Rehoboth Bay Assessment Plan (RAP)

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Inland Bays Map

Mission Statement:

RAP's goal is to explore how anthropogenic activities impact the Rehoboth Bay watershed. RAP also seeks to give recommendations that will yield real progress by 2030. The plan should lead to more balanced nutrient levels and significantly less habitat loss and pesticide use by the aforementioned date.

Background and History

- The Rehoboth Bay Watershed encompasses three interconnected bays: Indian River Bay, Little Assawoman Bay, and Rehoboth Bay, covering approximately 320 square miles.

- Fluctuations in the Indian River Inlet, including shoaling, led to disruptions in marine ecosystems. The establishment of a stable channel in 1940 fostered a more sustainable estuarine environment.

Background

- Shallow depths (5-8 feet) and limited tidal flushing make the bays highly susceptible to environmental changes.
- Rapid population growth and development strain the watershed ecological health.
- Runoff from agricultural lands introduces pollutants leading to harmful algal blooms and disruptions to the ecosystem.
- Addressing these challenges requires multifaceted approaches such as improved land management, regulation, and community engagement initiatives.

Key Stakeholders

- Delaware Department of Natural Resources and Environmental Control (DNREC)
- Delaware Center for Inland Bays
- Sussex County Residents
- Local Property Owners
- Sussex County Business Owners
- And more....

Existing Plans / Governance

- DNREC's Inland Bays Pollution Control Strategy (PCS) targets nutrient reduction to comply with the Clean Water Act, aiming to enhance water quality.
- Collaborative efforts with the EPA involve annual reports on watershed quality, tracking progress over time.
- Strict limits on pollutants, like nitrogen and phosphorus, are set via Total Maximum Daily Loads (TMDLs), enforced through comprehensive actions outlined in the Pollution Control Strategy.

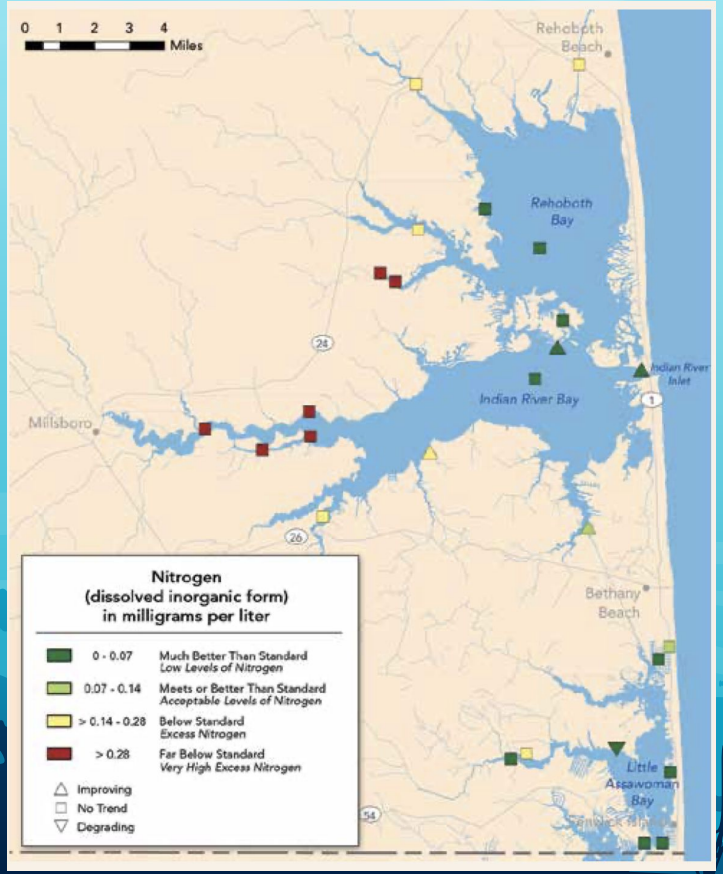
Problem 1: High Nutrient Levels - Nitrogen and Phosphorous

- Excess Nitrogen and Phosphorus in the Rehoboth Bay
- Leads to reduced dissolved oxygen
  - TMDL proposed in 1998 to make water fishable and swimmable
  - TMDL was for India River Bay, Little Assawoman Bay, and the Indian River
  - Goal to reduce point source nitrogen and phosphorus to 0 and significantly reduce nonpoint source pollution
- Excess nutrients come from: fertilizers, animal waste, septic systems, storm water runoff and sewage treatment plants
  - Have yet to reach TMDL goals

