

**Robin Jazxhi**

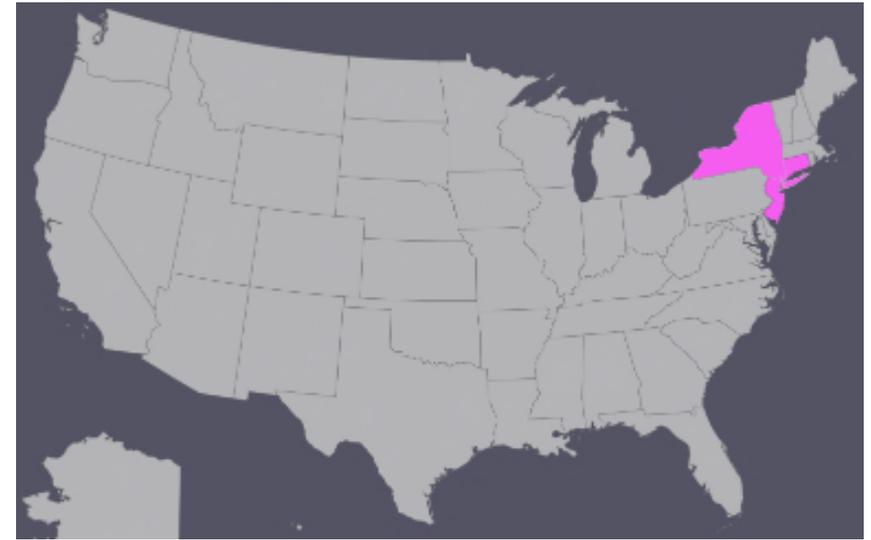
**NEIWPC Environmental Analyst  
Interstate Environmental Commission**



**Monitoring and Assessing Water  
Quality and Hypoxia in the Western  
Long Island Sound, an Estuary of  
National Significance**



# IEC Member States





# Long Island Sound—Benefits and Services

- 1987-*Estuary of national significance*

## Recreation



## Commercial



## Economic



# Long Island Sound—Benefits and Services

## Socioeconomic Value

### Provisioning Services



#### ENERGY AND RAW MATERIALS

Providing fuel, fiber, fertilizer, minerals, and energy



#### FOOD

Producing crops, fish, game, and fruits



#### MEDICINAL RESOURCES

Providing traditional medicines, pharmaceuticals, and assay organisms



#### ORNAMENTAL RESOURCES

Providing resources for clothing, jewelry, handicraft, worship, and decoration



#### WATER SUPPLY

Provisioning surface and groundwater for drinking, irrigation, and industrial use

### Information Services



#### AESTHETIC INFORMATION

Enjoying and appreciating the presence, scenery, sounds, and smells of nature



#### CULTURAL AND ARTISTIC INSPIRATION

Using nature as motifs in art, film, folklore, books, cultural symbols, architecture, and media



#### RECREATION AND TOURISM

Experiencing natural ecosystems and enjoying outdoor activities



#### SCIENCE AND EDUCATION

Using natural systems for education and scientific research



#### SPIRITUAL AND HISTORICAL

Using nature for religious and spiritual purposes

### Supporting Services



#### GENETIC RESOURCES

Improving crop and livestock resistance to pathogens and pests



#### HABITAT AND NURSERY

Maintaining genetic and biological diversity, the basis for most other ecosystem functions; promoting growth of commercially harvested species

### Regulating Services



#### AIR QUALITY

Providing clean, breathable air



#### BIOLOGICAL CONTROL

Providing pest and disease control



#### CLIMATE STABILITY

Supporting a stable climate through carbon sequestration and other processes



#### MODERATION OF EXTREME EVENTS

Preventing and mitigating natural hazards such as floods, hurricanes, fires, and droughts



#### POLLINATION

Pollinating wild and domestic plant species



#### SOIL FORMATION

Creating soils for agricultural use and ecosystems integrity; maintaining soil fertility



