



# Highlights of the 2008

# Integrated Water Quality Monitoring and Assessment Report

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NJ Water Monitoring  
Council Meeting

Sept 30, 2009



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Water Monitoring and Standards  
Bureau of Water Quality Standards and Assessment  
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[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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# 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)



Statewide  
Water Quality  
Report

**Integrated  
Report**

NJ - Since 2002

List of Water  
Quality Limited  
Waters

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

- Necessary to determine appropriate regulatory, preventive, and restorative actions:
  - Permits
  - Enforcement
  - Research
  - Funding



# 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



# How Do We Assess Water Quality?

## (cont'd)

- Surface Water Quality Standards
  - Surface Water Classifications
  - Designated Uses
  - Surface Water Quality Criteria
    - Numeric Criteria
    - Narrative Criteria (and Translators)
  - Policies, including:
    - Technical
    - Nutrients
    - Antidegradation



# Designated Uses

## ■ Aquatic Life

- ▶ General (All Waters = FW 1 & 2, PL, SC, SE1, 2 & 3)
- ▶ Aquatic Life - Trout (FW1&2)

## ■ Recreation

- ▶ Primary Contact Recreation (FW1&2, PL, SC, SE1)
- ▶ Secondary Contact Recreation (SE2 and SE3)

## ■ Water Supply

- ▶ Drinking Water Supply (FW2, PL)
- ▶ Agricultural Water Supply (FW2, PL)
- ▶ Industrial Water Supply (FW2)

## ■ Consumption

- ▶ Fish Consumption (All Waters = FW 1 & 2, PL, SC, SE1, 2 & 3)
- ▶ Shellfish Harvest for Consumption (SC, SE1)

# Minimum Suite of Parameters

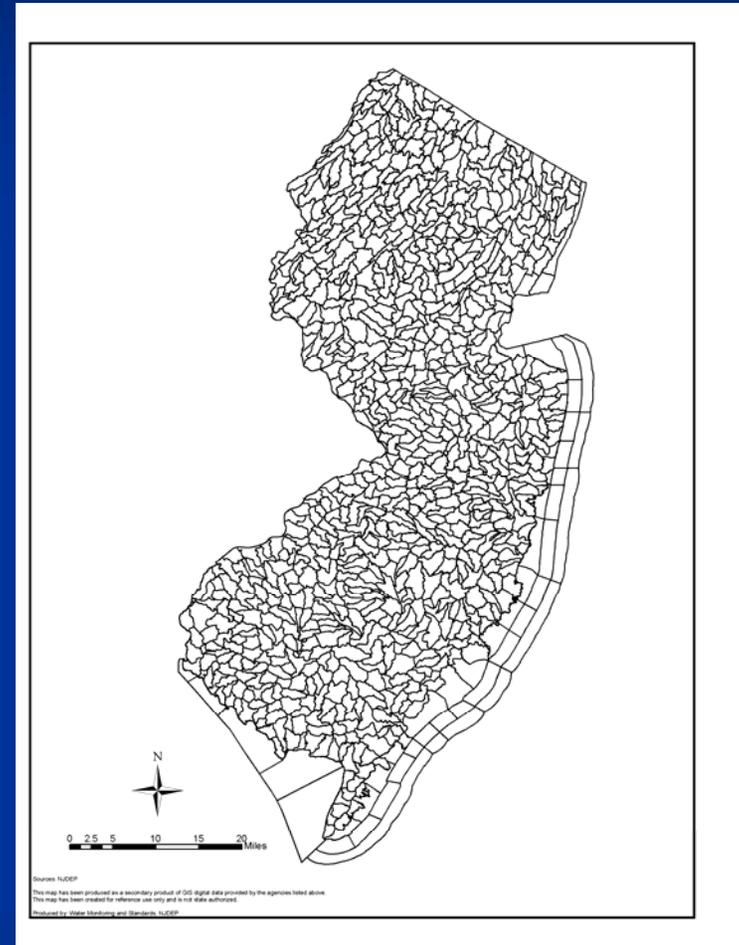
Aquatic Life - General	<ol style="list-style-type: none"> <li>1. Biological data; or</li> <li>2. pH, DO, temperature, TP, TDS and TSS (non- tidal); DO in tidal water</li> </ol>
Aquatic Life -Trout	<ol style="list-style-type: none"> <li>1. Biological data, temperature and DO; or</li> <li>2. pH, DO, temperature, total phosphorus, TDS and TSS</li> <li>3. Toxic Substances (e.g.,metals, pesticides)</li> </ol>
Recreation	Enterococcus, fecal coliform, or E. coli; Beach Closure Data (ocean beaches)
Fish Consumption	Fish Consumption Advisories
Shellfish Harvesting	Shellfish Classification
Drinking Water Supply	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)

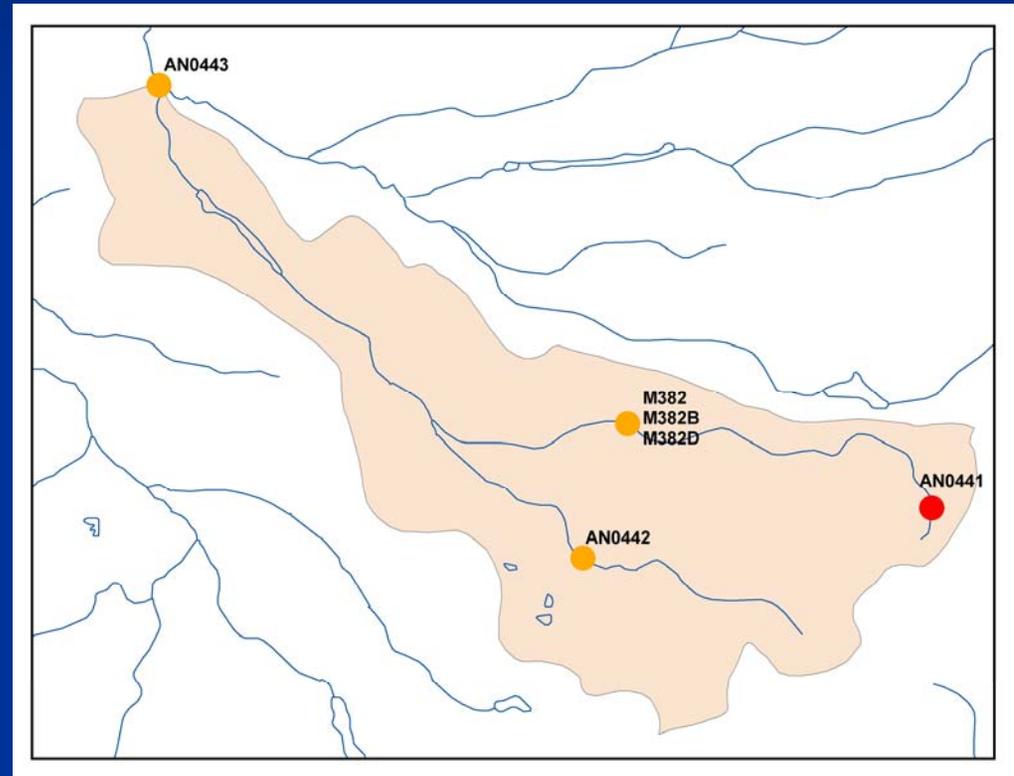
950 HUC 14 watersheds  
(with modifications)

