

November 24, 2003

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 three types of nuisance algae (*Alexandrium*, *Pseudo-nitzschia*, and *Phaeocystis*) in the nearfield of the Massachusetts Bay outfall. Reporting on per-sample abundances of *Alexandrium* and seasonal abundances of *Pseudo-nitzschia* and *Phaeocystis* is part of the Contingency Plan.<sup>1</sup> MWRA has received results of the nuisance algae testing carried out in the summer of 2003. For one of the algae, *Phaeocystis pouchetii*, the average abundance for the summer season (May 1-August 31) exceeded the Caution Level threshold triggering a notification requirement under the Contingency Plan. This letter constitutes that notification.

There was a substantial *Phaeocystis* bloom in Massachusetts Bay in the 2003 winter-spring season, with an average nearfield cell count approximately the same as the baseline mean (Table 1). The summer threshold exceedance was due to a remnant of that bloom. In 2003, measured *Phaeocystis* abundance peaked in late April; previous blooms have peaked in early- to mid-April. The 2003 bloom was smaller than the before-outfall baseline winter-spring *Phaeocystis* blooms of 2000, 1997, and 1992 but cells were still detectable in May at the beginning of the summer season, triggering the very low threshold (Figure 1).

*Phaeocystis* was absent or rare in summer during the baseline monitoring. Despite the threshold exceedance, *Phaeocystis* was again rare in summer 2003—it was absent in all samples except for one sample collected on May 15. For that one sample, the microscopist counted 32 *Phaeocystis* cells in a few disintegrating colonies, which corresponded to 48,000 cells per liter, or about 5% of the total phytoplankton in that sample. (The threshold is a seasonal nearfield mean of 334 cells per liter, which is actually lower than the microscopy detection limit in any one sample of approximately 1,000 cells per liter.)

There were no indications of adverse impacts from this bloom. There was no aesthetic nuisance, which potentially can be caused by large *Phaeocystis* blooms if the gelatinous colonies wash up on shore. Zooplankton

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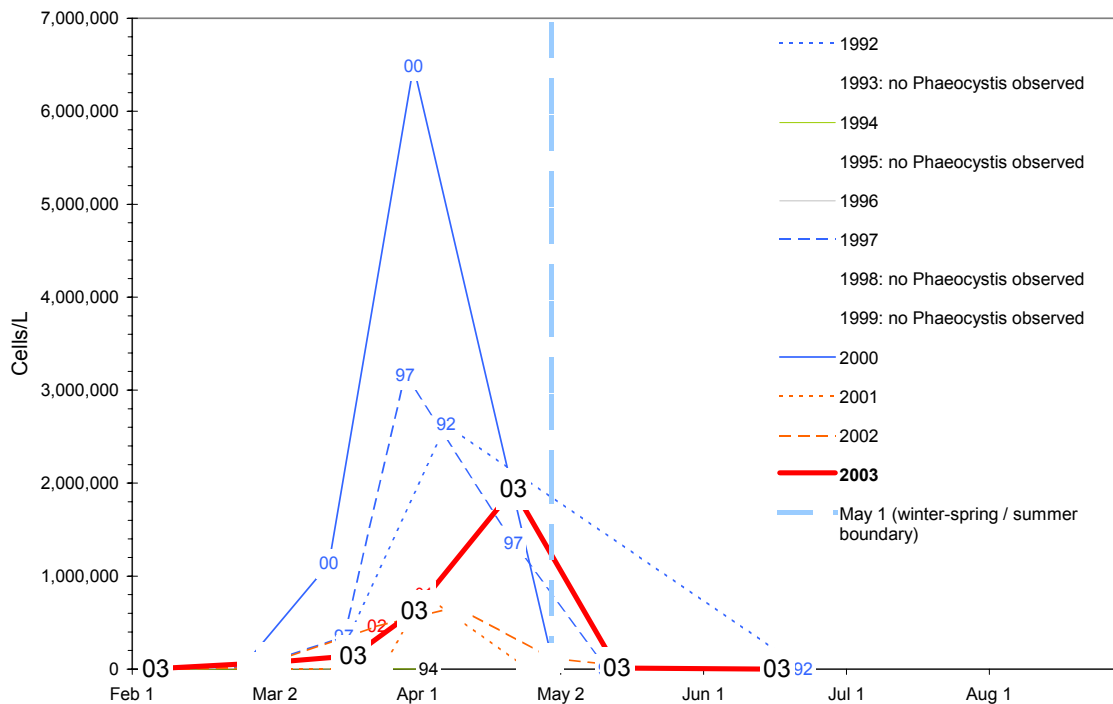
<sup>1</sup> Massachusetts Water Resources Authority Contingency Plan Revision 1. 2001. Report ENQUAD ms-071, on the web at <http://www.mwra.com/harbor/enquad/pdf/ms-071.pdf>

communities were within the normal range, and water column dissolved oxygen levels were normal. Other nuisance algal species were well within baseline and threshold values (Table 1).

Table 1. Contingency Plan threshold results for nuisance algae for Winter-spring and Summer, 2003.

Parameter	Specific Parameter	Baseline	Caution Level Threshold	Warning Level Threshold	2003 Results
<i>Phaeocystis pouchetii</i>	Winter/spring	470,000 cells/l	2,020,000 cells/l	None	482,000 cells/l
	<b>Summer</b>	<b>72 cells/l</b>	<b>334 cells/l</b>		<b>1,700 cells/l</b>
	Autumn	300 cells/l	2,370 cells/l		NA
<i>Pseudo-nitzschia</i>	Winter/spring	6,200 cells/l	21,000 cells/l		200 cells/l
	Summer	13,000 cells/l	38,000 cells/l		6 cells/l
	Autumn	9,700 cells/l	24,600 cells/l		NA
<i>Alexandrium tamarense</i>	Any nearfield sample	Baseline maximum = 163 cells/l	100 cells/l	7 cells/l maximum through Aug. 31	
	PSP toxin extent	NA	New incidence	North Shore closed due to PSP toxin in June 2003.	

Figure 1. Nearfield mean *Phaeocystis* by survey, February-August 1992-2003



During the period of the bloom, the Deer Island Wastewater Treatment Plant was operating within normal parameters.

A more complete analysis of the 2003 *Phaeocystis* bloom, including spatial and temporal patterns and relationship to other water quality parameters, will be part of MWRA's annual water column monitoring synthesis report for 2003, which will be discussed at a future Outfall Monitoring Science Advisory Panel meeting.

Please let me know if any of MWRA's staff can give you additional assistance regarding this notification.

Sincerely,

Michael J. Hornbrook  
Chief Operating Officer

Cc:

**Environmental Protection Agency, Region I (EPA)**

Matthew Liebman  
Janet Labonte-Deshais  
Eric Hall  
Roger Janson

**National Marine Fisheries Service**

Chris Mantzaris

**Stellwagen Bank National Marine Sanctuary**

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