

November 13, 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  
Proposed Modifications to MWRA Ambient Monitoring Plan

Dear Mr. Haas and Ms. Murphy:

In MWRA's NPDES Discharge Permit Part I.7. a. (Ambient Monitoring Plan) MWRA is required to implement the monitoring plan described in Attachment N, entitled *MWRA effluent outfall monitoring plan: Phase II post-discharge monitoring, 1997*. MWRA has been implementing the Monitoring Plan since the outfall began operation in September 2000, and implemented a similar plan for baseline monitoring from 1992 until the operation of the new outfall. In recognition of the need to incorporate a mechanism to allow the Monitoring Plan to be updated to incorporate current information and scientific thinking, the NPDES permit includes a separate and distinct process for modification of the Monitoring Plan, without requiring modification of the rest of the permit. Specifically, Part I.7.c.i. describes the process by which MWRA may propose modifications to the Monitoring Plan:

"By November 15 of each year, the permittee shall submit a list of any proposed modifications to the monitoring plan, including any interim modifications which have become effective pursuant to paragraph I.7.c.iii. below, to EPA, MADEP and the public (See: Part I.20.e. of this permit), and shall publish the list in the Environmental Monitor for the purpose of soliciting public comment. These modifications shall become effective upon approval by EPA and the MADEP."

In this letter, MWRA proposes making four changes to the Monitoring Plan described in Attachment "A" in accordance with this process. As you know, MWRA together with the Outfall

Monitoring Science Advisory Panel (“OMSAP”) and its two subcommittees, began a process in April, 2002 to review the entire, complex monitoring program. This review process will continue during the coming year. The changes requested here are those that MWRA hopes to implement in calendar year 2003. None of the proposed changes would affect Contingency Plan thresholds. MWRA will present these proposed changes at the next OMSAP meeting.

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

Sincerely,

Michael J. Hornbrook  
Chief Operating Officer

Cc:

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

Matthew Liebman  
Janet Labonte-Deshais  
Eric Hall  
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**Outfall Monitoring Science Advisory Panel**

Andrew Solow  
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**Stellwagen Bank National Marine Sanctuary**  
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**EOEA**  
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**Hyannis Library**  
Ann-Louise Harries

**MWRA Library**  
Mary Lydon

**Cape Cod Commission**  
Steve Tucker

## Attachment A MWRA Proposed Monitoring Plan Modifications

1. Effluent Monitoring, Pathogen Indicators page 2-5.

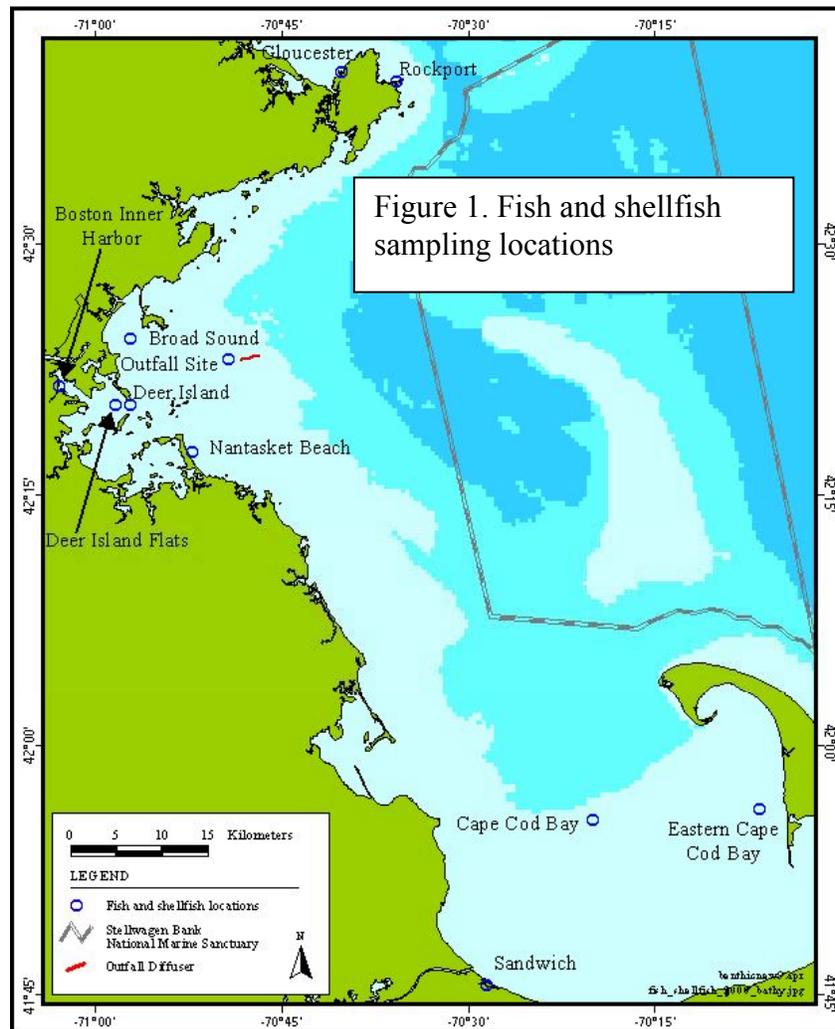
**Drop the requirement for measuring total coliform in effluent.**