#### SOIL RETENTION

Retaining arable land, slope stability, and coastal integrity



#### WASTE TREATMENT

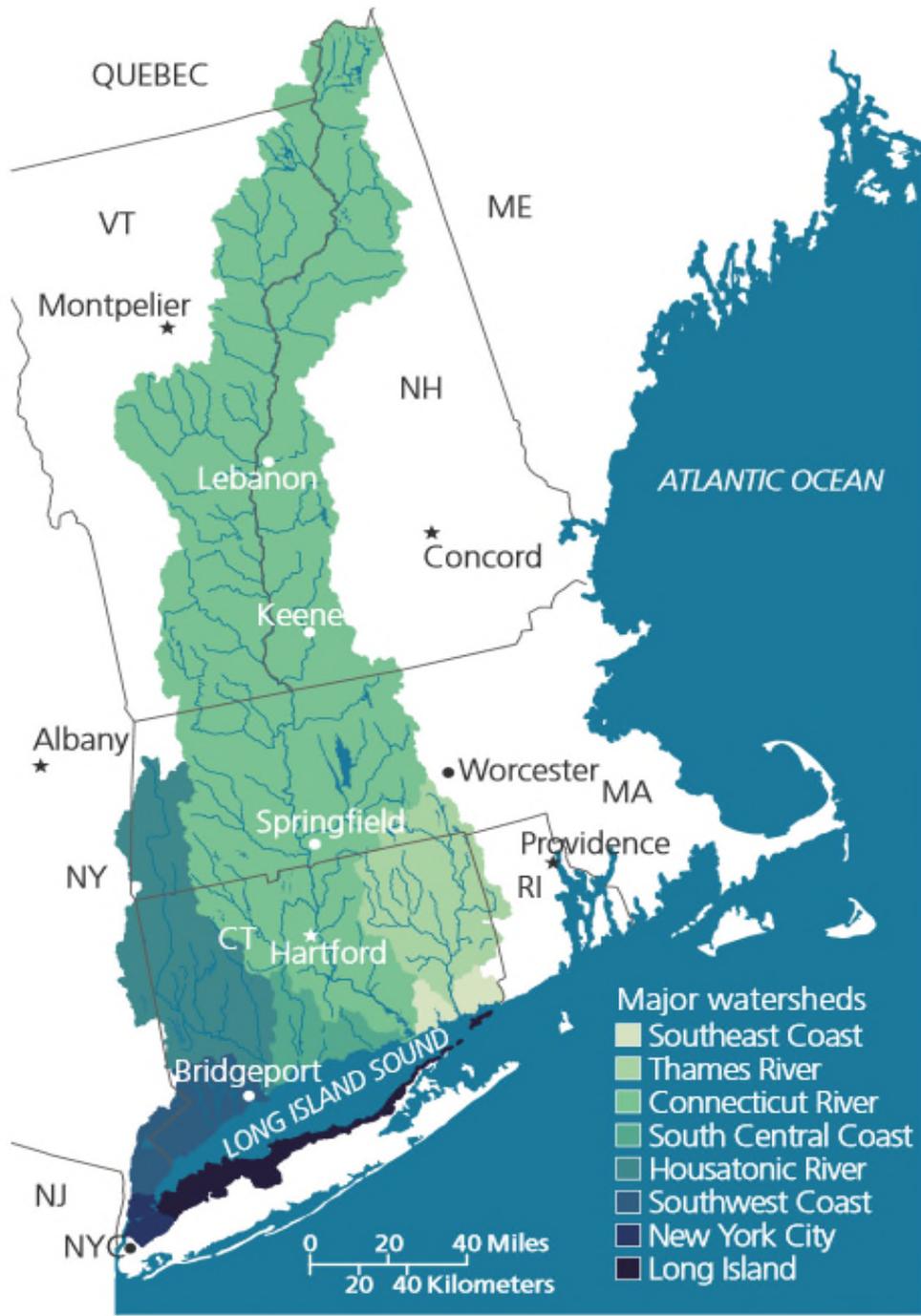
Improving soil, water, and air quality by decomposing human and animal waste and removing pollutants



#### WATER REGULATION

Providing natural irrigation, drainage, groundwater recharge, river flows, and navigation