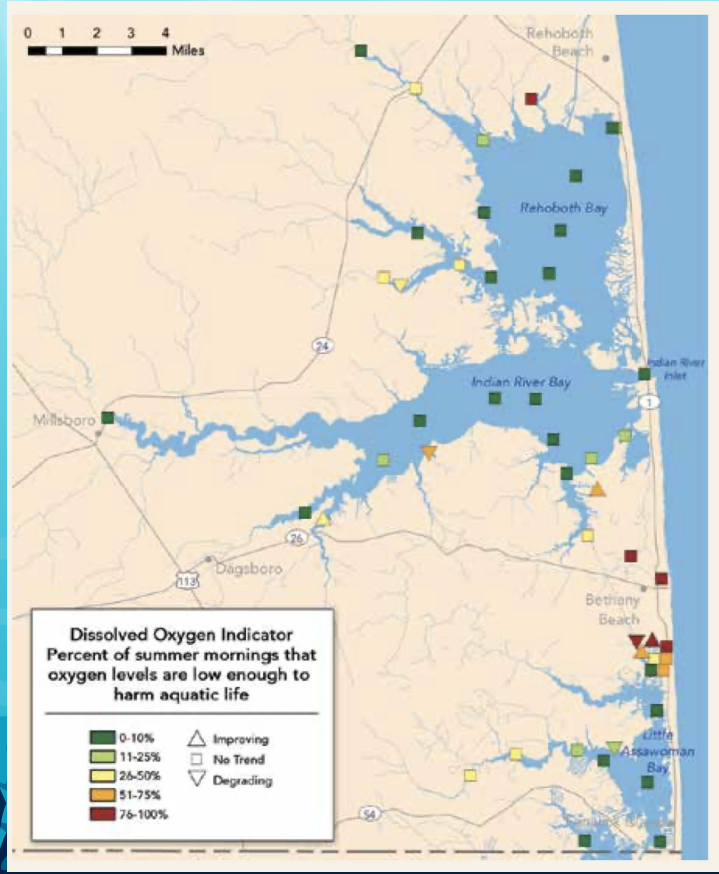
Goal 1: Reducing Nitrogen and Phosphorus Levels

- Improve stormwater systems and sewage treatment plants
- Decreasing fertilizer application onto lawns and agricultural land
- Implement conservation measures in agricultural practices
  - Plant cover crops, implement nutrient management and conservation plans, install and maintain grassed or forested buffer strips along farm fields