+ 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



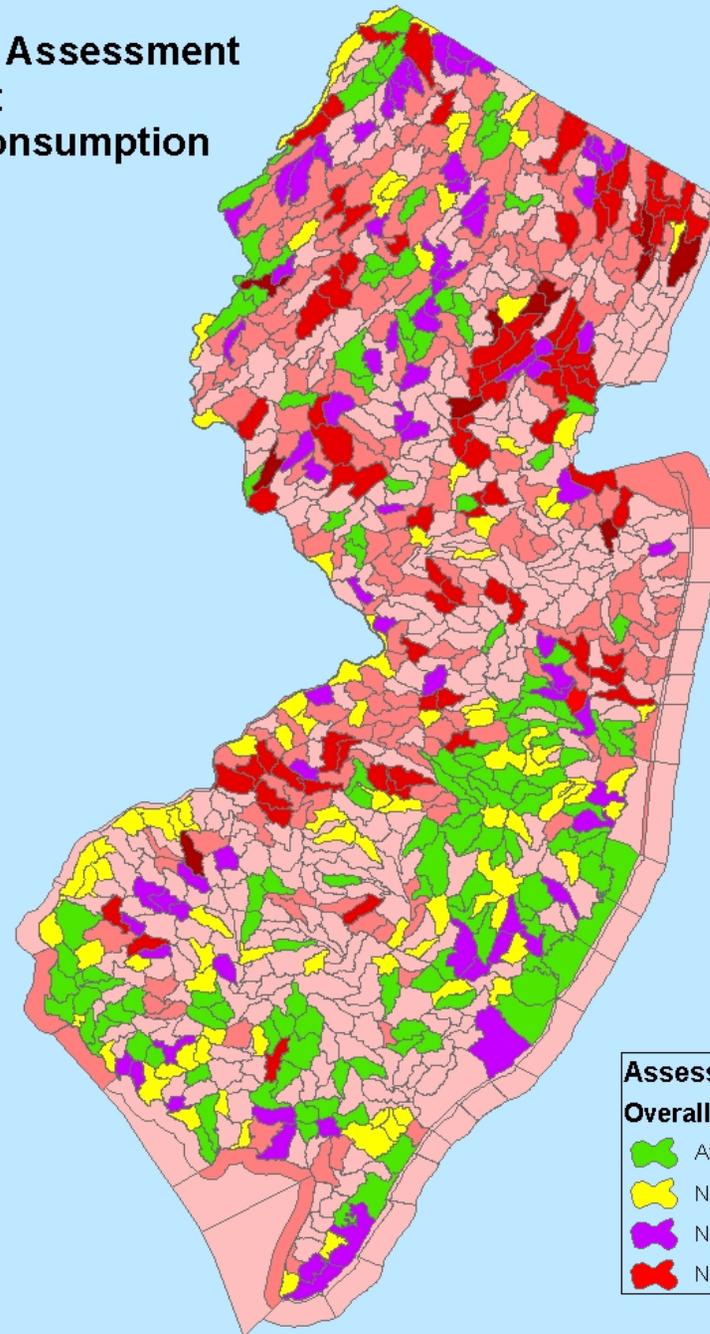
# 2008 Water Quality Assessment Results

## Waterbody Sublist 5

### Overall

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

## Overall Assessment without Fish Consumption



## Assessment