

Contingency Plan Report Third Quarter 2007

Ambient Monitoring

MWRA gathers data from the outfall location in Massachusetts Bay on various thresholds in its Deer Island outfall discharge permit. This report shows relevant ambient monitoring results that became available in the July-September 2007 time period. There was one exceedance of a Contingency Plan threshold, for the nuisance alga *Phaeocystis pouchettii*.

NUISANCE ALGAE – Winter-Spring 2007

In the figures below, we compare *Phaeocystis* and *Pseudonitzschia* data for winter-spring 2007 (January through April), which included four surveys, to the [nuisance algae thresholds](#) and results from previous winter-springs. We also compare *Alexandrium* data for each sample during this period, plus some special *Alexandrium* samples taken in June 2007, to the threshold. There was a nuisance algae threshold exceedance for *Phaeocystis pouchettii* for spring 2007.

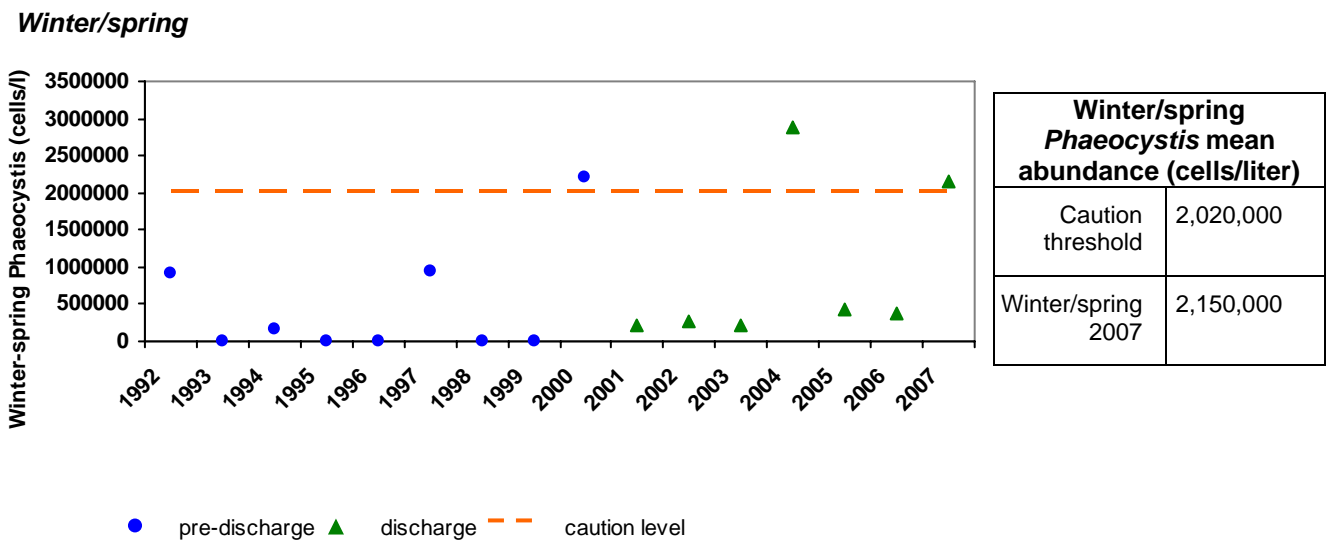
PHAEOCYSTIS and PSEUDONITZSCHIA

Phaeocystis pouchettii slightly exceeded the threshold in winter/spring 2007, see (See the notice at http://www.mwra.state.ma.us/harbor/pdf/20070817amx_phaeocystis.pdf). There was a region-wide bloom of *Phaeocystis* in the spring, including in the outfall nearfield. No adverse impacts of this bloom were observed. The frequency of *Phaeocystis* blooms in the Gulf of Maine (some minor, some substantial) has increased over the past eight years with the diatom present every year.

Pseudonitzschia was present only at abundances well below the threshold, in the nearfield in winter/spring 2007.

