Selecting Priority Agricultural Watersheds

Implementing agricultural conservation practices that benefit the Chesapeake Bay

Chesapeake Bay Program

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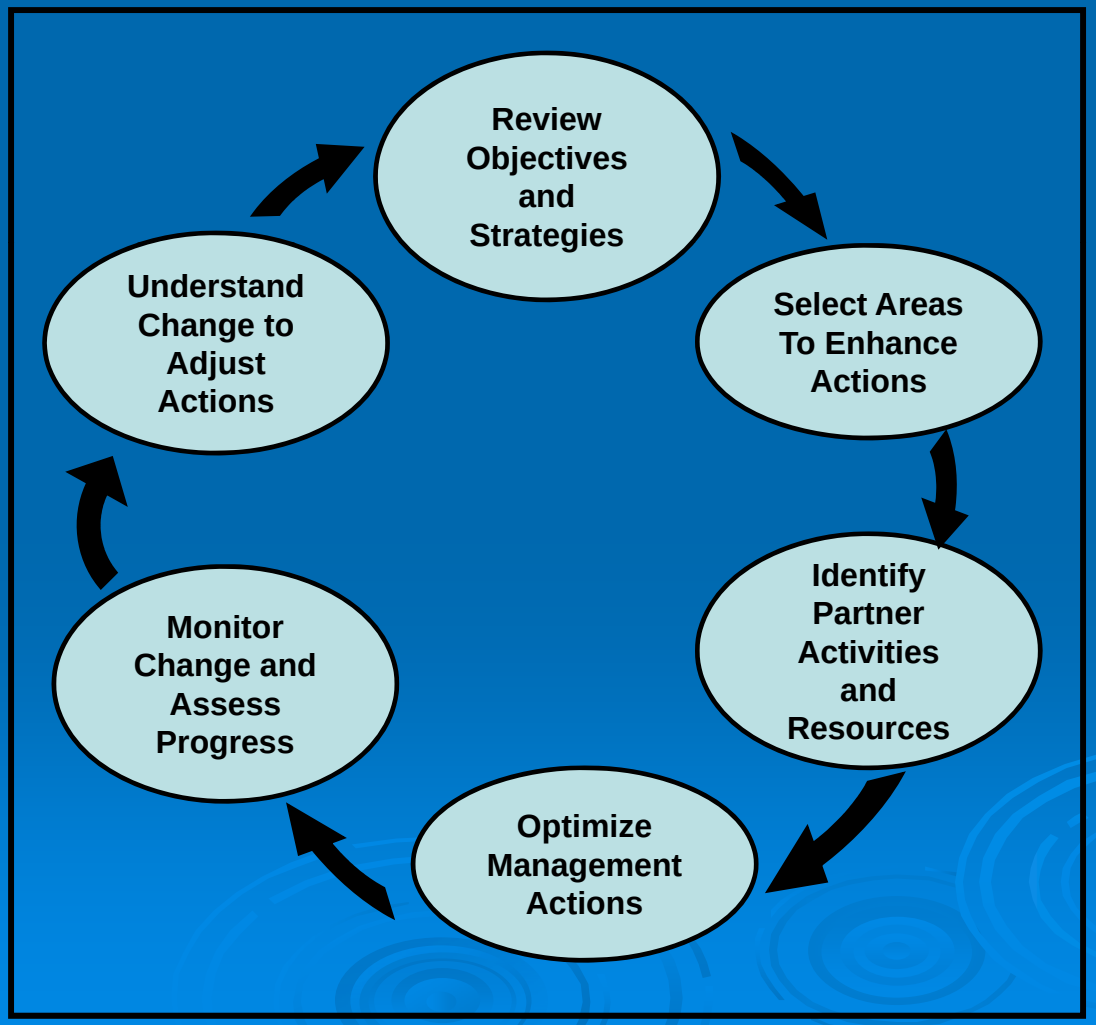
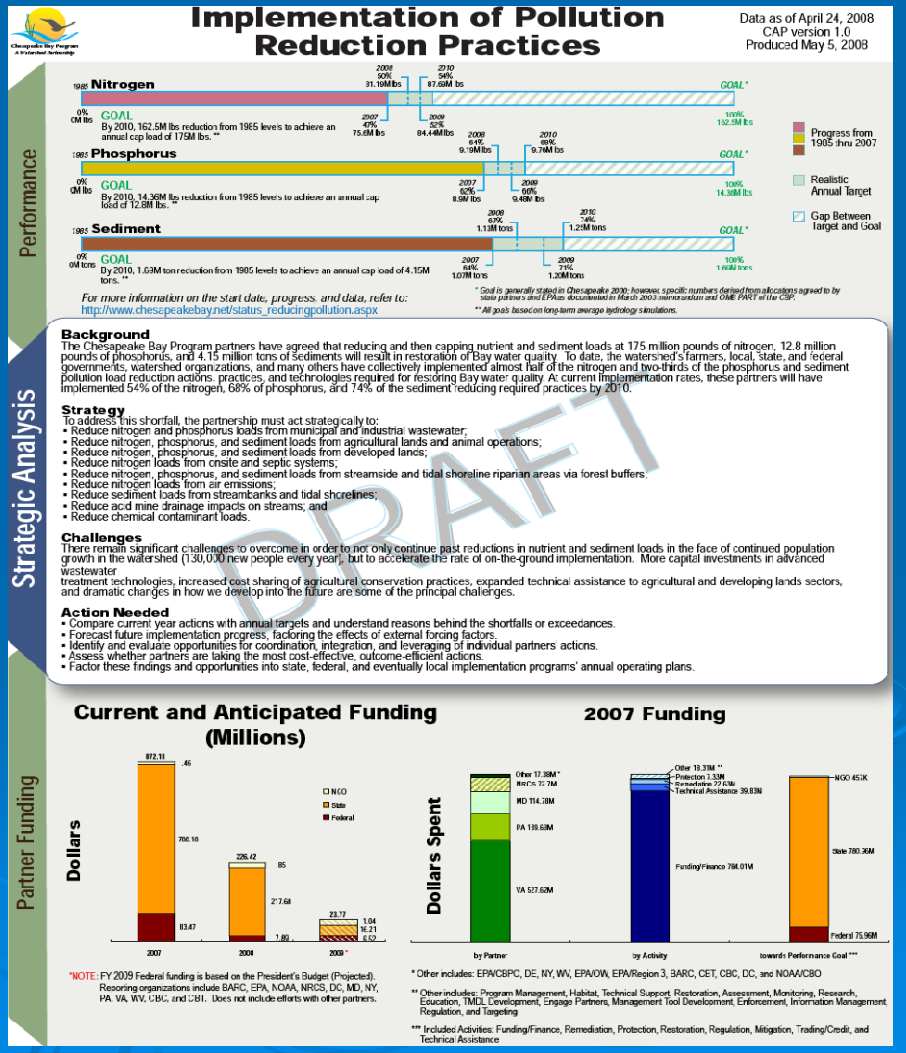
Chesapeake Online Adaptive Support Toolkit (COAST)



COAST: Objectives and Strategies

- **CBP restoration and protection goals**
  - **C2K and CAP**
  - **State tributary strategies**
- **Dashboards**



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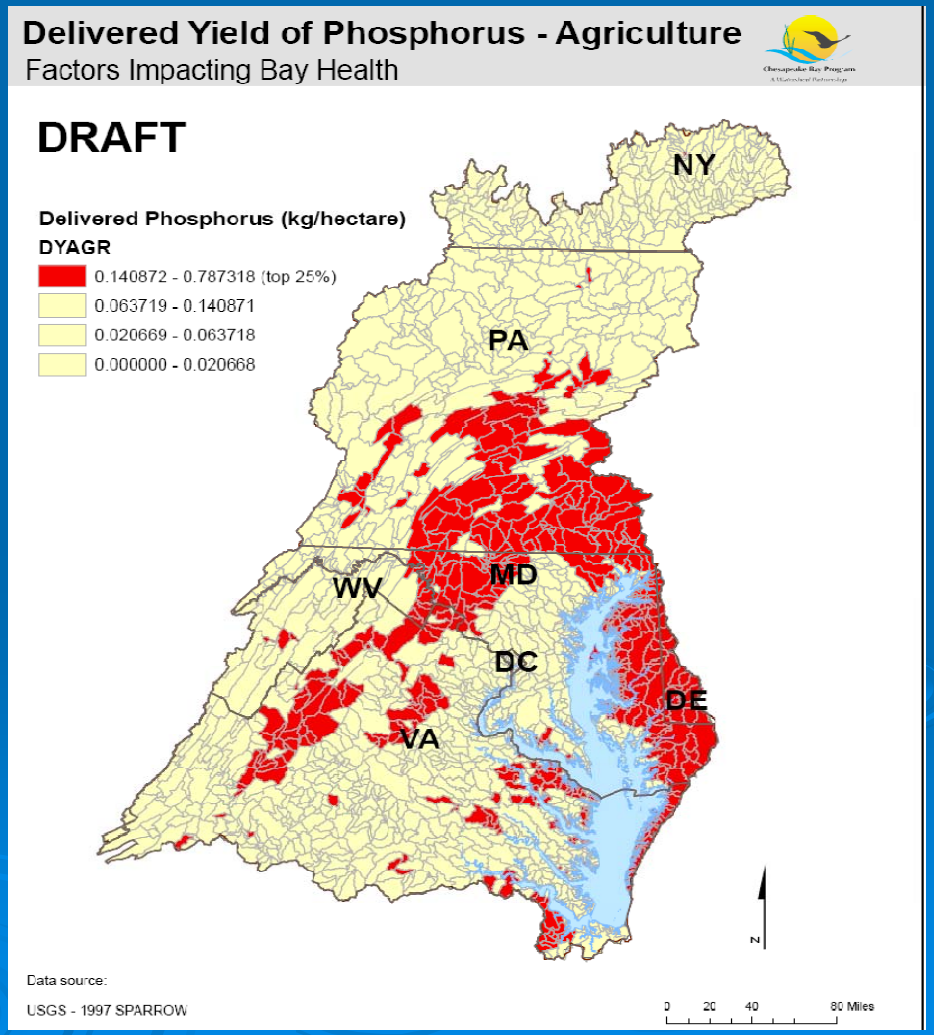
COAST: Select Areas to Enhance Actions

