

Contingency Plan Report Second Quarter 2009

Ambient Monitoring

MWRA gathers data from the outfall location in Massachusetts Bay on various thresholds in its Deer Island outfall discharge permit. This contingency plan quarterly report shows relevant ambient monitoring results that became available in the April-June 2009 time period.

There was one exceedance of a Contingency Plan threshold, for the red tide nuisance alga *Alexandrium* (see http://www.mwra.state.ma.us/harbor/pdf/20090518_amx.pdf). Only partial results for this time period are available through the end of June. The full *Alexandrium* data set will be reported next quarter.

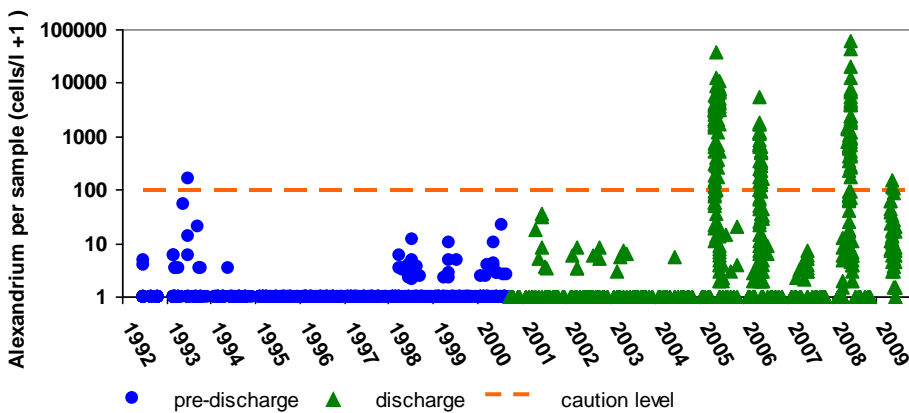
NUISANCE ALGAE – February-June 2009 (partial results)

ALEXANDRIUM

The nuisance algae *Alexandrium* (“red tide”) can cause paralytic shellfish poisoning (PSP) in Massachusetts Bay. MWRA measures *Alexandrium* abundance in its monitoring program, and also checks state fisheries agency observations of shellfish PSP toxicity to keep track of the course of Gulf of Maine *Alexandrium* blooms.

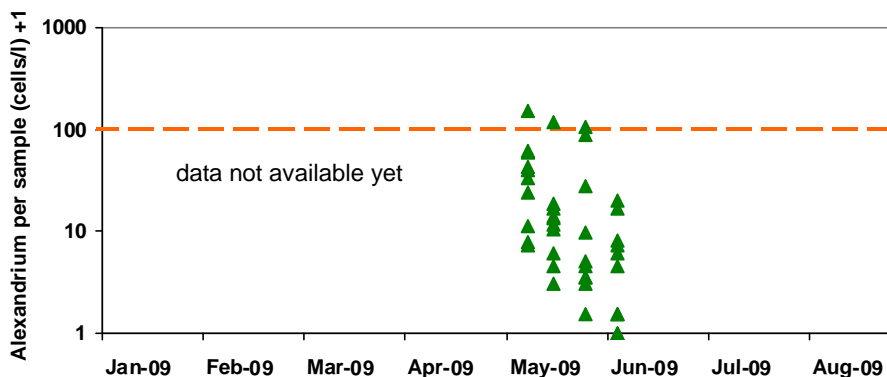
In 2009 there was an *Alexandrium* bloom along the coast of Maine, New Hampshire, and Massachusetts. Early data, using rapid molecular DNA probe methodologies from a routine survey on May 12, showed that the single sample abundance of *Alexandrium* in the outfall nearfield exceeded the Caution Level threshold of 100 cells/L, triggering notification under the Contingency Plan (see http://www.mwra.state.ma.us/harbor/pdf/20090518_amx.pdf). By the time of preparation of this report (early July 2009), the bloom has subsided in Massachusetts Bay, but not all data from routine and special surveys have yet been reported to MWRA. The figure below includes results for each sample available through June 2009, from rapid DNA probe data from one routine survey and three special surveys in May and June 2009. (Note logarithmic scale for graph.)

More complete data from the spring 2009 bloom of *Alexandrium* will be reported next quarter.



January-June partial results for <i>Alexandrium</i> per-sample abundance (cells/liter)	
Caution threshold	100
Winter-early summer 2009 (partial)	118*

* maximum of DNA probe samples collected between January 1, 2009 and June 8, 2009 and reported through June 2009 -draft data.



