

## OUTFALL MONITORING SCIENCE ADVISORY PANEL (OMSAP)

### 2003 MONITORING REVIEW WORKSHOP #1

Monday, March 31, 2003 – Tuesday, April 1, 2003, 10:00 AM – 5:00 PM

WHOI Redfield Auditorium

**DRAFT**

#### SYNOPSIS OF RECOMMENDATIONS

- **Effluent monitoring.** No recommended changes.
- **Sediment contaminant studies.** OMSAP recommends that MWRA:
  1. Sample at all benthic community stations for sediment contaminants every three years (i.e. no sampling in 2003 and 2004, sample in 2005). Note that these stations will be reviewed by OMSAP during the benthic community/nutrient flux workshop in summer 2003.
  2. Sample a set number of stations every year for sediment contaminants at least through 2005 (MWRA will propose stations to OMSAP at the June 2003 water quality workshop. OMSAP requested they provide a justification as to why the stations are chosen).
  3. Continue to sample for spores of *Clostridium perfringens* (tracer of effluent solids), total organic carbon, and sediment grain size every year at all benthic community stations.
  4. Continue the USGS/MWRA cooperative special study to analyze sediment trap and core samples for tracers of effluent solids (e.g. silver, *Clostridium*) through 2005. Review results after 2005 field season to determine whether additional work is needed and submit proposed changes to OMSAP.
- **Fish and shellfish monitoring (flounder, lobster, mussels).** OMSAP recommends that MWRA:
  1. Begin sampling for fish and shellfish contaminants on a three-year cycle (i.e. contaminants in flounder, lobster, and mussels will be monitored in 2003 and then in 2006). However, flounder histopathology will continue to be sampled annually.
  2. Keep the outfall site, Deer Island flats, eastern Cape Cod Bay, and Nantasket Beach flounder sampling locations, but drop the Broad Sound flounder sampling location. Samples from Broad Sound do not seem to be providing information relevant to MWRA's outfall discharge.
  3. Research several approaches to revising the mussel tissue contaminant Contingency Plan thresholds and present their findings to the OMSAP mussel tissue contaminant focus group.
- **Hard bottom monitoring.** OMSAP recommends that MWRA:
  1. Shift the locations of two stations, beginning with the 2003 sampling season. The epibenthic communities at these two locations are either not abundant, or very heterogeneous, and do not provide useful information for the study. For details on station locations go to: <http://www.mwra.state.ma.us/harbor/enquad/pdf/ms-083.pdf>.

The recommended changes to the sediment contaminant and fish and shellfish monitoring are based on OMSAP's agreement that any accumulation of toxic chemicals in sediments, fish and shellfish would occur slowly and that MWRA should now shift from looking for acute effects of the outfall to chronic effects. Though there would be a reduction in information collected, variability has already been characterized by the baseline measurements, and the monitoring should be conducted in the context of a scientific understanding of the system. OMSAP believes that their proposed recommendations to the monitoring will not reduce the efficacy of the outfall monitoring program.

**MWRA's schedule for submitting the proposed revisions to EPA/MADEP.** Public comment will be solicited for each of these submissions.

- Hard bottom community (interim) modifications will be submitted for review in April 2003.
- Sediment chemistry (interim) modifications will be submitted for review shortly after the June 2003 OMSAP workshop.
- Fish and shellfish modifications, together with the interim modifications for hard bottom community and sediment chemistry, will be submitted for review by November 15, 2003 (annual submission of proposed monitoring revisions).

**ATTENDANCE:****Monday, March 31, 2003**

**Members Present:** Andy Solow, WHOI (chair); Bob Beardsley, WHOI; Bob Kenney, U. Rhode Island; Scott Nixon, U. Rhode Island; Judy Pederson, MIT/Sea Grant; Jim Shine, Harvard School of Public Health; and Juanita Urban-Rich, U. Mass Boston.