- Select areas to enhance actions
  - Protection
  - Restoration
  - "Source sectors"
- SPARROW model
- Additional information



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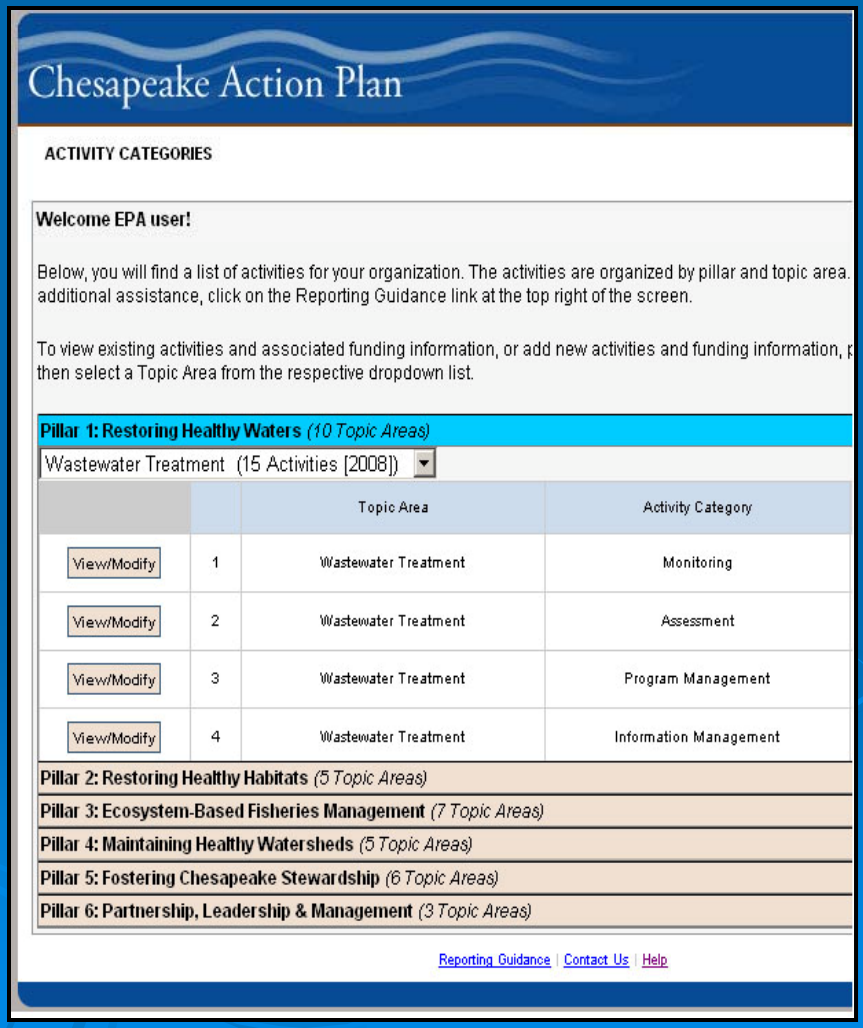
COAST: Identify Partner Activities and Resources

- **Provide information about current partner activities and resources to help enhance coordination**
- **Primary tool:**
  - **CAP activity database**
- **Contains information on:**
  - **Activities implemented**
  - **Cooperating partners**
  - **Source of funding**
  - **Location of activity**



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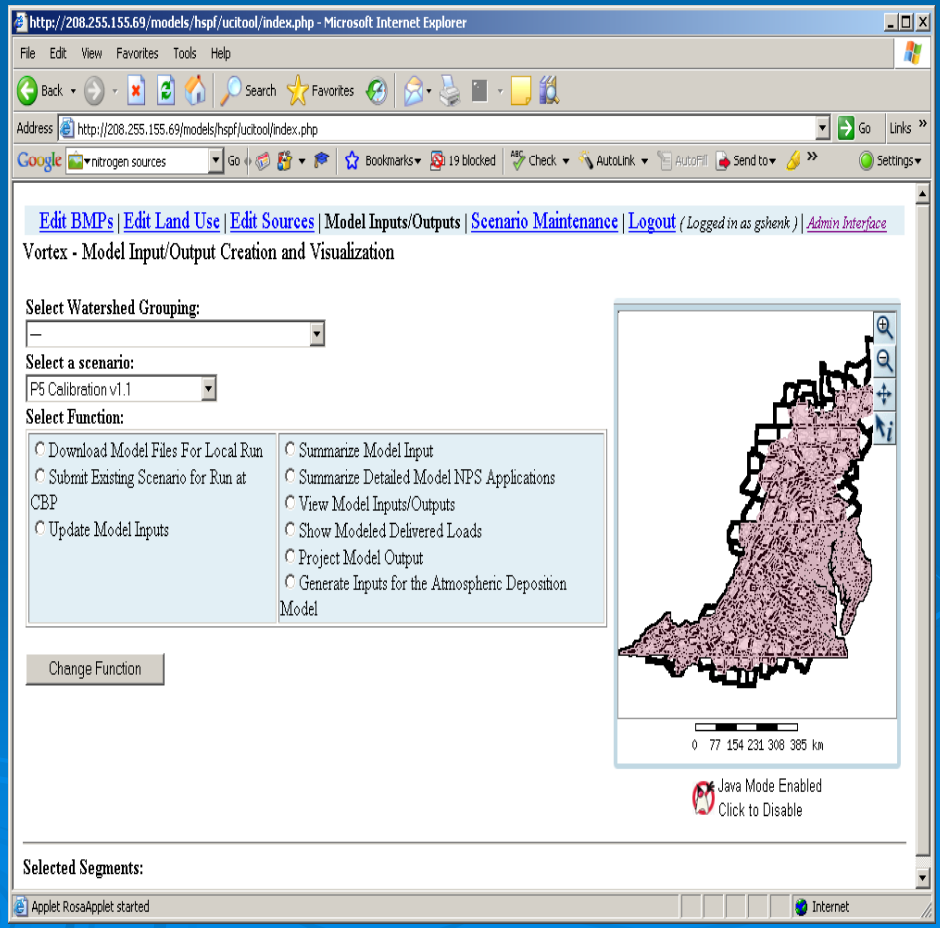
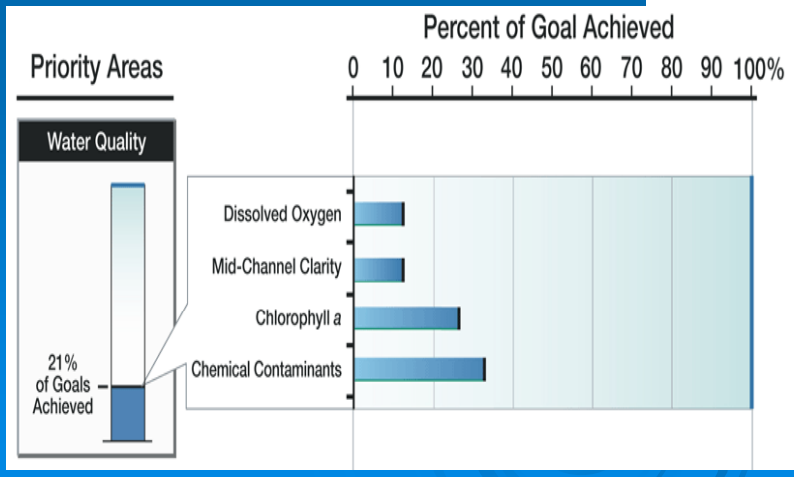
COAST: Optimize Management Actions

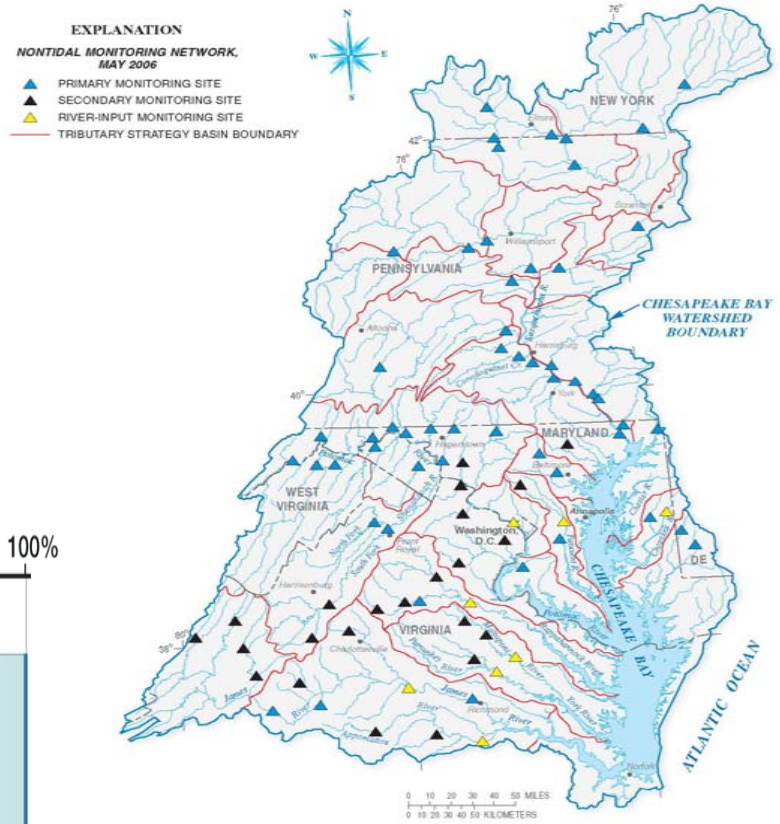
- **Scenario testing**
- **Actions providing greatest reductions:**
  - **Local areas**
  - **Bay loads**
  - **Cost effectiveness**
- **Tools:**
  - **Nutrient & Sediment Scenario Builder**
  - **Phase 5 Watershed Model**