Nitrogen



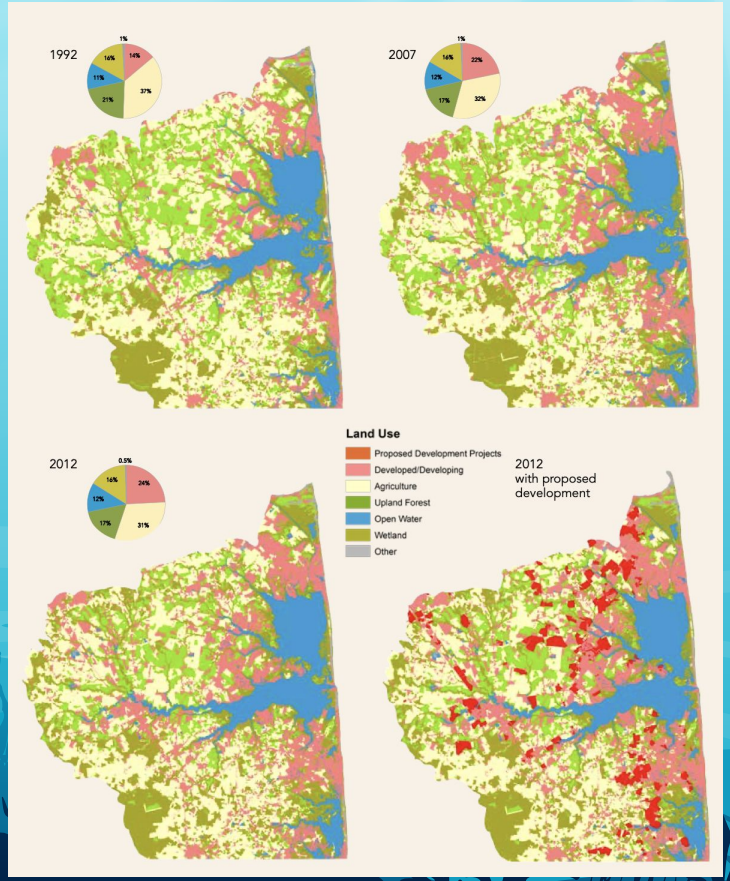
Dissolved Oxygen



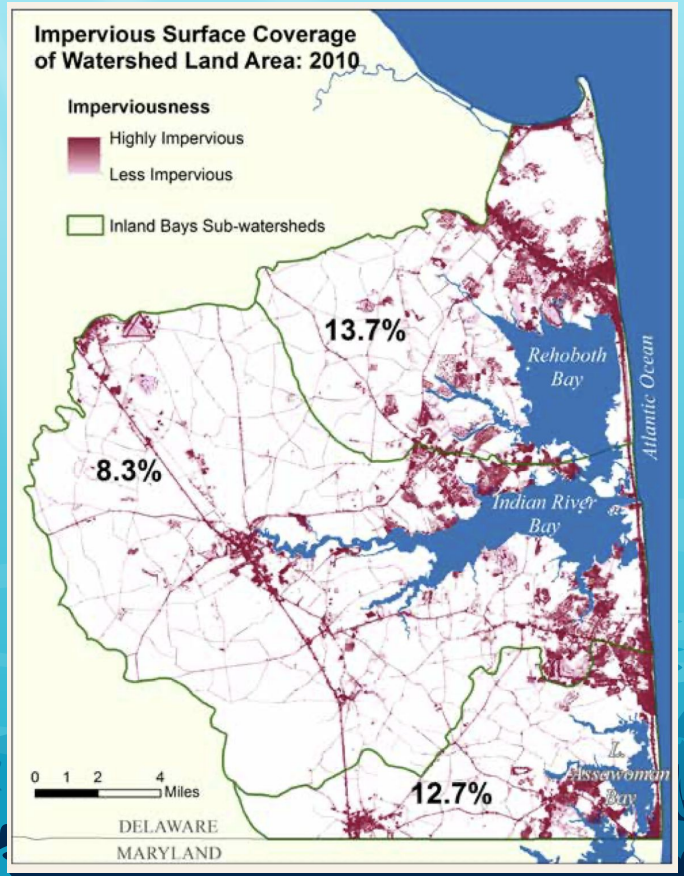
Problem 2: Habitat Loss

- Home to horseshoe crabs, oysters, diamondback terrapins
- Urbanization has lead to exacerbated habitat loss
  - Between 1990 and 2020 the country's population more than doubled
  - Record number of building permits
- Inadequate buffer policies and laws that require space between development and the bay

