

Contingency Plan Report

Second Quarter 2008

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 2008 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/20080516amx.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.

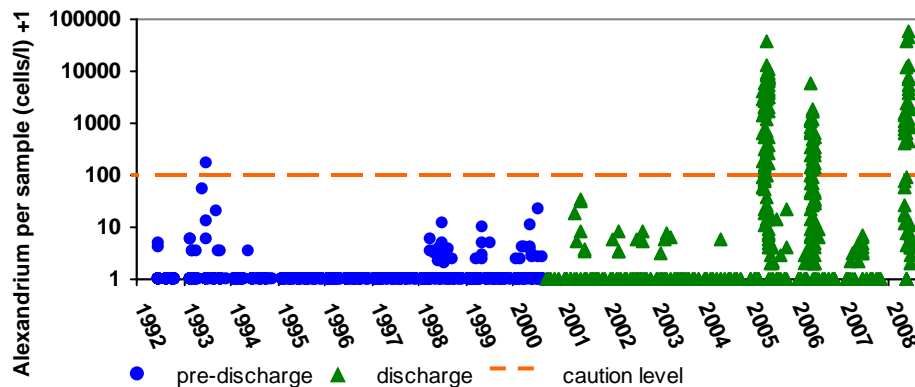
NUISANCE ALGAE – February-June 2008 (partial results)

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.

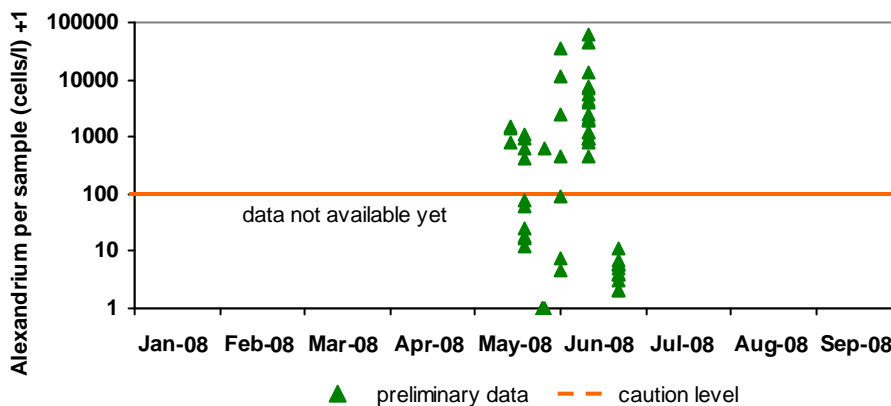
In 2008 there was an *Alexandrium* bloom along the coast of Maine, New Hampshire, and Massachusetts. Early data, using rapid molecular DNA probe methodologies from a special survey on May 16 and a routine survey on May 21, showed that the single sample abundance of *Alexandrium* in the outfall nearfield exceeded the Caution Level threshold of 100 cells/L, triggering notification under the Contingency Plan (see <http://www.mwra.state.ma.us/harbor/pdf/20080516amx.pdf>). By the time of preparation of this report (early July 2008), 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 data available through June 2008, including rapid DNA probe data from one routine survey and four special surveys in May and June 2008. (Note logarithmic scale for graph.)

More complete data from the spring 2008 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 2008 (partial)	36,484*

* maximum of DNA probe samples collected between January 1, 2008 and May 21, 2008 and reported through June 2008 -draft data.