COAST: Monitor Change and Access Progress

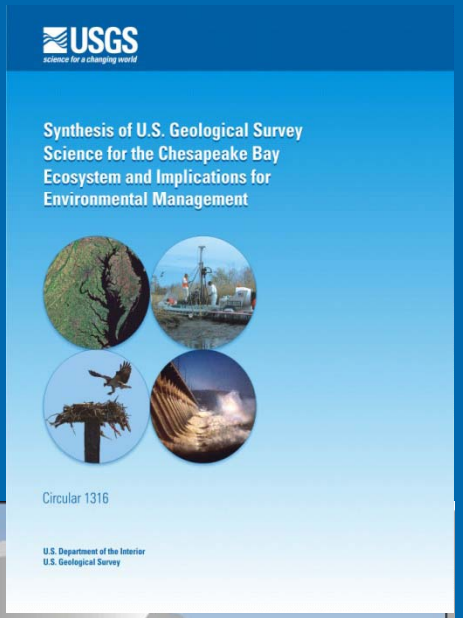
- **Evaluate effectiveness**
- **CBP Non-tidal Network**
  - **Loads**
  - **Trends**
- **Indicators**

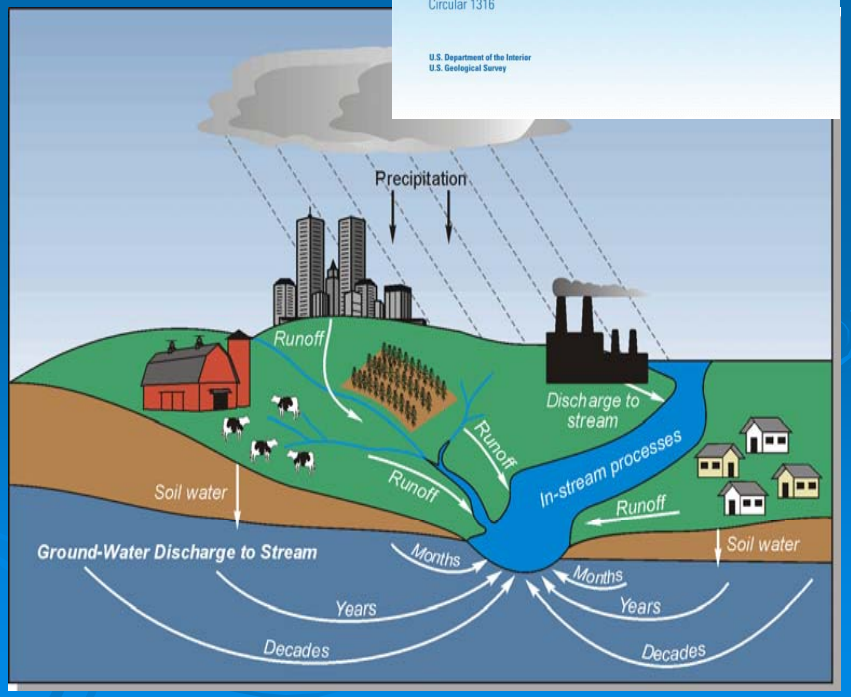




COAST: Understand Change to Adjust Actions

- **Understanding the factors affecting water-quality change will help adjust actions**
- **Water-quality factors:**
  - **-N and P sources**
  - **-Land-use change**
    - **-Management actions**
    - **-Stream flow variability**
  - **-"Lag times"**
  - **-Watershed properties**
  - **-GW and response times**





COAST and Adaptive Management

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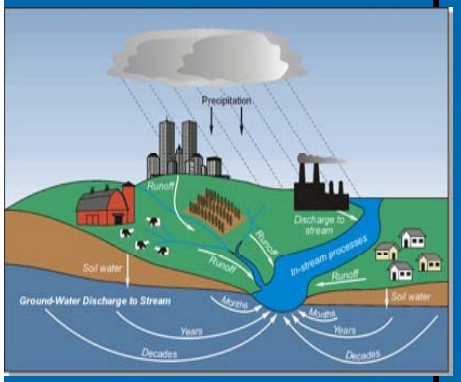

- Assess Objectives and Strategies
- Select Areas To Enhance Actions
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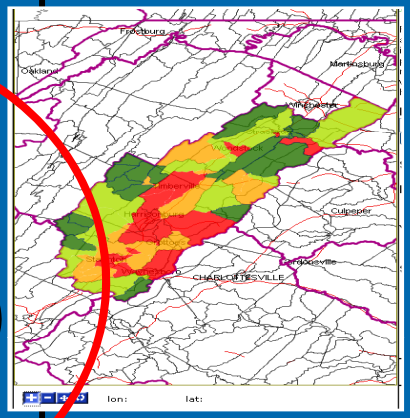
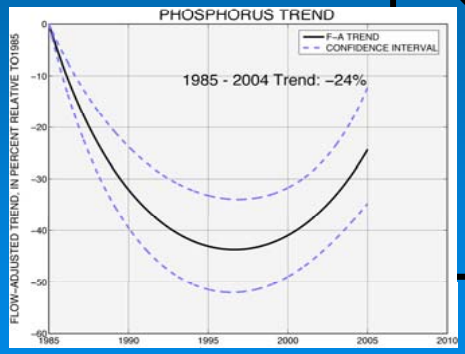
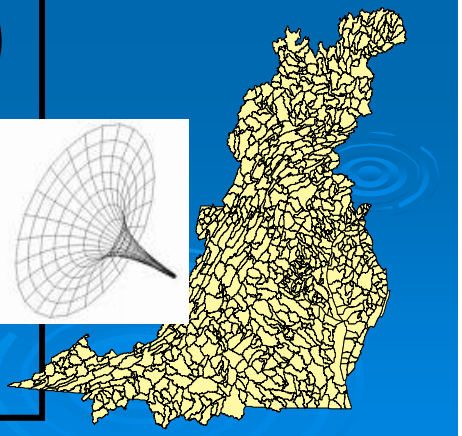
- Choose and Implement Practices
- Monitor Change and Assess Progress
- Evaluate Change to Adjust Actions







Selecting Priority Agricultural Watersheds

Criteria

- Criteria 1: Nutrient Yields & Nutrient/DO Impairments
- Criteria 2: Water Quality Response
- Criteria 3: Implementation Opportunities

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Criteria 1: Nutrient Yields and Water Quality Impairments

- Identify areas with high nutrient yields, high agricultural land cover, and local nutrient or dissolved oxygen water quality impairments.

