



## Minutes

January 7, 2022

*Remote via zoom*

Attendees:

**WAC Members:** **Wayne Chouinard** (Chair, Town of Arlington), **Kannan Vembu** (Vice-Chair), **Adrianna Cillo** (BWSC), **Craig Allen**, Dan Winograd, **George Atallah**, James Guidod (AB), **Karen Lachmayr**, **Martin Pillsbury**, Mary Adelstein, **Philip Ashcroft**, **Stephen Greene**, **Taber Keally** (NepRWA) (Members in attendance in **bold**)

**Guests:** Wendy Leo, Dave Duest, David Wu, Maret Smolow, Dan Codiga, Denise Ellis-Hibbett, David Granados, Chris Goodwin, Jianjun Wang, Katie Ronan, Doug Hersh (MWRA), Lou Taverna (AB), Juliet Simpson (MIT SEA Grant, OMSAP), Judith Pederson (OMSAP) Charlie Jewell, Bill Kiley (BWSC), Michele Barden (EPA), Jim Barsanti (MassDEP), Bruce Berman (PIAC and SH/SB), Kristen Barry, (Save the Harbor/Save the Bay), Debra Darby (Tetra Tech), Sean McCanty, Meghan Slocombe (NepRWA), Robert Kearns (CRWA), Lexi Dewey (WSCAC), Maria Rose (Newton DPW), John Dempsey,

Staff: Andreae Downs

**VOTE:** November minutes

### **REPORTS:**

**MWRA:** COVID numbers in the wastewater have spiked & are quite alarming. They are about five times the previous peak. A number of staff are infected and out. More teleworking, and MWRA is re-instituting testing on-site. Further, COVID and resulting supply-chain issues have delayed or increased the price on several capital projects, and MWRA is working through these issues, re-bidding as necessary

**Director:** Adding to that—some of the projects that WAC heard about in November were among those projects—particularly Prison Point CSO.

Final regulations on the Sewage Notification regulations are published, and blending events will get the full notification.

Question of whether COVID can be contracted from CSOs in the river.

Because the virus is fragile, and mostly airborne, this is very unlikely. Also note that the Biobot testing detects RNA fragments, not whole virus. The CDC so far has found no evidence of COVID infection via wastewater and MWRA employees so far have not contracted COVID from it. However, it's always a good idea to avoid contact with receiving waters 48 hours after any rainstorm because of the possibility of pathogenic bacteria.

**Advisory Board:** wastewater metering project is close to being finished. Important to communities because wastewater flow is one of the inputs that determines sewer assessments. They are not live yet, but when they are, there may be some sticker shock. AB has a video on how those sewer assessments were created. They will also have a briefing in February or March

Metro Tunnel project continuing nicely.

Some communities on MWRA periphery are contending with PFAS contamination, and the Advisory Board has extended an invitation to them to join MWRA.

DCR is now obliged to fill all watershed positions, and is advertising for its vacancies. WSCAC also had a presentation on salt in the water, and DCR and MWRA are taking measures to help communities reduce the application of road salt in the watershed.

Several attendees mentioned organic alternatives to salt: brine, beet juice, coffee grounds, sugar...

## **PRESENTATION:**

Juliet Simpson, **OMSAP (Outfall Monitoring Science Advisory Panel)**

OMSAP was created by the 1999 NPDES permit and is convened by the EPA and MassDEP. It reviews monitoring data, which is mostly collected by MWRA staff, and recommends changes to monitoring.

OMSAP has additional ad-hoc meetings as the need arises. All meetings are public.

Most recently, OMSAP had an ad-hoc meeting on hypoxia in Cape Cod Bay. Done at the request of EPA with MassBays National Estuary Partnership to examine the events' relationship, if any, to the outfall.

This meeting/forum found areas of low oxygen concentration in the southern end of Cape Cod Bay, starting in 2019—finding dead scallops, trapped lobsters and crabs. Data loggers on lobster boats. This data compiled with MWRA and other data. Presentations on long-term changes in Cape Cod Bay—temperature rising, stratification increased, prevailing winds changing from the southwest to the northeast. Showed no hypoxia near the outfall or in Mass Bay. Sampling showed that the likely culprit was a dinoflagellate called *Karenia mikimotoi* which has adapted to bloom in low light conditions with high nitrogen. Blooms are obvious and harmful to organisms on the sea floor.

Result—need more study—need funding for monitoring, models and likely not the outfall.

Next steps—define the question and implement studies and responses.