Units

### Overall

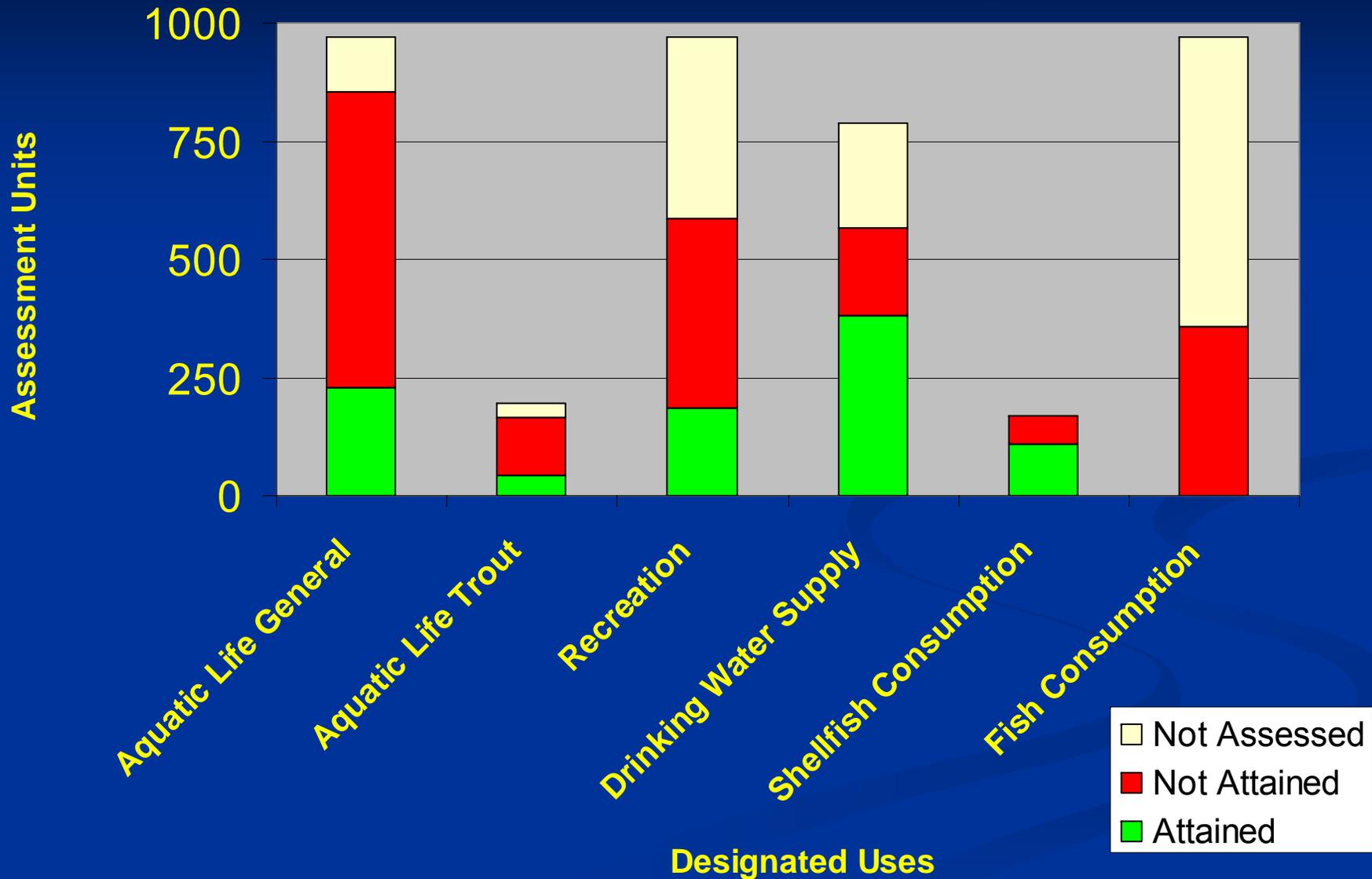
- Attain
- Not Assessed
- Non Attain - TMDL
- Non Attain

October 1, 2009

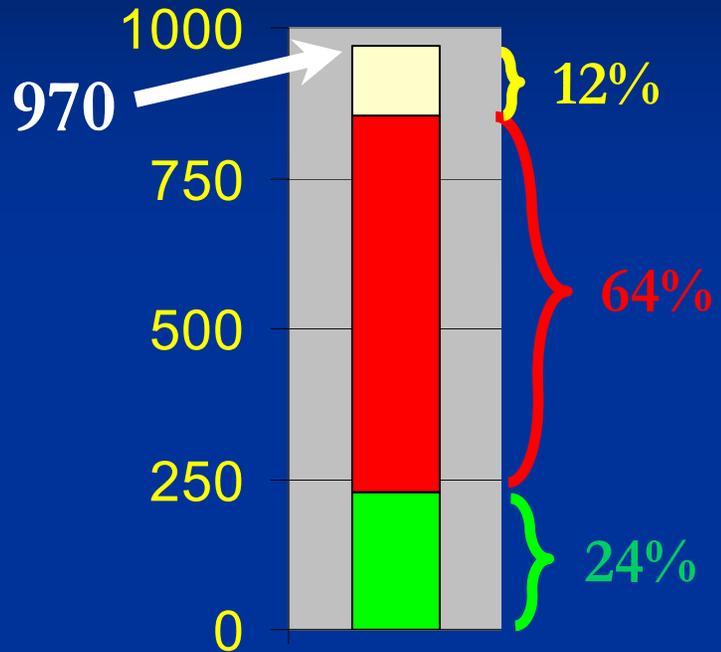
# 2008 Water Quality Assessment Results (cont'd)

- 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)



