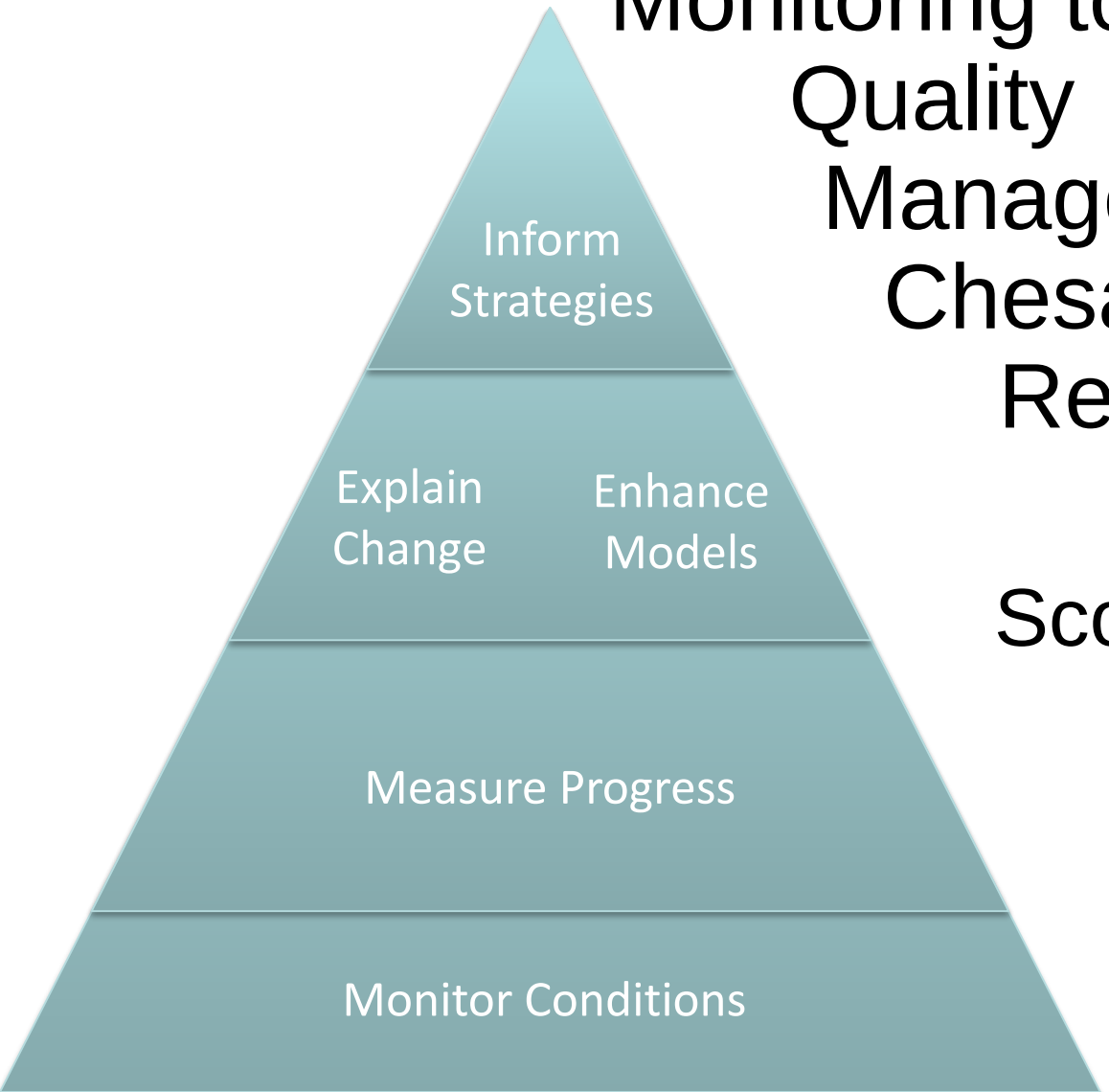
Monitoring to Support Water-Quality Modeling and Management for the Chesapeake Bay Restoration

