

# EPA Monitoring Priorities and the Surveys of the Nation's Waters

ACWI

January 17, 2007

The background of the slide is a solid blue color. In the lower right quadrant, there are several concentric white circles of varying sizes, resembling ripples on water. These ripples are arranged in a way that suggests a point of impact, with the largest ripple being the most prominent.

# Critiques\* of Water Monitoring Programs

- States and Tribes do not have all data needed to make decisions
  - Set water quality standards
  - Develop watershed plans and TMDLs
  - Evaluate effectiveness of programs
- Data inadequate for scientifically-valid characterization of water quality condition regionally or across U.S.

\*GAO, National Academy of Science, National Academy of Public Administration, and other reports

# Monitoring Initiative: Two Components

- **Enhance State and Tribal monitoring programs by providing new funds to States and Tribes to develop and implement monitoring strategies**
  - Enhance access to and use of data
  - Integrate tools to support more efficient use of monitoring resources in support of decision needs
- **Assess the condition of all of the Nation's waters and changes over time**
  - Create partnership among federal/State agencies and others to cost-effectively survey the Nation's waters
  - Provide information, with documented confidence, on the extent of water quality problems and key stressors across the country to support decision making

# Allocation of Monitoring Initiative

- **Provide States, Tribes and Interstates \$9.8M in 106 grant for improved monitoring programs**
  - Provide each State ~\$170,000 annually for program enhancements outlined in state monitoring strategies, including implementing state-scale surveys
  - Continue to provide tribal and interstate set-aside
- **Provide States and Tribes \$8.4M in 106 grant to participate in statistically-valid surveys of the Nation's waters**
  - \$8000 per site for regional/national scale survey in lower 48
  - \$400K set aside to build survey capacity in AK, HI, trust territories

# Actions to Track the Condition of the Nation's Waters

- Implement national surveys
  - Assess all waters using statistically-valid surveys
  - Report on status and trends in streams, lakes, rivers, coastal waters, & wetlands
  - Evaluate effectiveness of water resource protection and restoration
- Seek uses of survey data to support water resource protection and restoration
  - Develop water quality standards and criteria
  - Prioritize stressors and follow up analyses
- Integrate data and information to build landscape/predictive tools
  - Prioritize monitoring activities among impaired, high quality and vulnerable waters
  - Set priorities for protection and restoration activities

