WOODS HOLE OCEANOGRAPHIC INSTITUTION

December 18, 2009

Brian Pitt
Acting Chief, Municipal NPDES Program
Environmental Protection Agency
Five Post Office Square, Suite 100
Mail Code: OEP06-1
Boston, MA 02109-3912

Glenn Haas
Acting Assistant Commissioner, Bureau of Resource Protection
Massachusetts Department of Environmental Protection
1 Winter St.
Boston, MA 02108

Dear Mr. Pitt and Mr. Haas,

The Massachusetts Water Resources Authority (MWRA) proposed revisions to their Ambient Monitoring Program in a letter dated April 15, 2009. The Environmental Protection Agency (EPA) has asked the Outfall Monitoring Science Advisory Panel (OMSAP) to review this proposal. The OMSAP met on June 29, 2009 but requested more time to review all of the information provided by the MWRA. Subsequently, OMSAP had two conference calls, which were open to the public, on August 18 and October 28, 2009. OMSAP also reviewed questions in an EPA letter to MWRA dated June 3, 2009 as well as MWRA's revised proposal dated October 23, 2009. The purpose of this letter is to outline OMSAP's recommendations to EPA and the Massachusetts Department of Environmental Protection (MassDEP).

Effluent

1.1 Discontinue effluent floatables monitoring

OMSAP recommends that MWRA discontinue effluent floatables monitoring. The MWRA has shown that their sampling device does not capture large amounts of floatables. Examples of occasional items captured by the sampler include fruit and vegetable stickers and tiny bits of plastic.

1.2 Change special study sediment contaminant sampling frequency

OMSAP recommends changing the language in the special study contaminant sampling plan from "weekly" to "four times per month".

Water Column

2.1 Reduce the total number of stations from 33 to 14

Initially, OMSAP was hesitant to approve the list of stations in MWRA's April 15th proposal. The Panel was pleased to see that MWRA added stations N21 near the outfall (for nutrients only) and F29 at the edge of Stellwagen Bank, as well as F01 and F02 in Cape Cod Bay in their revised proposal dated October 23, 2009. OMSAP recommends that this revised list of proposed stations be approved.

2.2 Change survey schedule from 12 nearfield and 6 farfield surveys to 9 surveys (including 5 nearfield stations and 9 farfield stations) annually

OMSAP recommends that the proposed survey schedule of nine surveys per year for all water column stations be approved provided that MWRA show there is no significant value gained by adding a tenth survey in the fall. Given the large relative reduction in the fall surveys, it may be useful to add a tenth survey in the fall. Data show that there is considerable temporal variability in fall chlorophyll, and OMSAP believes it is important to catch the fall bloom which can significantly affect seasonal and annual chlorophyll values. MWRA should compare tests of the Contingency Plan thresholds using nine surveys versus ten.

2.3 Change certain water quality parameters

OMSAP recommends that the proposed change in water quality parameters be approved. Dissolved organic carbon, particulate biogenic silica and total suspended solids measured in the water column have not shown to be useful in data interpretation in the past. MWRA has requested a change in the method of *Alexandrium* enumeration from direct cell counts to a gene probe method that is faster and more sensitive. OMSAP had requested that MWRA conduct a comparison of the two methods. MWRA provided this information in their revised proposal dated October 23, 2009.

2.4 Discontinue productivity measurements

OMSAP recommends that productivity measurements be discontinued. MWRA can use data they already collect to calculate an indirect measurement of productivity. OMSAP requests that MWRA investigate developing a surrogate measure of productivity and present information to OMSAP at a future meeting.

2.5 Discontinue special study of net tows for floatables monitoring

OMSAP recommends that MWRA discontinue sampling for floatables in the nearfield using net tows. There has been no evidence from past monitoring that the outfall is contributing to visible trash in the nearfield. The issue of whether tiny fat particles sometimes caught in net tows around the outfall violates the permit for aesthetics is a question that will be addressed by the regulatory agencies.

2.6 Discontinue marine mammal observations

The MWRA has a marine mammal observer on its surveys and compiles the locations, numbers, and types of species in an annual report. Since this is not a study designed to analyze marine mammal distributions and the reported sightings have been very sparse, the data have not been useful to marine mammal biologists. As long as MWRA continues to take care to avoid collisions with whales, OMSAP recommends that MWRA no longer be required to have a dedicated marine mammal observer on board their surveys.

Seafloor

3.1 Reduce benthic community monitoring from 31 to 13 stations (10 nearfield and 3 farfield)

OMSAP recommends that MWRA's proposal to reduce their number of benthic sampling stations be approved. The remaining number of stations will be sufficient to monitor for changes in the benthos.

3.2 Modify the sampling frequency for the hard bottom study

OMSAP recommends that the hard bottom survey schedule be changed from every year to every three years. Changes to the hard bottom communities are gradual, and sampling every three years would be able to discern changes. OMSAP requests that MWRA adjust their survey schedules so that the hard bottom sampling and soft bottom sediment chemistry sampling are conducted during the same year.

