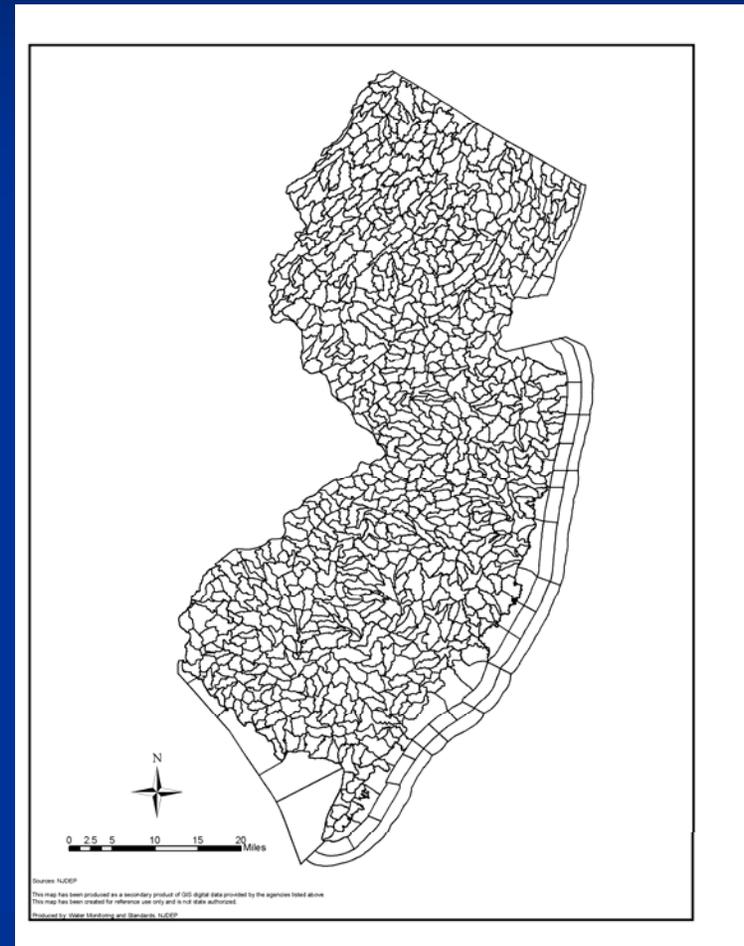
Aquatic Life - General	<ol style="list-style-type: none"> <li>1. Biological data; or</li> <li>2. Chemical             <ul style="list-style-type: none"> <li>• Non-tidal waters: pH, DO, temperature, TP, TDS and TSS (non- tidal);</li> <li>• Tidal waters: DO</li> </ul> </li> </ol>
Aquatic Life -Trout	<ol style="list-style-type: none"> <li>1. Biological and chemical (<u>DO and temperature</u>); or</li> <li>2. Chemical only: <u>DO, temperature</u>, pH, total phosphorus, TDS, and TSS</li> </ol>
Recreation	<ol style="list-style-type: none"> <li>1. Sanitary: Enterococcus, fecal coliform, or E. coli;</li> <li>2. Beach Closure Data (ocean beaches)</li> </ol>
Fish Consumption	Fish Consumption Advisories
Shellfish Harvesting	Shellfish Classifications
Drinking Water Supply	Chemical: nitrate

# How Do We Assess All Waters of the State?

- Agency-conducted (DEP and/or USGS) Monitoring Programs
  - Statewide, Regional, and Waterbody-specific
  - Chemical/physical Water Quality
  - Biological (macroinvertebrates, fish tissue)
- External Monitoring and Data Sources
  - EPA, DRBC, IEC
  - Counties
  - Volunteers
  - Regulated Community (wastewater and water supply)

# How Do We Assess All Waters of the State? (cont'd)

- Establishment of Assessment Unit (AU) Scale and Boundaries
  - Hydrologic Unit Code (HUC) 14 subwatershed (ave. size = 8.5 square miles)
  - Delaware River Basin Commission zones for the Delaware River (New Jersey portion)



# How Do We Assess All Waters of the State? (cont'd)

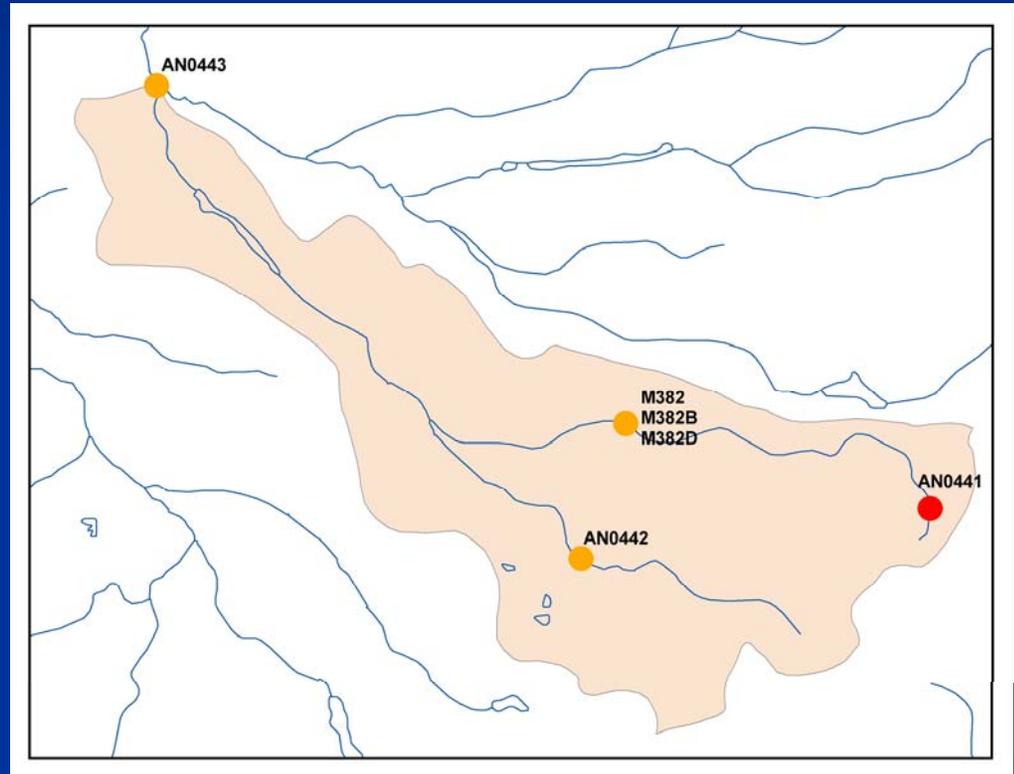
950 HUC 14 watersheds  
(with modifications)

+ 20 Delaware River Zones

**= 970 AUs in NJ**

# How Do We Assess All Waters of the State? (cont'd)

- Extrapolation of Data Results to the Entire Assessment Unit (AU)