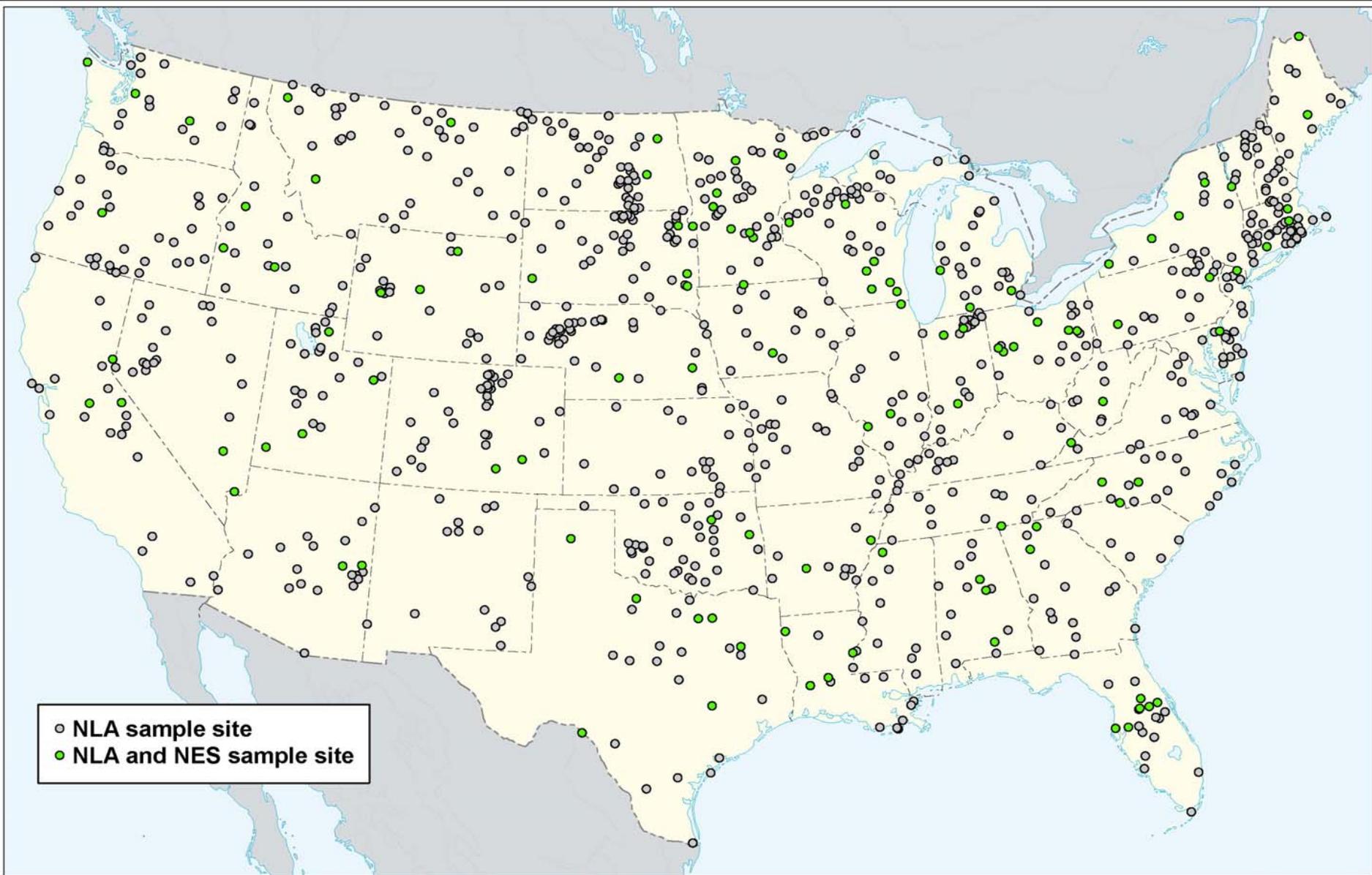
# Purpose of National Water Resource Surveys

- **Report on the condition of waters of the U.S.**
  - Report on core indicators with regional supplements
  - Standardized or comparable methods
  - Unbiased estimate of condition based on representative subset of waters
- **Provide information on key questions:**
  - To what extent do waters support healthy ecosystems, recreation?
  - Extent of resource affected by key water quality problems/stressors?
  - Is water quality improving?
  - Are we spending pollution control dollars wisely?

# National Water Resource Survey Schedule

	FY07	FY08	FY09	FY10	FY11	FY12	FY13
Lakes	Field	Lab, data	Report	Research	Design	Field	Lab, data
Rivers	Design	Field	Lab, data	Report	Research	Design	Field
Streams	Research	Design	Field	Lab, data	Report	Research	Design
Coastal	Report	Research	Design	Field	Lab, data	Report	Research
Wetlands	Research	Research	Research	Design	Field	Lab, data	Report

# Lakes Survey



# What are we going to measure?

(Core Indicators recommended by State/EPA Steering Comm.)

## ➤ Trophic status

- Water chemistry (nutrients, anions, cations, alkalinity, etc.)
- Chlorophyll a and other pigments
- Clarity (secchi disk, turbidity, TSS, color)

## ➤ Recreational use

- Pathogen indicator
- Algal toxins

## ➤ Biological condition

- Sediment diatoms (surficial and deep slice of sediment core)
- Phytoplankton
- Zooplankton
- Benthos (only if ORD contributes funds)
- Shoreline habitat