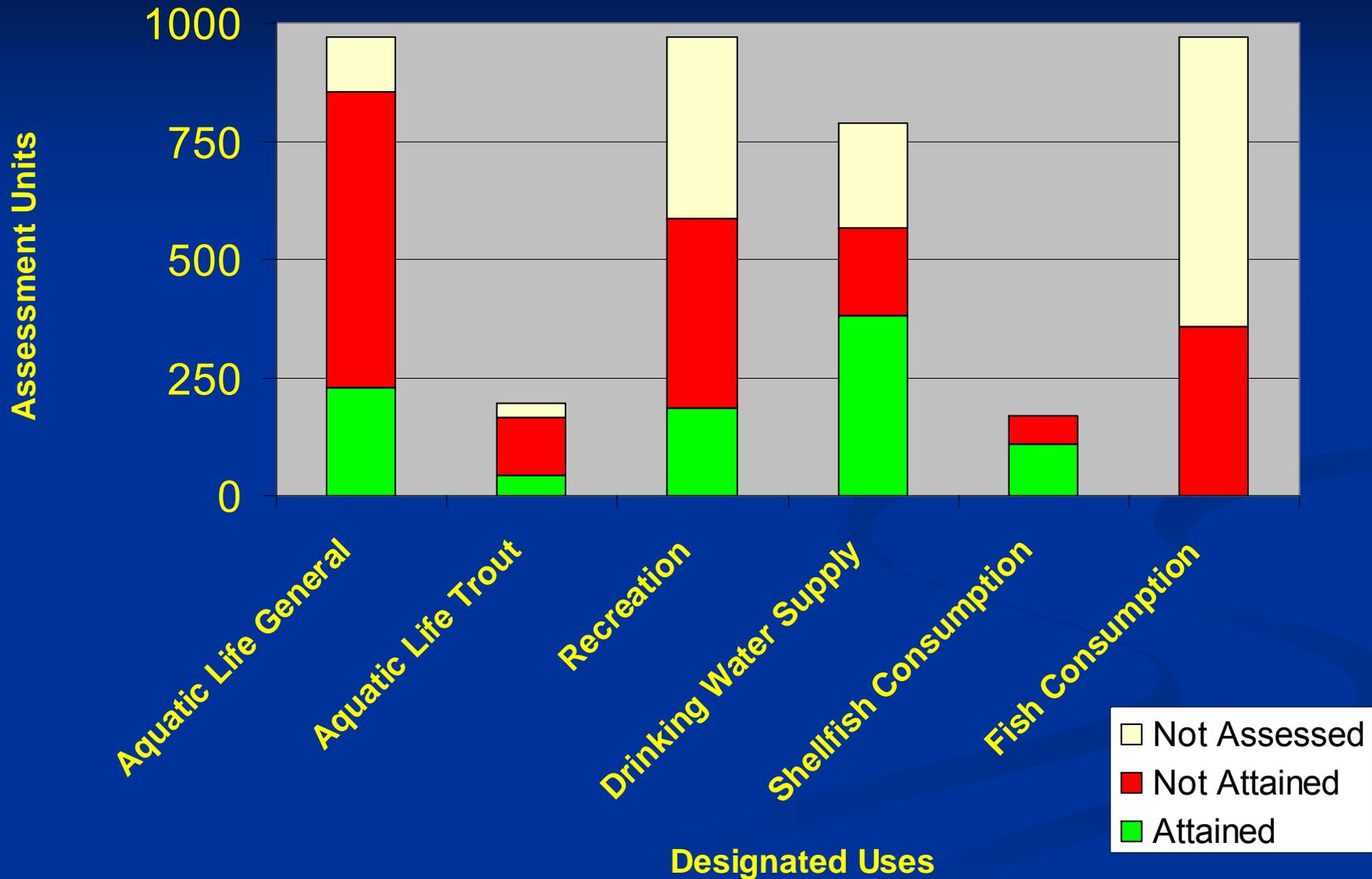
■ Bar Height Shows Relative Number of Applicable AUs per Designated Use (970 = All NJ AUs)

■ 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)



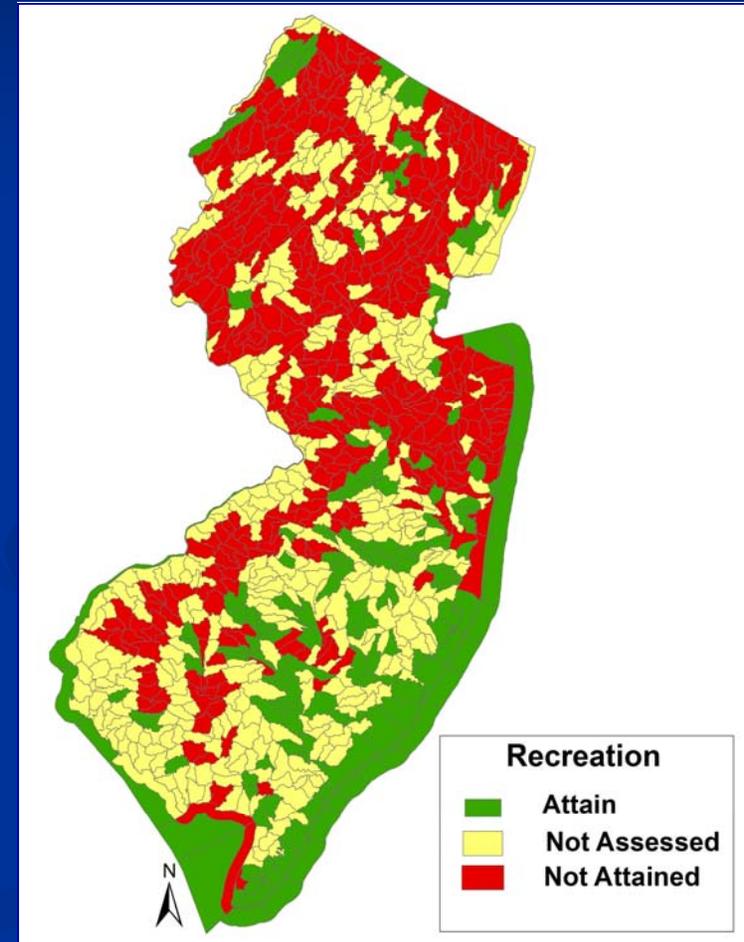


Prestige Brands, Inc.