# How Do We Assess All Waters of the State? (cont'd)

- Considered data from over 5,000 sampling stations
- Evaluated 5,495 possible designated use/AU combinations
  - 3,587 individual use assessments
  - 1,908 combinations had insufficient info for assessment

# Integrated List of Waters -Assessment Categories

**Sublist 1:** All applicable designated uses (except FC) are assessed and attained.

**Sublist 2:** Designated use is attained but one or more other uses are not assessed or not attained.

**Sublist 3:** Insufficient information to assess the designated use.

**Sublist 4:** Designated use is not attained but a TMDL is not required (because TMDL already approved).

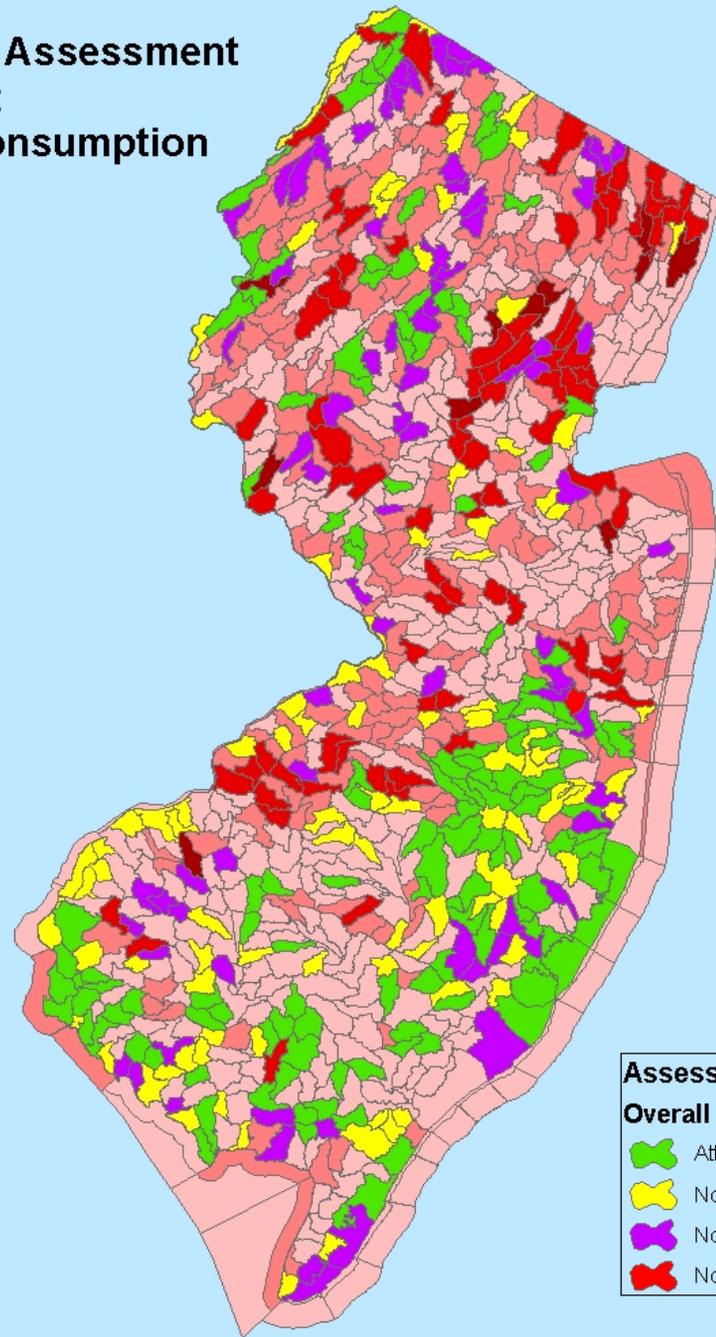
**Sublist 5:** Designated use is not attained and a TMDL is required.