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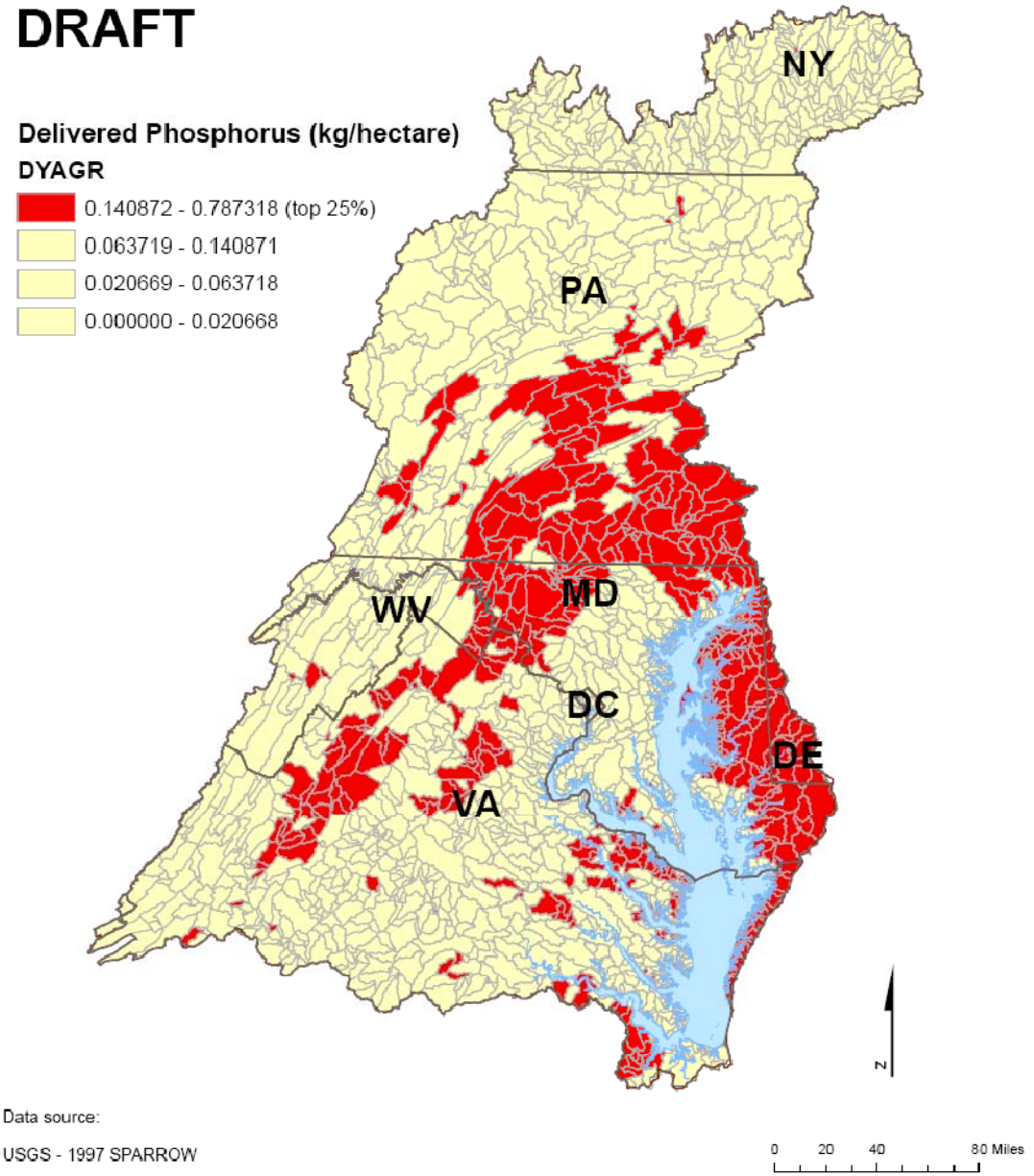
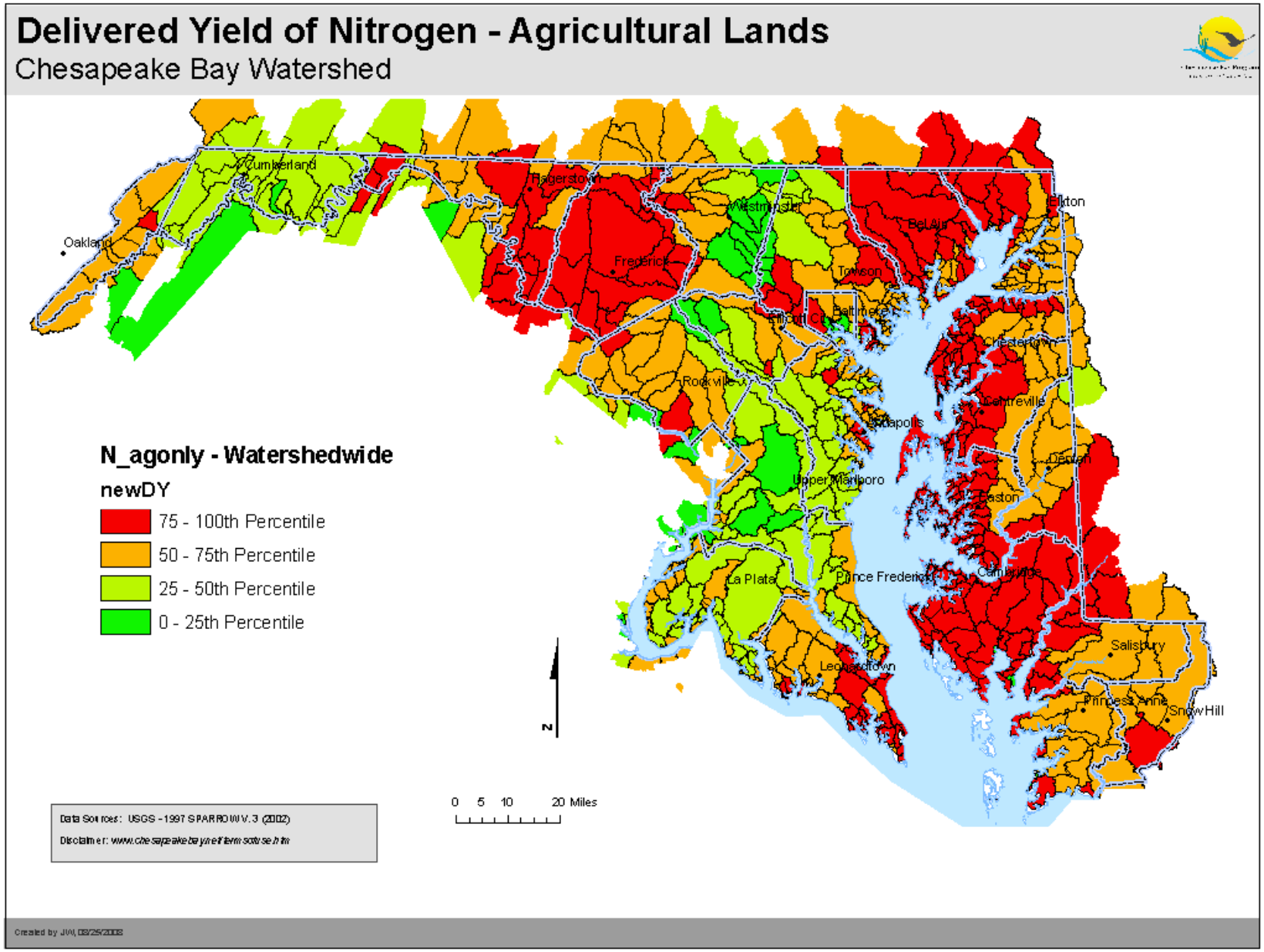
Delivered Yield of Phosphorus - Agriculture

Factors Impacting Bay Health



COAST: Maryland USDA-NRCS Project



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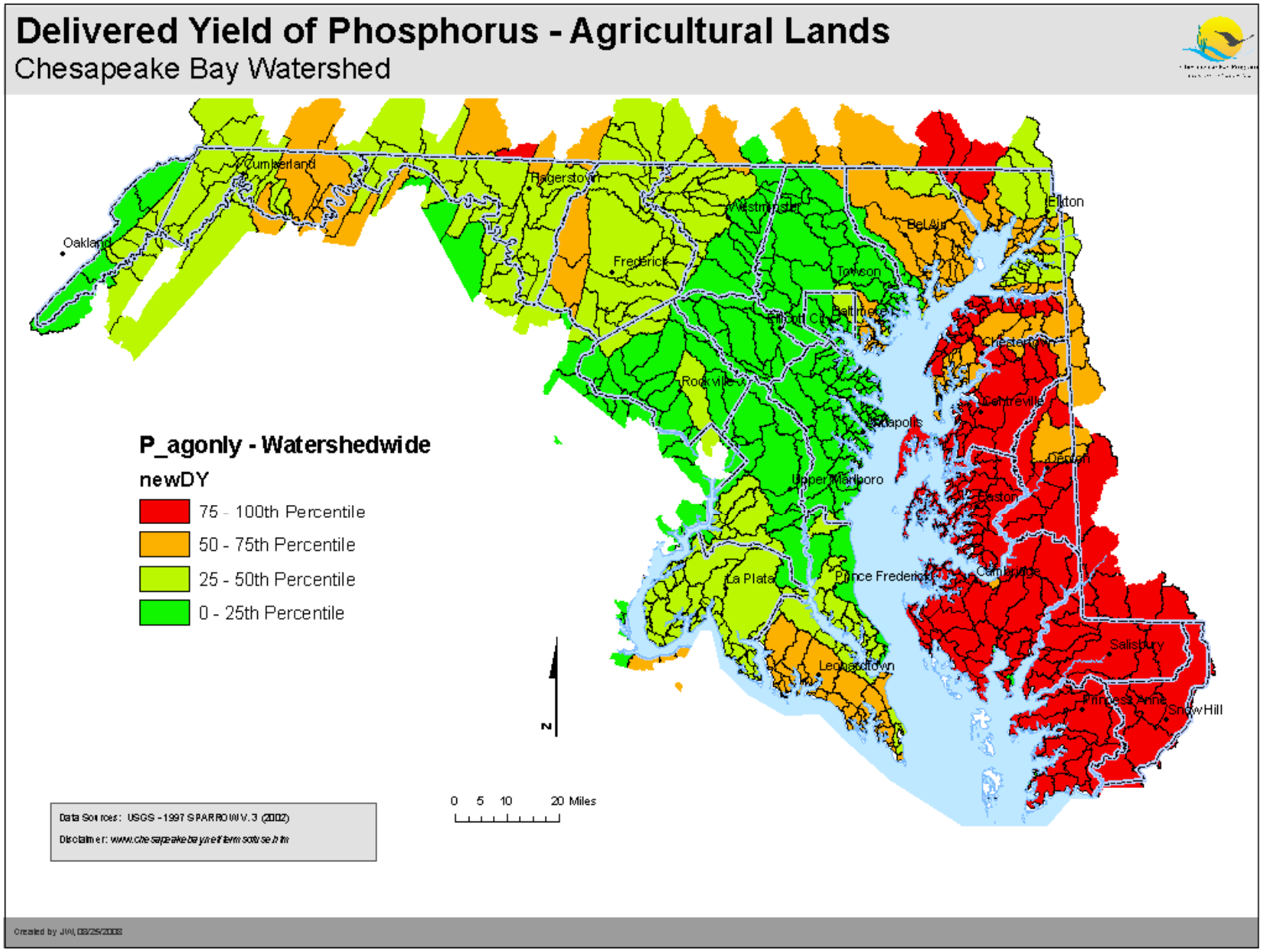