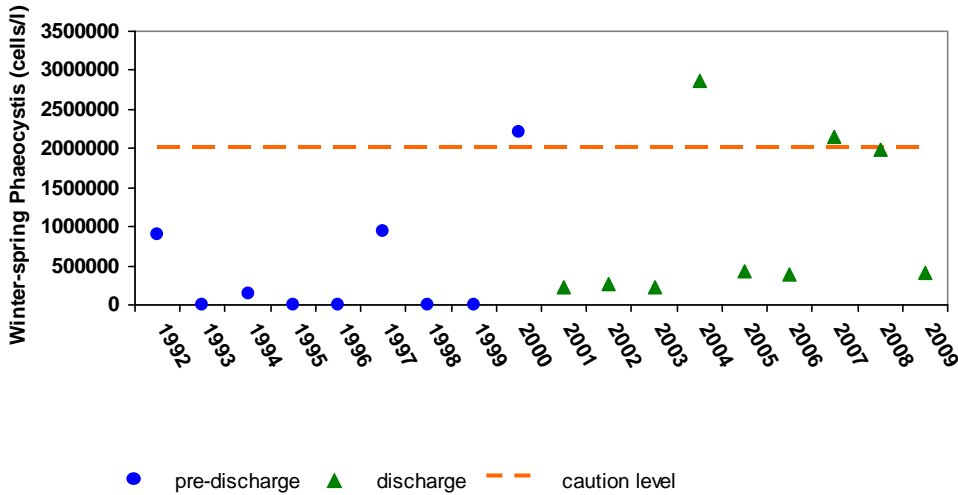
PHAEOCYSTIS and PSEUDONITZSCHIA

As in most recent years, there was a spring bloom of *Phaeocystis pouchetii* in the Gulf of Maine, but average nearfield abundance was well below the threshold. *Pseudonitzschia* was not observed in the nearfield in winter/spring 2009.

In the figures below, we compare *Phaeocystis* and *Pseudonitzschia* data to the nuisance algae thresholds for winter/spring 2009 (February through April), which included four surveys.

PHAEOCYSTIS

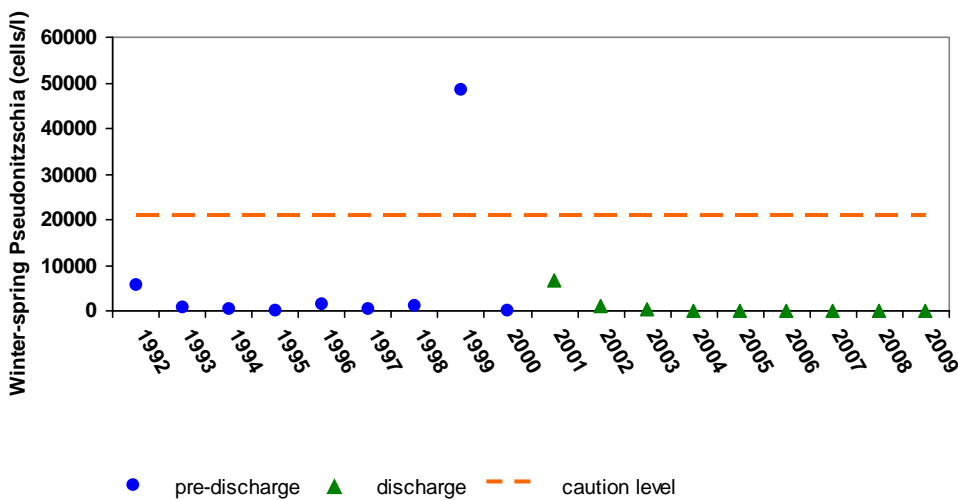
Winter/spring



Winter/spring <i>Phaeocystis</i> mean abundance (cells/liter)	
Caution threshold	2,020,000
Winter/spring 2009	402,000