# 2008 Water Quality Assessment Results



# 2008 Water Quality Assessment Results

Overall Assessment  
without  
Fish Consumption



## Waterbody Sublist 5

### Overall

- 1 Designated Use
- 2 Designated Use
- 3 Designated Use
- 4 Designated Use

## Assessment Units

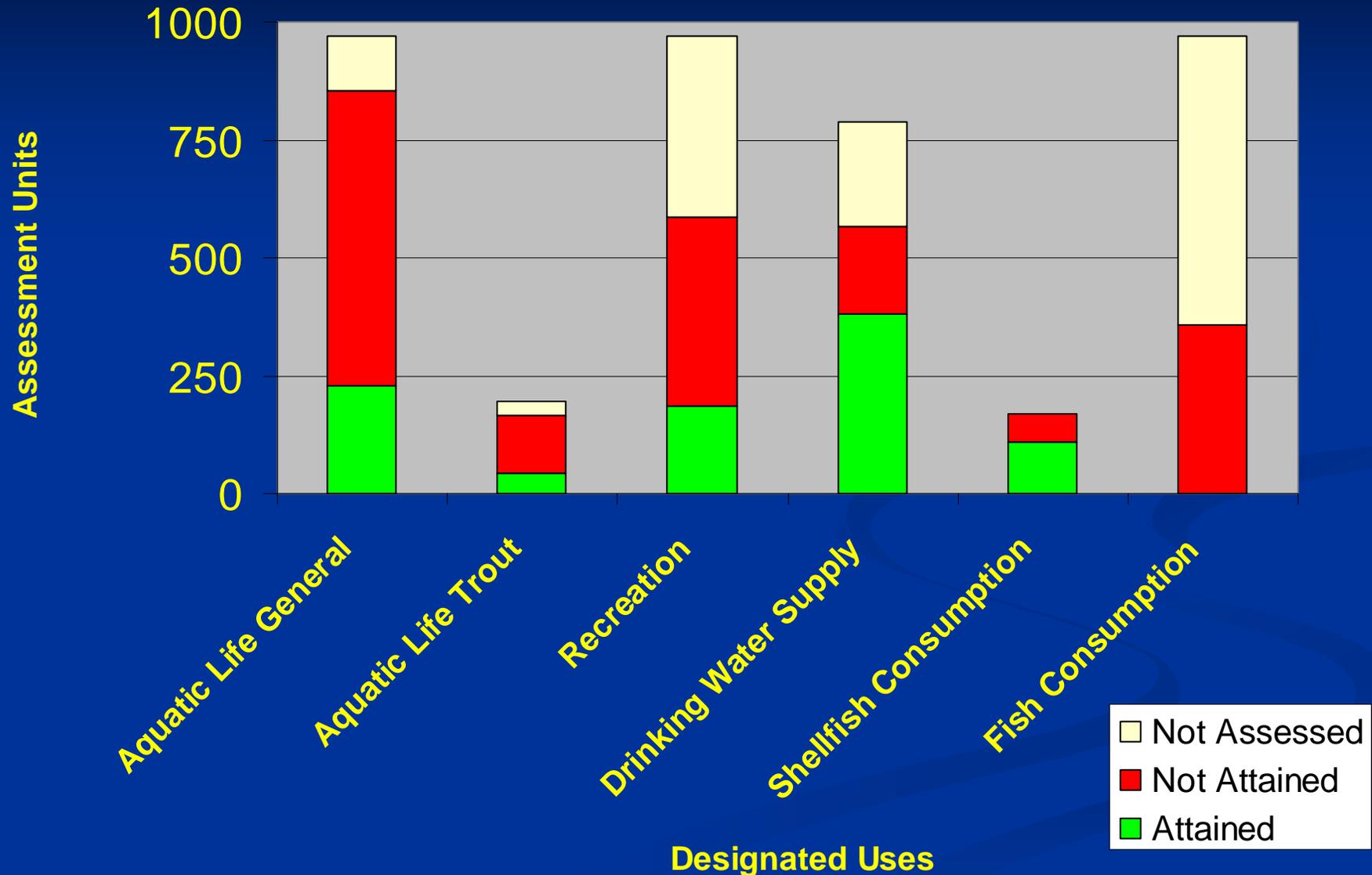
### Overall

- Attain
- Not Assessed
- Non Attain - TMDL
- Non Attain

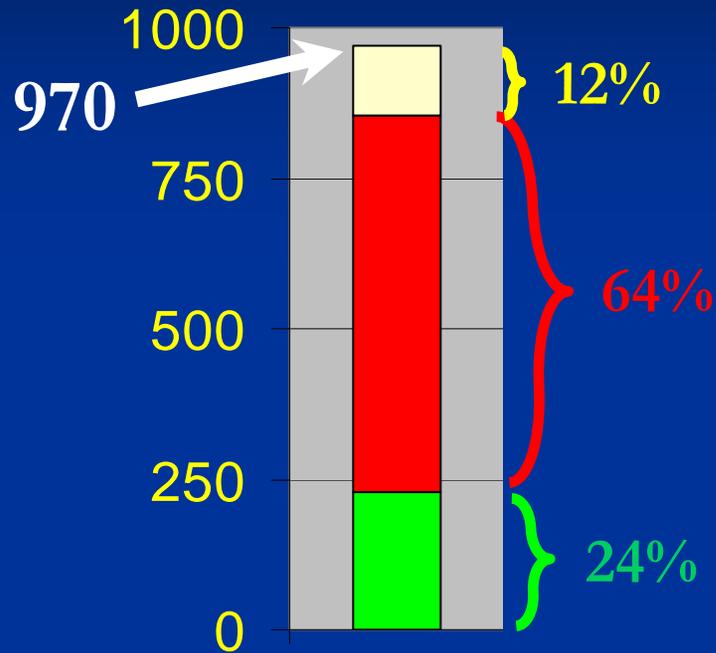
# 2008 Water Quality Assessment Results (cont'd)

- Assessment of all uses increased by almost 50% over 2006:
  - 49% of AUs in 2008
  - 25% of AUs in 2006
- Only 6% of AUs were not assessed for any designated use; down from 10% in 2006
- 94% of AUs were assessed for at least one designated use

# 2008 Water Quality Assessment Results (cont'd)



# 2008 Water Quality Assessment Results (cont'd)



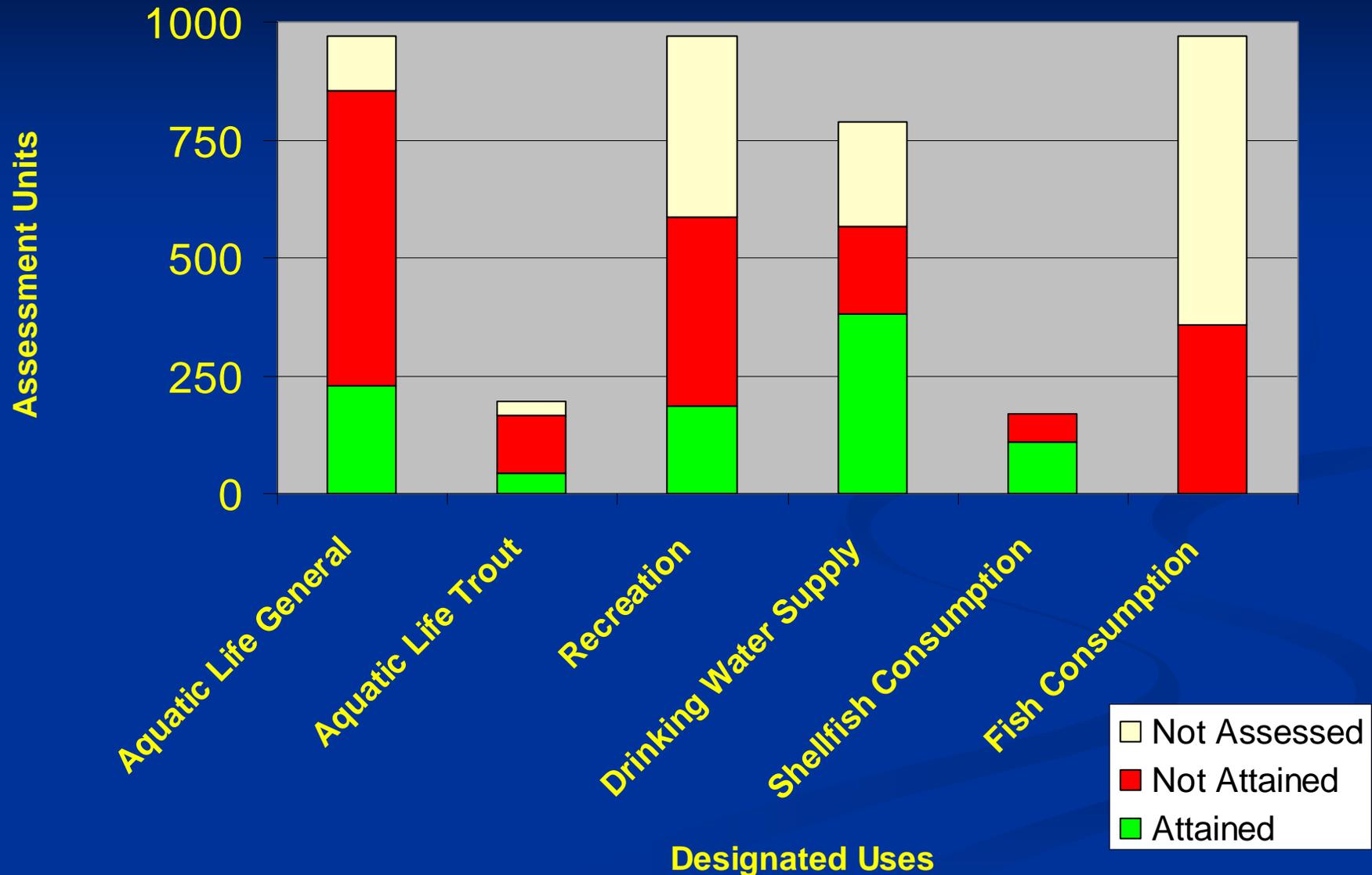
■ Bar Height Shows Relative Number of Applicable AUs per Designated Use (970 = All NJ AUs)