<http://money.aol.com/special/top-25-ad-icons-of-all-time> viewed 09-28-09

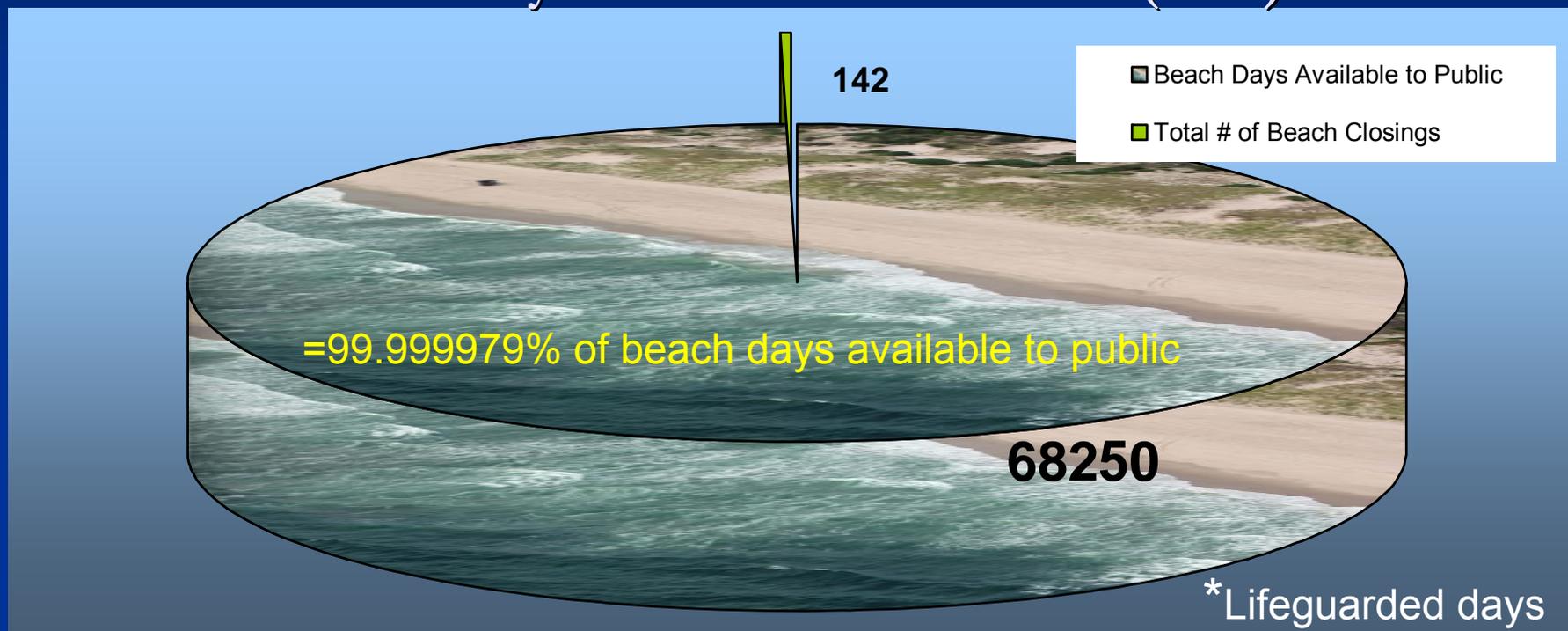
# Is It Safe To Swim at New Jersey Beaches?

- **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?

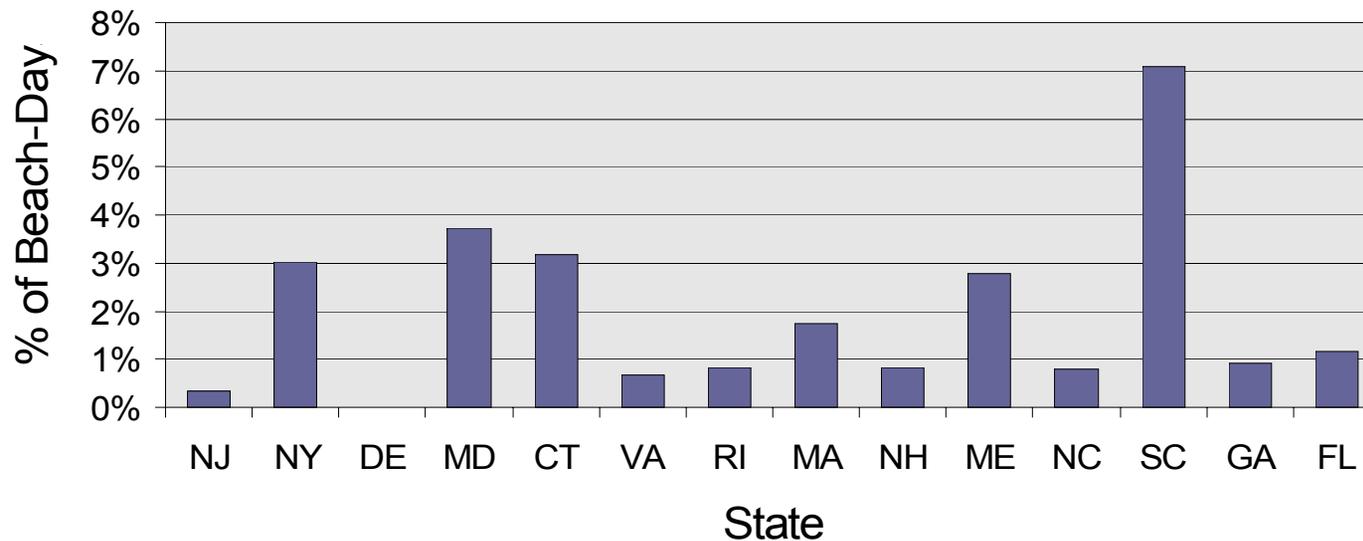
## Beach Days Available to the Public (2007)