PSEUDONITZSCHIA

Winter/spring



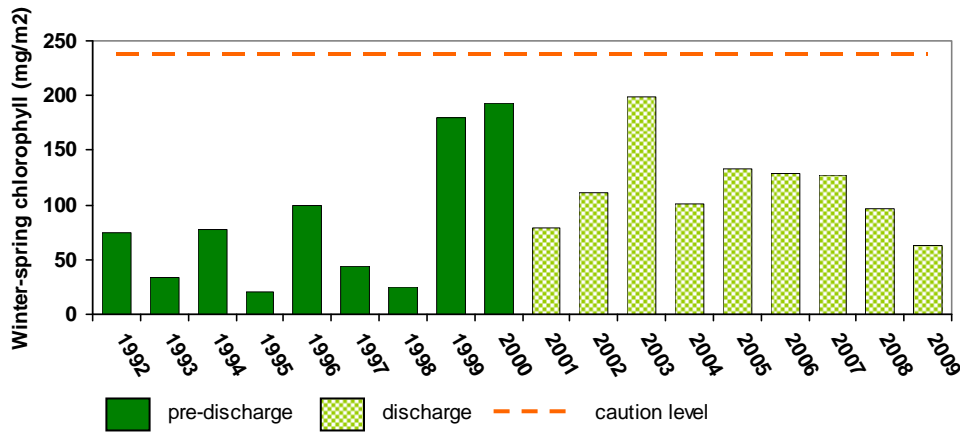
Winter/spring <i>Pseudonitzschia</i> mean abundance (cells/liter)	
Caution threshold	21,000
Winter/spring 2009	0

CHLOROPHYLL – February- April 2009

There were no [chlorophyll threshold](#) exceedances in this period. The nearfield mean area average chlorophyll in winter/spring 2009 (February-April) was 63 mg/m², well below the caution level threshold for winter/spring of 238 mg/m² and in the range typical of the pre-discharge period.

The figure compares chlorophyll data for winter/spring 2009 (February-April), which included four surveys, to the corresponding threshold. The graph includes data since the start of the monitoring program in 1992.

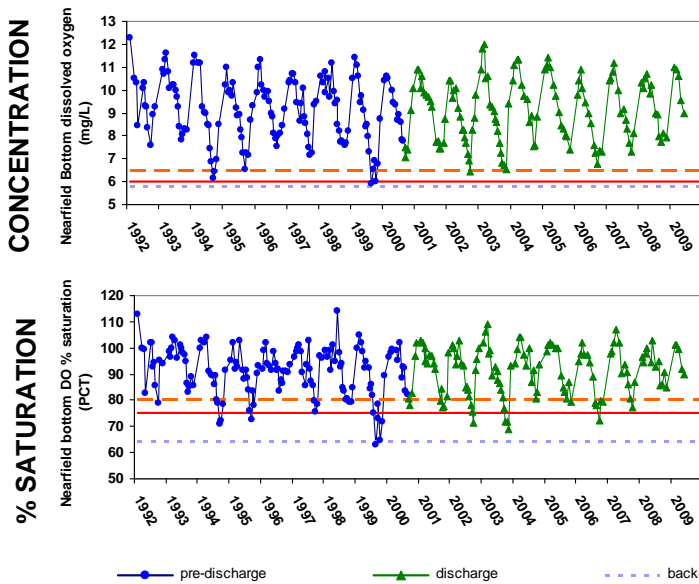
Winter/spring



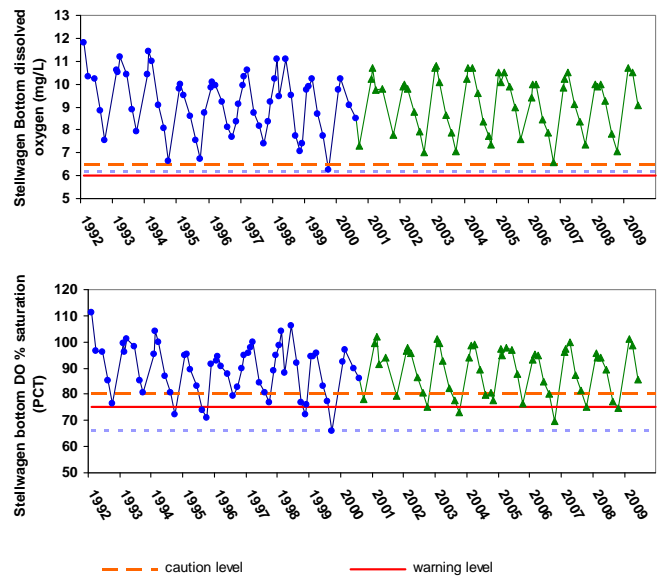
DISSOLVED OXYGEN – June 2009

Measurements of dissolved oxygen (DO) concentration and percent saturation in June 2009 did not fall below background levels and thus did not exceed thresholds.

NEARFIELD



STELLWAGEN BASIN



The current reporting period for [dissolved oxygen thresholds](#) is June 2009. During this period there was one nearfield survey and one farfield survey. Oxygen levels were similar to those seen in most baseline years. The graphs above include data since the start of the monitoring program in 1992, and reflect the natural fluctuation of DO and percent saturation, which is typically lowest in early autumn.