■ Bar Color shows Results per Use

- Yellow = Use Not Assessed
- Red = Use Not Attained
- Green = Use Attained

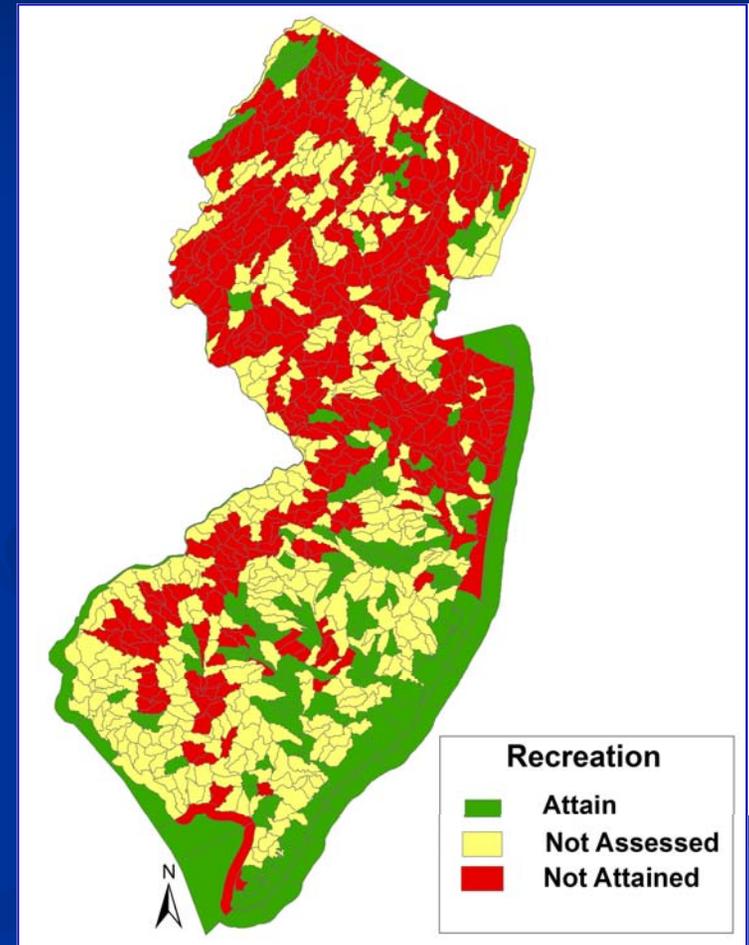
Aquatic Life General

# 2008 Water Quality Assessment Results (cont'd)



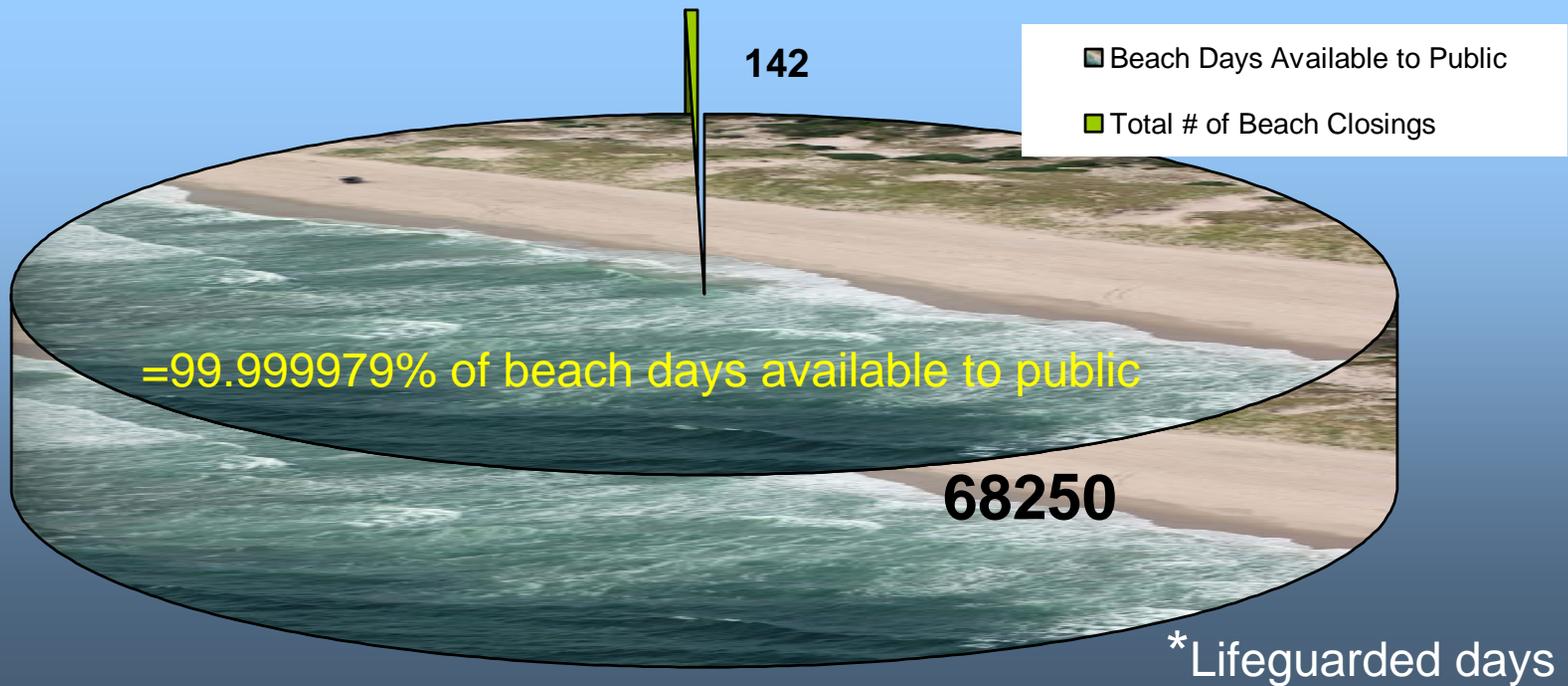
# Is It Safe To Swim at New Jersey Beaches?