3.3 End the nutrient flux study

Several OMSAP members with backgrounds in chemical oceanography recommend that the nutrient flux study not be discontinued. Previous studies have charted progress in the recovery of Boston Harbor without a significant change around the outfall in Massachusetts Bay. Continuing to document the response of benthic biology and biogeochemistry after the effluent diversion would provide very useful measurements of ecosystem recovery in Boston Harbor.

3.4 End annual sediment chemistry sampling at NF12 and NF17

OMSAP believes that sampling these stations every three years is still protective of the environment.

3.5 Modify the sediment chemistry sampling so that it is done at the remaining soft-bottom benthic stations

OMSAP recommends that the survey schedule be changed from every year to every three years. As with the hard bottom monitoring, changes in the sediments are gradual, and sampling every three years would detect any changes.

Response to EPA Letter Dated June 3, 2009

EPA asks: If the proposed changes are approved, are there enough parameters and stations to measure regional versus nearfield changes in water quality, support modeling, and maintain a responsive strategy?

OMSAP members believe that the answer to this is yes. MWRA will be examining boundary data from the Gulf of Maine Ocean Observing System data collection buoy off Cape Ann and there are three stations to the north of the outfall. Boundary data are useful when studying regional phenomena and they also provide important data to the modeling. Additionally, farfield stations that were sampled six times per year would be sampled nine times per year if the proposed changes are approved. *Alexandrium* bloom response monitoring is guided by bloom dynamics in Maine and New Hampshire. Monitoring the progression of blooms flowing down the coast helps gauge the level and timing of response needed in Massachusetts. Other data such as satellite ocean information, buoy sensor data, and sampling from other institutions augment MWRA's database.

EPA wishes to discuss re-focusing the nearfield sampling to confirm that water quality standards are being achieved in the vicinity of the outfall, at the edge of the zone of initial dilution (ZID).

As mentioned previously, OMSAP is pleased that MWRA added water quality station N21 for nutrients to their proposed sampling plan.

EPA asks: Are the proposed benthic stations located in areas expected by modeling to experience elevated sediment accumulation?

The ten proposed benthic sampling locations were part of the original set of stations. These locations were chosen based on EPA modeling results during outfall siting and USGS sediment mapping. Not only are they in depositional areas but they also track the *Clostridium perfringens* signal from the outfall.

EPA wants the monitoring plan to include measures of the living resources.

MWRA has not proposed any changes to the fish and shellfish monitoring (flounder, lobster, and caged mussels).

EPA would like OMSAP to discuss the proposed deletion of three water quality stations near the outfall: N10, N16, and N20.

OMSAP believes that monitoring at five nearfield stations would provide enough data on changes in the nearfield since the area has been shown to be relatively homogeneous.

EPA wants MWRA to evaluate establishing at least one new monitoring location at the boundary of the ZID....EPA believes the collection of measures of eutrophication near the ZID is appropriate.

MWRA has been responsive to the concerns raised since their initial proposal and in their revised proposal dated October 23, 2009, they added station N21 for nutrient sample collection. N21 is a station that was discontinued in 2004 but there are post-discharge data available for that station from September 2000 through the end of 2003.

EPA thinks that comparing the NOAA buoy data with the data collected close to the ZID would give further insight as to whether blooms are local or regional.

OMSAP discussed this and Todd Callaghan from the Massachusetts Coastal Zone Management pointed out that information on this is located on NOAA's National Data Buoy Center at http://www.ndbc.noaa.gov/

EPA would like OMSAP to discuss the possibility of aligning some of the water column and benthic stations which may be useful in determining the relationship between water column and sea floor effects.

OMSAP believes that the station locations for water quality and benthic sampling were situated for specific reasons, i.e., the benthic stations must be in areas of soft bottom sediments. There is no need to align station locations for the two monitoring programs, in fact, it would be detrimental for historical comparison to change station locations at this point in time.

EPA would like OMSAP to discuss the possibility of reducing the number of, as opposed to eliminating, debris tows.

As discussed earlier in this letter, OMSAP does not believe that MWRA is significantly contributing to floatables in the vicinity of the outfall. Since the new outfall went on-line in the fall of 2000, OMSAP has periodically reviewed MWRA's sampling results and the Panel does not feel that continued net tows are necessary.

EPA would like MWRA to evaluate the utility of coupling a reduction in hard bottom sampling with a program to conduct some hard bottom monitoring as rapid response monitoring.

OMSAP agrees with this statement. With hard bottom sampling conducted every three years instead of annually, a rapid response survey in the event of a high solids release would be useful to monitor any smothering effects to the hard bottom environment.

This concludes our list of comments to MWRA's proposed monitoring revisions. If you have any questions, please contact me at 508-289-2746, or asolow@whoi.edu.

Sincerely,

Andrew R. Solow
OMSAP Chair