



MASSACHUSETTS WATER RESOURCES AUTHORITY  
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Frederick A. Laskey  
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May 26, 2006

Mr. Glenn Haas, Director  
Division of Watershed Management  
Department of Environmental Protection  
1 Winter Street  
Boston, MA 02108

Ms. Linda Murphy, Director  
Office of Ecosystem Protection  
U.S. Environmental Protection Agency  
Water Technical Unit "SEW"  
P.O. Box 8127  
Boston, MA 02114

Re: Massachusetts Water Resources Authority, Permit Number MA0103284  
Notification Pursuant to Part I.8. Contingency Plan

Dear Mr. Haas and Ms. Murphy:

In its outfall ambient monitoring program, MWRA monitors levels of the nuisance algae *Alexandrium*, also called "red tide," which can cause paralytic shellfish poisoning ("PSP"), in the nearfield of the Massachusetts Bay outfall. Reporting on per-sample abundances of *Alexandrium* is part of the Contingency Plan.<sup>1</sup> The Contingency Plan also specifies that MWRA will conduct additional targeted monitoring for *Alexandrium*. MWRA's plan for targeted monitoring for *Alexandrium* involves following the course of Gulf of Maine blooms of *Alexandrium* through Massachusetts Bay.<sup>2</sup> Based on observations of shellfish PSP toxicity and *Alexandrium* cell counts in the waters, MWRA initiates surveys for *Alexandrium* in the outfall area if conditions are right for significant amounts of *Alexandrium* to enter Massachusetts Bay, and/or *Alexandrium* is detected at levels above the Contingency Plan threshold in the outfall nearfield.

In May, 2006, extended northeasterly storms occurred simultaneously with a bloom of *Alexandrium* that occurs annually along the coast of Maine. As described below, in response to field sampling reports from the Woods Hole Oceanographic Institution ("WHOI") of *Alexandrium* in Massachusetts Bay, MWRA included rapid, specialized testing for *Alexandrium* in its May 17, 2006 nearfield survey. On May 24, MWRA was notified that data (using rapid molecular probe methodologies<sup>3</sup>) from that survey show that the single sample abundance of *Alexandrium* in the outfall nearfield exceeded the Caution Level threshold of 100 cells/L, triggering a notification requirement under the Contingency Plan. This letter constitutes the notification. It is important to note that the presence of *Alexandrium* in Massachusetts Bay is not

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<sup>1</sup> Massachusetts Water Resources Authority Contingency Plan Revision 1. 2001. Report ENQUAD ms-071, on the web at <http://www.mwra.state.ma.us/harbor/enquad/trlist.htm>

<sup>2</sup> Libby S. 2006. Standing Survey Plan: Rapid Response *Alexandrium* Survey. Boston: Massachusetts Water Resources Authority. Report 2006-05. 19 p. on the web at <http://www.mwra.state.ma.us/harbor/enquad/trlist.htm>

<sup>3</sup> Analyses were carried out in the laboratories of the National Office for Marine Biotoxins and Harmful Algal Blooms at the Woods Hole Oceanographic Institution (WHOI).

caused by the MWRA discharge; rather the purpose of the targeted monitoring is to gather data to help determine whether or not the outfall may affect an *Alexandrium* event.

## **Background**

MWRA staff monitor the progress of *Alexandrium* events in the Gulf of Maine by communicating with state shellfish regulatory personnel in Maine, New Hampshire and Massachusetts. *Alexandrium* events typically occur in the spring, initiating along the coast of Maine and advecting south to New Hampshire. Under typical spring wind and current conditions, *Alexandrium* does not enter Massachusetts Bay in significant amounts, but rather is swept offshore by coastal currents. This year, investigators from WHOI and the University of New Hampshire began sampling for *Alexandrium* along the New Hampshire coastline on April 11. *Alexandrium* cells in the 100-300 cells/liter range were reported in New Hampshire waters on May 8. A period of strong northeasterly winds and rain occurred from May 9 through 14, creating conditions likely to carry *Alexandrium* cells into Massachusetts Bay. On May 12, MWRA received data from WHOI that “live” field counts in Massachusetts Bay showed significant numbers of *Alexandrium* cells, on the order of 500-1,000 cells/liter. MWRA added additional sampling for *Alexandrium* to be measured by the nucleic acid probe method to its subsequent scheduled nearfield survey, May 17, and began implementing its targeted *Alexandrium* monitoring plan May 23. Results for cell counts in the MWRA nearfield from May 17 were received on May 24. Outfall nearfield cell counts were similar to results noted by WHOI in other parts of Massachusetts Bay; nearfield counts ranged up to 5667 cells/liter. MWRA is continuing to implement the *Alexandrium* monitoring plan, which calls for weekly surveys until the end of the event.

MWRA has been communicating closely with the Massachusetts Division of Marine Fisheries. WHOI and DMF are actively gathering data relative to the intensity, spatial extent, and changes over time of this event. Currently, shellfish beds from the New Hampshire border to Duxbury are closed because of elevated levels of PSP toxin in shellfish. More information about this *Alexandrium* event will become available over the next few weeks. A more complete analysis of this 2006 *Alexandrium* event, including more detailed spatial and temporal patterns and relationship to other water quality parameters, will be part of MWRA’s annual water column monitoring synthesis report for 2006, and discussed at a future Outfall Monitoring Science Advisory Panel meeting.

Please let me know if I can give you additional assistance regarding this notification.

Sincerely,

Michael J. Hornbrook  
Chief Operating Officer

Cc:

**Environmental Protection Agency, Region I**

Matthew Liebman

Todd Borci

Roger Janson

**Sanctuary**

**MA Department of Environmental Protection**

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