**Rationale:** The total coliform requirement was incorporated into the monitoring plan at the time it was written because it was anticipated that there would be a total coliform limit in MWRA's NPDES permit. However, because it is the policy of regulatory agencies to base effluent requirements on water quality criteria, and total coliform are no longer part of Massachusetts' state water quality criteria, total coliform is not included as a permit limit, nor is it a Contingency Plan threshold. The data cost MWRA \$19,000 annually for 1,100 tests. The data are used very little. Effluent fecal coliform sampling is a permit requirement and will be retained.

2. Fish and Shellfish Monitoring, page 5-6.

**Drop the Nantasket Beach and Broad Sound sampling locations for flounder from the monitoring plan.**

See map (Figure 1.) for sampling locations.



**Rationale:** The sites MWRA proposes dropping were originally envisioned as reference sites. MWRA believes that, the Outfall Site and the two remaining reference sites, Boston Harbor, and East Cape Cod Bay, combined with more than a decade of historical data provide adequate reference data. See Figure 2 and Table 1. The chemical constituent data collected at the sites proposed for deletion have not been found to be useful. The three remaining sites shown provide adequate geographic coverage to show variation. There is a consistent gradient from Boston Harbor to Cape Cod Bay. The flounder sampling proposed for deletion costs MWRA \$23,000 annually and requires the sacrifice of 100 fish annually. The sites proposed for deletion are not necessary for interpretation of data gathered at the outfall site.

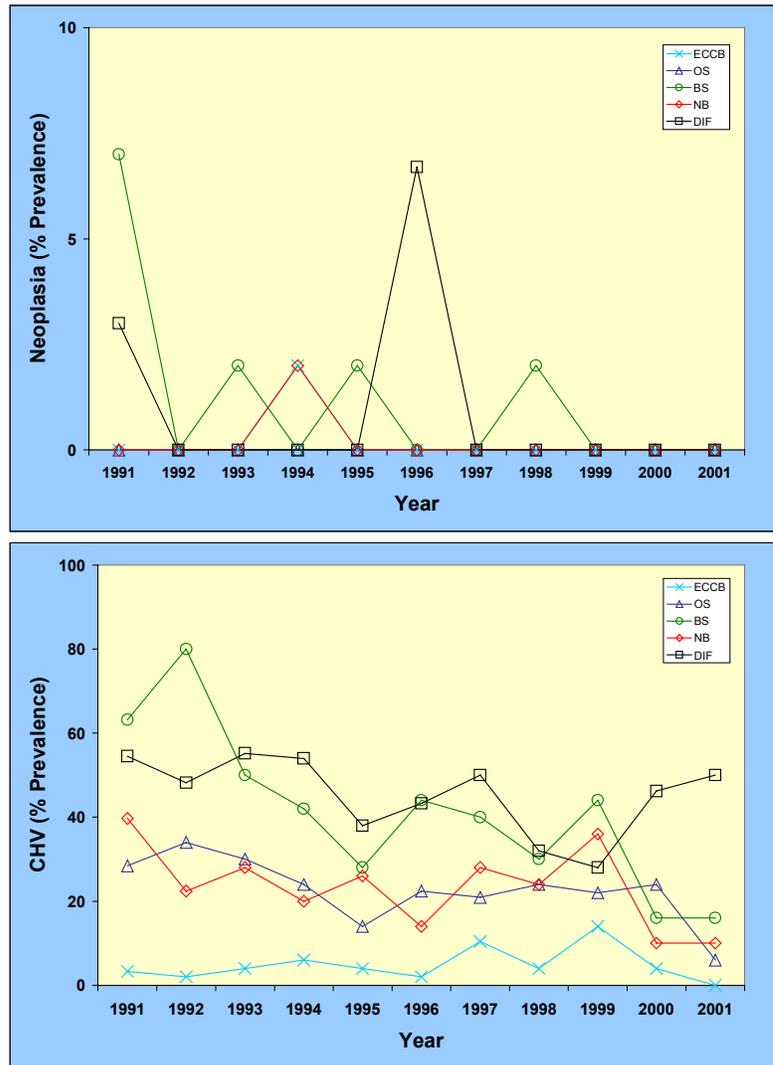


Figure 2. Incidence of flounder liver tumors (neoplasia) and early liver disease (CHV) at 5 sampling locations (ECCB= Eastern Cape Cod Bay, OS= Outfall Site, BS = Broad Sound, NB = Nantasket Beach, DIF = Deer Island Flats) since 1991 (Lefkovitz *et al* 2002, Moore and Battelle 2002.)

