The National Water Quality Monitoring Network for U.S. Coastal Waters and their Tributaries

The Network is designed to allow for trend detection, yet it is also designed to be flexible and to change over time.

A Network of Networks

- Existing federal efforts augmented with state and local network compliant data
- National network at specified spatial and temporal density
- Conditions and trends identified at national scale
- Eighty participants in the National Water Quality Monitoring Network Design

Design Features

- Nine resource compartments
- Fixed station and probabilistic designs
- Stations identified
- Parameters and sampling frequencies specified
- Provisions for sampling and analytical methods comparability
- Design and data management linked to Integrated Ocean Observing System

Structure of the Design

- A continuum of observations
- Estuaries
- Nearshore
- Offshore and Exclusive Economic Zone
- Great Lakes
- Coastal Beaches
- Wetlands
- Rivers
- Atmosphere
- Groundwater

Data Collection Approaches

- Remote sensing
- Continuous sampling
- Discrete sampling

Environmental Issues to be Assessed

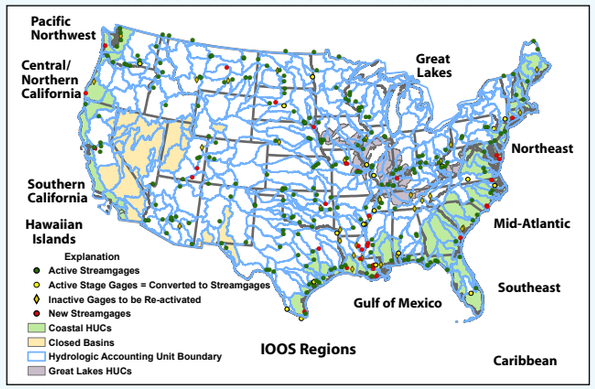
- Nutrient enrichment
- Oxygen depletion
- Sedimentation
- Toxic contamination
- Habitat degradation

Samples to be Analyzed

- Physical characteristics
  - Flow, magnitude and direction; sediments, physical habitat
- Chemical constituents
  - Inorganics - major ions, nutrients, metals, mercury
  - Organics - carbon, pesticides, PCBs, PAHs, emerging contaminants
- Biological
  - Chlorophyll and algae
  - Bacteria and viruses
  - Macroinvertebrates and fish

The Network uses three basic approaches for data collection: remote sensing, continuous sampling, and discrete sampling.

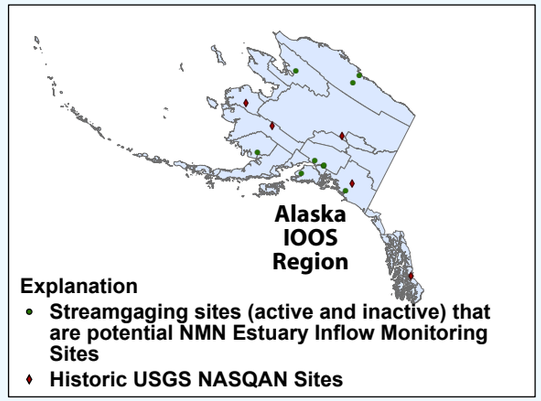
The Network for Rivers in U.S.



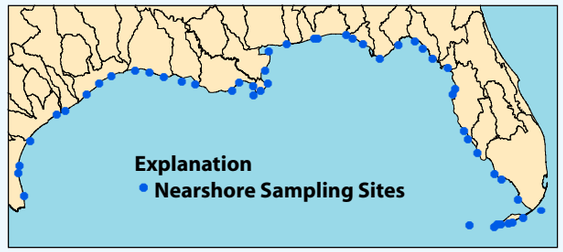
The Network for rivers is designed to assess:

- streamflow, contaminant loads, biological conditions at the outlet of each Hydrologic Accounting Unit at HUC6
- streamflow and constituent loads from coastal rivers.