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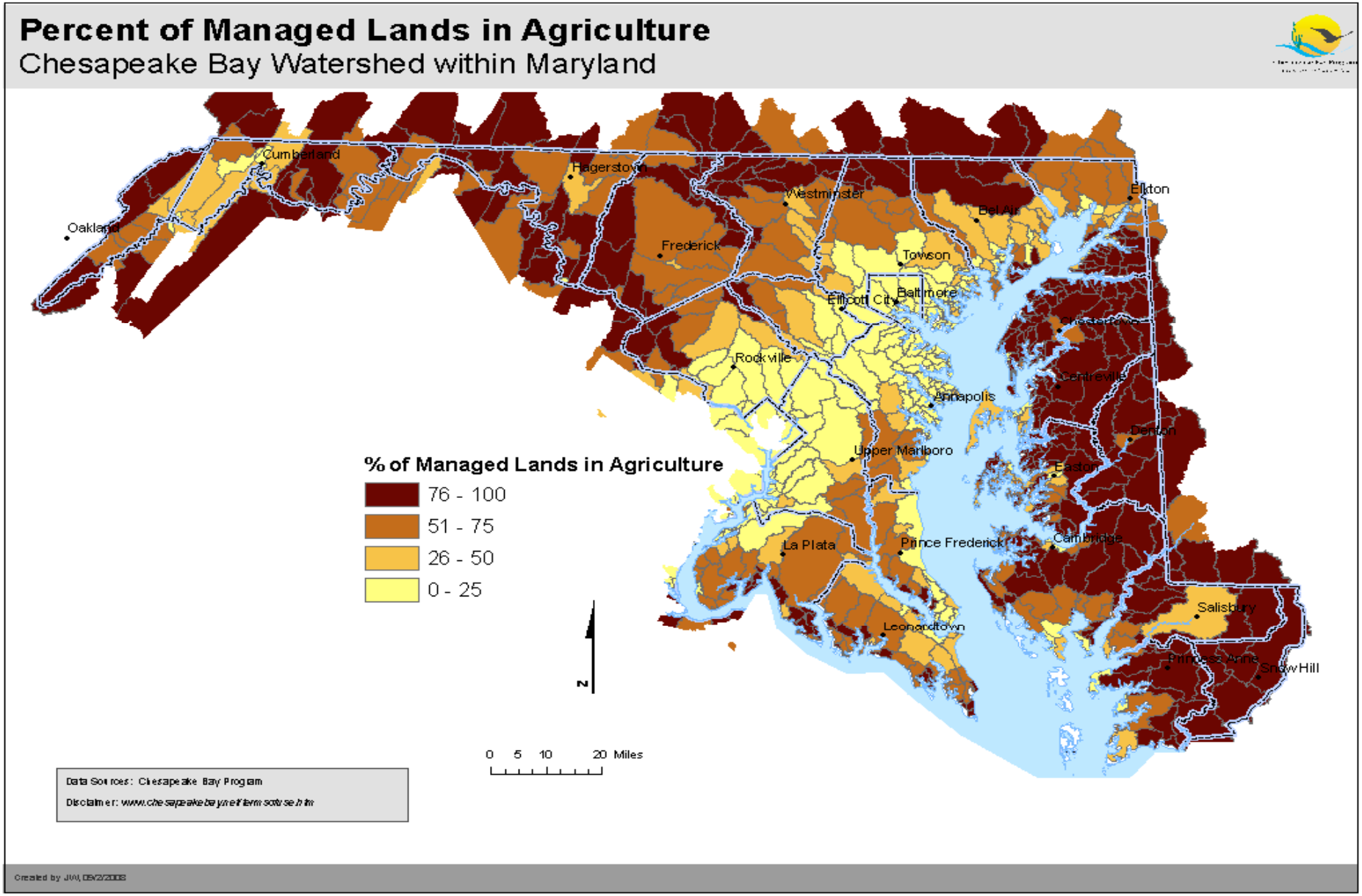

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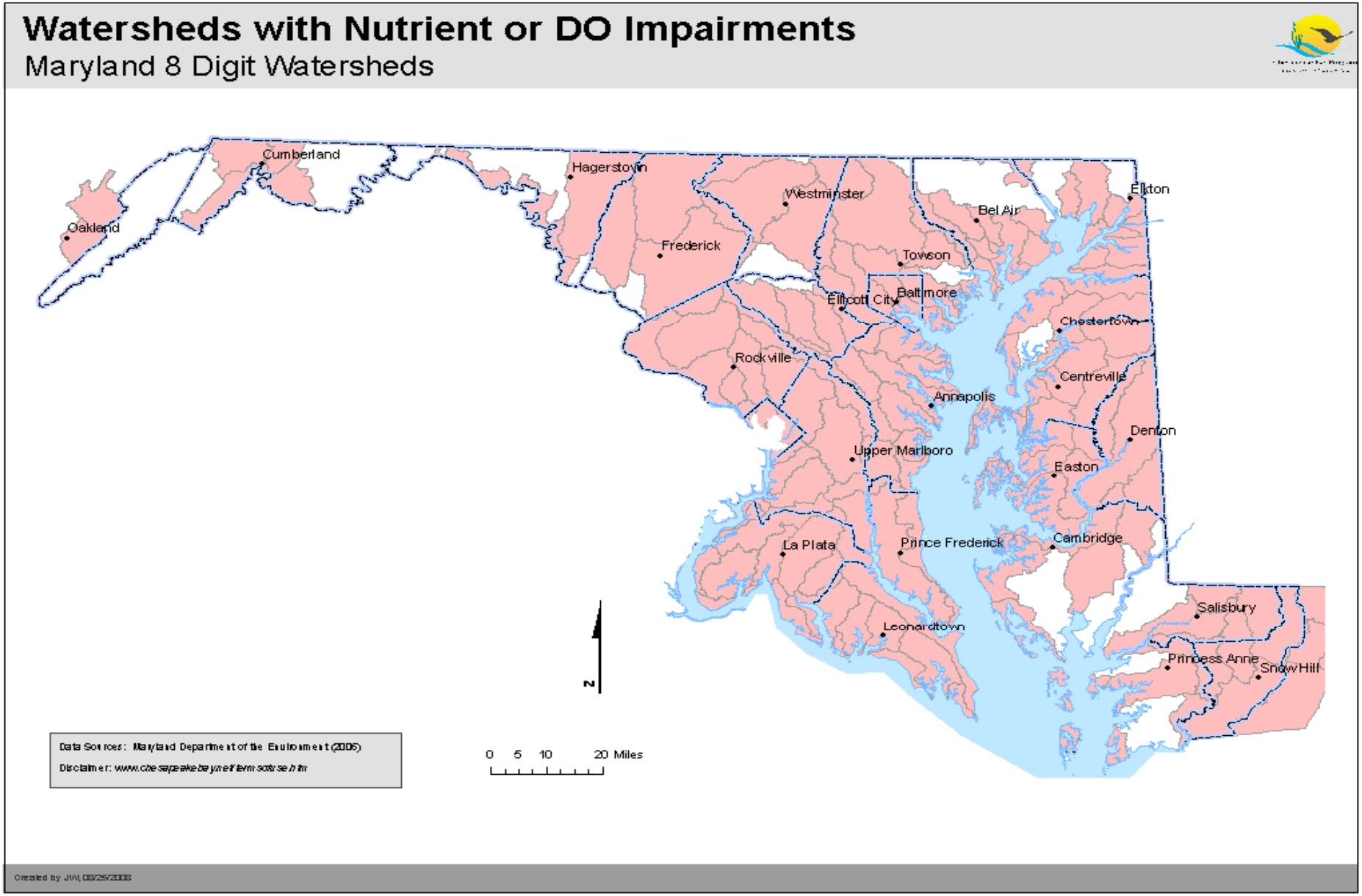