- **Yes! All ocean beaches are fully swimmable.**
  - All 970 AUs are assessed for recreation but not all contain bathing beaches
  - Pollutants of concern: Pathogens (Enterococcus)



# Is It Safe To Swim at New Jersey Beaches?

## Beach Days Available to the Public (2007)

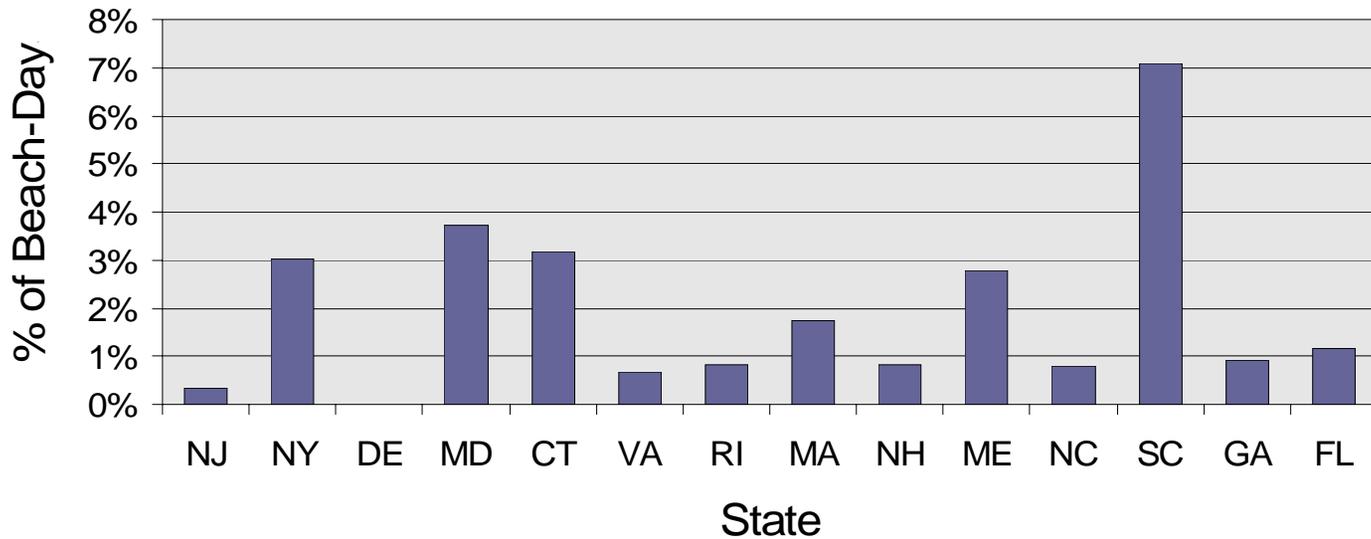


**NO** ocean beach closings due to high bacteria in 2007  
8 ocean beach closings due to rain-related precaution  
4 ocean beach closings due to floatables wash-ups

# Is It Safe To Swim at New Jersey Beaches?

## Beaches?

% of Beach-Days affected by a Closure/Advisory

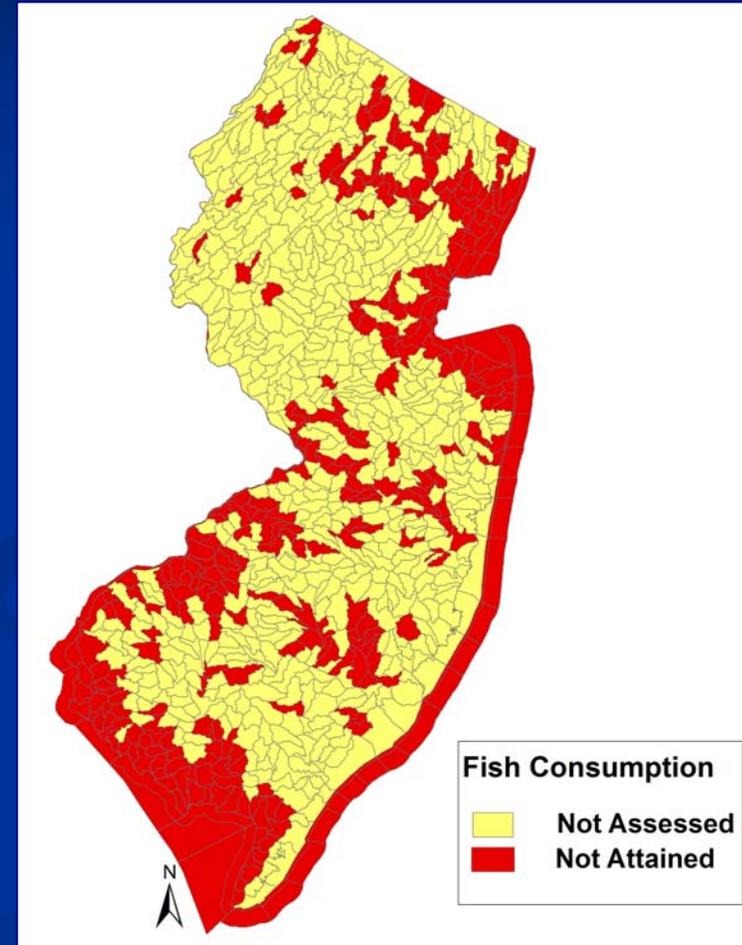


Source: NRD  
Water Quality  
Edition

# Can I Eat All The Fish I Catch?

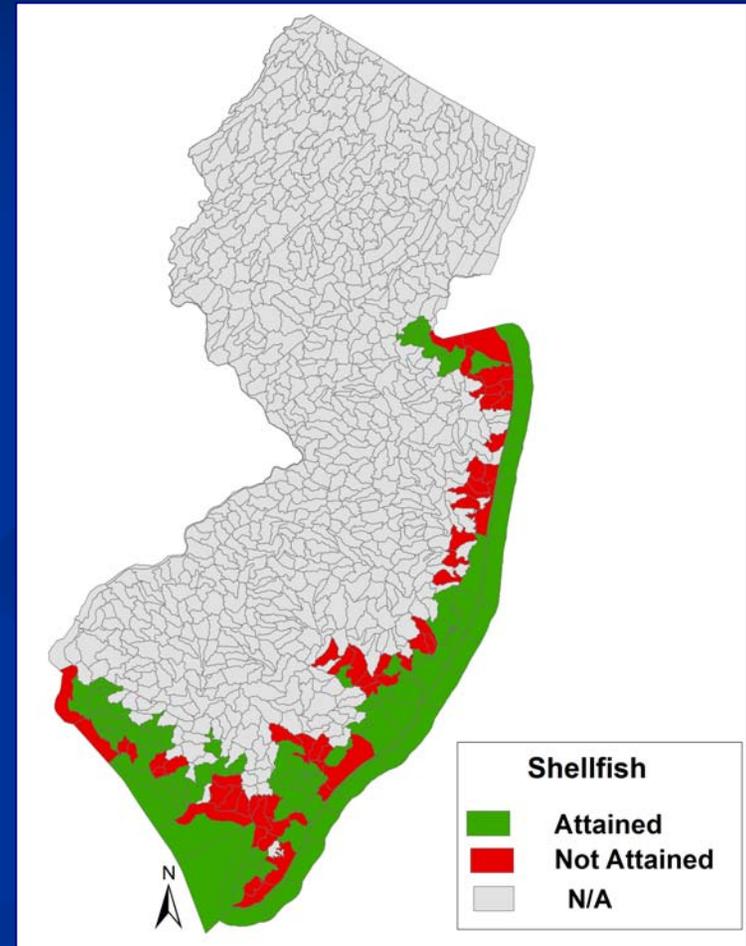
- No! Statewide and local fish consumption advisories are in place that restrict consumption of certain types of fish.
- Fish consumption advisories are issued for specific fish species and susceptible populations.
- Pollutants of concerns: mercury, PCBs, and dioxin.