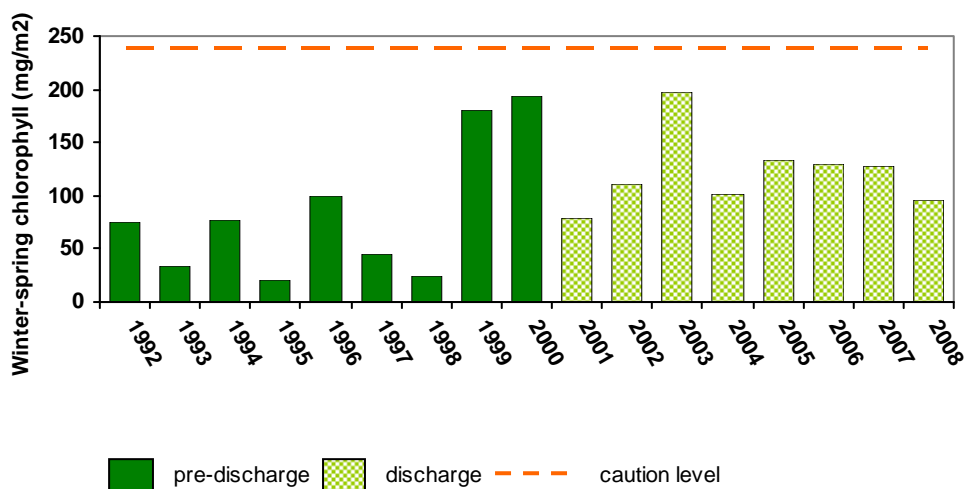


CHLOROPHYLL – February- April 2008

There were no [chlorophyll threshold](#) exceedances in this period. The nearfield mean areal average chlorophyll in winter/spring 2008 (February-April) was 96 mg/m², below the caution level threshold for winter/spring of 238 mg/m² and in the range typical of the pre-discharge period.

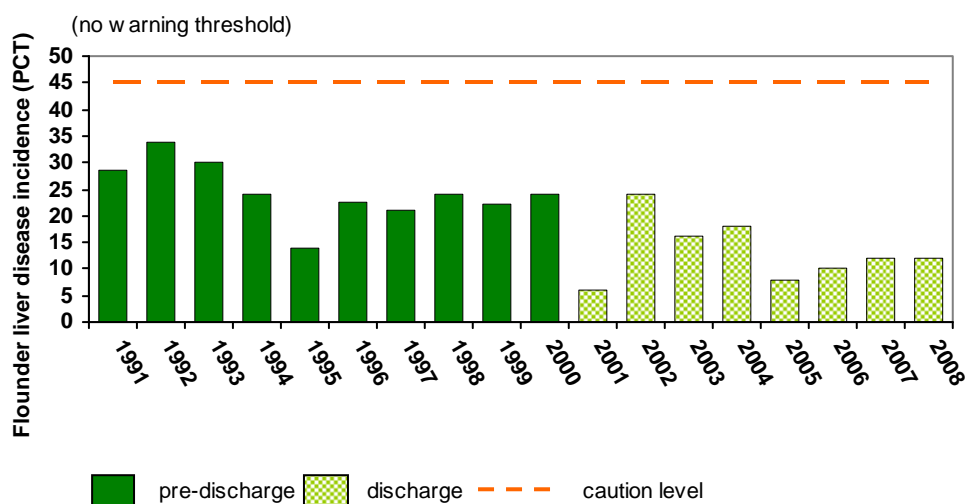
The figure compares chlorophyll data for winter/spring 2008 (February-April), which included four surveys, to the corresponding threshold. The graph includes data since the start of the monitoring program in 1992.

Winter/spring



FLOUNDER LIVER DISEASE - 2008

The prevalence of liver disease at the outfall site in 2008 was 12%, lower than any of the baseline years, and did not exceed the threshold. Flounder are sampled annually in April.



One measure of the effects of pollution is the prevalence of liver disease in winter flounder. The flounder liver disease threshold value (dashed line) is based on data from Boston Harbor during the baseline monitoring period (1991-2000). In the harbor, flounder liver disease rates were historically quite high but dropped considerably during the late 1980s. Since Massachusetts Bay monitoring began, prevalence of an early-stage liver disease near the new outfall has been much lower than the threshold. If the prevalence of liver disease at the outfall site were to approach that seen in Boston Harbor in the 1990's, a caution level threshold would be exceeded.