**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?

% of Beach-Days affected by a Closure/Advisory

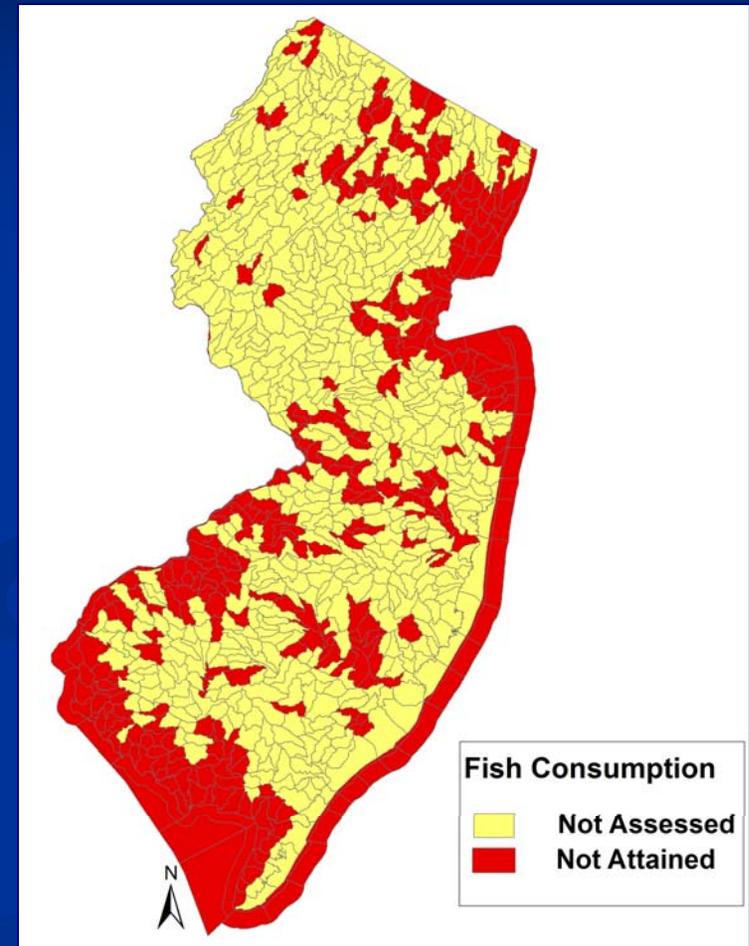


Source: NRD  
Water Quality  
Edition

# Can I Eat All The Fish I Catch?

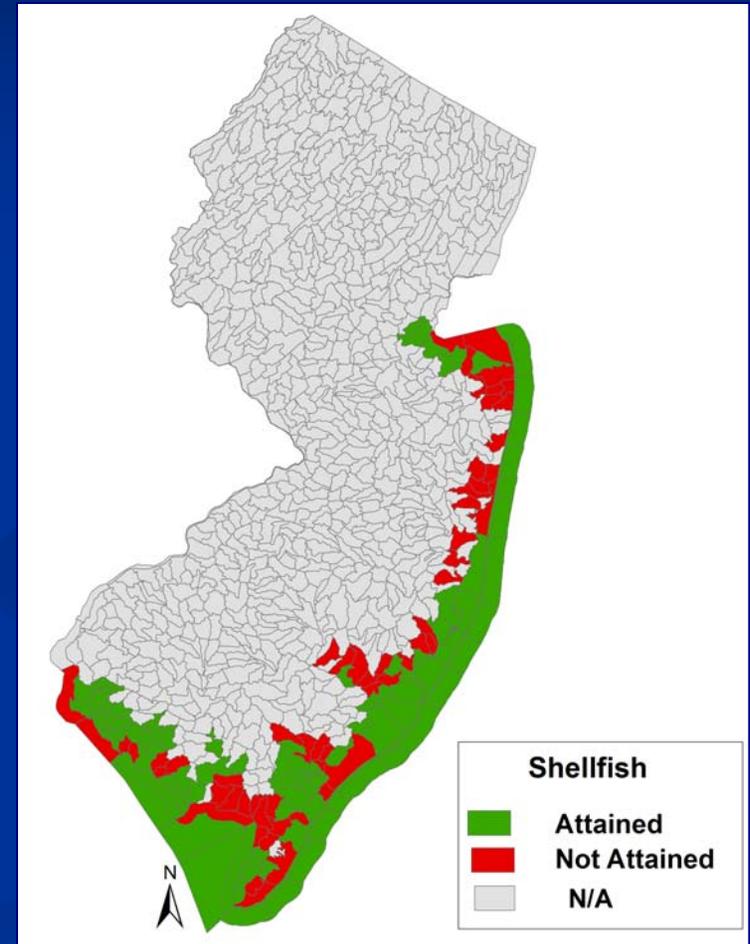
- No! Statewide and local fish consumption advisories are in place that restrict consumption of certain types of fish.
- Fish consumption advisories are issued for specific fish species and susceptible populations.
- Pollutants of concerns: mercury, PCBs, and dioxin.