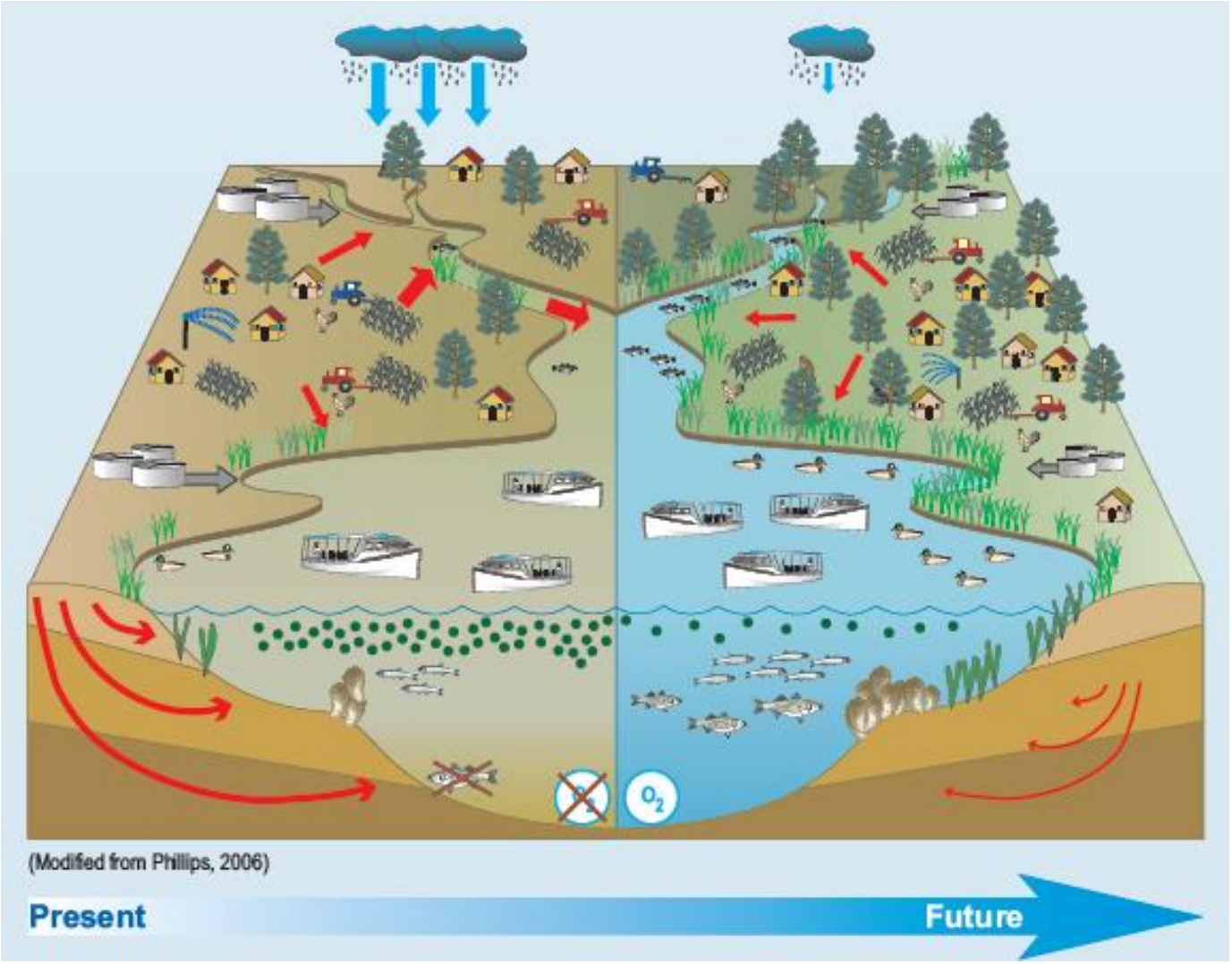


Scott Phillips (USGS)

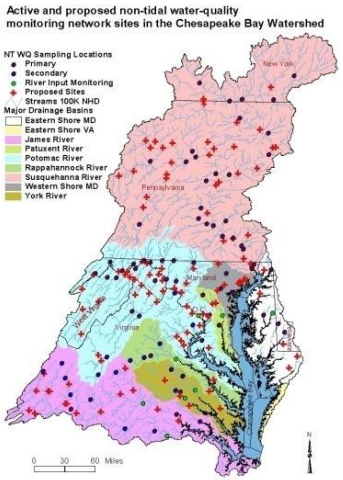
Nov. 2018

Water Quality Outcomes

- TMDL and WIPs
- Attain standards and monitoring
- Monitoring and Models
  - Baseline
  - Planning
  - Progress



