

**Contingency Plan Report**  
Second Quarter 2013

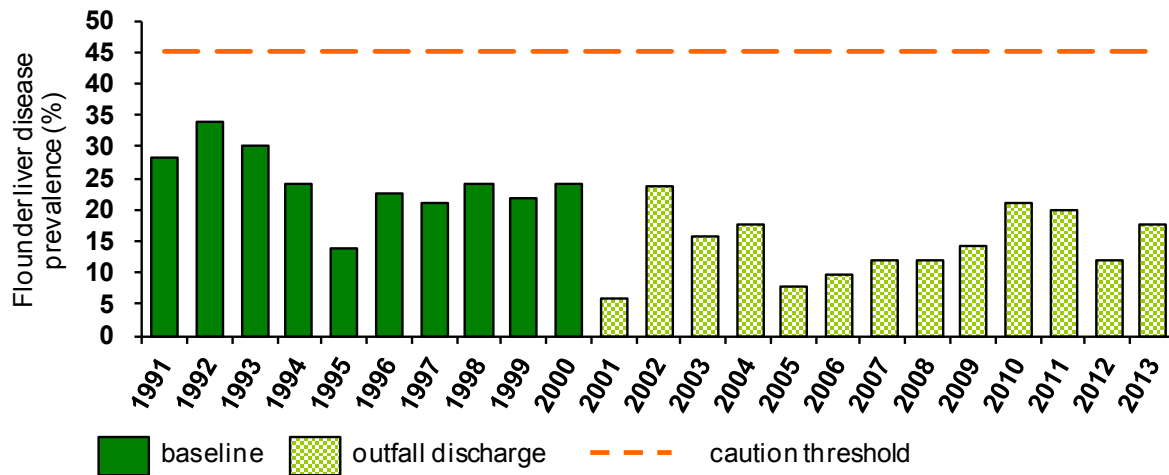
**Ambient Monitoring**

MWRA gathers data near the discharge outfall location in Massachusetts Bay on various thresholds in the Contingency Plan related to its Deer Island outfall NPDES discharge permit. This contingency plan quarterly report shows ambient monitoring results relevant to contingency plan thresholds that became available in the April-June 2013 time period. There were no contingency plan threshold exceedances during this time period.

**FLOUNDER LIVER DISEASE - 2013**

The prevalence of liver disease at the outfall site in 2013 was 18%, within the range of the baseline years, and did not exceed the threshold. Flounder are sampled annually in April.

The prevalence of liver disease in winter flounder is a useful measure of the effects of pollution. 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.



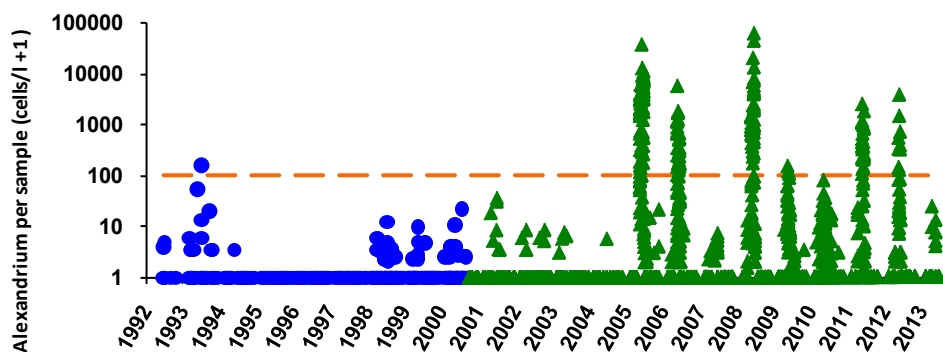
## NUISANCE ALGAE – February-June 2013

There were no exceedances of [nuisance algae thresholds](#) in the period covered by this report.

### ALEXANDRIUM

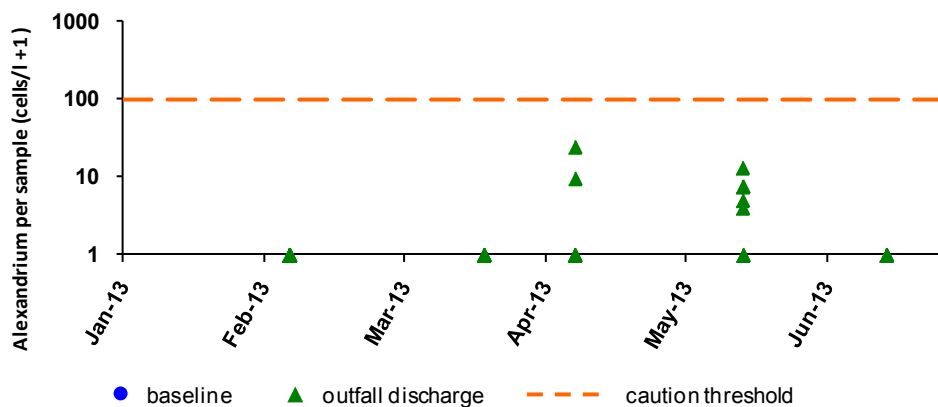
The nuisance algae *Alexandrium* (“red tide”) can cause paralytic shellfish poisoning (PSP) in Massachusetts Bay. MWRA measures *Alexandrium* abundance in its monitoring program, and also checks state fisheries agency observations of shellfish PSP toxicity to keep track of the course of Gulf of Maine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

In 2013 there was an *Alexandrium* bloom along the coast of Maine and New Hampshire, but unlike several recent years, the bloom did not affect Massachusetts Bay. By the time of preparation of this report (early July 2013), the bloom has subsided, although not all data from routine surveys have yet been reported to MWRA. The figure below shows *Alexandrium* in the nearfield throughout the monitoring period. The bottom figure shows the same data but just from February through June 2013; during this period there were five routine surveys. (Note logarithmic scale for graphs. May 17 and June 18 2013 data are preliminary.)