Looking forward: emerging contaminants, such as personal care products, PFAS and microplastics—huge sewer shed & numbers of people contributing these

OMSAP is compiling and publishing white papers on these topics.

Members commented that PFAS needed better source control.

Bruce Berman: invited everyone to come to OMSAP meetings and the formal PIAC meetings afterward. Would be interested in PFAS issue. Email him at [bruce@bostonharbor.com](mailto:bruce@bostonharbor.com) for an invitation.

Question on microplastics

They are a hazard to marine life, but not yet a definition of microplastics. Techniques to remove them are also not yet standardized.

When EPA comes up with standards and a standard method, or if scientists were to come up with their own, then this could be addressed in a rigorous way.

### **MWRA monitoring programs** related to the outfall

Dave Wu, MWRA EnQUAL—

#### Monitoring locations

##### o Mass Bay

§ Water column

§ Benthic

§ Fish/shellfish

§ Other: nutrient impacts (Bays Eutrophication Model), buoy-based instruments for chlorophyll, temperature, salinity, dissolved oxygen, and occasional special studies of areas of particular interest, like dinoflagellates and flounder skin lesions o Cape Cod Bay

· The Ambient Monitoring Plan is part of the Deer Island NPDES permit as is the Contingency Plan

##### o Contingency Plan – sets thresholds based on pre-outfall data

§ Threshold exceedances are changes in conditions, often not related to outfall or even harmful

§ All get reported to EPA and DEP

· OMSAP helped develop the original monitoring questions that inform the monitoring plan design. MWRA can suggest changes, which must be approved by regulators. All technical reports get sent to regulators and OMSAP and are posted on MWRA's website.

· Costs of monitoring: about \$1.6m/year (2021). Some lab work done in-house by MWRA. Water column monitoring is most expensive part.

- Three major revisions since the 1999 permit, each revision has saved money.
- There are other ambient monitoring programs required for wastewater dischargers, but MWRA has, perhaps, the largest one.
- Anyone interested in getting notifications of exceedances can either email Dave Wu at MWRA or Matthew Liebman of EPA. WAC members get these automatically.

Question of whether it's safe to eat the fish near the outfall—fundamental to OMSAP. Bruce Berman said he drank the water and it's inert.

Other questions OMSAP answers—is it safe to swim? Answer to both so far is yes (but avoid Tenan Beach up to 48 hours after a strong rain).

In the west, many communities are reusing water & making wastewater safe to drink. Singapore reuses water. Some craft brewers use wastewater to make beer. For details, check with the Water Reuse Foundation. Another regular New England field trip is NEWEA's Poo & Brew for young professionals—a tour of a wastewater plant followed by beer.

Feb. 4 is next meeting. The Combined Heat & Power report is not yet ready for that meeting.

## Director's Report Nov-Dec. 2021

### 495 Partnership Water Resources Committee with Rep. Lori Trahan 11/4

Topic: PFAS

Introduction by Rep. Kate Hogan--notes Rep. Trahan's water work--CSOs, water quality, PFAS, water finance. Fed. legislation is bipartisan--cleans up PFAS and reduces exposure

Trahan: PFAS Action Act should have been done decades ago. Man-made and common. Health effects, incidence particularly in water supply. Ayer Hudson, Stow, Chelmsford, Littleton.

Bill requires cleanup of PFOA and PFOS in outdoor sites. Monitoring in drinking water. Requires EPA to develop communication strategy and well testing. Holds polluters accountable

Bans PFAS from cookware. Effluent limits and pretreatment standards. Been stalled because of GOP Senate opposition. EPA has new strategic roadmap. Strict timelines for drinking water limits. Toxic Substances Control Act (1976) inclusion holds PFAS polluters accountable. Supports limits for air emissions. New national testing mandate. Toxicity research & release of data. Trahan says the bill gives the EPA the power to add PFAS to the hazardous substances list.

Text of bill is here: <https://www.congress.gov/bill/117th-congress/house-bill/2467/text>

It also allows companies that do not use PFAS for some consumer products (food wrappers, cookware, upholstery, rugs, etc.) to label them PFAS-free.

Two new historic pieces of legislation--infrastructure bills--have PFAS mitigation funding for water contamination. Also funds for water supply infrastructure and CSO removal. Biggest water infrastructure funding in US history.

EPA needs to act fast, but has a limited range of action under Toxic Substances.

Lots of municipalities don't have the money to make the needed investments for water infrastructure--it's a bipartisan issue. Will be 100% cost sharing GRANT for combined sewer removal costs. Also prioritizes distressed communities.

