

Contingency Plan Quarterly Report on Ambient Monitoring Results

First Quarter 2023

MWRA gathers data on various Contingency Plan thresholds near the outfall location in Massachusetts Bay. These thresholds are part of the Deer Island Treatment Plant (DITP) NPDES discharge permit. This report presents ambient monitoring results for Contingency Plan thresholds that became available in January through March 2023. Previous Contingency Plan reports are available at <http://www.mwra.state.ma.us/harbor/html/contingency.htm>.

Included in the report are the results for 2023 winter nuisance algae *Alexandrium* abundance. There was no exceedance of this threshold.

NUISANCE ALGAE

ALEXANDRIUM – February-March 2023

The [nuisance algae](#) *Alexandrium catenella* (“*Alexandrium*”) can cause paralytic shellfish poisoning (PSP, or “red tide”) in Massachusetts Bay. MWRA measures *Alexandrium* abundance using a molecular probe (NA1) thought to be specific to the *Alexandrium* red tide species *tamarensis*, *catenella*, and *fundyense*¹

MWRA also checks observations of shellfish PSP toxicity from state fisheries agencies and other regional monitoring programs to track *Alexandrium* blooms in Massachusetts Bay and the Gulf of Maine region.

In February 2023, water samples were collected during the first regular water column survey of this year. No *Alexandrium* cells were detected in any samples from nearfield stations (stations within 7.5 kilometers from the outfall). *Alexandrium* cells were detected in two samples from farfield stations (reference stations) at an abundance of 2 or 3 cells per liter. Preliminary results from second regular water column survey conducted in March showed that very low abundance of *Alexandrium* cells, 1-4 cells per liter, was present in 14 of 20 water samples collected from both nearfield and farfield stations. Only a sample with 100 or more cells of *Alexandrium* per liter from a nearfield station would constitute an exceedance under the Contingency Plan.

In Figure 1 below, we compare the 2023 results of *Alexandrium* abundance in samples collected from nearfield stations in February and March against those from all prior years since 1992. Due to reductions in the number of surveys conducted each year, the historical results encompass more time-points than shown for the current year.

¹ <https://doi.org/10.1016/j.dsr2.2005.06.015>

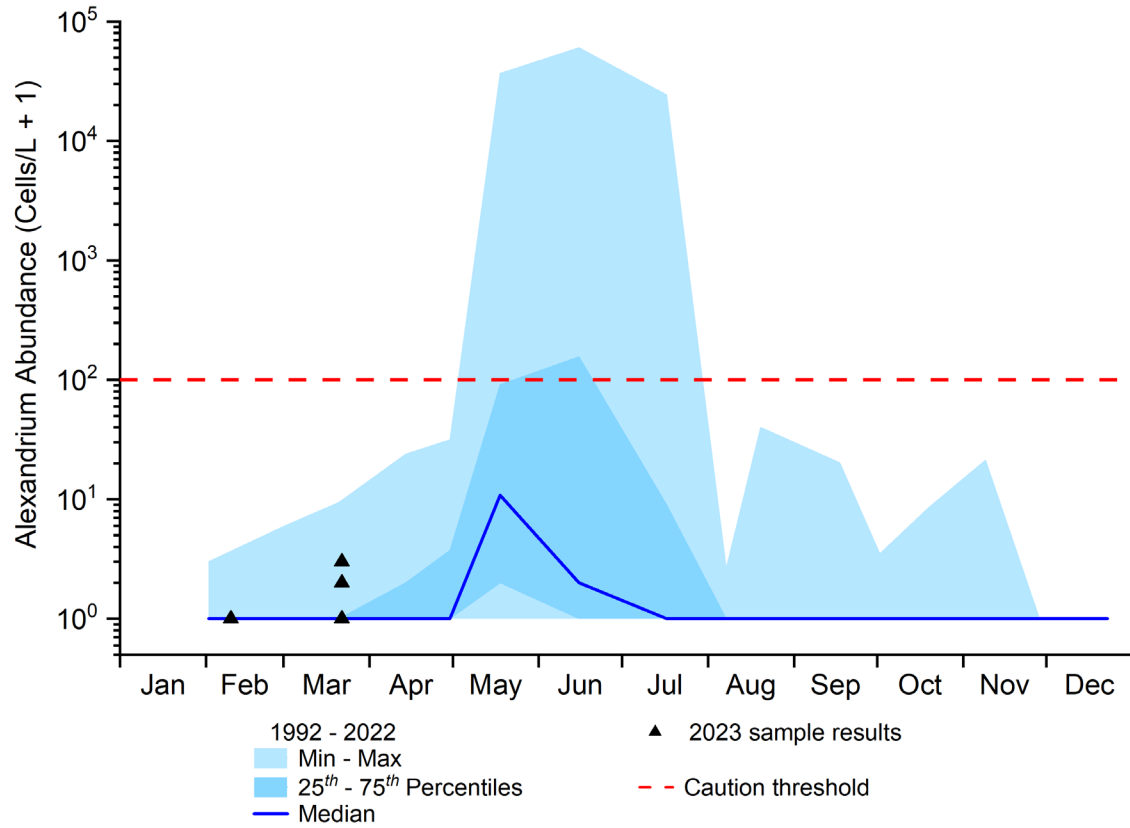


Figure 1. Cell abundance of *Alexandrium* in water samples from nearfield stations (1992 – 2023)