February-June results for <i>Alexandrium</i> per-sample abundance (cells/liter)	
Caution threshold	100
Spring 2013	23*

\* maximum of DNA-probe samples collected between February 2013 and June 2013.



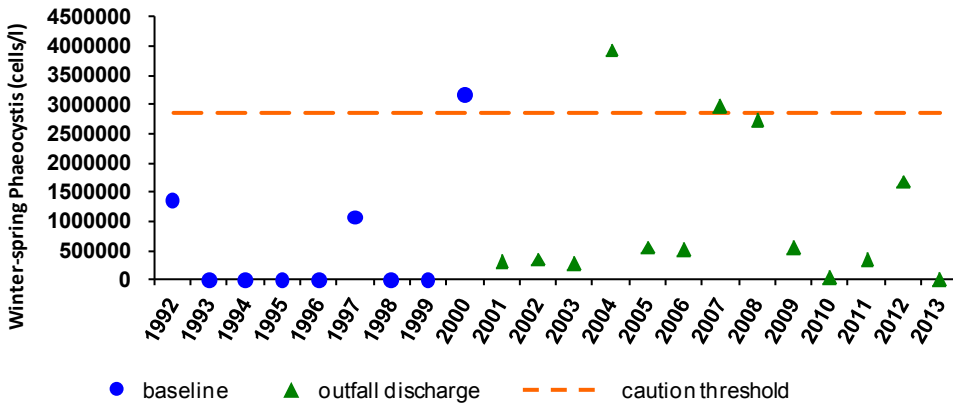
**PHAEOCYSTIS and PSEUDONITZSCHIA**

The nuisance algae *Phaeocystis* and *Pseudonitzschia* did not exceed the [nuisance algae thresholds](#) during winter/spring 2013 (February through April), which included three surveys.

Unlike most recent years, there was no large spring bloom of *Phaeocystis pouchetii* in Massachusetts Bay. Average nearfield abundance was well below the threshold. *Pseudonitzschia* was not observed in the nearfield in winter/spring 2013, same as in several other post-diversion years.

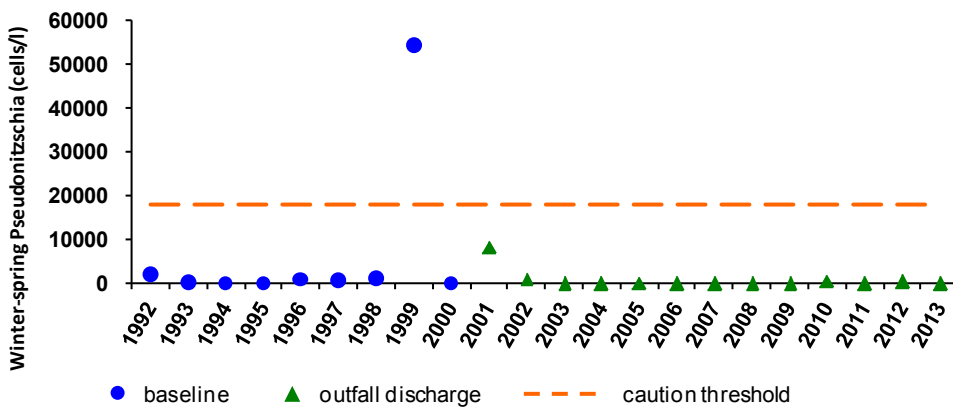
In the figures below, we compare *Phaeocystis* and *Pseudonitzschia* data to the nuisance algae thresholds for winter/spring. The graphs include data since the start of the monitoring program in 1992; however, the seasonal average values for 1992-2010 are calculated using a subset of all results reflecting the modified design that began in 2011, *i.e.* three winter/spring surveys. This enables us to better compare the threshold results across years. The previous reports are at <http://www.mwra.state.ma.us/harbor/html/archive.htm#cpqamb>.

**PHAEOCYSTIS - Winter/spring**



Winter/spring <i>Phaeocystis</i> mean abundance (cells/liter)	
Caution threshold	2,860,000
Winter/spring 2013	5,160

**PSEUDONITZSCHIA - Winter/spring**



Winter/spring <i>Pseudonitzschia</i> mean abundance (cells/liter)	
Caution threshold	17,900
Winter/spring 2013	0

## CHLOROPHYLL February- April 2013

There were no [chlorophyll threshold](#) exceedances in this period. The nearfield mean areal average chlorophyll in winter/spring 2013 (February-April) was 52.5 mg/m<sup>2</sup>, well below the caution level threshold for winter/spring of 199 mg/m<sup>2</sup>. The spring 2013 value is similar to several previous baseline and post-diversion years.

The figure compares chlorophyll data for winter/spring 2013 (February-April), which included three surveys, to the corresponding threshold. The graph includes data since the start of the monitoring program in 1992; however, the seasonal average values for 1992-2010 are calculated using a subset of all results reflecting the modified design that began in 2011, *i.e.* three winter/spring surveys. This enables us to better compare the threshold results across years. The previous reports are at <http://www.mwra.state.ma.us/harbor/html/archive.htm#cpqamb>.

### Winter/spring

