

## Contingency Plan Report Third Quarter 2005

### Ambient Monitoring

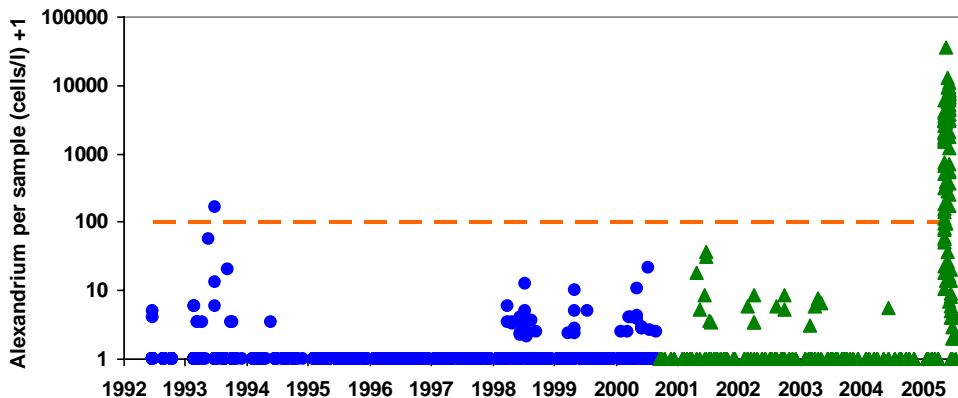
MWRA gathers data from the outfall location in Massachusetts Bay on various thresholds outlined in its Deer Island outfall discharge permit. This report shows relevant ambient monitoring results that became available in the July-September 2005 time period. There was one exceedance of a Contingency Plan threshold, for the nuisance algae *Alexandrium*.

#### NUISANCE ALGAE – January-July 2005

##### 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.

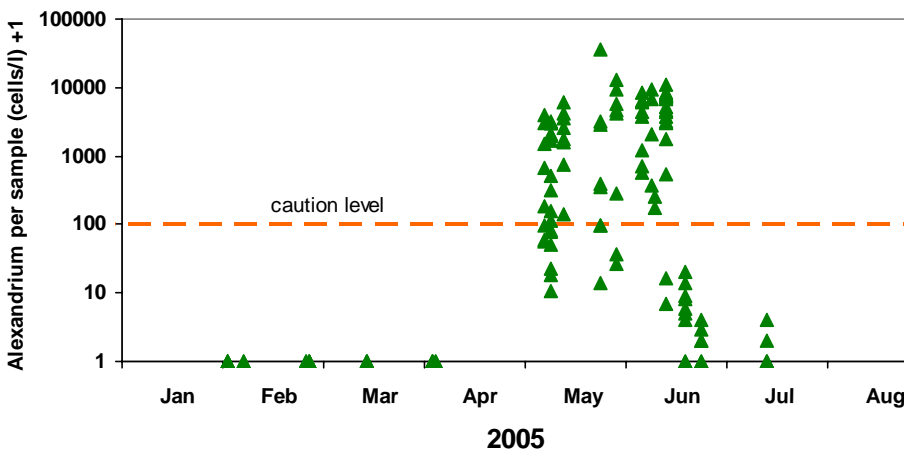
In 2005 there was an unusually robust *Alexandrium* bloom along the coast of Maine that was carried into Massachusetts Bay by the high winds of May 7 and 8. Early data, using rapid molecular probe methodologies from a special survey on May 11, showed that the single sample abundance of *Alexandrium* 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/20050520amx.pdf>). The bloom subsided in Massachusetts Bay in early July. The figure below includes data available through September 2005, including nearfield data from seven routine surveys and seven special surveys between January and July 2005.



January-July <i>Alexandrium</i> per-sample abundance (cells/liter)	
Caution threshold	100
Winter-early summer 2005	36,830*