### WSCAC 11/9

Brian Keevan DCR Natural Resource Analyst--most important watershed positions are ready for posting, 10 now being advertised.

Presentation on **DCR controlled burn** of Barre Heath -- pitch pine cones opened. Strip of white pines to the road, looking to mow down to prepare for another controlled burn. Goal to revisit every few years for a controlled burn to maintain the health of the land. Now difficult to tell there was a fire there.

Clearing white pine for oak and other tree species. Creates better habitat for endangered turtles. Biodiversity/habitat maintenance goals. Protecting habitats for common as well as rare creatures. In the Ware River watershed.

Way to create meadows & heath--ecosystems that are disappearing to lawn, asphalt, and regrowth forest.

Without burning, white pine outcompetes pitch pine. Deer not that interested in heath grasses.

NJ Pine Barrens do a similar controlled burn. Under guidance of Fish & Wildlife.

**Forest monitoring:** Keevan forest plots each 1/5-acre plot inventory. 364 plots actively sampled at Quabbin, 130 at Wachusett/Sudbury (brand new), 112 Ware River. Circular plots permanent staked center point: track number, whether alive or dead, subplots,

saplings, number of stems, regeneration. Land use--is it managed or not; wet or dry, what kind of cover, disturbance history--includes beaver, deer, fire, windstorms... invasive plants.

Also locating and identifying trees.

Ware River, done 2020. Quabbin right before COVID hit. Getting database ready and cleaning up data.

Preliminary -- Quabbin "ingrowth" how are young trees filling in?

1970: trees per acre, by species--fairly young forest, fairly diverse. 75% is 5-6 species.

Now mostly white pine, black birch, red maple. Diversity has dropped.

Why? Deer and moose grazing. Management patterns, perhaps. Will look at areas haven't cut vs have cut. Oak trees are falling out (gypsy moths) --but starting to come back.

Mortality events--oak defoliation & how affects--see them as spikes in the Quabbin data. Foresters cut & manage trees in the plots, without considering where they are. Members asked whether defoliation or management caused more mortality. Also, whether trees are growing back at the same rate that they are dying

As survey invasives, particularly in newly-acquired land, it's depressing how much invasives have taken over.

May have to return to planting to get diversity--browsing by herbivores, plus the harvesting of live trees.

