

IOOS Application to Harmful Algal Blooms and Ecosystem Health Monitoring

Josh Kohut

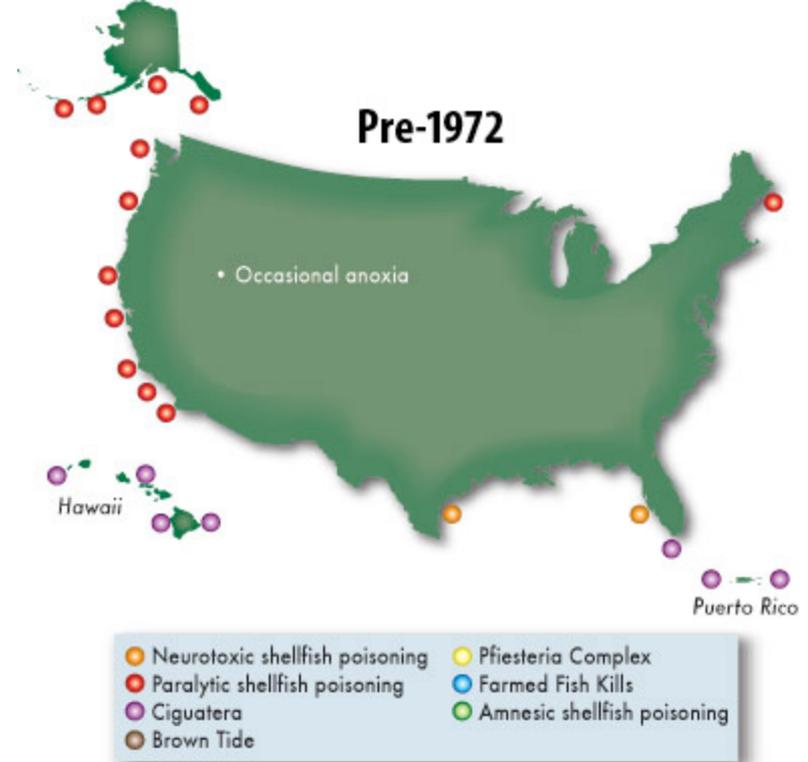
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Science

Bob Connell

NJ Dept. of Environmental Protection
Water Monitoring and Standards

Increasing Occurrence of Harmful Algal Blooms

Coastal states are concerned about the increasing occurrence of toxic algal blooms. Shellfish producing states are required to monitor for the presence of harmful algal blooms.