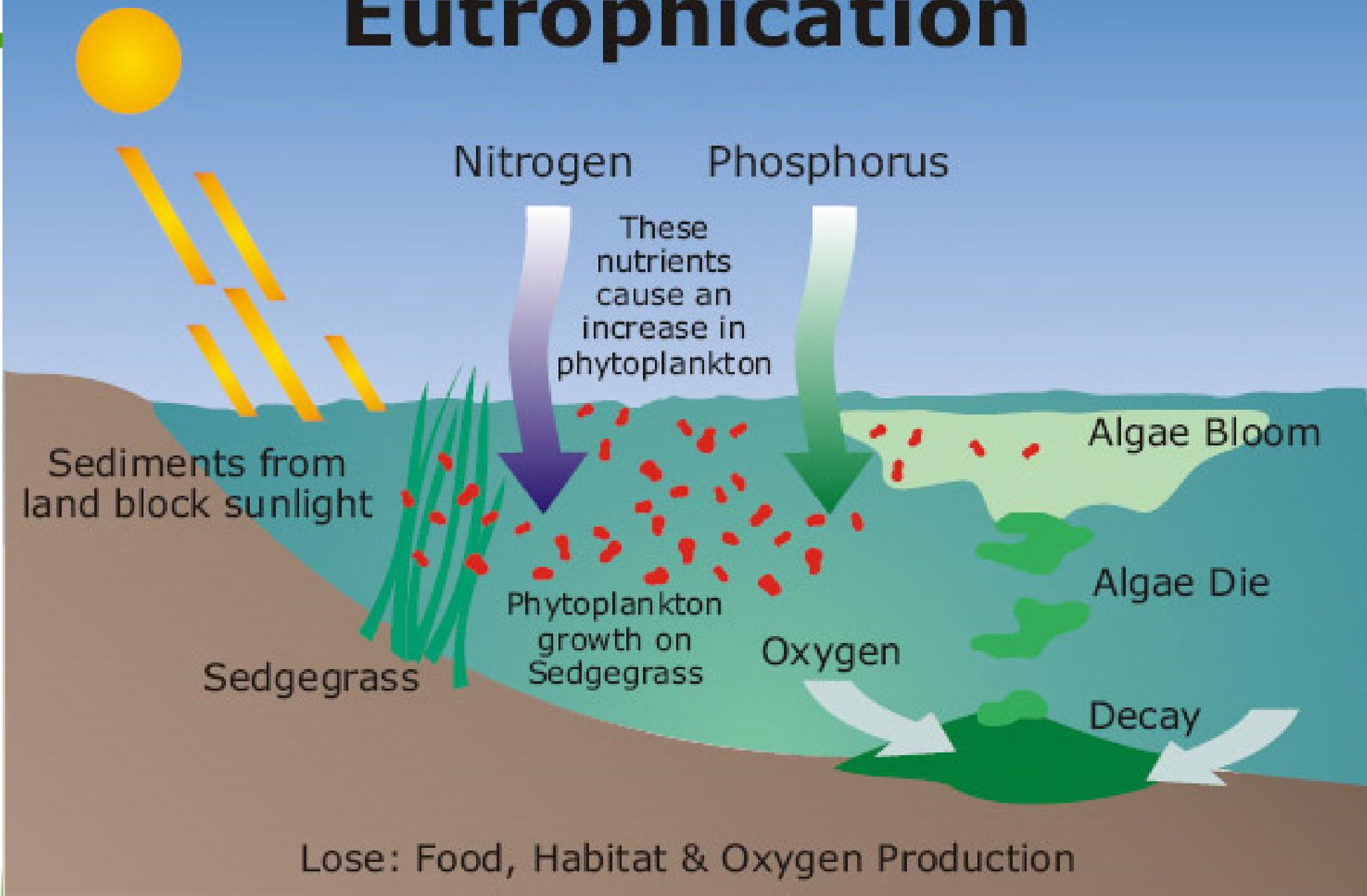
# Long Island Sound Watershed & Reasons for Monitoring