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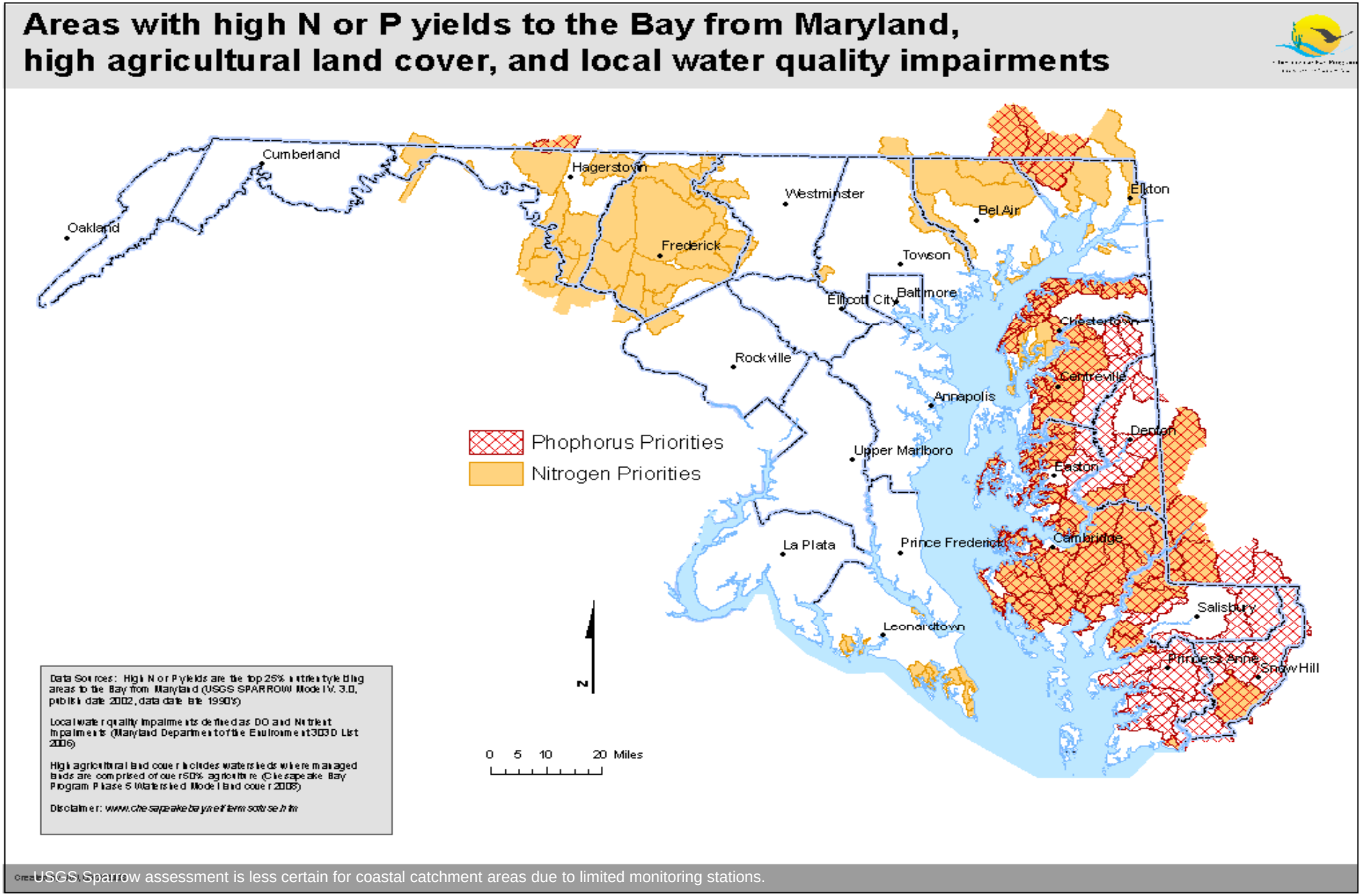
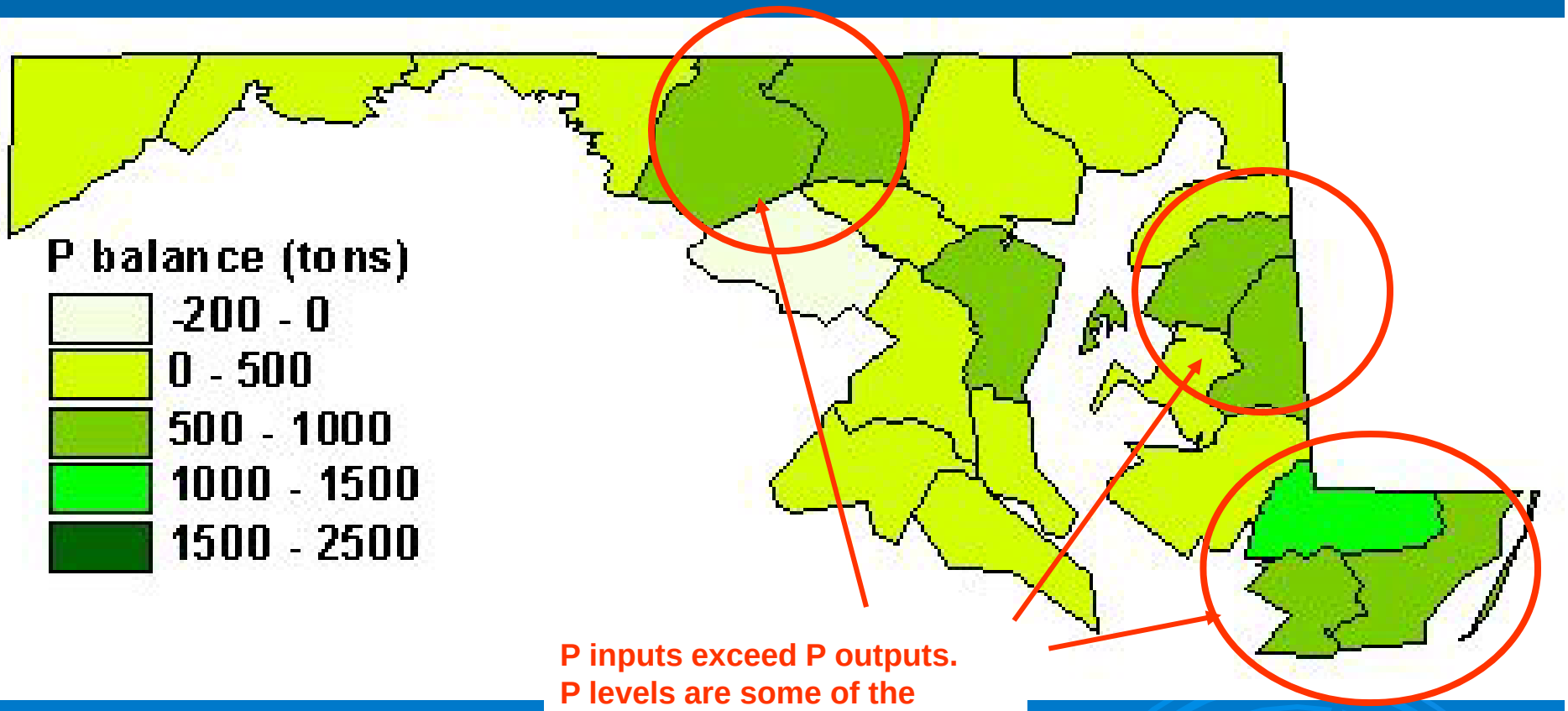


- USGS Sparrow assessment is less certain for coastal catchment areas due to limited monitoring stations.

Other Data to Confirm Analysis

2002 Maryland Phosphorus Balance in Cropland - Includes Biosolids



P inputs exceed P outputs. P levels are some of the highest P imbalances per acre in MD

When the nutrient balance is close to zero, nutrients applied in manure and fertilizer are closely matched to crop utilization. When the nutrient balance is positive, nutrient inputs exceed outputs. When the nutrient balance is negative, nutrient outputs exceed inputs.

Criteria 2: Water Quality Response

- Identify areas with the greatest opportunity for showing a water quality response from implementing agricultural conservation practices.
  - Information that can help assess how long it will take to see a water quality response.
  - Information that will help measure the response (monitoring/research)

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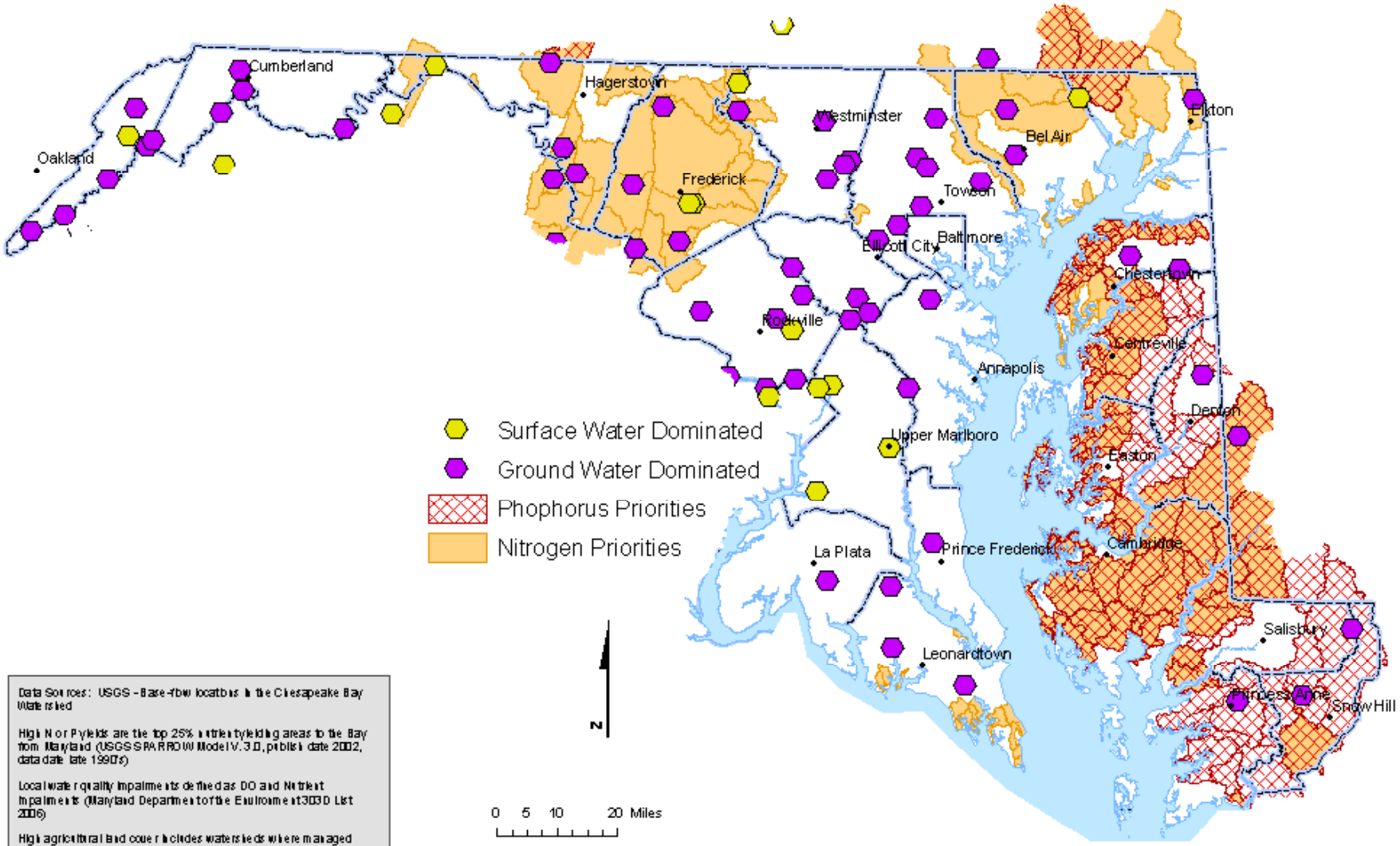
Baseflow Index

Chesapeake Bay Watershed within Maryland



Data Sources: USGS - Baseflow locations in the Chesapeake Bay Watershed

High N or P yields are the top 25% nutrient yielding areas to the Bay from Maryland (USGS SPARROW Model V. 3.0, publish date 2002, data date late 1990's)

Local water quality impairments defined as DO and Nutrient Impairments (Maryland Department of the Environment 303D List 2006)

High agricultural land cover includes watersheds where managed lands are comprised of over 50% agriculture (Chesapeake Bay Program Phase 5 Watershed Model land cover 2005)