\* maximum of all samples collected between January 1, 2005 and July 18, 2005

● pre-discharge    ▲ discharge    - - - caution level

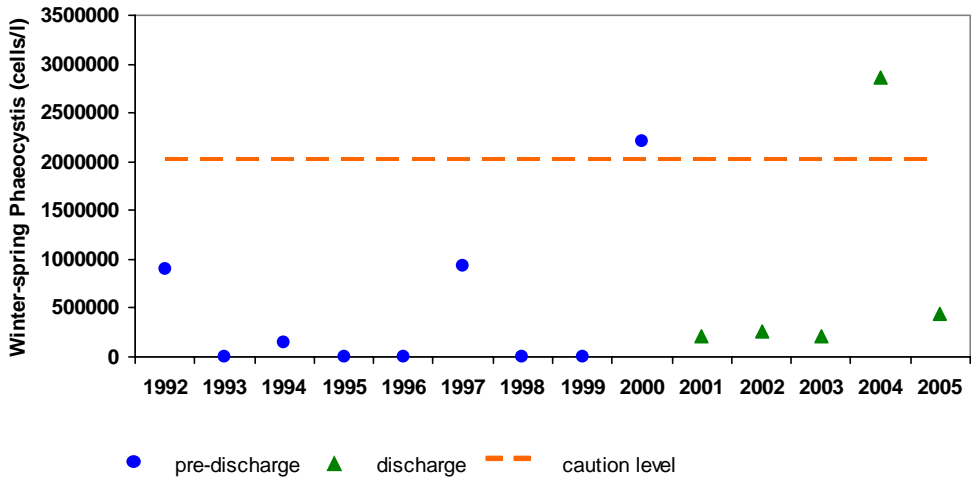


**PHAEOCYSTIS and PSEUDONITZSCHIA**

*Phaeocystis pouchetii* and *Pseudonitzschia* were present only at abundances below the threshold in the nearfield in winter/spring 2005. In the figures below, we compare *Phaeocystis* and *Pseudonitzschia* data to the [nuisance algae thresholds](#) for winter/spring 2005 (January through April), which included four surveys.

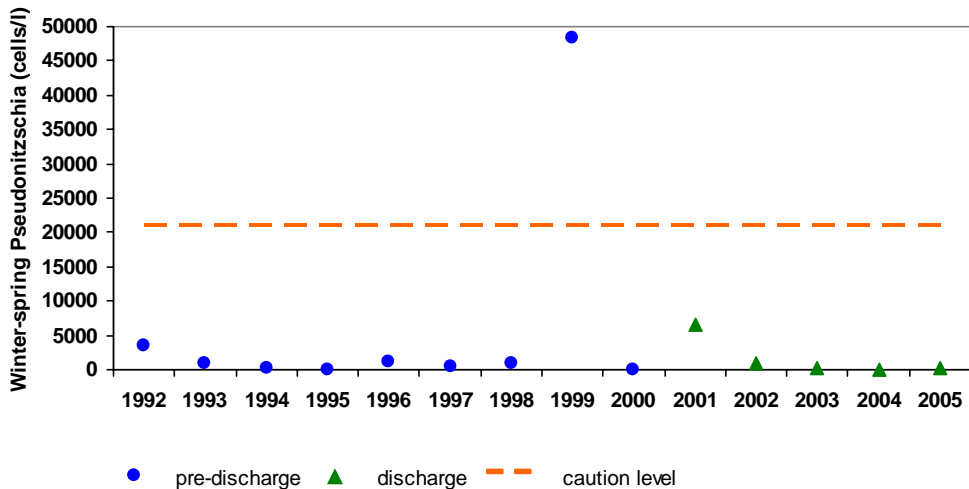
Because of the modest bloom of *Phaeocystis* in the spring, however, the very low summer threshold is likely to be exceeded, as in other recent years.

**PHAEOCYSTIS**  
Winter/spring



Winter/spring <i>Phaeocystis</i> mean abundance (cells/liter)	
Caution threshold	2,020,000
Winter/spring 2005	438,000

