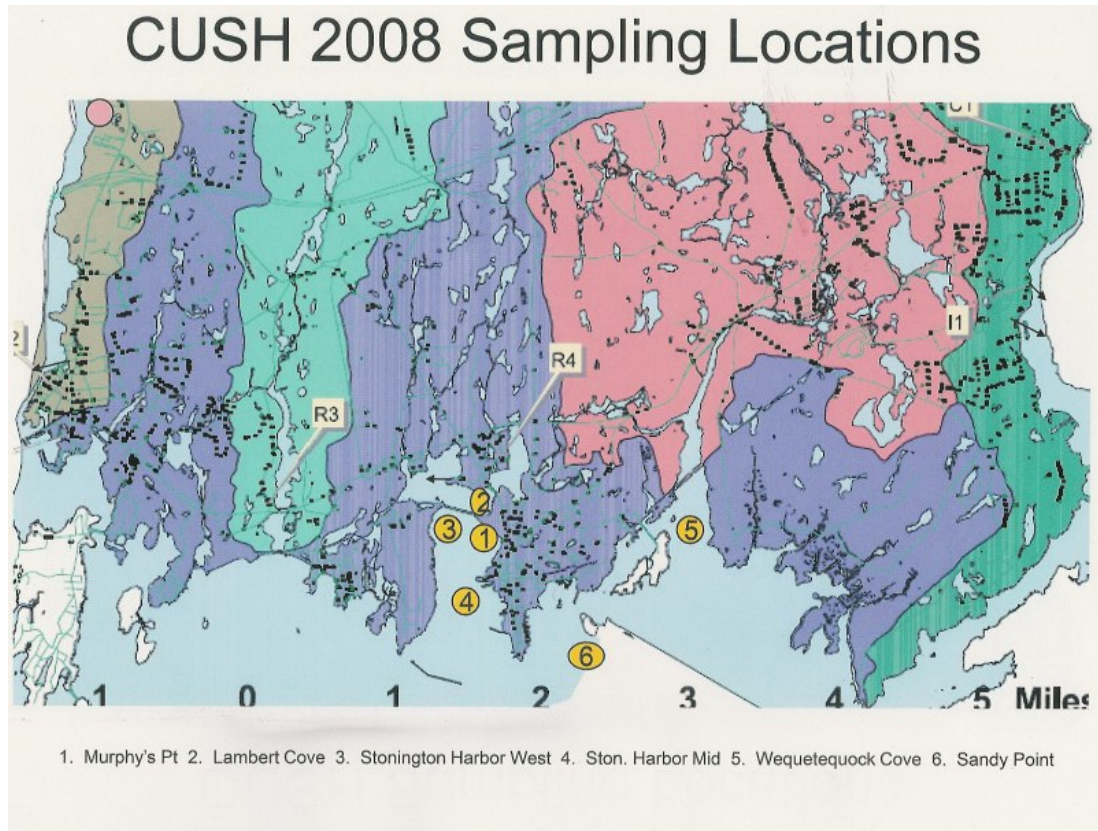


2008 CUSH Water Quality Monitoring



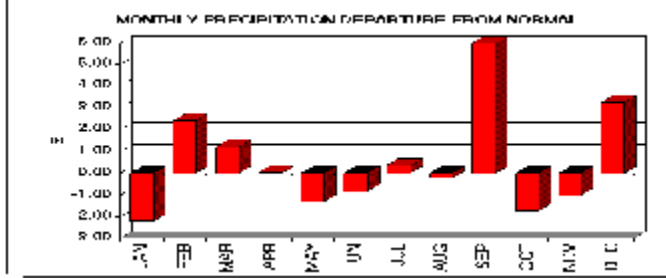
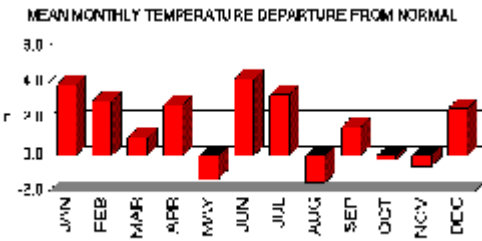
CUSH Water Testing

Every 2 weeks: measured dissolved oxygen and temperature, took notes on current weather and tide conditions, filtered samples for URI lab measurement of algae.

Once a month: obtained extra samples for transport to URI for lab analysis of nitrogen (total, nitrate-N, and ammonia-N), phosphorus, bacteria, pH. Extra samples from Dodson's and Lambert's for copper, zinc, COD.

Why test those? Temperature, dissolved oxygen, pH all have optimal ranges to support aquatic life. These ranges can be disrupted by nutrients and the algae they nourish. Bacteria and toxic pollutants can threaten human as well as animal health.

Weather Summary (from the Kingston, RI weather station):



The sampling season was generally warmer than average in June-July and dryer than average till September.