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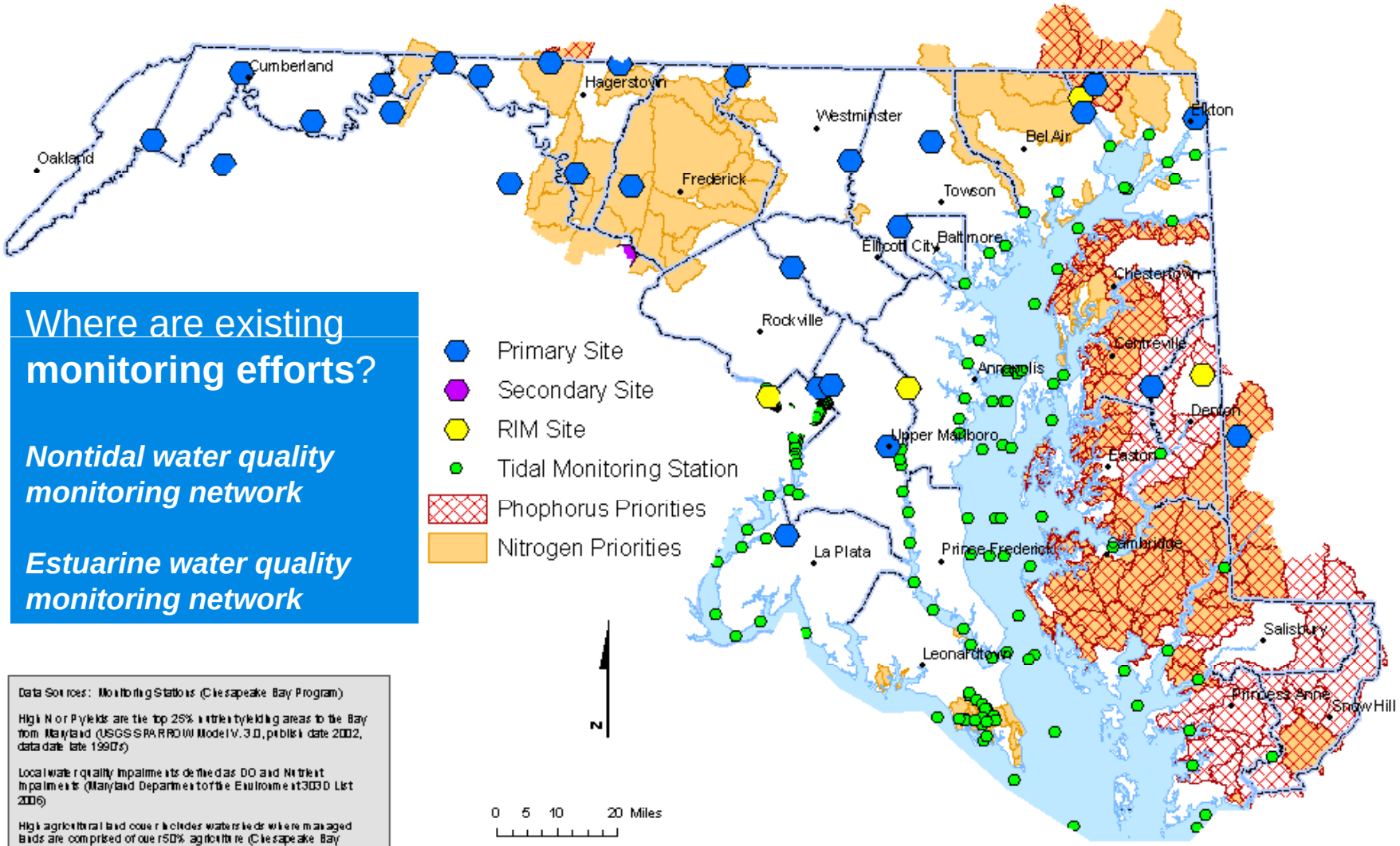
Chesapeake Bay Program Nontidal and Estuarine Water Quality Monitoring Network



Where are existing **monitoring efforts**?

Nontidal water quality monitoring network

Estuarine water quality monitoring network

Data Sources: Monitoring Stations (Chesapeake Bay Program)

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Criteria 3: Implementation Opportunities

- Identify areas with the greatest potential for implementation
  - Ag implementation levels and capacity to implement more.
  - EQIP contract coverage
  - Technical assistance capacity.
  - Education & outreach capacity.
  - Private consultant willingness to promote practices.
  - Farmer willingness to implement practices.
  - Partner support.
  - Etc.

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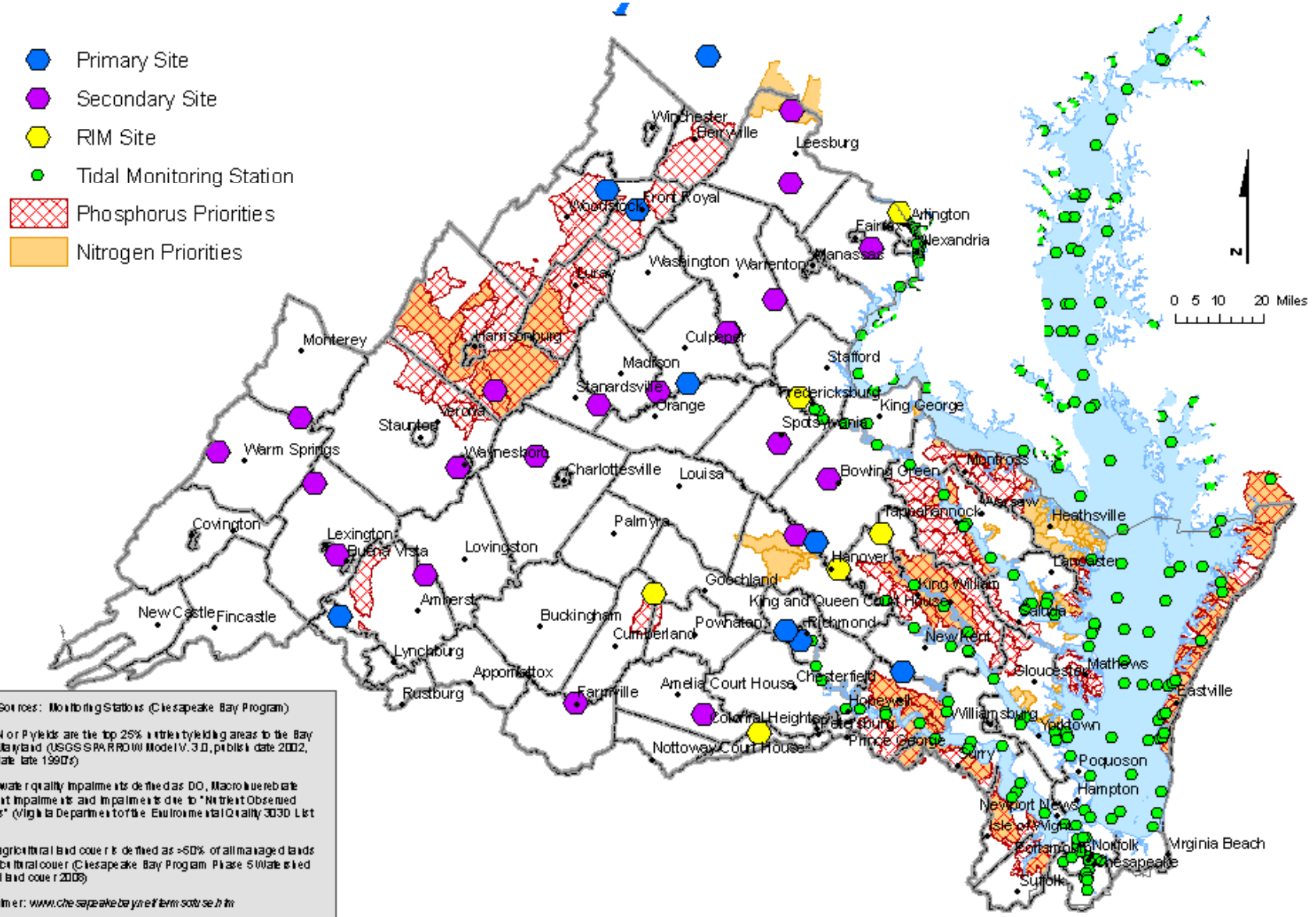
Chesapeake Bay Program Nontidal and Estuarine Water Quality Monitoring Network



Data Sources: Monitoring Stations (Chesapeake Bay Program)

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Local water quality impairments defined as DO, Macrohue rebate Nutrient Impairments and Impairments due to "Nutrient Observed Effects" (Virginia Department of the Environmental Quality 303D List 2006)

High agricultural land cover is defined as >50% of all managed lands in agricultural cover (Chesapeake Bay Program Phase 5 Watershed Model land cover 2008)

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Created by JW, 10/14/2008

Chesapeake Bay Program Nontidal Water Quality Monitoring Network

Data Sources: Monitoring Stations (Chesapeake Bay Program)

High N or P yields are the top 25% nutrient yielding areas to the Bay from Maryland (USGS SPARROW Model V. 3.0, publish date 2002, data date late 1990's)

Local water quality impairments (Pennsylvania Department of Environmental Protection 2006)

High agricultural land cover is defined as >50% of all managed lands in agricultural cover (Chesapeake Bay Program Phase 5 Watershed Model land cover 2008)