Chesapeake Monitoring Networks



Watershed Monitoring

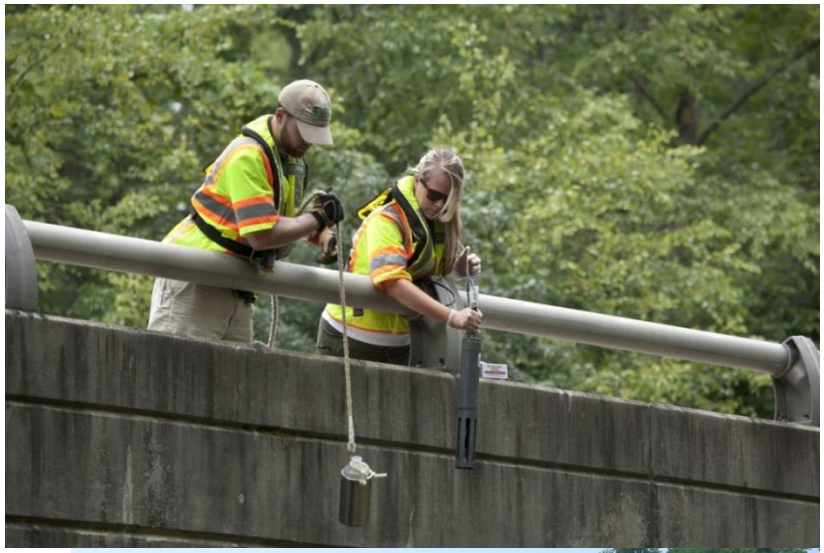
Bay Water Quality Monitoring

Land Cover and Use

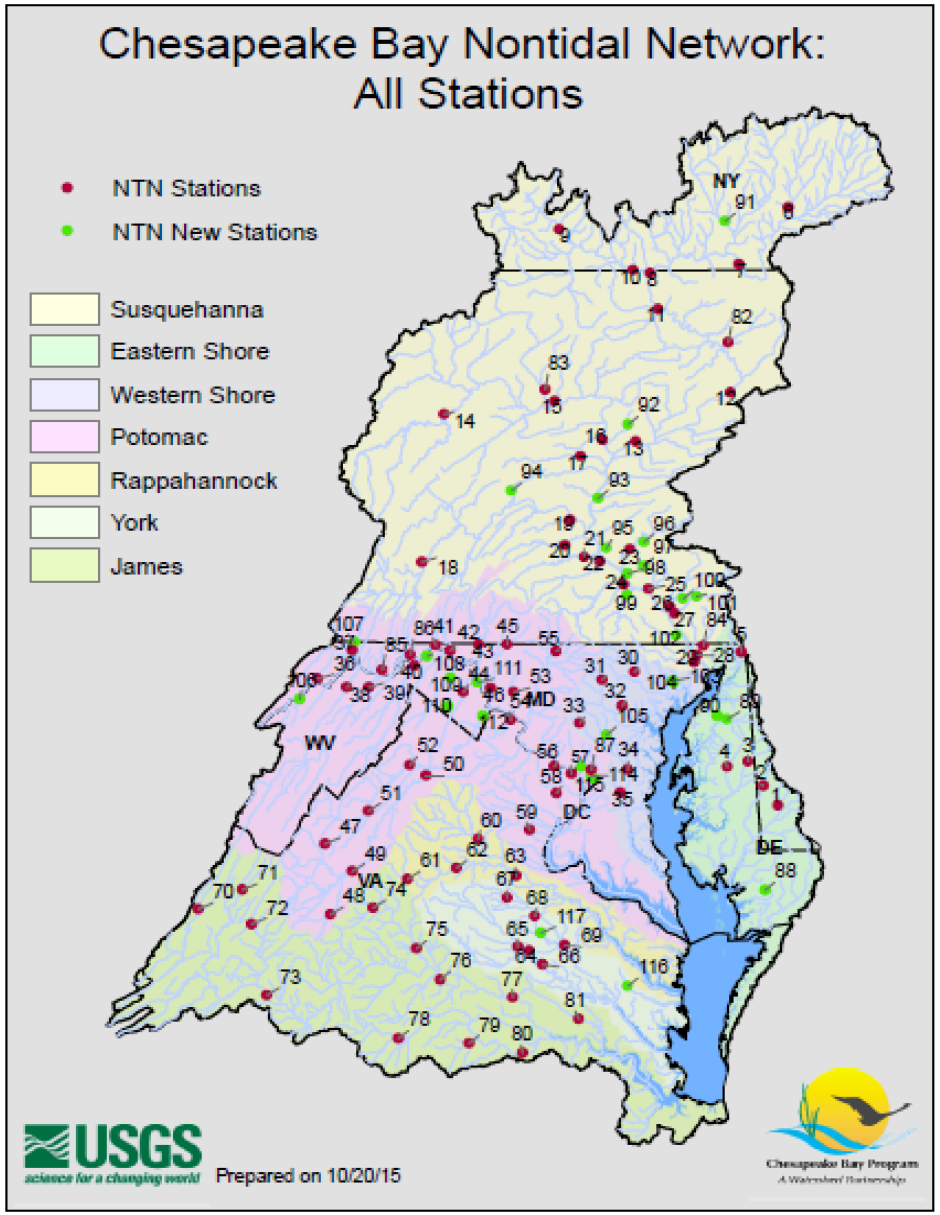
Shallow Water Habitat

Living Resources Monitoring