Table 1. 2002 flounder contaminant results compared to historical range of annual data, showing a typical spatial gradient. (Lefkovitz *et al* 2002, Battelle 2002.)

Sampling site	Mean (Historical range)				
	Fillet				Liver
	tPCB ng/g	tDDT ng/g	tChlordane ng/g	Mercury ug/g	tPAH ng/g
Deer Island Flats	211.4 (142-520)	17.3 (18.3-46.3)	6.0 (9.7-18.8)	0.4 (0.28-0.51)	58.2 (76-269)
Broad Sound	146.8 (111-381)	13.2 (17.1-43.1)	4.8 (5.4-25.6)	0.3 (0.38-0.57)	51.2 (85-305)
Outfall Site	143.1 (106-250)	11.0 (9.9-27.1)	3.3 (2.9-16.2)	0.4 (0.28-0.55)	41.0 (49-339)
Nantasket Beach	116.8 (133-262)	10.3 (18.6-27.3)	2.4 (5.6-12.2)	0.4 (0.38-0.53)	49.4 (98-335)
E. Cape Cod Bay	36.2 (39-108)	5.4 (6.4-27.5)	1.3 (1.1-4.8)	0.2 (0.10-0.40)	99.8 (34-285)

3. Fish and Shellfish Monitoring page 5-6.

**Drop the Deer Island Flats and East Cape Cod Bay sampling locations for lobster from the monitoring plan.**

**Rationale:** Similar to the flounder, the sites MWRA proposes to drop for lobster were envisioned as reference sites. MWRA now has a decade of historical data at these locations (sample data in Figure 3). The fact that lobster are highly migratory makes the interpretation of all the lobster data very difficult (this issue was acknowledged in the monitoring plan). Other components of the monitoring program (effluent, sediment contaminants) suffice to interpret the Outfall Site data. The lobster sampling proposed for deletion costs \$12,000 annually, and requires the sacrifice of 30 animals for a negligible benefit in data interpretation.

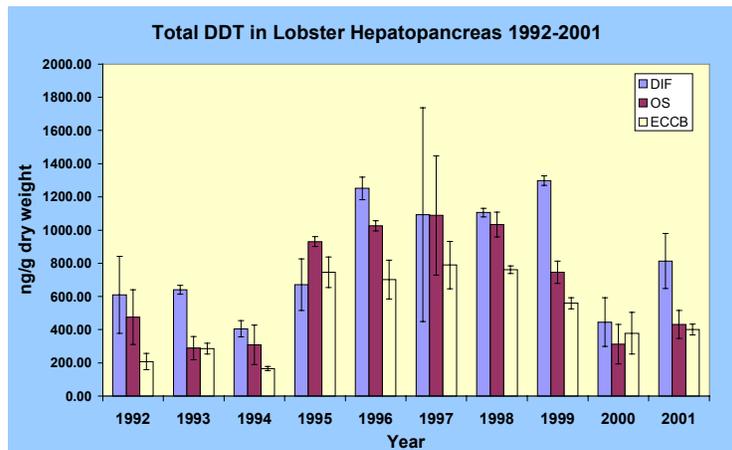


Figure 3. Sample toxic contaminant data for lobster (DDT) showing temporal and spatial variation within and among stations. The clear spatial gradient observed in flounder is not observed in lobster.

4. Water Column Monitoring, Biology and Productivity pages 3-13 and 3-14.

**Drop urea measurements from the nearfield and farfield monitoring.**

**Rationale:** Urea was incorporated into the monitoring to help assess the effect of zooplankton on nutrient cycling. We now know that although this form of nitrogen may be important in an oligotrophic environment, it is only rarely important in our system. On average, urea makes up less than 3% of total nitrogen, and less than 4% of total dissolved nitrogen (TDN). Furthermore, urea is a subset of TDN, which is measured very thoroughly in the monitoring program, so it is included in the assessments of nutrient cycling within the bays. Urea testing costs \$2,300 annually.

## References

Battelle, 2002. 2002 Flounder Tissue Chemistry Data Report (FF021) for Tissue Chemical Analyses – Task 24, MWRA Harbor and Outfall Monitoring Program: 2002-2005. Submitted to MWRA, August 1, 2002, revised September 20, 2002.

Lefkovitz, L., Abramson, S., Hillman, R., Moore, M., and Field, J. 2002. 2001 Fish and Shellfish Report. Report ENQUAD 2002-14. MWRA, Boston, MA.

Moore, M. and Battelle. 2002. Flounder Histology Data Report April 2002 Survey (FF021) for Water Quality Monitoring Task 25 MWRA Harbor and Outfall Monitoring Program: 2002-2005. Submitted to MWRA, September 26, 2002.

MWRA. 1997. Massachusetts Water Resources Authority effluent outfall monitoring plan: Phase II post discharge monitoring. Report ENQUAD ms-44. MWRA, Boston, MA. (Attachment N to NPDES Permit Number MA0103284)