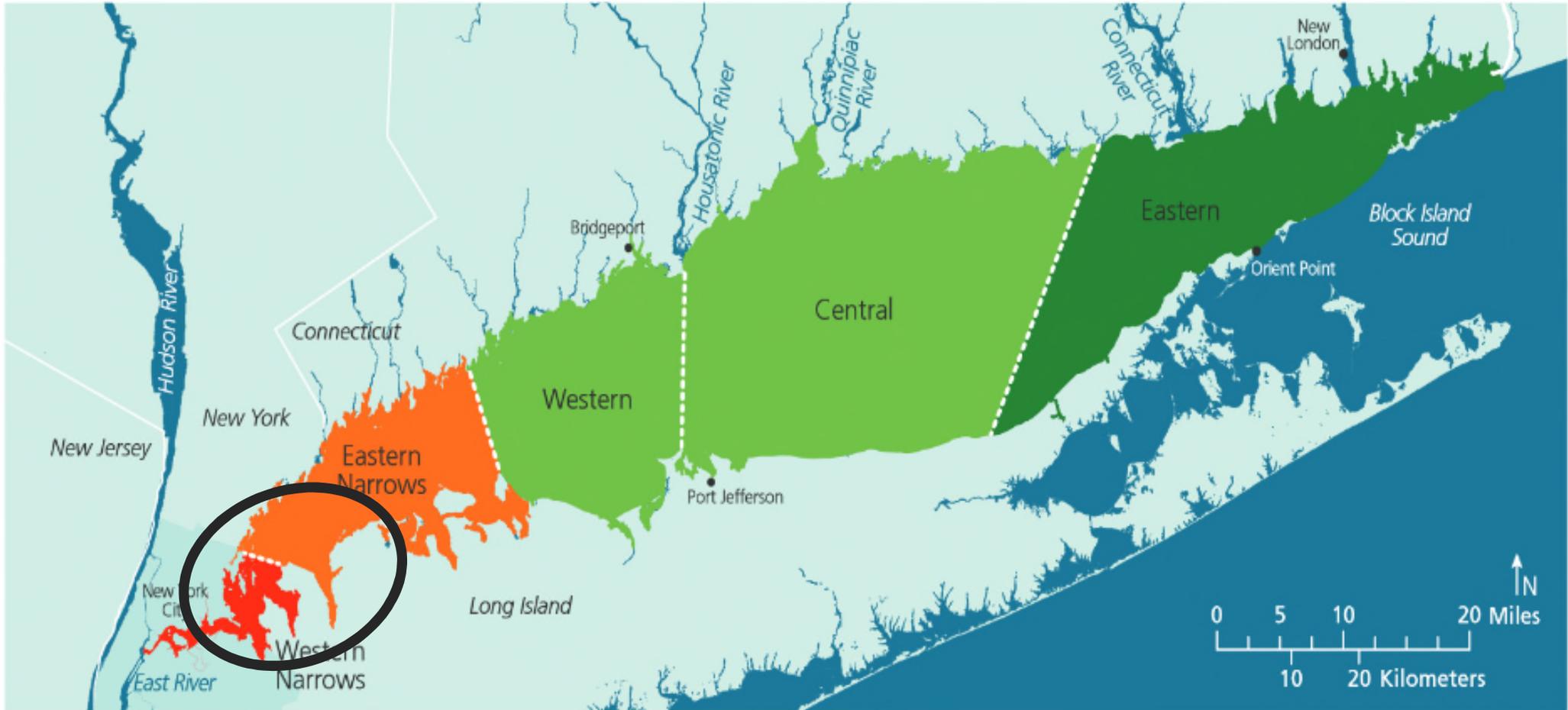
- ❖ > 16,000 sq. miles
- ❖ 9 million people in watershed
- ❖ 4 million along coastline
  
- ❖ Nutrient loading
  - ❖ Urbanization
  - ❖ Land use changes
  - ❖ High coastal population density
  - ❖ WWTPs, CSOs
  - ❖ Stormwater
  - ❖ Septic
- ❖ HYPOXIA