Traditional Phytoplankton Monitoring

- Fixed station network
- 16 samples every 2 weeks



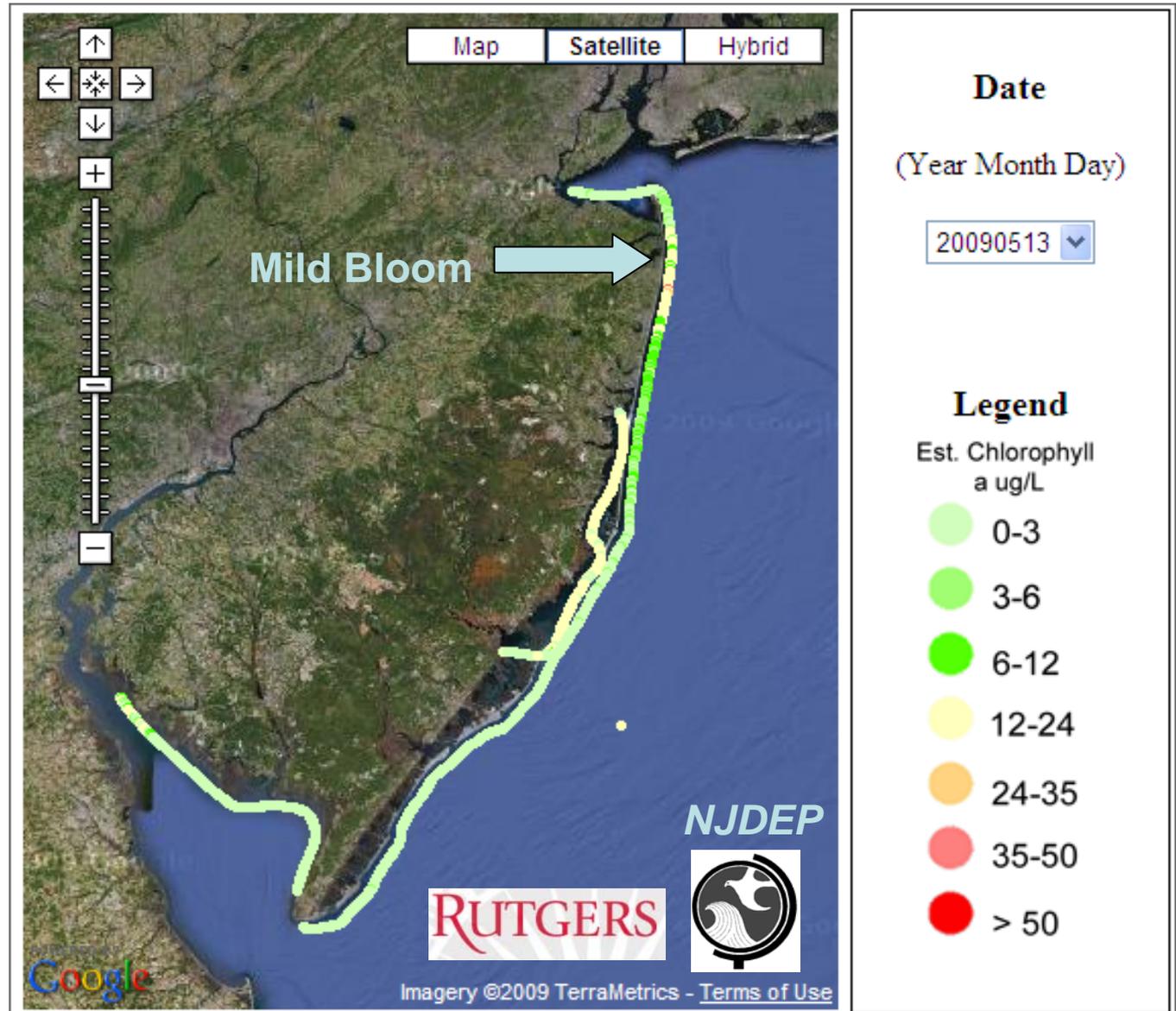
Vessel-based sampling



Laboratory analysis for toxic species

Phytoplankton Monitoring in the Age of IOOS

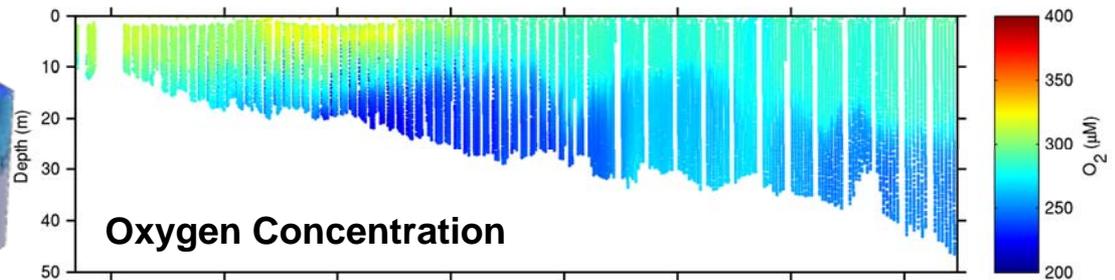
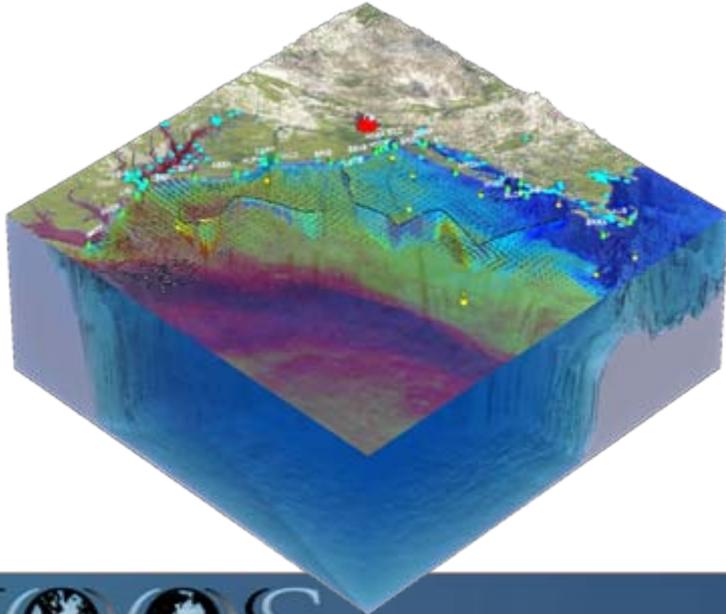
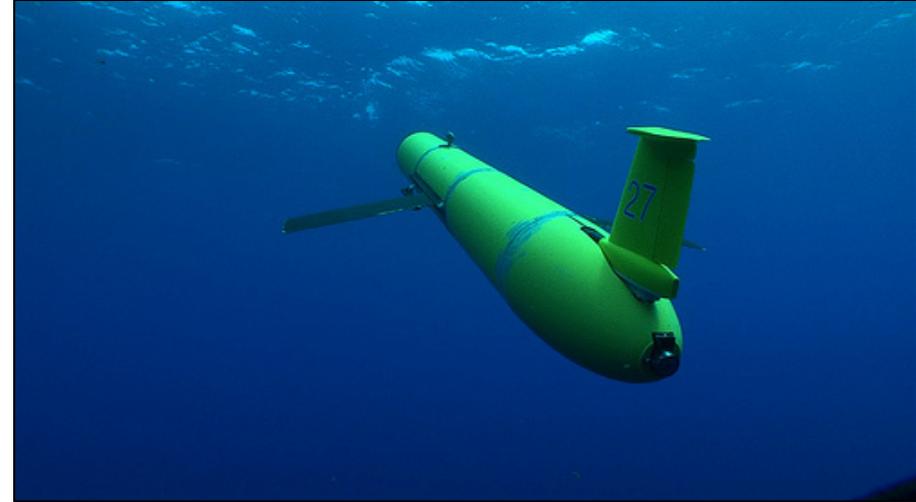
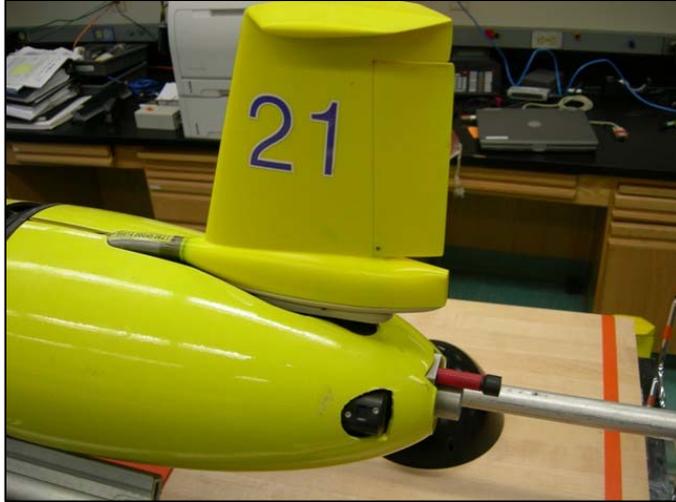
- Aircraft Remote Sensing
- Thousands of measurements each day
- Near-daily flights by piggybacking on coastal surveillance flights
