

December 9, 2002

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.¹ MWRA has received results of the nuisance algae testing carried out in the summer of 2002. 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.

Despite this summer exceedance there is no indication that this bloom was at a level of concern. Rather, as described more completely below, this year's spring bloom of *Phaeocystis* was small and not unusual. It exceeded the summer threshold only because a survey normally carried out in late April was delayed because of weather to May 1, which put it in the "summer" period as defined by the Contingency Plan. This one sample taken on May 1 caused the average abundance for the summer season to exceed the very low summer Caution Level because the preceding spring bloom, although rapidly declining, was still detectable. The rest of the samples collected during the summer detected no *Phaeocystis*.

Abundances of the other nuisance algae were below the threshold levels in the Contingency Plan (Table 1).

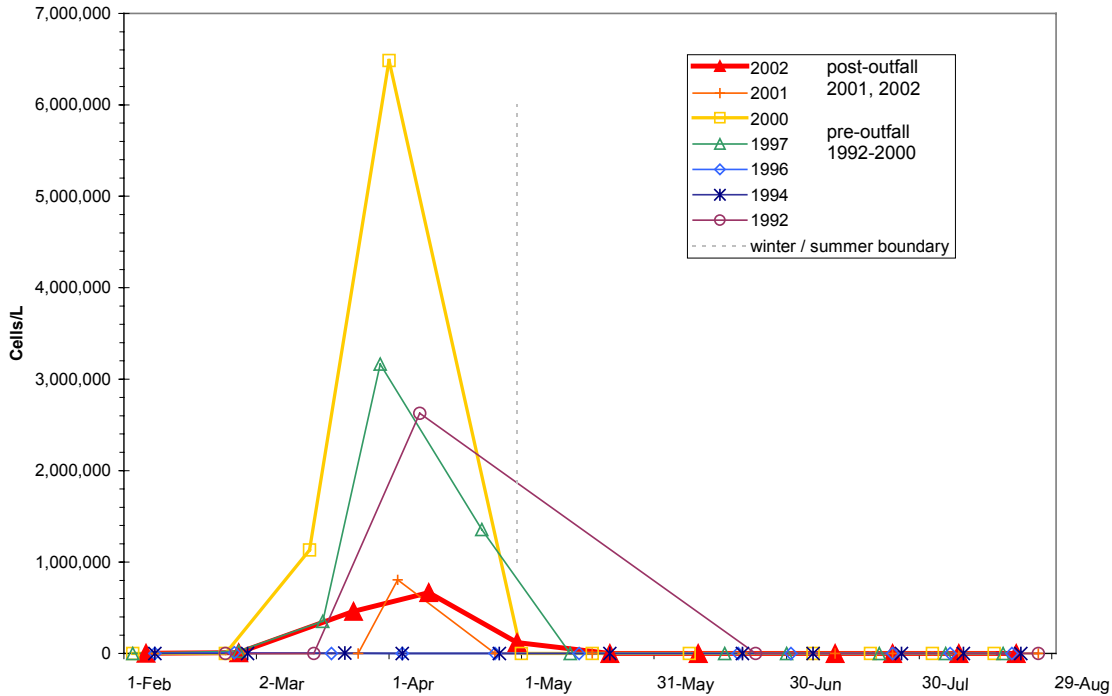
¹ *Massachusetts Water Resources Authority Contingency Plan Revision 1*. 2001. Report ENQUAD ms-071, on the web at <http://www.mwra.state.ma.us/harbor/enquad/trlist.htm>

Table 1. Contingency Plan threshold results for nuisance algae for Winter/spring and Summer, 2002.

Parameter	Specific Parameter	Baseline	Caution Level Threshold	Warning Level Threshold	2002 Results
<i>Phaeocystis pouchetii</i>	Winter/spring	470,000 cells/l	2,020,000 cells/l	None	269,000 cells/l
	Summer	72 cells/l	334 cells/l		14,900 cells/l
	Autumn	300 cells/l	2,370 cells/l		NA
<i>Pseudo-nitzschia</i>	Winter/spring	6,200 cells/l	21,000 cells/l		900 cells/l
	Summer	13,000 cells/l	38,000 cells/l		200 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	5 cells/l maximum through Aug. 31	
	PSP toxin extent	Not applicable	New incidence	No toxicity or shellfish closures through Aug. 31	

Description of the 2002 bloom: Figure 1 shows that compared to other years, the 2002 *Phaeocystis* bloom was not remarkable. Its peak density was lower than most of the other blooms. (*Phaeocystis* was absent in the nearfield in 1993, 1995, 1996, 1998, and 1999.) The *Phaeocystis* bloom was rapidly declining on May 1 in a pattern consistent with other years.

Figure 1. Nearfield mean *Phaeocystis*, Feb-August 1992-2002
 (1993, 1995, 1998, 1999 had no *Phaeocystis* observed and are not plotted)



The bloom occurred over a broad area, and there was no obvious enhancement around the outfall; the peak occurred on April 5 with values of 700,000 cells/L in the nearfield. On that date Cape Cod Bay had a higher abundance of 1 million cells/L (not shown). Other laboratories also observed *Phaeocystis* in 2002. The Center for Coastal Studies collected many samples throughout Cape Cod Bay averaging 600,000 cells/L in late March,

and 400 cells/L on May 5 (Moriah Bessinger, pers. comm.). The University of Rhode Island sampled Narragansett Bay and observed 300,000 cells/L on April 15 and 79,000 on April 22 (Paul Hargeaves, pers. comm.)

Because the 2002 *Phaeocystis* bloom was relatively small, it was not likely to affect zooplankton or whales. The *Phaeocystis* bloom was preceded by a substantial bloom of the beneficial diatom *Skeletonema*. The zooplankton community in our samples was normal and similar to other years.

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

Summary: This exceedance demonstrates how conservative the thresholds are and that they can be triggered not only by changes in abundance but also by small changes in timing of the bloom or differences in timing of the scheduled sampling surveys. MWRA's and other monitoring data indicate that this was a minor, normal bloom of *Phaeocystis*, well within the parameters of previous blooms observed during baseline monitoring. Other measurements of water quality indicate that there were no adverse impacts resulting from this bloom.

This threshold exceedance will be discussed at the next 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)

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Janet Labonte-Deshais
Eric Hall
Roger Janson

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