**Observers:** Ellen Baptiste Carpenter, Battelle; Bruce Berman, Save the Harbor/Save the Bay; Mike Bothner, USGS; Jeanine Boyle, Battelle; Brad Butman, USGS; Todd Callaghan, MCZM; Cathy Coniaris, MADEP; John Crusius, USGS; Deirdre Dahlen, Battelle; Mike Delaney, MWRA; Winnie Donnelly, MADEP; David Dow, NMFS; Martin Dowgert, USFDA; Patty Foley, SH/SB; Sal Genovese, Safer Waters in MA; Maury Hall, MWRA; Carlton Hunt, Battelle; Ken Keay, MWRA; Ben Kelly, SH/SB; Wendy Leo, MWRA; Matt Liebman, EPA; Mike Mickelson, MWRA; Tara Nye, Association to Preserve Cape Cod; Jack Pearce, Marine Pollution Bulletin; Andrea Rex, MWRA; Mason Smith, Conservation Law Foundation; Dave Taylor, MWRA; Steve Tucker, Cape Cod Commission; Grace Vitale, MWRA; David Wu, MWRA; Jonathan Yeo, MWRA; and Suh Yuen Liang, MWRA.

**Tuesday, April 1, 2003**

**Members Present:** Andy Solow, WHOI (chair); Bob Beardsley, WHOI; Bob Kenney, U. Rhode Island; Scott Nixon, U. Rhode Island; Judy Pederson, MIT/Sea Grant; Jim Shine, Harvard School of Public Health; and Juanita Urban-Rich, U. Mass Boston.

**Observers:** Ellen Baptiste Carpenter, Battelle; Bruce Berman, Save the Harbor/Save the Bay; Jim Blake, ENSR; Mike Bothner, USGS; Jeanine Boyle, Battelle; John Bratton, USGS; Todd Callaghan, MCZM; Cathy Coniaris, MADEP; John Crusius, USGS; Winnie Donnelly, MADEP; David Dow, NMFS; Martin Dowgert, USFDA; Bruce Estrella, MADMF; Patty Foley, SH/SB; Maury Hall, MWRA; Barbara Hecker, Hecker Environmental; Carlton Hunt, Battelle; Chris John, MWRA; Ken Keay, MWRA; Ben Kelly, SH/SB; Lisa Lefkovitz, Battelle; Wendy Leo, MWRA; Matt Liebman, EPA; Mike Mickelson, MWRA; Michael Moore, WHOI; Pam Neobert, ENSR; Tara Nye, Association to Preserve Cape Cod; Jack Pearce, Marine Pollution Bulletin; Andrea Rex, MWRA; Steve Rhode, MWRA; Jack Schwartz, MADMF; Mason Smith, Conservation Law Foundation; Dave Taylor, MWRA; Steve Tucker, Cape Cod Commission; Isabelle Williams, ENSR; and Suh Yuen Liang, MWRA.

**MEETING HANDOUTS:**

- Agenda
- April 2003 OMSAP/PIAC/IAAC membership lists
- January 2003 draft OMSAP minutes
- Information briefings and overheads of presentations

**OUTFALL MONITORING SCIENCE ADVISORY PANEL**  
**Mussel Tissue Contaminant Focus Group Meeting**  
**Wednesday, March 5, 2003, 1:00 PM – 4:00 PM, MADEP Boston**

**DRAFT SUMMARY**

**Purpose of Meeting**

At their January 2003 meeting, the Outfall Monitoring Science Advisory Panel (OMSAP) decided to convene a focus group to review the summer 2001 and 2002 caution level exceedances of chlordane and PAHs in mussels from caged mussel deployments over the MWRA outfall.

**Focus Group Members**

Members are from OMSAP, the Public Interest Advisory Committee (PIAC), the Inter-Agency Advisory Committee (IAAC), and EPA's Narragansett Lab: Judy Pederson (MIT SeaGrant, OMSAP, focus group co-chair), Jim Shine (Harvard School of Public Health, OMSAP, focus group co-chair), Todd Callaghan (MCZM, IAAC), Marianne Farrington (New England Aquarium, PIAC), Sal Genovese (Safer Waters in MA, PIAC), Matt Liebman (EPA, IAAC), Tara Nye (Association to Preserve Cape Cod, PIAC), Rich Pruell (EPA Lab, Narragansett), and Jack Schwartz, (MADMF, IAAC).