Land Use Change



Impervious Surface Coverage

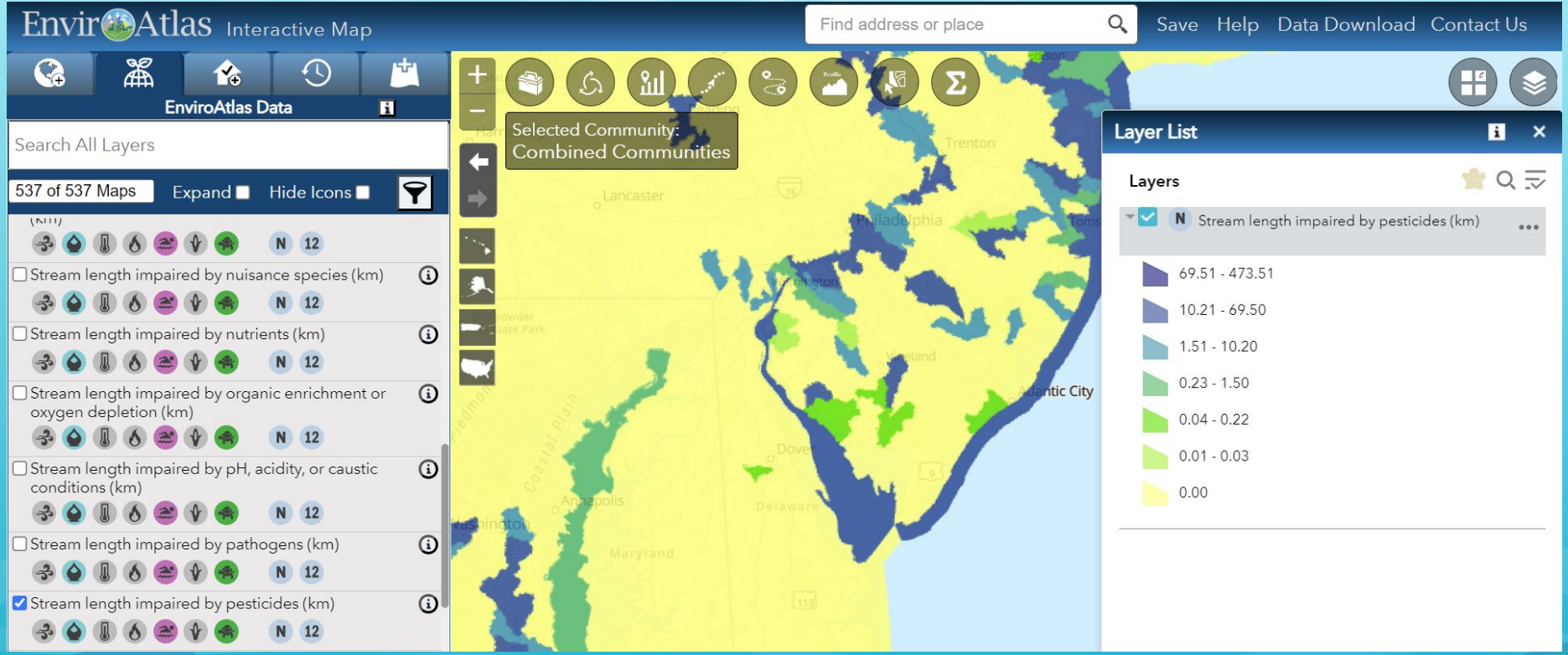


Goal 2: Preserve Biodiversity

- Restore habitats
  - Remove ecologically detrimental dikes
  - Remove dams to allow for tidal freshwater wetland migration
  - Reduce clear cutting in forested non-tidal wetlands
  - Restore non-tidal wetlands that were previously converted into cropland

Problem 3: Pesticides

- Pesticides are any chemical used to control pests, which includes herbicides, insecticides, and fungicides. They are used to increase crop yields, making it an essential component of Delaware's agricultural industry.
- Our goal is to expand monitoring programs and sample collection for pesticide presence in the Rehoboth Bay Watershed
- Adopting more environmentally conscious farming practices
  - Crop rotation
  - Riparian buffers
  - Proper pesticide storage
  - Natural pest controllers (bats)


EnviroAtlas Interactive Map
Find address or place
Save
Help
Data Download
Contact Us
EnviroAtlas Data
Search All Layers
537 of 537 Maps
Expand
Hide Icons
Stream length impaired by nuisance species (km)
Stream length impaired by nutrients (km)
Stream length impaired by organic enrichment or oxygen depletion (km)
Stream length impaired by pH, acidity, or caustic conditions (km)
Stream length impaired by pathogens (km)
Stream length impaired by pesticides (km)
Selected Community:
Combined Communities
Layer List
Layers
Stream length impaired by pesticides (km)
69.51 - 473.51
10.21 - 69.50
1.51 - 10.20
0.23 - 1.50
0.04 - 0.22
0.01 - 0.03
0.00
Trenton
Lancaster
Philadelphia
Atlantic City
Dover
Annapolis
Maryland
Delaware
Coastal Plain

Goal 3: Reduce Pesticide Use Near the Rehoboth Bay Watershed

- Implement more environmentally friendly practices that will reduce the need for pesticide use
- Strategize and outline proper uses of pesticides, updating the current legislation
- Continue efforts to take water samples
  - Delaware Department of Agriculture's Pesticide section began monitoring the state's groundwater for pesticides in 1995, and has collected more than 1,000 individual groundwater samples since then.
    - Make this a yearly requirement for all watersheds

Recommendations

- We advise to consider future land use when planning for the improvement of the Rehoboth Bay
  - Sussex County's population is growing
    - less agricultural and more suburban development
  - Update plan every 5 years to be able to properly assess changes to environment and community
    - Able to stay up to date with Best Management Practices (BMPs) for the Watershed

Conclusions

- The Rehoboth Bay Watershed encompasses 320 square miles of land.
- Excess nutrients and pesticides in the watershed can negatively affect numerous people and wildlife who depend on that water source.
- Efforts from the EPA and DNREC are required to uphold BMPs to improve water quality.
- Reduction of phosphorus, nitrogen, and pesticides along with the addition of riparian buffers must be implemented to achieve the desired remediation by the year 2030.
- The Rehoboth Bay Watershed still possesses the ability to flourish for many decades to come.

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Questions?