Contingency Plan Report
First Calendar Quarter 2017

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 report is to show ambient monitoring results relevant to Contingency Plan thresholds that become available during the first quarter of 2017 (January-March). There were no Contingency Plan related data that were made final.

Field monitoring for 2017 is underway. Two water column surveys were conducted this quarter, the first on February 18 and the second on March 25. The February survey was postponed by 9 days due to inclement weather. Most samples from these surveys are still being analyzed or the resulting data are in the early stages of review.

Only preliminary results for phytoplankton are available at this time. Preliminary analyses of Contingency Plan nuisance algae indicate no levels of concern. *Alexandrium* (the algae responsible for paralytic shellfish poisoning) was not observed by preliminary analysis in any samples collected in February or March from Massachusetts Bay or Boston Harbor. This is to be expected, as blooms of this organism (which do not appear in Massachusetts Bay every year) tend to occur in late spring and early summer. For both February and March surveys, several cells of *Pseudo-nitzschia* spp. (the species responsible for amnesiac shellfish poisoning) were observed at abundances well below levels of concern (equivalent to tens of cells per liter) in the single rapid-analysis sample.

General observations from the February and March surveys: For both months, the water column was very well mixed top-to-bottom and dissolved oxygen was close to saturation within the range normally observed in cold, winter conditions throughout the survey area with water temperatures ranging between 2.6 and 5.4 Celsius in February and 3 to 4.1 Celsius in March. Preliminary chlorophyll data from ship measurements and satellite images show low chlorophyll in western Massachusetts Bay for both months (Fig. 1).

One unidentified baleen whale was spotted by the field team about 14 kilometers east of Point Allerton, Hull during the February survey. Two right whales were sighted during the March survey, one about 10 km east of Nahant, the other close to nearfield sampling station N18. Both confirmed right whale sightings were reported to NOAA.

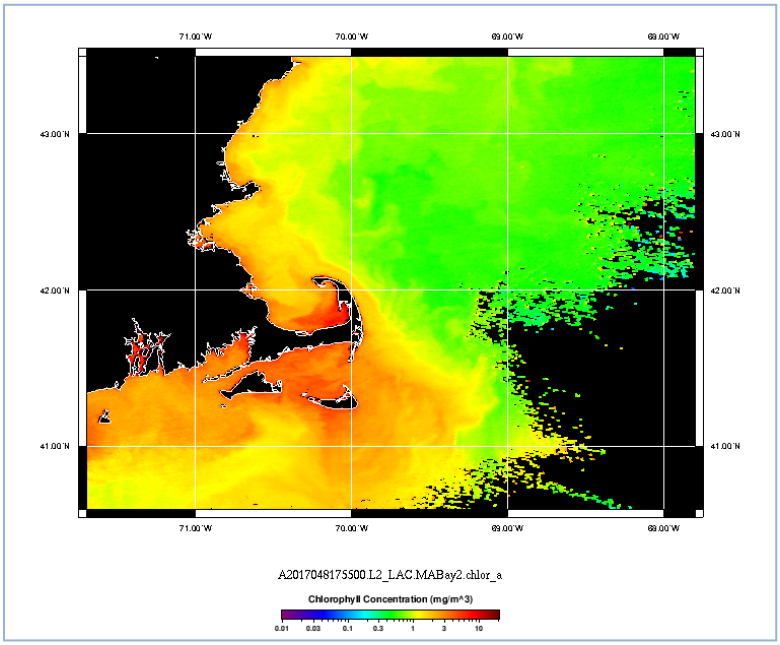
Contingency plan threshold changes

In January 2017, MWRA proposed[1] interim changes to Caution Level thresholds for two parameters that have been studied extensively in response to multiple exceedances since outfall startup in September 2000. The two parameters are the seasonal abundance of *Phaeocystis pouchetii* in the nearfield water column, and diversity of the benthic community in nearfield sediments. Evaluations of the threshold exceedances, with which the Outfall Monitoring Science Advisory Panel (OMSAP) has concurred, have indicated the exceedances resulted from natural fluctuations in Massachusetts Bay, do not represent degradation, and did not result from MWRA's discharge.

In February, EPA indicated its approval of these interim threshold changes.

[1] See http://www.mwra.com/harbor/pdf/20170103_cpmod.pdf. A briefing justifying the changes was presented to OMSAP and regulators in October 2016, http://www.mwra.state.ma.us/harbor/pdf/omsap/omsap_20161027_thresholds.pdf. OMSAP voted to endorse the changes.

February 2017



March 2017

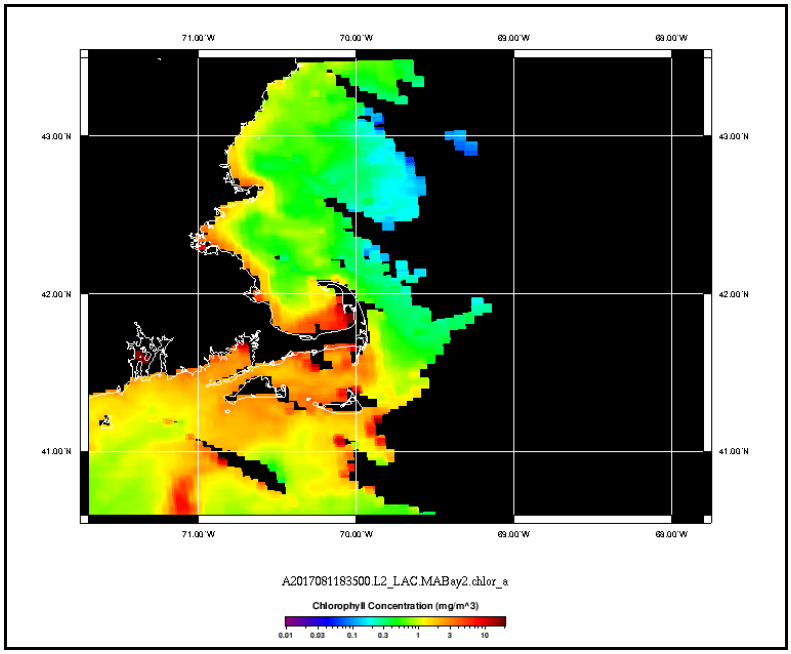


Figure 1. NASA images using MODIS data show chlorophyll concentrations in Western Massachusetts Bay in the range of 1 to 4 mg/m3 on February 17 and reduced concentrations over much of the bay on March 22, 2017.