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

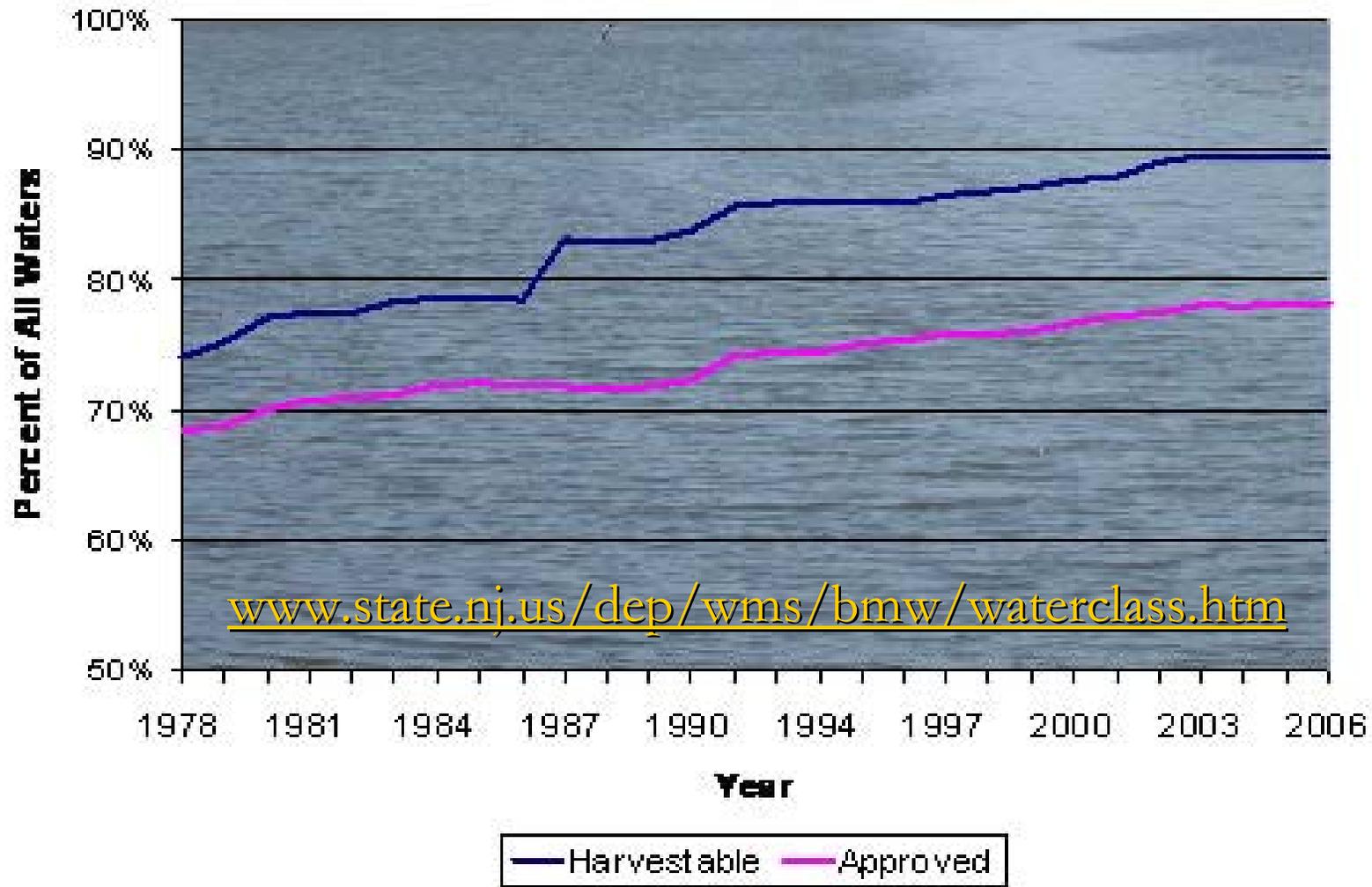


# Can I Eat The Shellfish?

- Yes! All shellfish legally harvested from New Jersey shellfish waters are safe to eat.
  - Approved, Seasonal Restricted, Special Restricted, Prohibited
  - Pollutant of concern: Pathogens

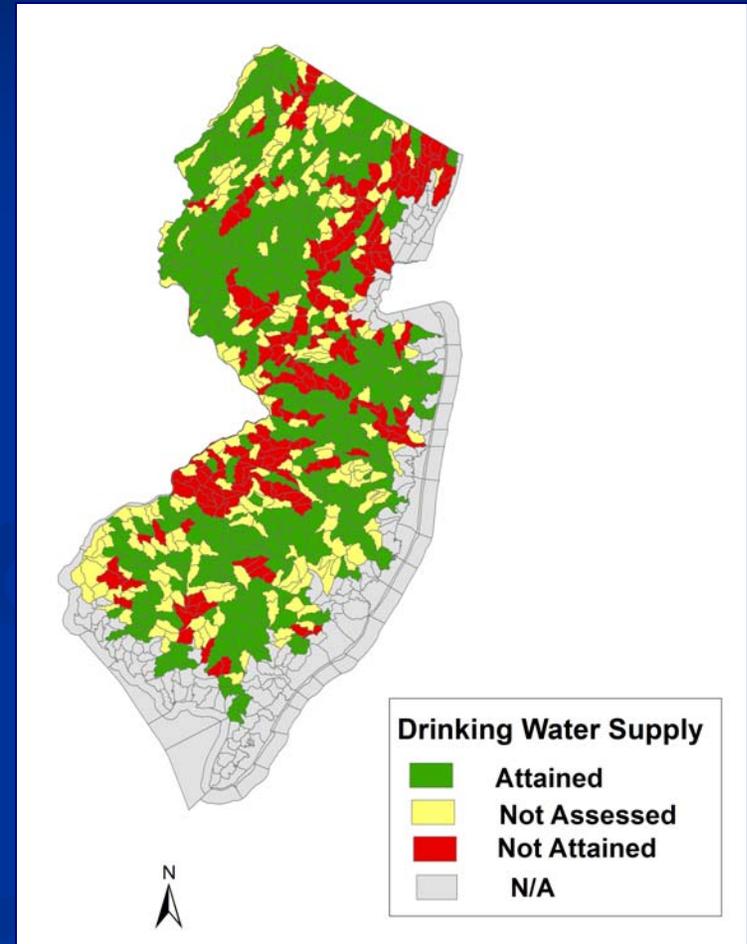


# Can I Eat The Shellfish?



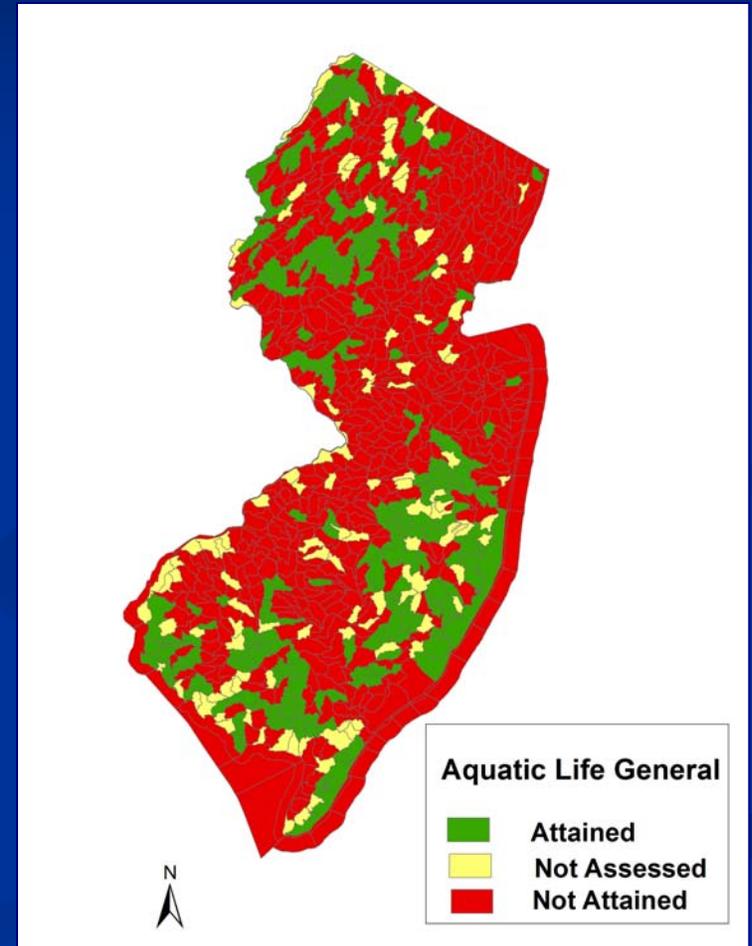
# Are My Drinking Water Supplies Safe?

- 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?