# Eutrophication



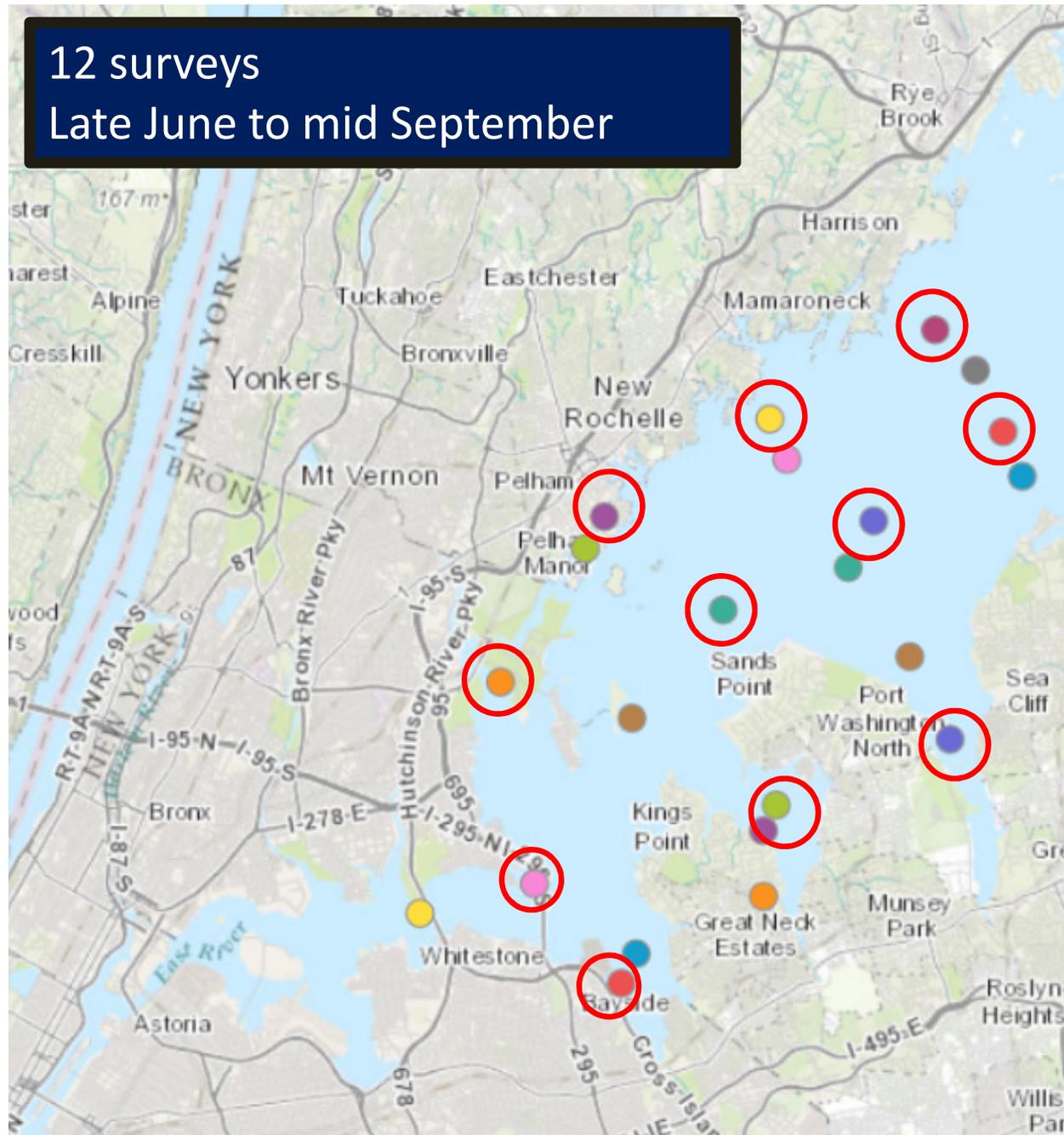
# Areas of Concern



# IEC's Monitoring Program

12 surveys

Late June to mid September



## IN SITU

- depth
- temperature
- pH
- salinity
- dissolved oxygen
- water clarity
- weather
- sea state