The Network for Rivers in Alaska



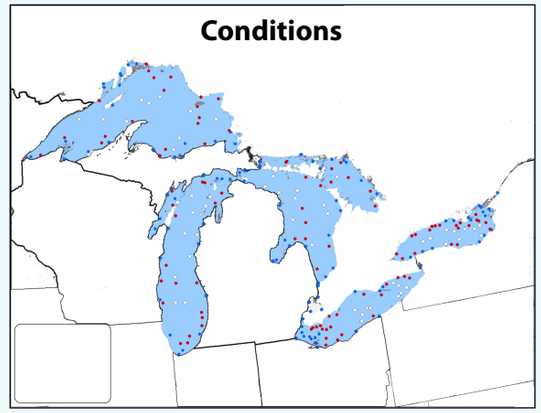
Nearshore Coastal Waters



The Network for nearshore coastal waters is designed to assess:

- conditions at nationwide and IOOS regional scales;
- regions which exceed threshold concentrations of nutrients or other consituents and the extent of hypoxia.

Great Lakes

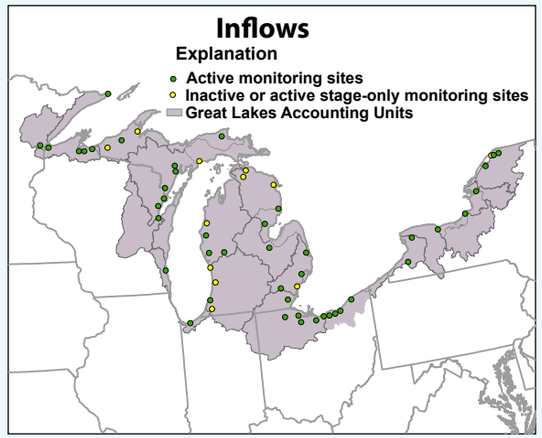


The Network for the Great Lakes is designed to assess:

- the condition of each of the Great Lakes and the Great
- Lakes IOOS region;
- changes over time; and the condition of embayments and nearshore waters. Monitoring types include probabilistic design with 50 sites per lake and targeted fixed sites.

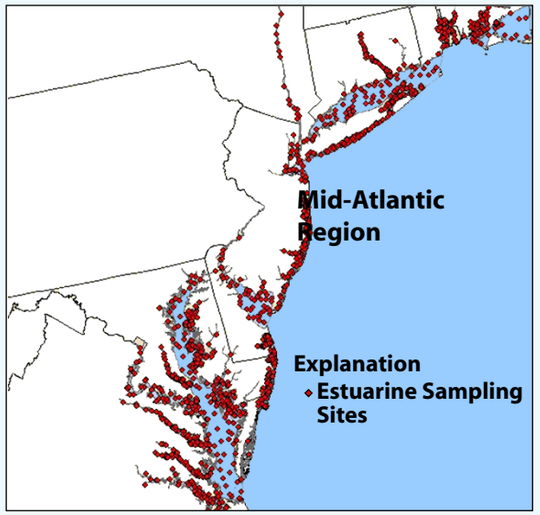
Rivers will be monitored to determine the flow of water and loads of contaminants into estuaries and the Great Lakes.

Inflows



The National Atmospheric Deposition Network, National Trends Network (NADP/NTN) will be used to estimate loads of contaminants from wet and dry atmospheric deposition to rivers, estuaries, and the nearshore.

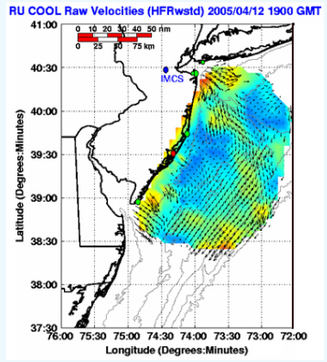
Estuaries

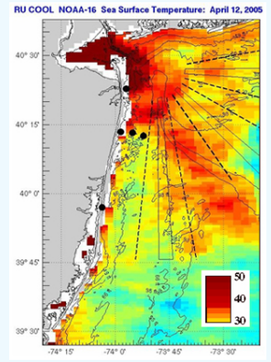


The Network for estuaries is designed to assess:

- conditions of estuarine ecosystems nationwide and by IOOS region,
- conditions of individual estuaries,
- transport of contaminants through estuaries,
- short term variability in conditions.

Offshore Coastal Waters





The offshore environment is so vast that the primary means of monitoring will be remote-sensing, shipboard surveys, and moored or drifting buoys. Similar technologies may be used to supplement observations from fixed sampling sites in coastal waters.