Monthly nutrient/bacteria sampling days never fell within 48 hours of a rainfall, which can greatly affect results.

2008 CUSH Monitoring Results

Total nitrogen levels were generally at the lower end of the “moderately enriched” range, an improvement over findings by other groups in previous years. Nitrate levels are higher than in Block Island's Great Salt Pond, lower than in Winnepaug Pond and the Pawcatuck River.

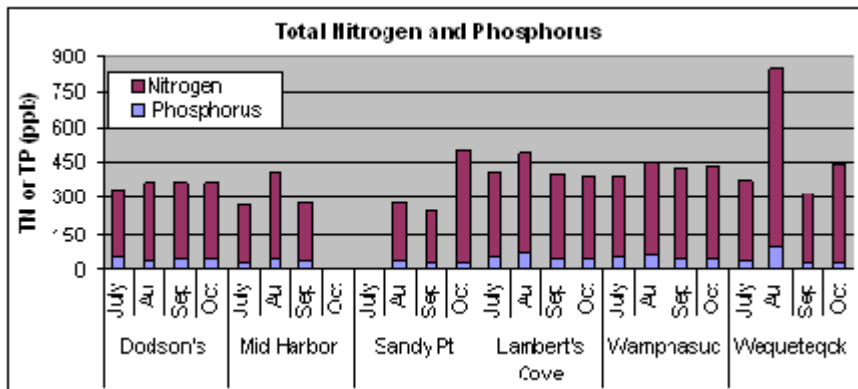
Total phosphorus exceeded 10% of N levels at least once at all sites, indicating potential to spur algal growth.

Average chlorophyll (algal density) reached eutrophic (excessive) levels only in Weq. Cove in August.

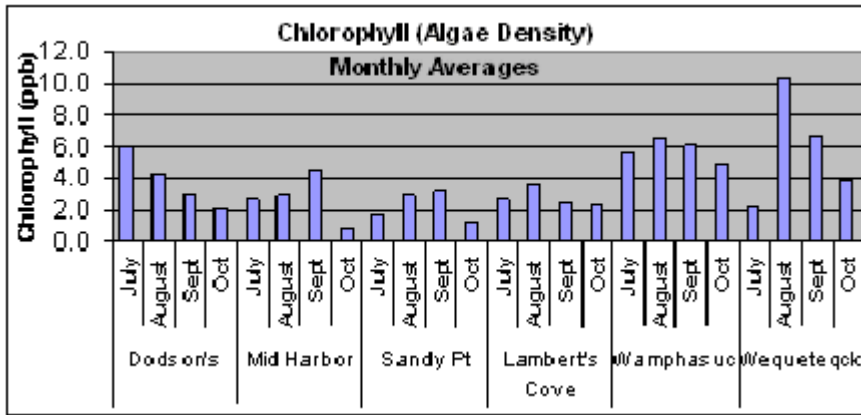
Dissolved oxygen in our samples was always sufficient for aquatic life.

Bacteria counts were below the RI limit for swimming (104), and only one sample (65 at Dodson's Boatyard) greatly exceeded the RI shellfish limit of 14. Seasonal averages were all 14 or less.

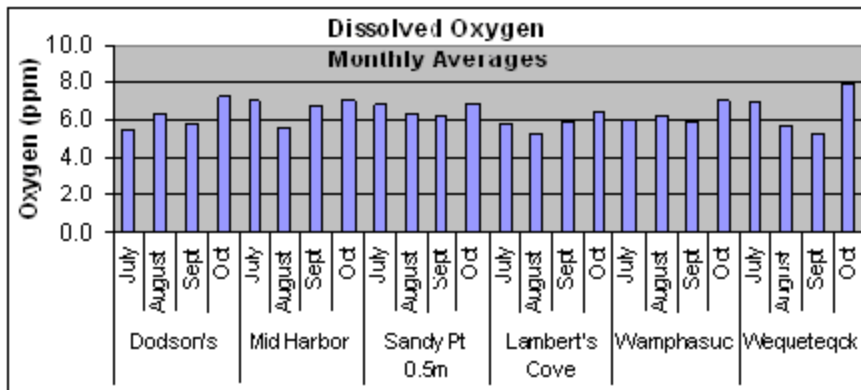
At sites near Dodson's Boatyard and Lambert's Cove, zinc levels were low, and copper reached but did not exceed the limit considered safe for sensitive aquatic species. There were no detectable hydrocarbons.



N is the main algae fertilizer in saltwater systems and is considered moderately enriched at 350 to 600 ppb. Phosphorus over 10% of N can contribute to algae blooms. Nitrate is a form of N that is rapidly taken up by algae. Ammonia can indicate sewage or waterfowl.



Chlorophyll less than 7.6 ppb indicates moderate algal density.



Oxygen levels between 4 and 5 ppm are considered stressful to aquatic life.