## ➤ Other measures

- Lake area, morphometry
- Watershed characteristics

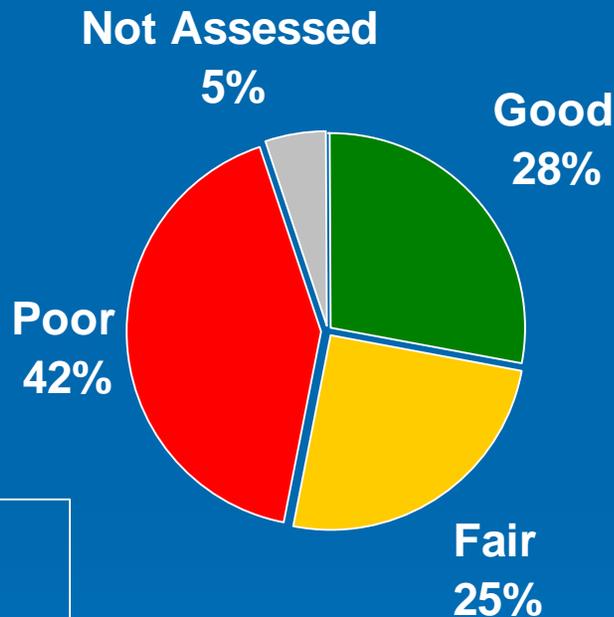
# Key Actions in 2007

- Finalize and distribute QAPP and Standard Operating Procedures (Jan '07)
- Procure equipment, field and lab services (winter '07)
- Conduct training for field crews and auditors (spring '07)
- Co-sponsor forum for discussing data analysis and interpretation (spring '07)
- Support field and laboratory implementation (summer '07)

# Rivers Survey Planning

- National planning meeting Jan 10-12
  - 90 participants including states, tribe, interstate commissions, federal agencies
- Focus on input for design, indicators and field methods
- Forming steering committee

# Wadeable Streams Assessment - Key Findings



Biological Condition of Streams  
(Index of Biotic Condition)

The WSA found 28% of streams in good condition, compared to least-disturbed reference condition.

Across the US 25-30% of streams have high levels of nutrients or excess sedimentation. These streams are twice as likely to have poor biology.

# Coastal Condition Reports

- Release National Estuary Program Coastal Condition Report describing the condition of the NEPs using consistent and comparable data (winter '07).
- Draft National Coastal Condition Report III for public comment and concurrent peer, technical and policy review (spring '07)

# Wetlands Survey

- Re-initiated National Wetlands Monitoring and Assessment Work Group in 2007
  - Build state/tribal monitoring capacity, inform design considerations
  - National Workshop in May 2007 in Kansas City, MS
- Regional Pilot Projects – “Testbeds”
  - Gulf of Mexico Coastal Wetlands (2007 and 2008)
  - Mid-Atlantic Inland Wetlands (2008 and 2009)
- Working in partnership with US FWS National Wetland Inventory Team
  - Compliment US FWS Status and Trends Report

# Goals of Partnership for Surveys

- Report on the condition of the Nation's waters, with documented confidence, at regional and national scales, with option for State-scale estimates
  - Promote collaboration across jurisdictional and organizational boundaries in the assessment of water quality
  - Enhance State and Tribal capacity for monitoring and assessment
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# Actions to Build State and Tribal Capacity

- Provide guidance, tools and training in design, indicators, data management and priority setting
- Work with states and tribes to develop and implement monitoring strategies
- Support demonstrations/pilots on effective integrated monitoring designs to support CWA programs
- Promote collaboration and information exchange
  - NWQMC, volunteer monitoring, national survey meetings
- Work with tribes to implement the Tribal 106 Grant Guidance
- Seek opportunities to leverage national surveys