Watershed Sampling: Rivers and Streams



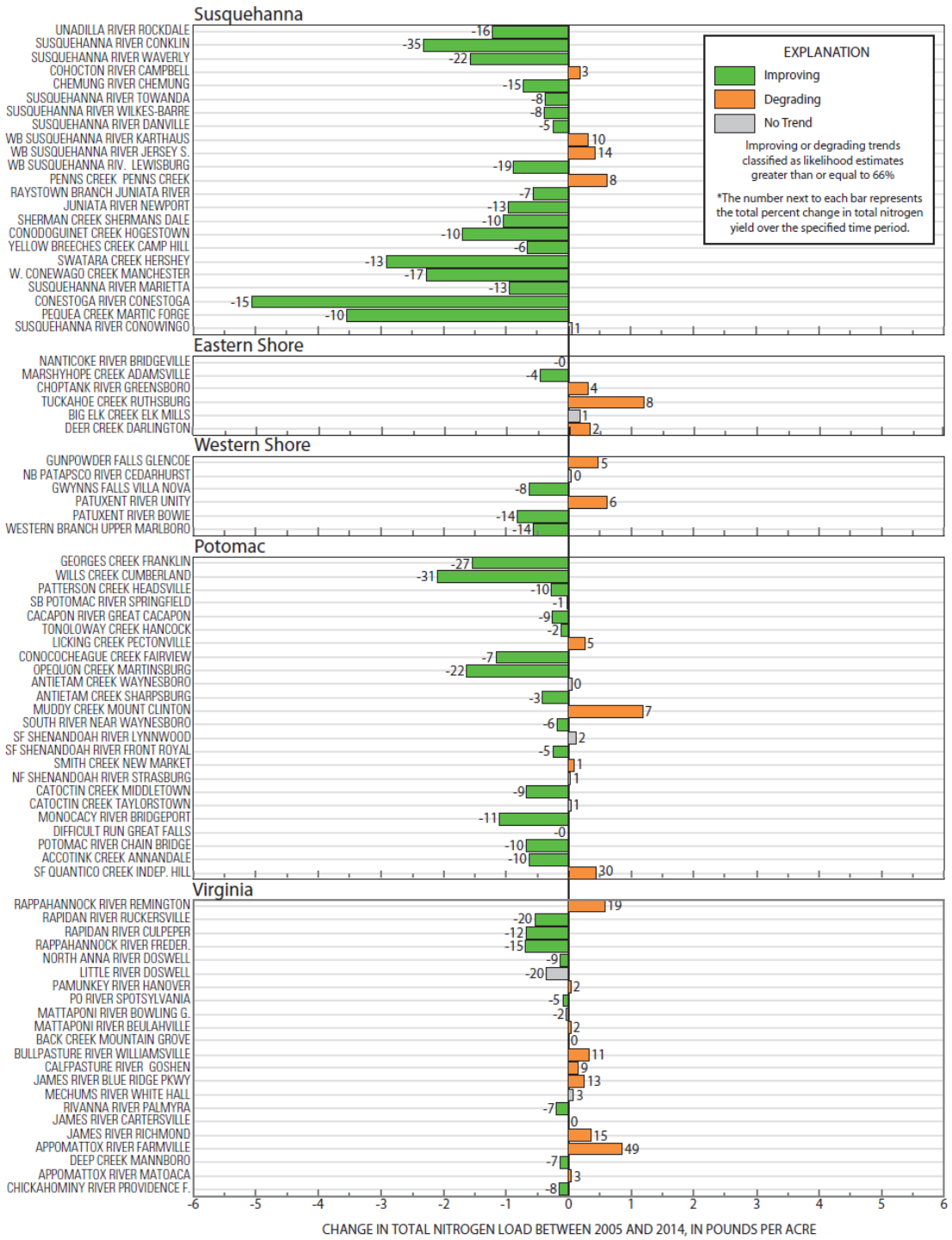
Watershed Networks



- Watershed
  - Nutrients and sediment in rivers
  - 125 sites
  - Monthly and storms
- Sites:
  - Land uses
  - Culminative effects of practices
  - Model calibration

