



Annual Review of the Massachusetts Water Resources Authority (MWRA) Outfall Monitoring Program

There was a total of 60 attendees that included 21 in person and 39 online. A list of attendees is included at the end of these notes.

Welcome & Introductions

Judy Pederson, MIT Sea Grant, OMSAP Chair
Alexa Sterling, U.S. Environmental Protection Agency (EPA) Region 1
Cathy Coniaris, Massachusetts Department of Environmental Protection

Massachusetts Water Resources Authority (MWRA)'s outfall monitoring: 2022 Outfall Monitoring Overview and Contingency Plan Exceedances

Dave Wu, MWRA (in-person), presented slides summarizing the 2022 outfall monitoring results including 2022 exceedances for dissolved oxygen and *Alexandrium*. Chris Goodwin, MWRA (in-person), presented information about the 2023 exceedances for dissolved oxygen and chlorophyll. Threshold exceedances seem to show changing conditions from the pre-outfall baseline due to regional changes.

Questions/Comments:

- Gene Gallagher – 2021 data showed *Capitella* at station near Cape Ann, but *Capitella* was absent there in 2022.
- Discussion about *Clostridium perfringens* 2022 data in farfield stations
- While the measured values of dissolved oxygen do not seem to have a negative environmental impact, there is concern over the continued downward trend in dissolved oxygen and understanding these changes in the region.

Introduction of upcoming “Microplastics Workshop”

Juanita Urban-Rich, University of Massachusetts Boston and OMSAP member (in-person) presented slides about microplastics and the upcoming Microplastics Workshop being organized on Feb 28, 2024 at Northeastern University.

Questions/Comments:

- Discussion about laundry as a source of microplastics and possible other sources including incineration of plastics and litter/debris.
- Questions about what semi-synthetic microplastics are: microplastics with cellulose as a base but are modified. Sometimes they are degradable, sometimes they are not.
- Questions about microplastics identification methods.

Update on MWRA Industrial Pretreatment Program and PFAS

Matt Dam, MWRA (virtual), presented slides about the TRAC Program and relation to PFAS source control and monitoring.



Questions/Comments:

- There were questions about which parts of the program were required vs. voluntary to the users as well as sources from industrial vs residential
- Discussion about methods – now using method 1633 to look at 40 compounds
- Some discussion around fate of microplastics in the WWTP process
- Discussion of PFAS values measured here vs. value measured in drinking water, military contaminated bases, etc. and application of local limits and pretreatment

2023 *Tripes* dinoflagellate bloom in the Southern Gulf of Maine

David Borkman, Rhode Island Department of Environmental Management (in-person), presented slides about the bloom of *Tripes muelleri* (formerly *Ceratium tripos*) in the Gulf of Maine in 2023. He showed that over 30 years of monitoring, dinoflagellates seem to peak in 11 – 12 year cycles. Early stratification may have helped this bloom. This bloom did not have severe impacts on dissolved oxygen.

Questions/Comments:

- There was some discussion of station patterns and cell counts of *Tripes* in the monitoring data.
- There were also questions about the impact of this bloom to fishers and the public – this species is not known to produce a toxin and there was not hypoxia; there was water discoloration.
- There were questions about if copepods like *Calanus* graze on *Tripes* or if *Tripes* may have impacted/suppressed blooms of *Alexandrium*
- There was a discussion of why this bloom did not cause hypoxia – possibly because the dense plates of the cells are not easily decomposed. And whether this bloom sedimented out.
- *Tripes* can vertically migrate, which may making tracking nitrogen used by the bloom challenging.
- Other researchers, including University of New Hampshire and NERACOOS, are working to understand the bloom further.

1:00 – 1:35 PM **Nitrogen, temperature, circulation, and climate change in the Gulf of Maine**

Dave Townsend, University of Maine (virtual), presented slides about nutrient sources to the Gulf of Maine, the general oceanography of the Gulf of Maine and overall region, recent changes in the general oceanography of the Gulf of Maine with a focus on water mass dynamics, and warming of the Gulf of Maine.

1:35 – 2:10 PM **State of CEC science for management needs: the California perspective**
Charles S. Wong, Southern California Coastal Water Research Project (SCCWRP)

Outfall Monitoring Science Advisory Panel (OMSAP) Annual Meeting
February 9, 2024 – Hybrid Meeting - Microsoft Teams +
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Meeting Minutes



Authority (virtual), presented slides about contaminants of emerging concern (CECs) and how decisions about CEC monitoring was made in CA.