[nj.gov/dep/dsr/njmainfish.htm](http://nj.gov/dep/dsr/njmainfish.htm)

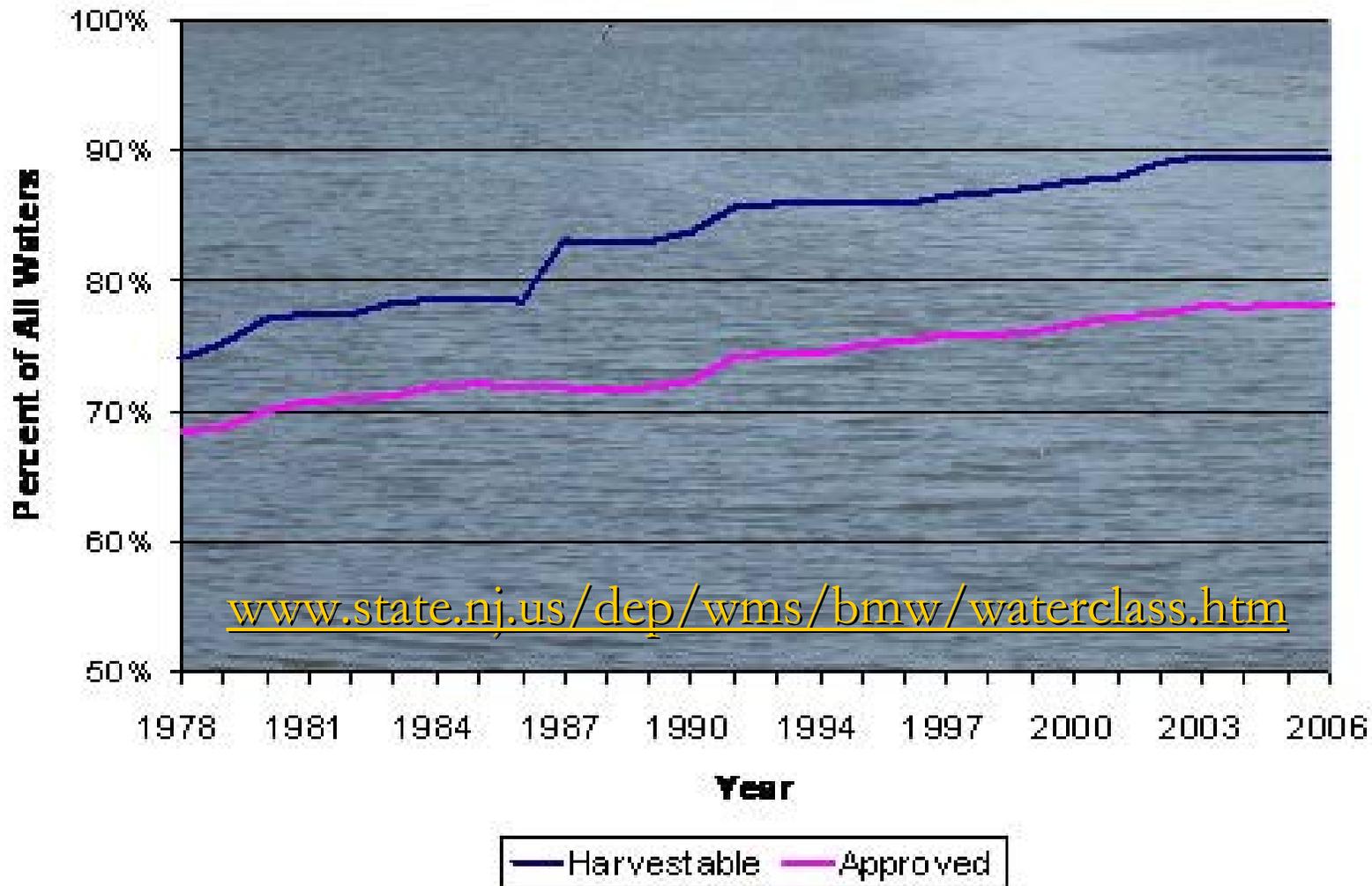


# Can I Harvest The Shellfish?

- Yes! Almost 90% of New Jersey's shellfish waters are classified as harvestable – only 11% are prohibited because of water quality.
  - Approved, Seasonal Restricted, Special Restricted, Prohibited
  - Pollutant of concern: Pathogens

