The overall water quality of Casco Bay is good, although there are a few sites where indicators have been measured at levels of concern. Low dissolved oxygen near urban areas suggests that the Bay is experiencing localized pollution problems, most likely due to over-enrichment with nitrogen.

The distribution of all of the DO data – including more than 7,600 measurements – shows that 90 percent of the DO values in Casco Bay were above 7.2 mg/l. Only 0.5 percent fell below 5.0 mg/l. On the whole, those values are typical of well oxygenated, healthy coastal waters. Low dissolved oxygen levels that may be of significant concern are still rare in Casco Bay.

The lowest 10th percentile values for DO show where issues with dissolved oxygen may be occurring. There is a strong inshore to offshore trend of improving DO conditions. Sites that exhibit more frequent low levels of DO include Stroudwater Creek and Custom House Wharf in Portland Harbor, the Cousins River and the upper New Meadows River. The Peaboles Cove site in Cape Elizabeth occasionally experiences low levels of DO, probably as a result of decomposing storm-cast seaweed (FOCB 2010).

A clear decreasing trend from inshore to offshore can be seen for both parameters. This pattern of more nitrogen in areas with lower salinity, although there are a few sites where indicators have been measured at levels of concern.

The regional means for DIN generally track well with the previous three parameters: higher DIN levels are found in regions with lower DO, warmer water, and lower Secchi depths (FOCB 2010). (The error bars show +/- one standard deviation among measurements taken in a region to show the magnitude of local, seasonal and annual variability.)

The annual mean water temperature has increased since 1993, with four of the five warmest years occurring in the last four years analyzed (2005 – 2008). Statistical analysis suggests that this is a meaningful trend, not simply a result of year to year fluctuations. Early morning data (collected prior to 10:00 AM) shows a similar statistically significant trend (FOCB 2010).