Questions/Comments:

- There was some discussion about the origin and structure of SCCWRP.
- It was mentioned that MN has a similar state monitoring program.
- There was a question about the method of cells on microplates, where the cells' receptors bind to ligands and cause a fluorescence response.
- There was discussion about data – where the methods get accredited by state, trainings are provided, and data is publicly available to be used by member agencies.
- There was discussion about how SCCRWP is funded with a combination of funds by members, contracts from state water boards, and grants.

2:10 – 2:20 PM **BREAK**

2:20 – 2:40 PM **Discussion of topics of interest by OMSAP members**

- Discussion continued about SCCRWP and its logistics.
- There was some discussion about Clostridium spores.
- Gene mentioned that *Capitella capitella* dominated the FF01A site in 2021, but was gone the year after. Presence of this species may indicate environmental degradation. This was followed by discussion of benthic monitoring and the influence of temperature on benthic communities.
- There was a comment about CECs like microplastics and PFAS, and discussion about a future iteration of OMSAP looking at climate change, CECs, and broader scale as well as updates on the progress of transitioning OMSAP into a broader MA Bays group.

2:40 – 2:50 PM **Open discussion from any member of the public**

2:50 – 3:00 PM **BREAK**

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Attendees:

Name	Attendance	Meeting Role	Affiliation
Judith Pederson	in-person	OMSAP Chair	MIT Sea Grant (Retired)
Juanita Urban-Rich	in-person	OMSAP	UMass Boston
Julie Simpson	in-person	OMSAP	MIT Sea Grant
Peter Burn	in-person	OMSAP	Suffolk University
Loretta Fernandez	in-person	OMSAP	Northeastern University
Bob Kenney	virtual	OMSAP	URI Oceanography
Ginny Edgecomb	virtual	OMSAP	WHOI
Bruce Berman	virtual	PIAC Chair	
Heather McElroy	virtual	PIAC	Cape Cod Commission
Alexa Sterling	in-person	IAAC	EPA Region 1
Ben Haskell	in-person	IAAC	NOAA - Stellwagen Bank NMS
Cathy Coniaris	in-person	IAAC	Mass DEP
Prassede Vella	in-person	IAAC	MassBays NEP
Todd Callaghan	in-person	IAAC	MA CZM
Wayne Castonguay	virtual	IAAC	MA DMF
Betsy Reilley	in-person	Presenter	MWRA
Chris Goodwin	in-person	Presenter	MWRA
David Borkman	in-person	Presenter	RI DEM
David Wu	in-person	Presenter	MWRA
Charles Wong	virtual	Presenter	SCCWRP
David Townsend	virtual	Presenter	University of Maine
Matt Dam	virtual	Presenter	MWRA
Becky Weidman	in-person		MWRA
Eugene Gallagher	in-person		UMass Boston (retired)
Fred Laskey	in-person		MWRA
Katie Ronan	in-person		MWRA
Matt Liebman	in-person		Retired
Regina Lyons	in-person		EPA Region 1
William Kiley	in-person		Boston Water and Sewer Commission
Alice Stratton	virtual		Stellwagen Bank NMS
Aliya Zwyer	virtual		Save the Harbor/Save the Bay
Andreae Downs	virtual		Wastewater Advisory Committee to the MWRA
Anna Robuck	virtual		EPA ORD
Barbara Moran	virtual		WBUR
Carlton Hunt	virtual		Retired
Changsheng Chen	virtual		Umass Dartmouth

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Chris Mancini	virtual		Save the Harbor
Christine Werme	virtual		Independent consultant
Dan Codiga	virtual		Running Tide
Daniel Myers	virtual		EPA
Debbie Rutecki	virtual		
Devon Winkler	virtual		MWRA
Don Anderson	virtual		WHOI
Douglas Hersh	virtual		MWRA
Ellie Baptiste Carpenter	virtual		Battelle
Hollie Emery	virtual		EEA
Jianjun Wang	virtual		MWRA
Ken Key	virtual		Retired
Lauren Tisdale	virtual		EPA Region 1
Lou Taverna	virtual		
Maret Smolow	virtual		MWRA
Maury Hall	virtual		
Paul J	virtual		
Phil Colarusso	virtual		EPA Region 1
Rich Delaney	virtual		Center for Coastal Studies
Samantha Tolken	virtual		NOAA - Stellwagen Bank NMS
Scott Libby	virtual		Battelle
Shonesia Davis	virtual		MWRA
Steve Rhode	virtual		MWRA
Steve Wolf	virtual		EPA Region 1
Wendy Leo	virtual		MWRA