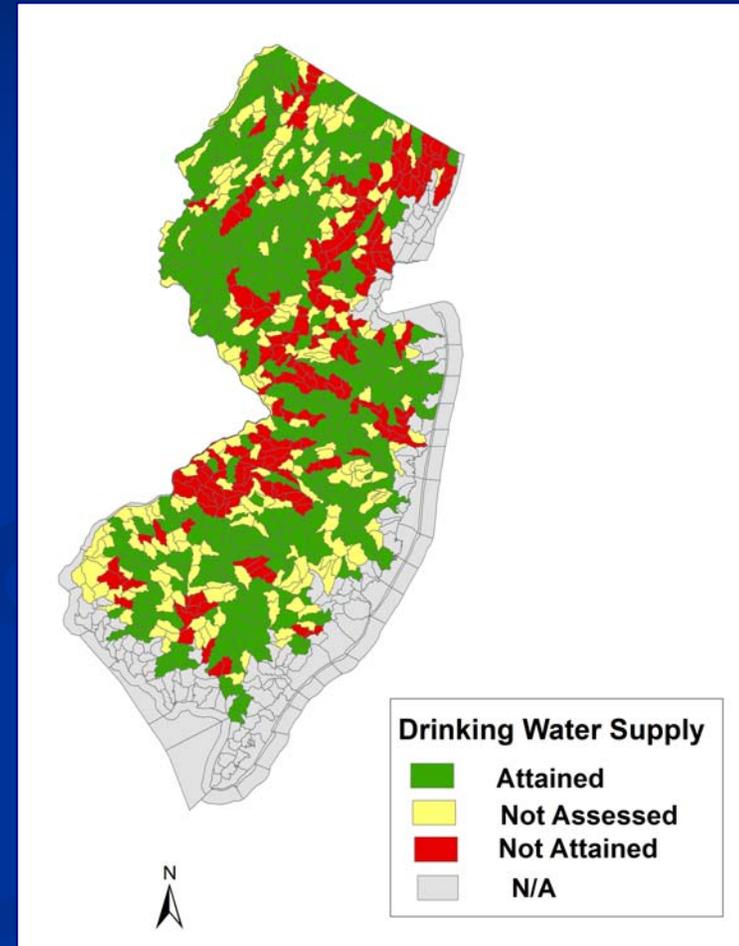


# Can I Harvest The Shellfish?



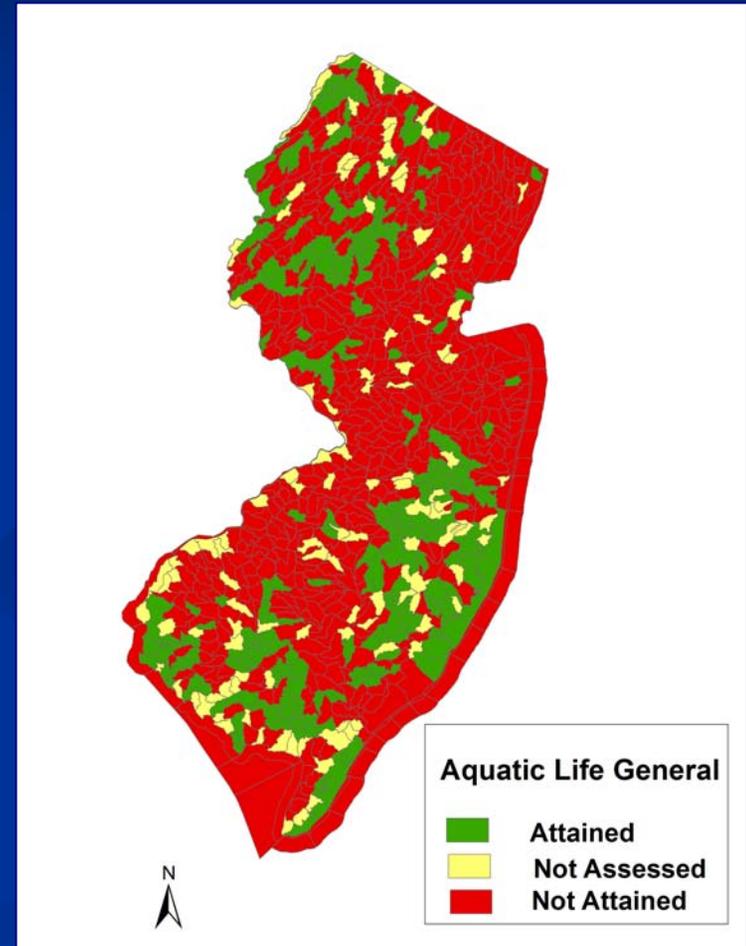
# Are My Drinking Water Supplies Safe?

- Yes! All finished drinking water supplies in NJ meet Safe Drinking Water Act standards.
  - Only 57% of New Jersey's potable supplies are drawn from surface waters; the rest are drawn from ground water.
  - Pollutant of Concern: Arsenic



# Is The Aquatic Ecosystem Healthy?

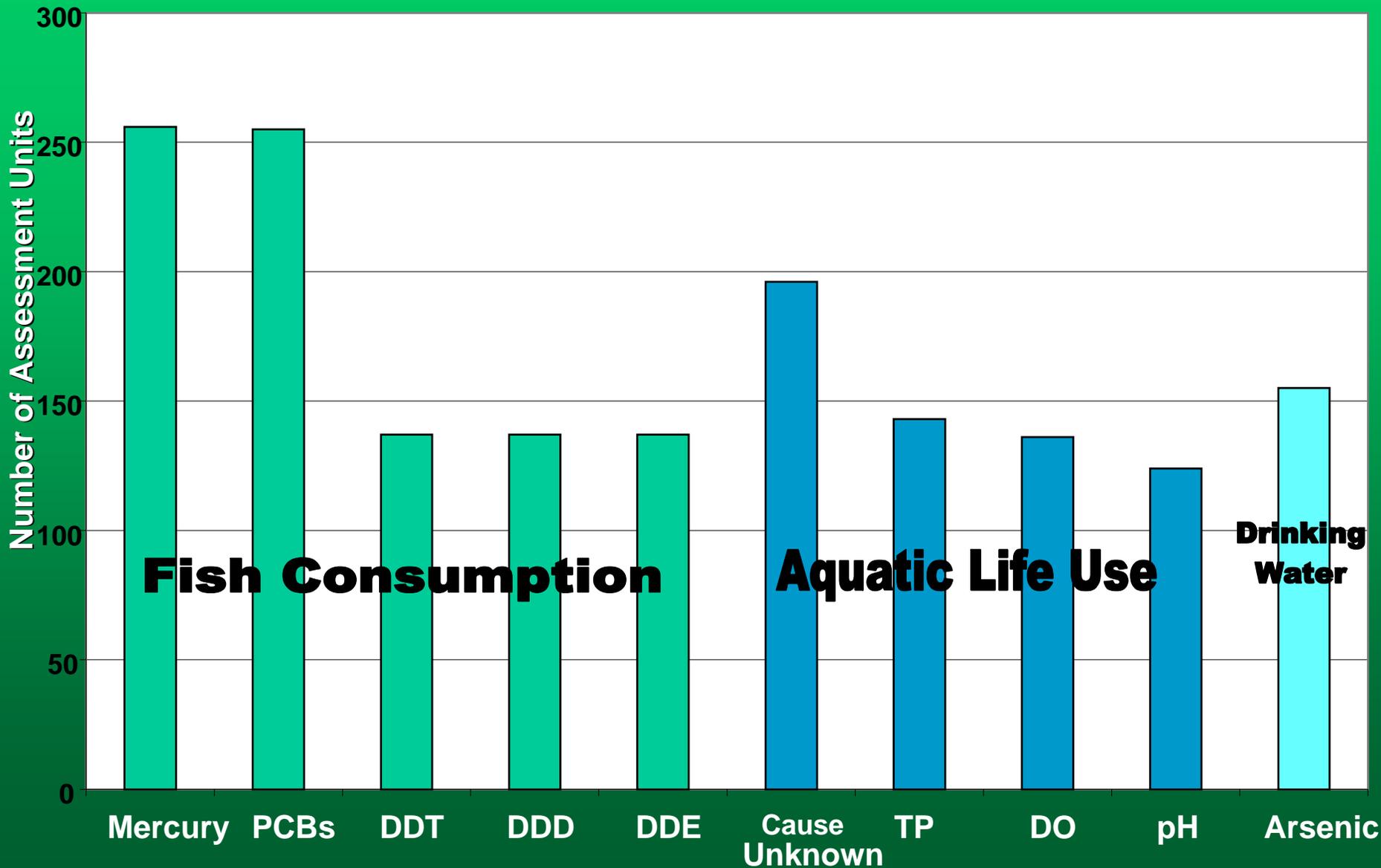
- **No! Over 70% of assessed waters did not attain the trout or general aquatic life use.**
- Assessment of both uses is based on numeric criteria and biological indicators
- **Pollutants of Concern**
  - Trout: Temperature and dissolved oxygen
  - General: Phosphorus, dissolved oxygen, pH, and “Cause Unknown”