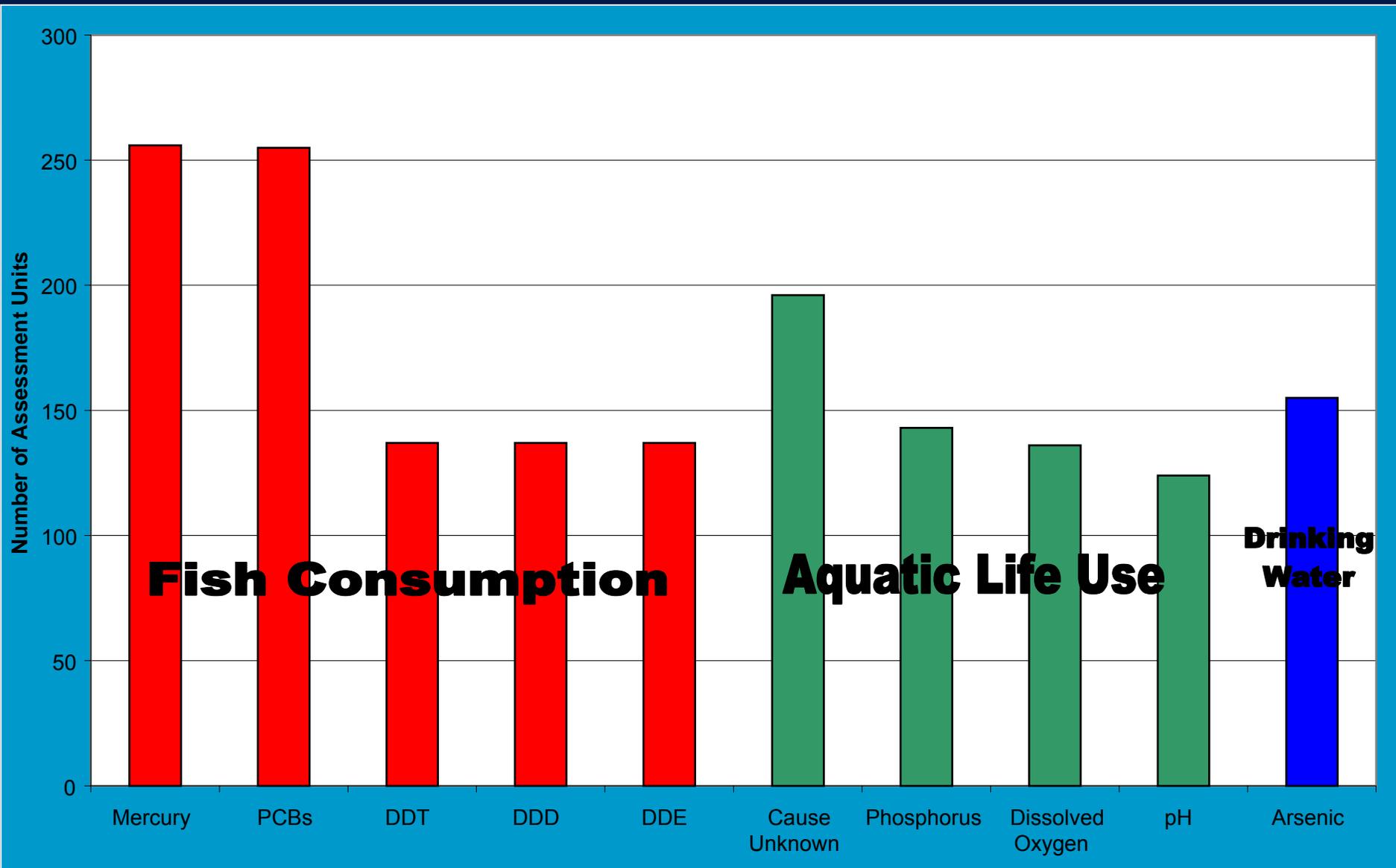
- **No! Over 70% of assessed waters did not attain the trout or general aquatic life use.**
- Assessment of both uses is based on numeric criteria and biological indicators
- **Pollutants of Concern**
  - Trout: Temperature and dissolved oxygen
  - General: Phosphorus, dissolved oxygen, pH, and “Cause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

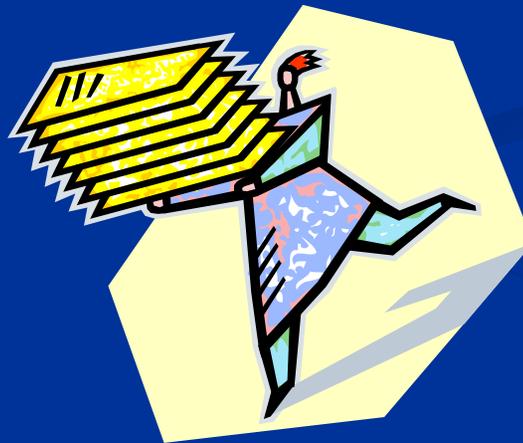
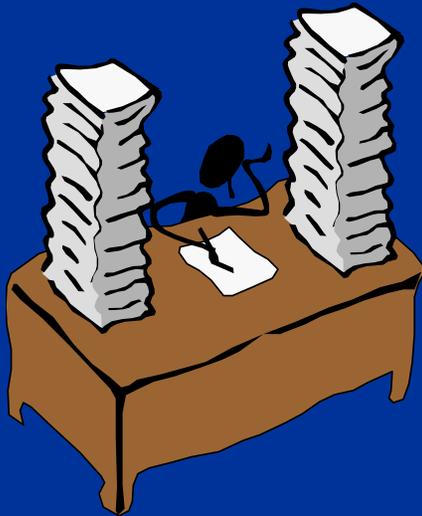
- New water quality criteria/assessment methods:
  - Nutrients, including Total Phosphorus
  - Temperature
  - pH
- New assessment methods/indices:
  - Biological Impairment in Freshwaters
  - Fish Consumption
- Use of DEP electronic database (WQDE) for submission of data to the Department
- Use of USEPA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



# Questions?



[www.state.nj.us/dep/wms/bwqsa/2008\\_integrated\\_report.htm](http://www.state.nj.us/dep/wms/bwqsa/2008_integrated_report.htm)