**Other Attendees:**

Cathy Coniaris (MADEP), Winifred Donnelly (MADEP), Maury Hall (MWRA), Ken Keay (MWRA), Ben Kelly (Save the Harbor/Save the Bay), Andrea Rex (MWRA), and Steve Rhode (MWRA).

**Background**

MWRA has been monitoring contaminant bioaccumulation in mussels suspended in cages in four areas (Boston Inner Harbor, Deer Island Light, Outfall in Mass Bay, and Cape Cod Bay) since 1991. MWRA's outfall in Massachusetts Bay went on-line in September 2000. Mussels are suspended at the edge of the effluent mixing zone, and because they accumulate contaminants from the water, they can be used to detect very low levels of contamination in the surrounding waters. Mussels are sensitive measures of effluent and ambient water quality and also integrate water quality over time.

**Meeting Summary**

M. Hall presented an overview of the caged mussel monitoring, the caution thresholds for chlordane and PAHs, and the exceedances<sup>1</sup>. The focus group discussed the monitoring and then reviewed the questions presented to them in the agenda:

*Should we be concerned about low-level bioaccumulation over the long term?*

The group agreed that this is something to watch, but that two years of data are not enough to decide whether there is a concern at the present time.

*Are the levels of chlordane and PAHs in the MWRA effluent higher now than before the offshore outfall went on-line?*

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<sup>1</sup> For more information go to: MWRA 2001 Fish and Shellfish Report <http://www.mwra.state.ma.us/harbor/enquad/pdf/2002-14.pdf>, summer 2001 exceedance notice <http://www.mwra.state.ma.us/harbor/html/20020125amx.htm> and summer 2002 exceedance notice <http://www.mwra.state.ma.us/harbor/pdf/20021213amx.pdf>.

MWRA presented data that showed that concentrations of chlordane and PAHs in effluent have not increased since the offshore outfall went on-line. The group agreed that the levels of chlordane and PAH in mussels were very low.

*Are other shellfish monitoring efforts measuring elevated levels of chlordane and PAHs?*

The group briefly discussed the Gulfwatch program that monitors the bioaccumulation of contaminants in mussels throughout the Gulf of Maine. M. Hall has requested recent data from them.

*Are the current thresholds appropriate?*

The group agreed that the current thresholds are *not* appropriate. The group could not reach a consensus at the meeting of how to change the thresholds and made no recommendations for changing them at this time.

*Is the current caged mussel monitoring approach appropriate?*

The focus group suggests that the monitoring approach remain the same for summer 2003.

## **Conclusions**

The focus group agreed that even though the current chlordane and PAH thresholds are not appropriate, there has not been enough analysis of post-discharge data to revise the thresholds. They also agreed that the mussel monitoring program is important to track treatment plant performance and recommend that there are no changes to the caged mussel monitoring for summer 2003. Until the thresholds are revised, future exceedances are expected. The listserver exceedance notice to the public should include a statement explaining that based on past review of the monitoring data, OMSAP has anticipated this exceedance, views the exceedance as a precaution, but more accurate thresholds and/or revisions to the monitoring approach will be incorporated when more data are available.

In the meantime, the focus group asks that MWRA review the following approaches to threshold development and report back to the focus group at a later date. Possible approaches include:

- Use the statistical characteristics of existing data to develop a threshold that shows a significant difference from the expected levels.
- Develop thresholds using some percentage below the concentration of a contaminant that causes mussel narcosis.
- Develop thresholds by evaluating 5-year trends in data. For example, track and report four years of data, then in the fifth year see if there is a trend that causes a threshold exceedance.
- Develop a threshold that uses running averages (e.g. compare one year to the previous three).
- Use FDA levels as thresholds (even though they may be too high).
- Have thresholds for only the contaminants that biomagnify (e.g. PAHs and perhaps chlordane do not biomagnify).

## **Adjourned**

This summary was prepared by Cathy Coniaris and Winnie Donnelly and was reviewed by the focus group prior to submittal to OMSAP.