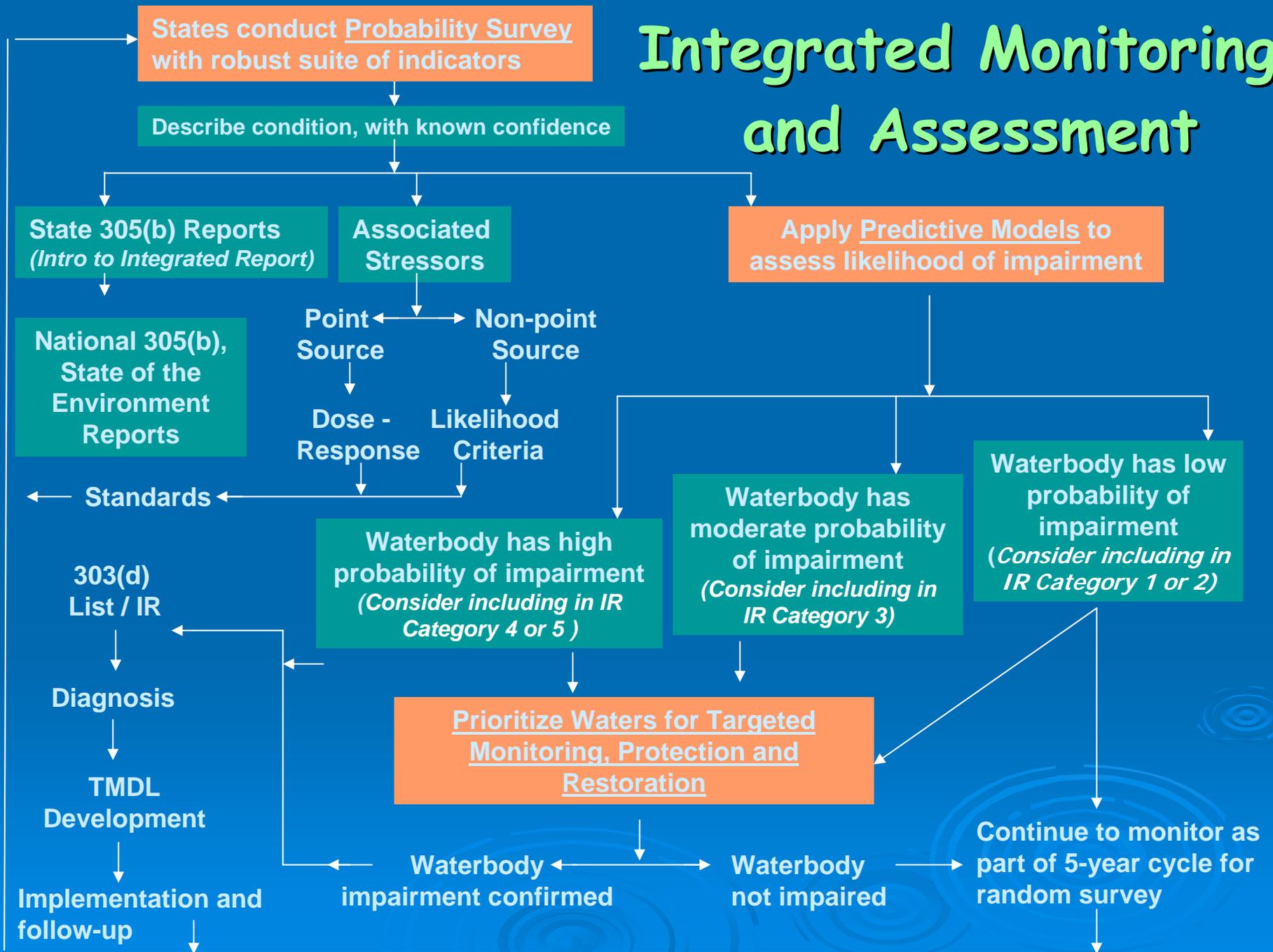
# Opportunities to Leverage National Surveys

- **Provide data to support CWA programs nationally**
  - Develop and enhance Water Quality Standards, *e.g.*, support criteria guidelines
  - Develop predictive tools, *e.g.*, SPARROW, LIPS
  - Develop diagnostic tools, *e.g.*, CADDIS
- **Support State water quality programs**
  - Use State- or finer-scale surveys to generate cost-effective assessment of 100% of State's waters
  - Develop predictive tools at State scale to identify vulnerable waters
  - Develop State water quality criteria and assessment tools

# Actions to Improve Access to and Use of Data

- Develop Water Quality Exchange (WQX) for easier data sharing
  - Data migration from existing systems
  - Web-based interface for small data providers
  - High-speed warehousing for quick downloads
  - Web-based data navigation and analysis tools
- Support electronic reporting of integrated water quality assessments
  - Integrate site-specific and survey-based assessments
  - Track both assessment results and administrative actions
- Provide provide geospatial tools to support program integration

# Integrated Monitoring and Assessment



# Landscape Indicators for Pesticides and Nutrients



- Random design, stratified across land use gradient
- One-time sampling during base flow index period
- Watershed size varied from 0.2 km<sup>2</sup> to 14.1 km<sup>2</sup>
- Benthos – EMAP 300 count, species level identification
- Water – NAWQA program, collection, sampling, and analysis procedures