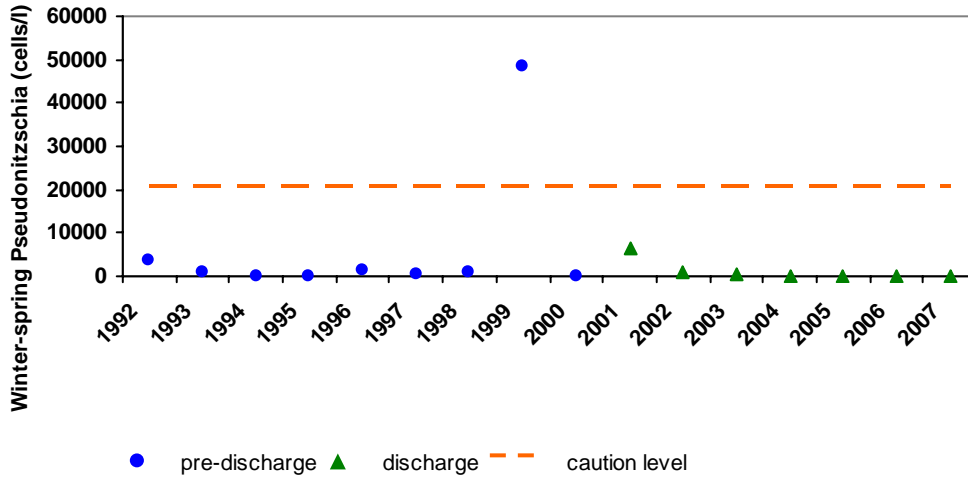
In the figures below, we compare *Phaeocystis* and *Pseudonitzschia* data to the nuisance algae thresholds for winter/spring 2007 (February through April), which included four surveys.

PHAEOCYSTIS



PSEUDONITZSCHIA

Winter/spring



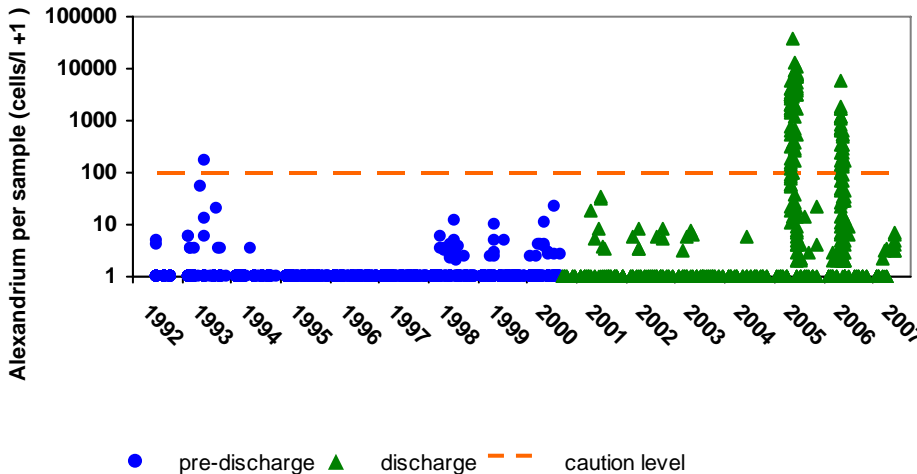
Winter/spring <i>Pseudonitzschia</i> mean abundance (cells/liter)	
Caution threshold	21,000
Winter/spring 2007	78

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.

There was an *Alexandrium* bloom in Massachusetts Bay in spring 2007, but it was less extensive and severe than those in 2005 and 2006, and on June 1 the Division of Marine Fisheries lifted the closure that had been in place since May-June 2005, except for moon snails, and for the Nauset estuary on the outside of Cape Cod.

The figure below includes nearfield data available through September 2007, including data from routine surveys through April 2007, from special rapid samples taken in June 2007, and from special surveys during the *Alexandrium* blooms in spring 2005 and spring 2006. Data from routine analyses in May and June 2007 have not yet been received. Note logarithmic scale for graph.



January-April, and June <i>Alexandrium</i> per-sample abundance (cells/liter)	
Caution threshold	100
Winter-spring 2007	6.2*