## ANALYSIS

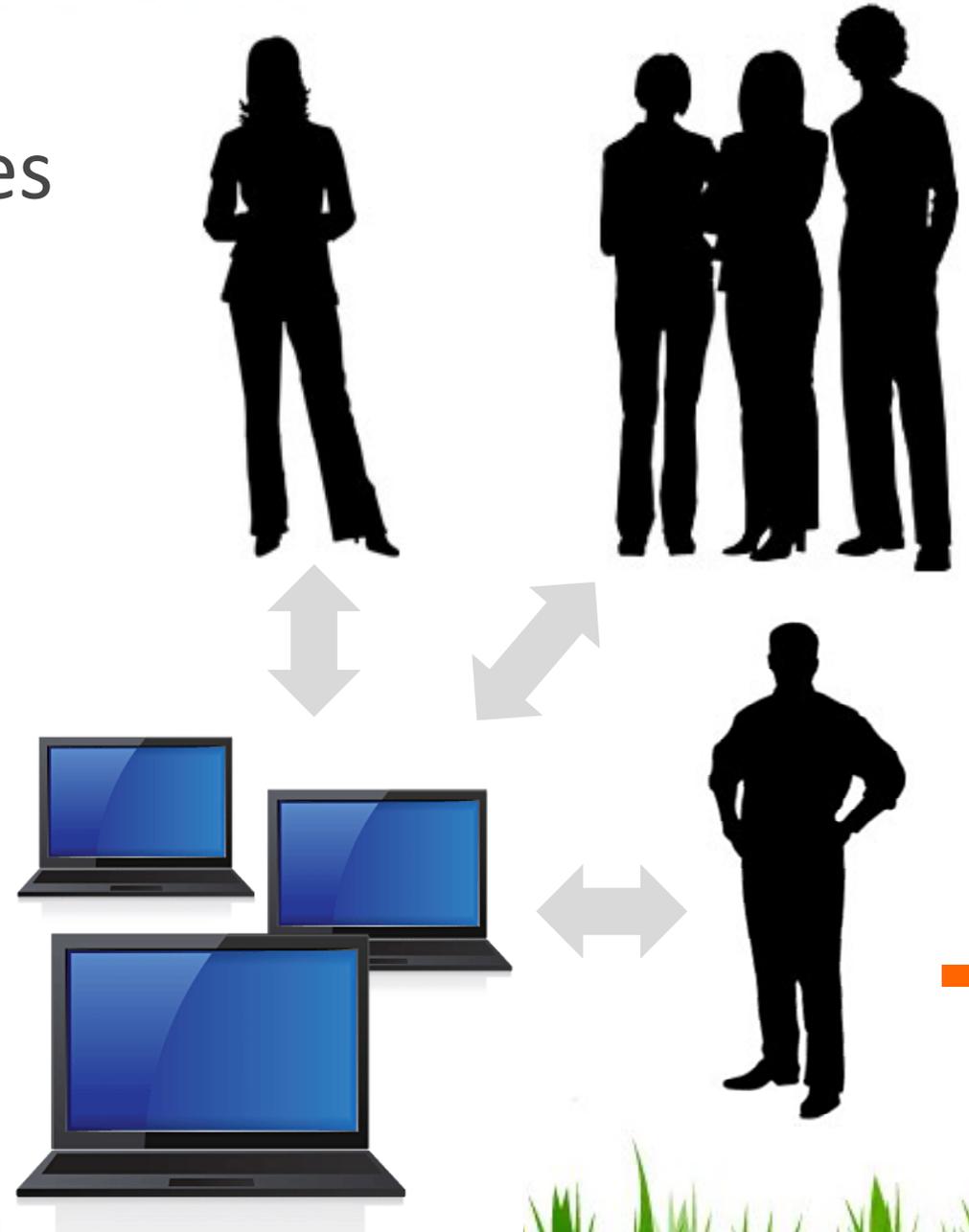
- chlorophyll a
- total suspended solids
- biochemical oxygen demand
- nutrients
  - Ammonia, Nitrate+Nitrite, Particulate Nitrogen, Orthophosphate/DIP, Total Dissolved Phosphorus, Particulate Phosphorus, Dissolved Organic Carbon, Particulate Carbon, Dissolved Silica, and Biogenic Silica

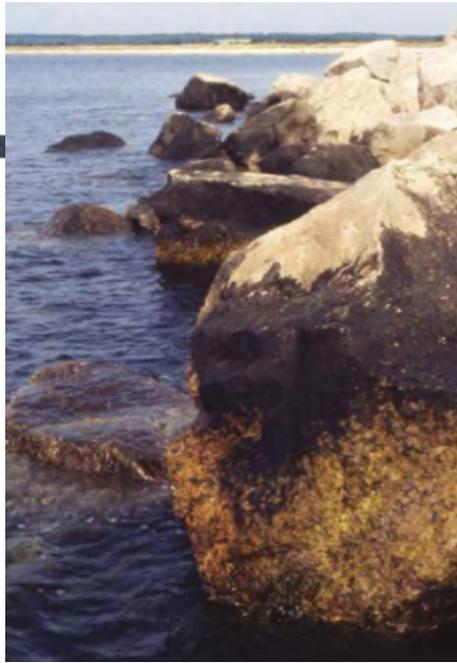
# IEC's Monitoring Program



# Data & Information Sharing

- Weekly trip summaries
  - EPA LISS, embayment groups, state agencies, citizens, monitoring groups
- STORET
- Season Report
- RFP







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**Questions?**