# 2008 303(d) List

- This regulatory component of the Integrated Report:
  - Identifies AUs that do not attain designated uses (Sublist 5), along with the pollutant causing non-attainment, and require development of a TMDL to restore water quality.
- Contains 745 of 970 AUs = 41 pollutants and 2,304 AU/pollutant combinations
  - 589 new listings (on 2008 List but not 2006)
  - 487 delistings (on 2006 List but not 2008)

# 2008 Top Ten Listed Pollutants



# Cause Unknown

- Cause of non-attainment of the Aquatic Life Uses may be due to factors other than chemical pollutants, e.g., erosion and loss of habitat
- When biological data indicate impairment but chemical data is not available or does not demonstrate exceedance of numeric criteria = Cause Unknown
- Additional study is needed to determine the cause of aquatic life use non-attainment where a specific pollutant is not identified.

**Coming Soon:**

**The 2010 Integrated  
Water Quality Monitoring  
and Assessment Report**

# New in 2010

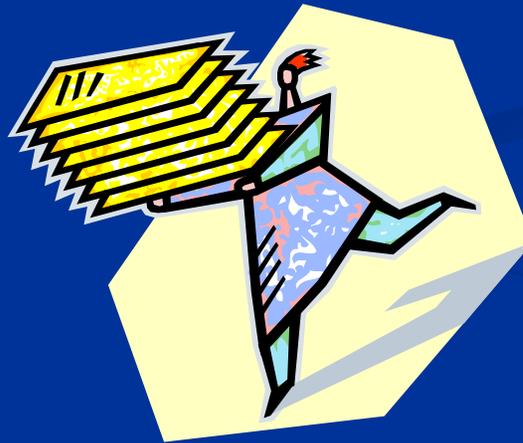
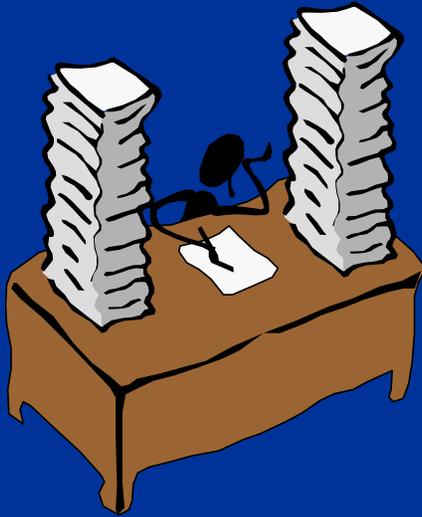
- New water quality criteria/assessment methods:
  - Nutrients, including Total Phosphorus
  - Temperature
  - pH
- New assessment methods/indices:
  - Biological Impairment in Freshwaters
  - Fish Consumption
- Use of DEP electronic database (WQDE) for submission of data to the Department
- Use of USEPA electronic database (ADB) for submission to USEPA

# 2010 Integrated Report

- Chapter 1 Overview: New Jersey's Water Resources
- Chapter 2 Summary of Monitoring Programs**
- Chapter 3 Water Quality Assessment
- Chapter 4 Results of the 2008 Water Quality Assessment
- Chapter 5 Water Quality Management Programs**
- Chapter 6 Public Health Concerns**
- Chapter 7 Cost/Benefit Analysis**
- Chapter 8 Public Participation
- Chapter 9 Next Steps - Preparing for 2010 and Beyond
- Appendices – Integrated List, 303(d) List, TMDL schedule, Methods Document and other related documents

# 2010 Integrated Report Schedule

- Submit to EPA for Approval: April 1<sup>st</sup>, 2010
- Adopt 2010 Integrated Report: June 2010?



# For More Information...

[www.state.nj.us/dep/wms/bwqsa/generalinfo.htm](http://www.state.nj.us/dep/wms/bwqsa/generalinfo.htm)

**Assessment**

- [Surface Water Quality Standards](#)
- [Ground Water Quality Standards](#)
- [Water Quality Assessment](#)
- [GIS Coverages](#)
- [SWQS and GWQS Rule Archives](#)
- [Technical Support and Related Documents](#)

**General Information**

The federal Clean Water Act mandates that states submit biennial reports to USEPA describing the quality of their waters. The biennial Statewide Water Quality Inventory Report or "305(b) Report" must include the status of principal waters in terms of overall water quality and support of designated uses, as well as strategies to maintain and improve water quality. The 305(b) reports are used by Congress and USEPA to establish program priorities and funding for federal and state water resource management programs. The biennial List of Water Quality Limited Waters or "303(d) List" identifies waters that are not attaining designated uses because they do not meet surface water quality standards despite the implementation of technology-based effluent limits. States must prioritize waters on the 303(d) List of Water Quality Limited Waters for Total Maximum Daily Load (TMDL) analyses and identify those high priority waters for which they anticipate establishing TMDLs in the next two years. The Integrated Report satisfies the reporting and public participation requirements of Sections 303(d), 305(b), and 314 of the federal Clean Water Act.

**New Jersey's Integrated Reports**

The New Jersey Integrated Water Quality Monitoring and Assessment Reports are intended to provide effective tools for maintaining high quality waters and improving the quality of waters that do not attain their designated uses. The Integrated Reports describe attainment of the designated uses specified in [New Jersey's Surface Water Quality Standards](#) (N.J.A.C. 7:9B), which include: aquatic life; recreation; drinking, industrial, and agricultural water supply; fish consumption; and shellfish harvest for consumption. The Integrated Report includes the following information to inform and guide water resource management at statewide, regional, and local levels:

- [Integrated Water Quality Monitoring and Assessment Methods \(Methods Document\)](#), which details the assessment methods used to by the Department to generate the Integrated List.
- The [Integrated List of Waters](#) , which identifies the use assessment results for each assessment unit as one of five categories, called "sublists", ranging from full attainment to non-attainment/requires a TMDL;
- The [303\(d\) List of Water Quality Limited Waters](#), which identifies waters assessed as impaired for specific pollutants based on non-attainment of the designated use i.e., Sublist 5);
- Sources and causes of pollutants causing impairment, where known;
- A schedule of TMDLs to be developed in the next two years to address impaired waters identified on Sublist 5 (303(d) List);
- Ongoing and planned strategies to maintain and improve water quality statewide, including summaries of the Department's water pollution control programs; improve and expand water quality monitoring, including the Department's [Water Monitoring & Assessment Strategy \(2005-2014\)](#); and improve water quality assessment methods.

- [2010 Integrated Report Information](#)
- [2008 Integrated Report Information](#)

# Questions?