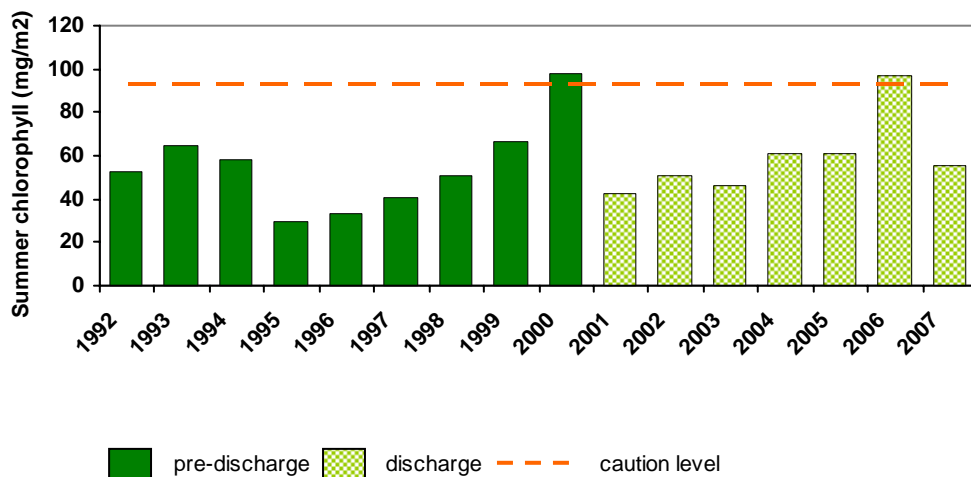
* maximum of samples collected between Jan. 1 and April 30, 2007 and rapid samples collected in June 2007

CHLOROPHYLL – May-August 2007

There were no [chlorophyll threshold](#) exceedances in this period. The nearfield mean areal average chlorophyll in summer 2007 was 55 mg/m², below the caution level threshold for summer of 93 mg/m².

The figure compares chlorophyll data for summer 2007 (May-August), which included four surveys, to the corresponding threshold. The graph includes data since the start of the monitoring program in 1992.

Summer



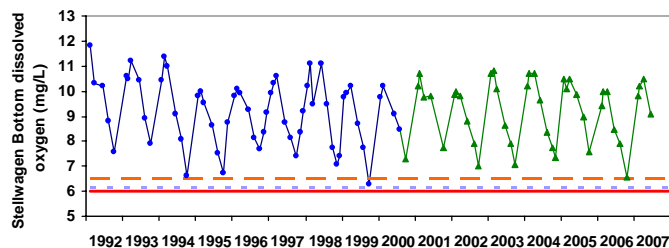
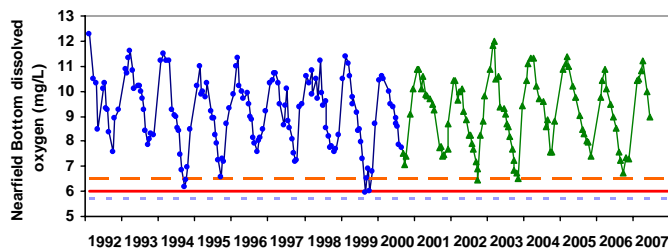
DISSOLVED OXYGEN – June 2007

Measurements of dissolved oxygen (DO) concentration and percent saturation in June 2007 did not fall below background levels and thus did not exceed thresholds.

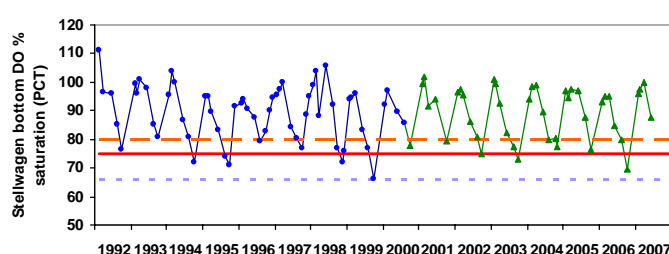
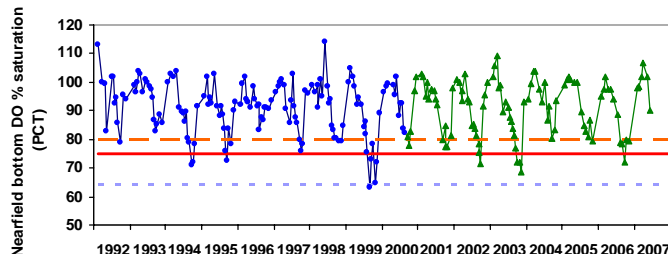
NEARFIELD

STELLWAGEN BASIN

CONCENTRATION



% SATURATION



Legend: ● pre-discharge ▲ discharge background level caution level warning level

The current reporting period for [dissolved oxygen thresholds](#) is June 2007. During this period there was one combined nearfield/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.