Source: USGS, 2016

Results



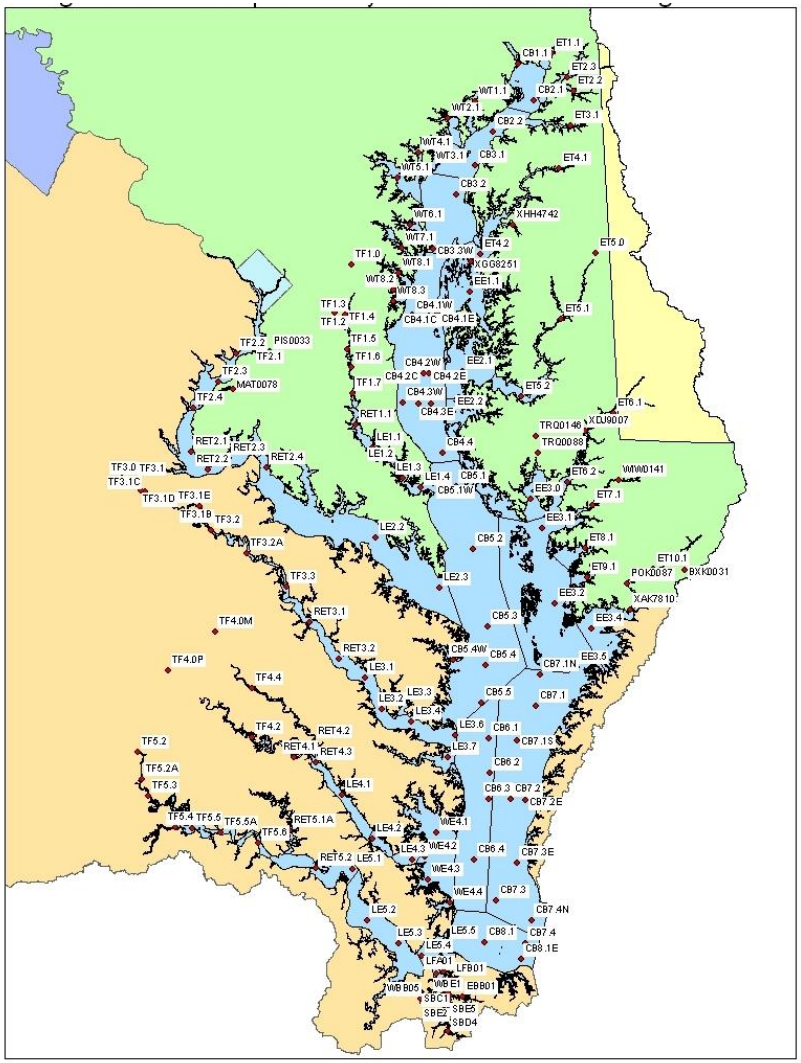
-Trends

- Improving:54%
- Degrading:27%
- No Trend: 19%

-Vary by watershed

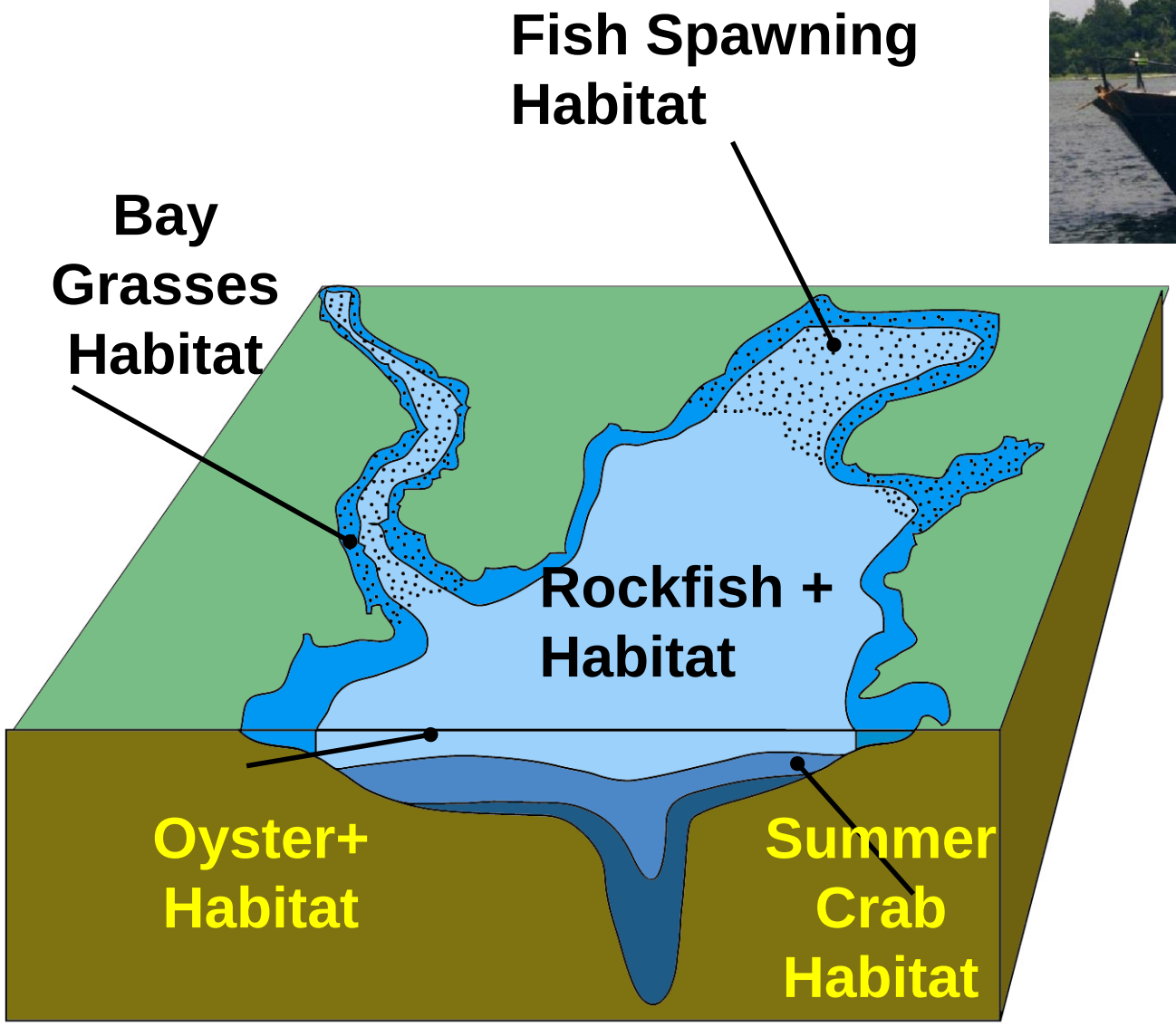
-Practices and pressures