- State-wide coverage in one day
- ID's bloom locations to target vessel sampling & algal species ID by microscopy.



Autonomous Platforms: Dissolved Oxygen

Aanderra Optode

NJDEP
EPA
Rutgers
MACOORA



Monitoring Water Quality Along the New Jersey Coast

Shallow Water Pilot Deployment (<10m)

Bob Connell, New Jersey Department of Environmental Protection

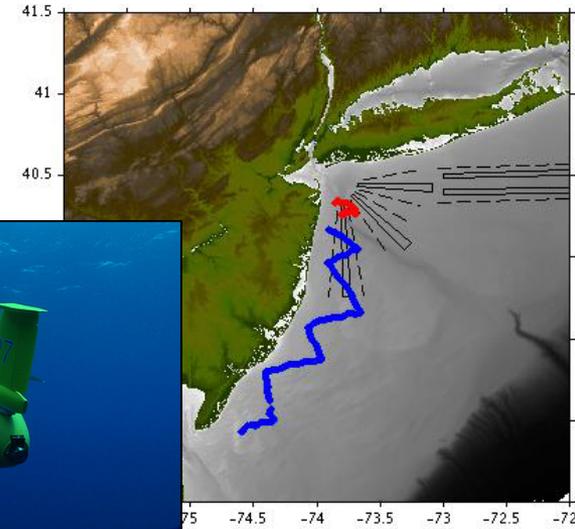
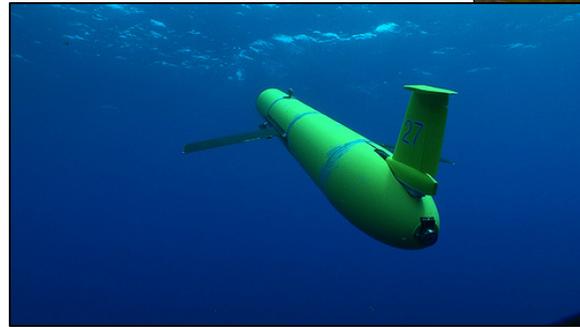
Josh Kohut and Mike Kennish, Rutgers University