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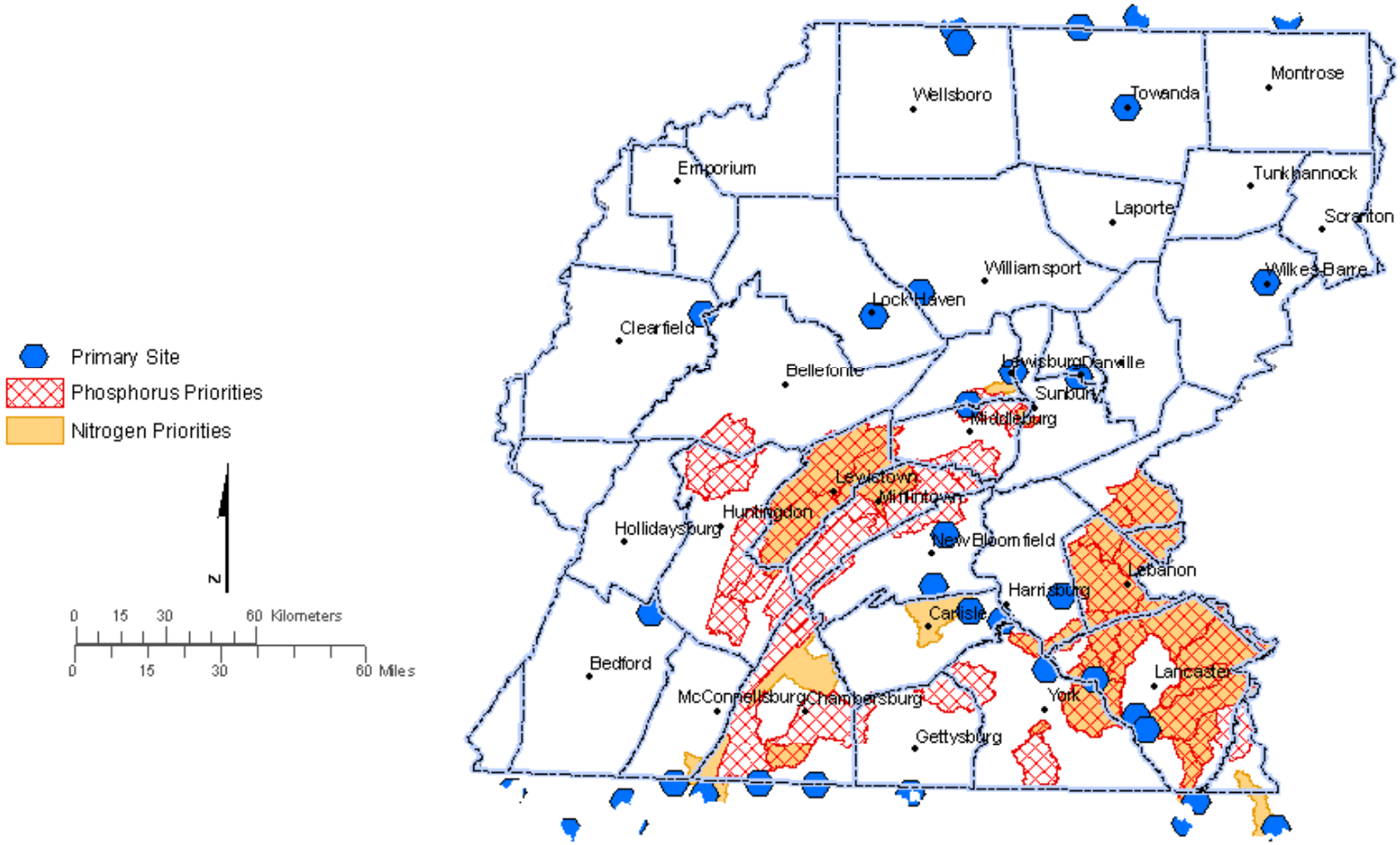
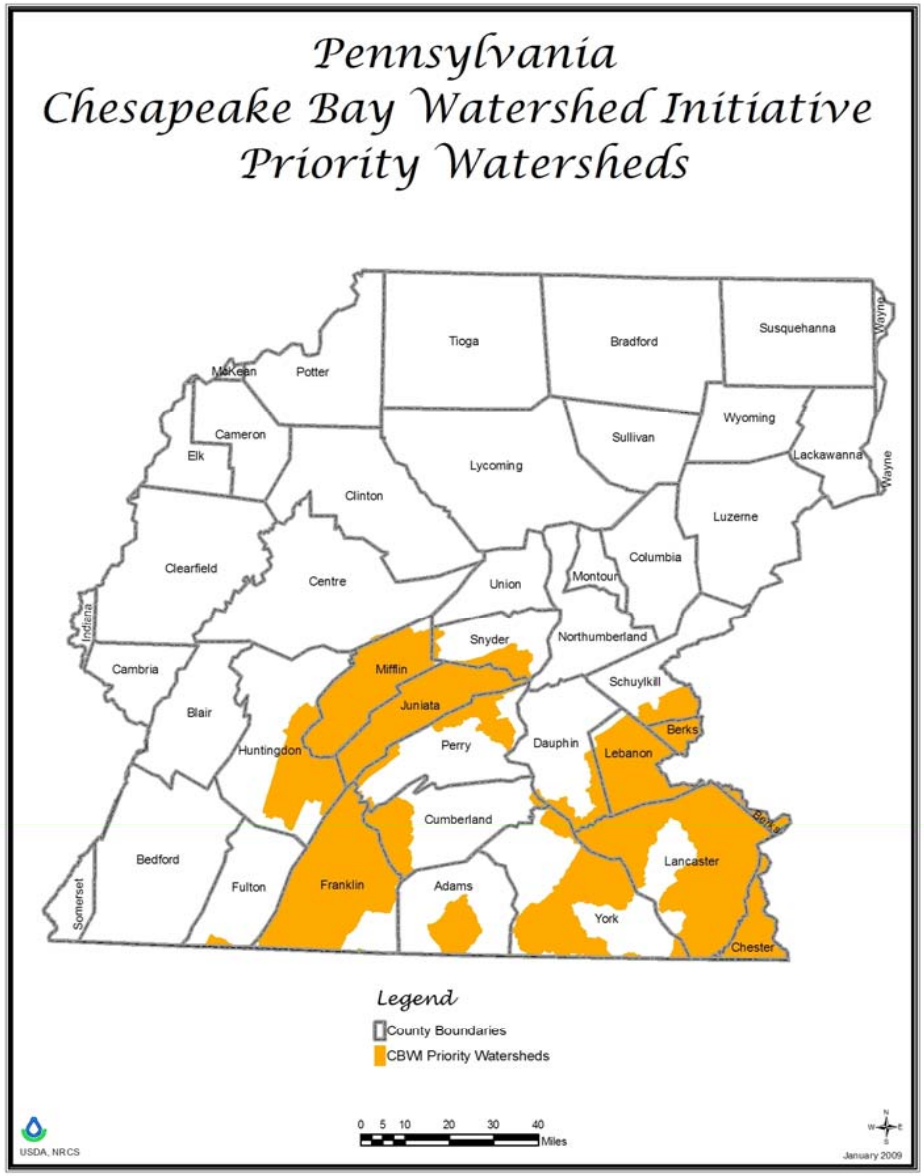


PA Priority Watersheds for CBWI Farm Bill Funding



Some watersheds in Pennsylvania will be designated as high priority watersheds in this initiative because they have high yields of nitrogen and phosphorus, intense agricultural operations, and local water quality impairments due to excess nutrients or dissolved oxygen.

Applications from the designated priority watersheds will receive additional points in the ranking system due to their higher potential for environmental benefit in reducing sediment and nutrient loads before they reach the Bay.

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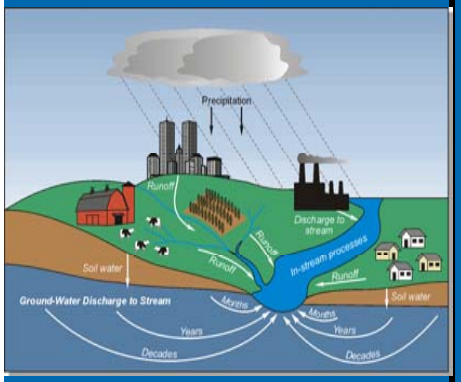

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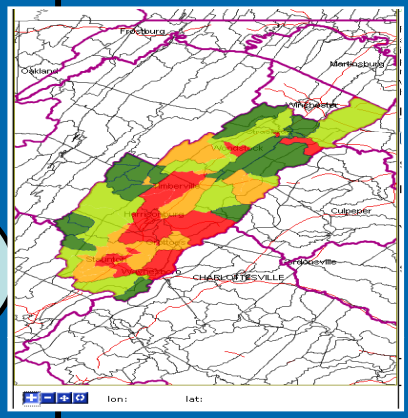

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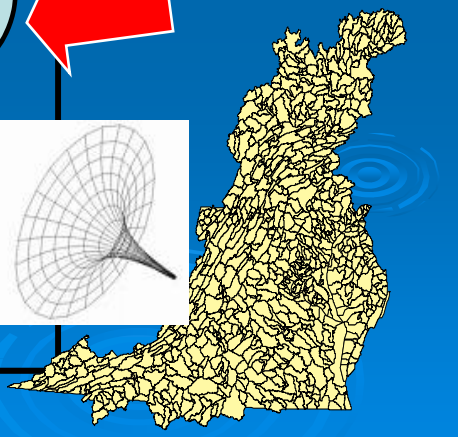

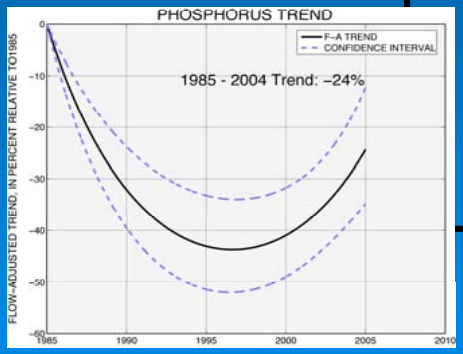

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