**PSEUDONITZSCHIA**  
Winter/spring



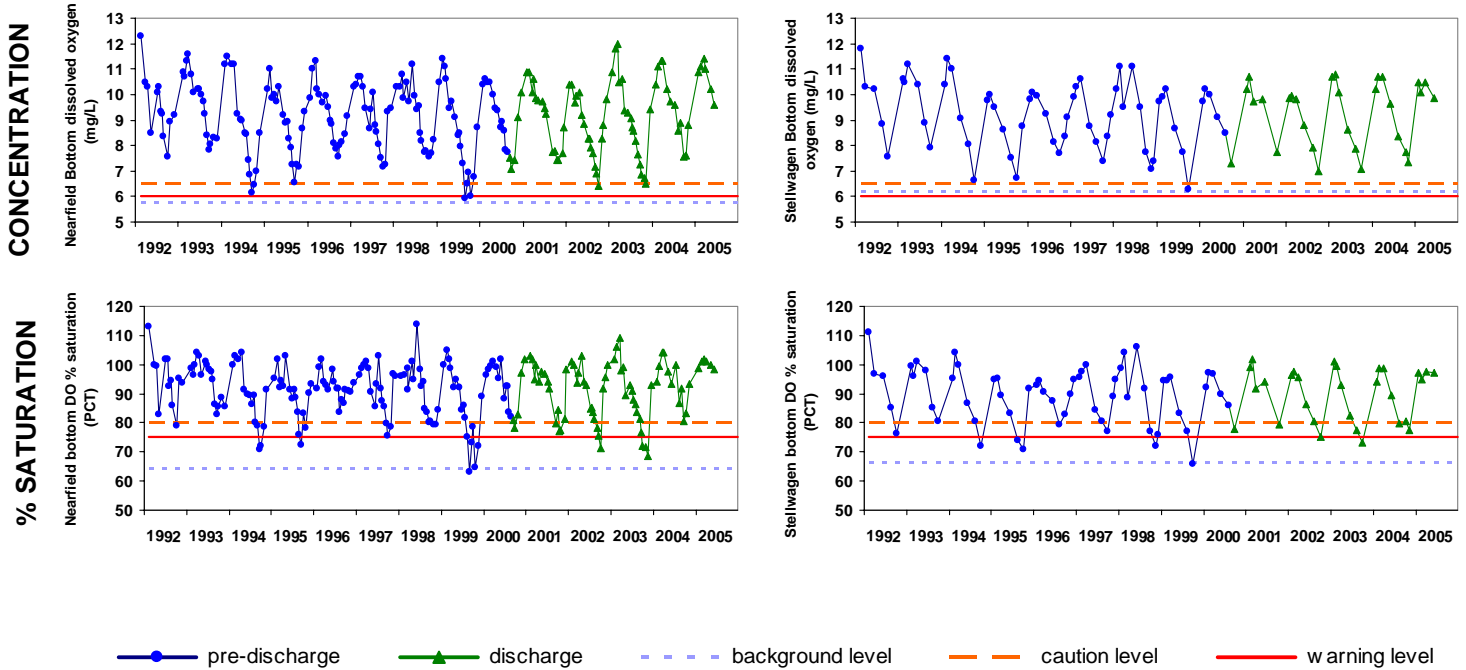
Winter/spring <i>Pseudonitzschia</i> mean abundance (cells/liter)	
Caution threshold	21,000
Winter/spring 2005	147

## DISSOLVED OXYGEN – June 2005

Measurements of dissolved oxygen (DO) concentration and percent saturation in early summer 2005 did not fall below background levels and thus did not exceed thresholds.

### NEARFIELD

### STELLWAGEN BASIN

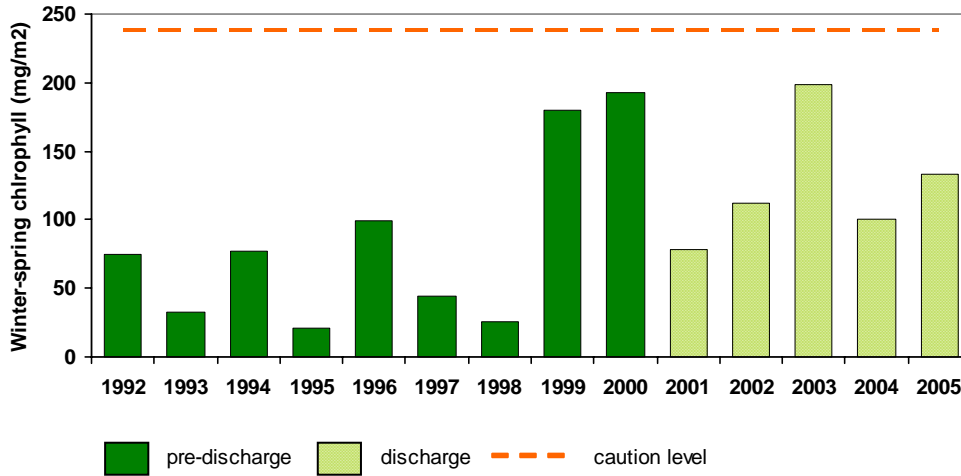


The current reporting period for [dissolved oxygen thresholds](#) is June 2005. During this period there was one nearfield survey and one farfield survey. Oxygen levels were similar to those seen in most baseline years. The graphs above include data since the start of the monitoring program in 1992, and reflect the natural fluctuation of DO and percent saturation, which is typically lowest in early autumn.

## CHLOROPHYLL – January- April 2005

There were no [chlorophyll threshold](#) exceedances in this period. The nearfield mean areal average chlorophyll in winter/spring 2005 was 133 mg/m<sup>2</sup>, below the caution level threshold for winter/spring of 238 mg/m<sup>2</sup>.

### WINTER/SPRING



The figures compare chlorophyll data for winter/spring 2005 (January-April) to the corresponding threshold. The graph includes data since the start of the monitoring program in 1992.

The caution level threshold for winter/spring is 238 mg/m<sup>2</sup>. The nearfield mean areal average in winter/spring 2005, which included four surveys, was 133 mg/m<sup>2</sup>, below the threshold and in the middle of the range of baseline years.