August 20, 2009 – September 7, 2009

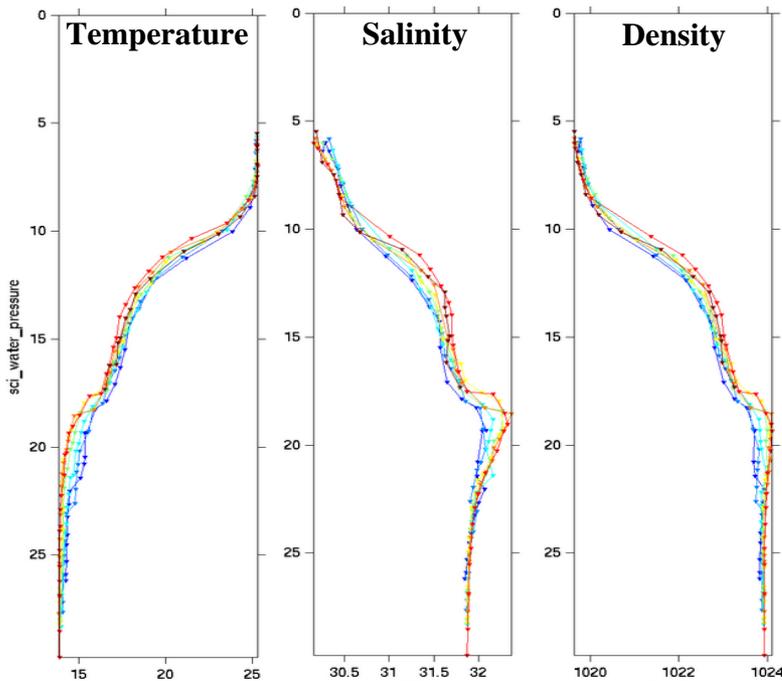
20 days

316 km flown

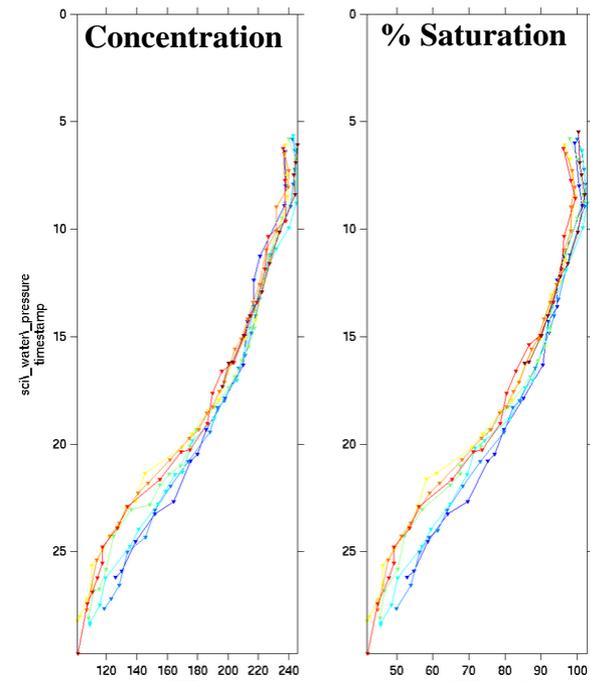
5,100 water column profiles.



Hydrography



Water Quality – Dissolved Oxygen



Nearshore Ocean Ecosystem Assessment Project

- Collaboration between USEPA, NJDEP and Rutgers University
- Developing methods to assess the health of the benthic community.
- IOOS gliders will provide detailed water quality profiles for dissolved oxygen, chlorophyll, temperature, salinity and turbidity to better understand factors impacting benthic diversity.