Tidal Water Quality Monitoring

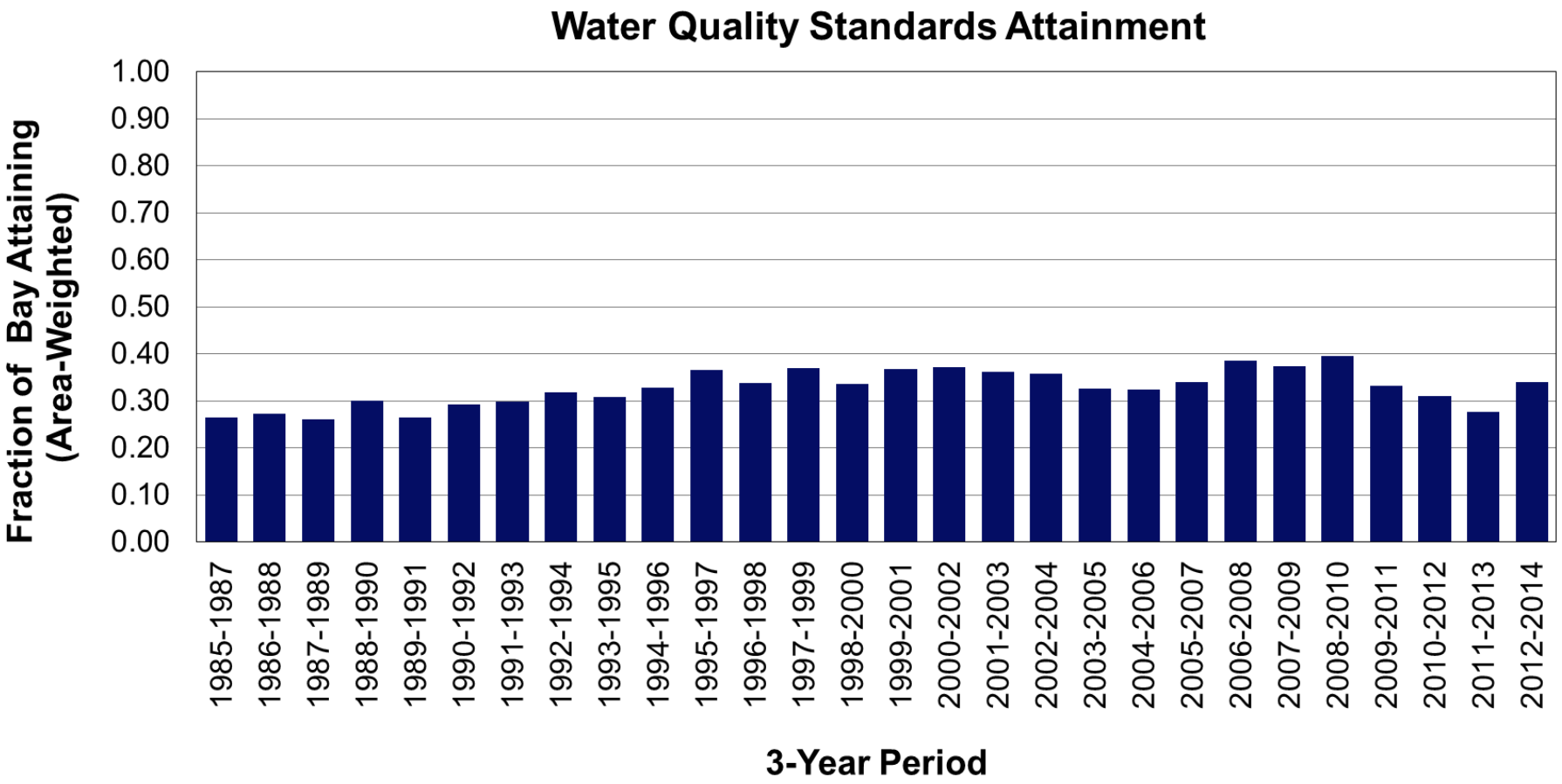


- Main Bay and tidal waters
  - 161 sites
  - Biweekly to monthly
  - 26 parameters
  - 1985-present
- Provides:
  - Attainment of standards
  - Conditions for fish and SAV

Tidal collection



Attainment in tidal waters



Source: EPA, CBP

Monitoring & Models

- Monitoring is the foundation
- Both needed:
  - Assess progress
  - Explain change
- Inform WIPs & milestones