**Water Quality & salt** Jamie Carr, DCR head of water quality for water supply:

Current conditions

WQM

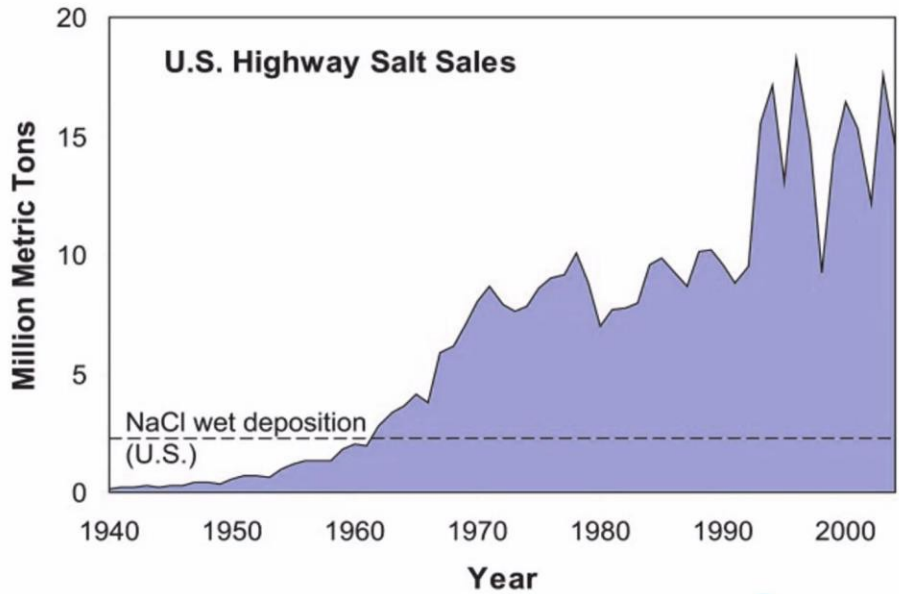
Why is salt a concern

Where coming from

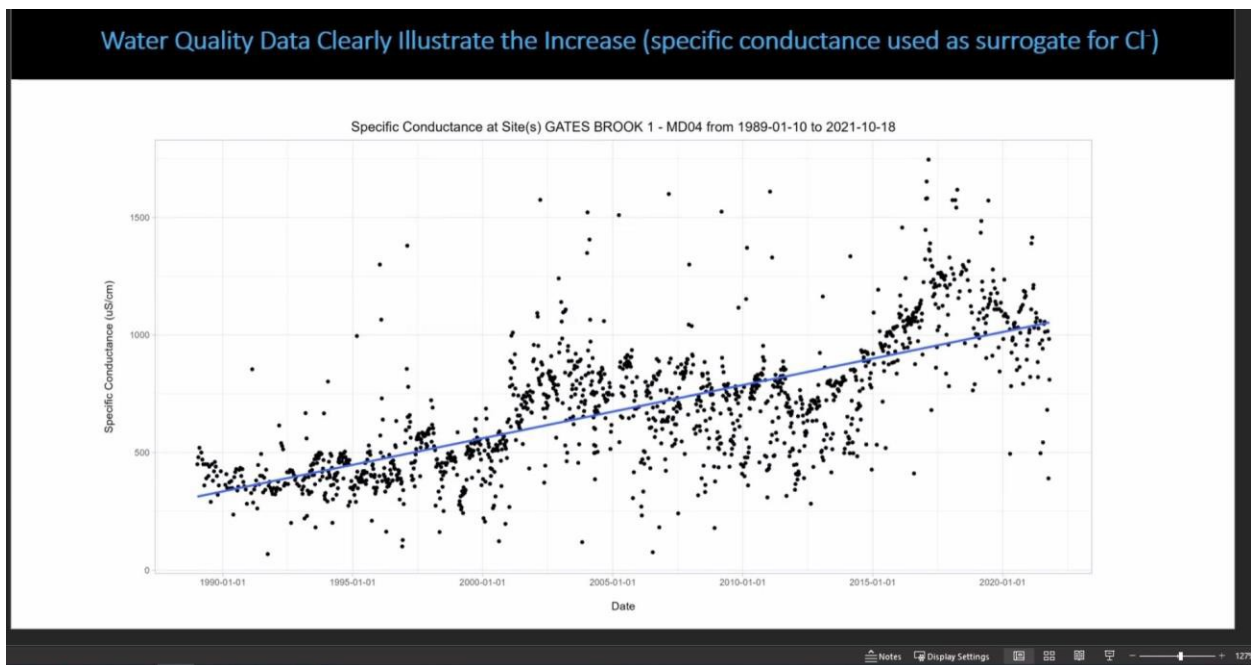


How reducing

Huge increase in use of road salt in the Us.



Excessive road salt--increased conductance in water. Following winter precipitation, salt maximum values hit in Wachusett. Persistent.



Also seeing summertime chloride levels in the water--this suggests the groundwater is contaminated with chloride. Drought concentrates the signal.

Salt is harmful to aquatic wildlife and roadside vegetation (phragmites seem to thrive).

Contamination of drinking water--expensive and difficult to remove salt. Also corrodes pipes in water systems. More copper & lead in the water.

Where does it come from?

Mostly road de-icing. Some from atmosphere, landfills, etc.

Education & training to reduce the loading of salt on roads--also changing expectations of clear roads in winter. MWRA is paying for the training of town staff, on salt and liquid deicers with matching grants.

Also improving data collection on how much salt is put out and tracking it. Also tracking parking lots.

DCR now has a salt brine generator, equipment to apply brine, and is doing training. Climate change makes storm prediction more difficult.

NH has adjusted liability so that people can afford to use less salt. Towns are adopting different procedures.

Looking to share an application with road temperatures, salt application needs, etc. DPW folks are often better at estimating when treatment needed than DCR.

**Steve Estes-Smargiassi:**

Chemical supply affected by the trucking/supply chain issues. Inventories are strong & MWRA has been successful in arguing that they are public safety.

De-carbonizing at MWRA is getting a boost from the lower carbon in the electric grid.

## Water Resources Commission 11/10

**Hydrologic report**--higher than normal temperatures, close to record for Oct. Higher than normal precipitation.

Most wells back to normal--exception Cape and Nantucket. Most reservoirs are above normal or normal

Outlook: predicting above-normal temperatures and precipitation.

**Annual Report 20-21**--draft. Highlights--hydrologic tracking and drought--2 separate droughts.

Flood hazard management, Interbasin transfer act management,

**USGS/MA Cooperative Hydrologic Monitoring Network**--Gardner Bent USGS

Combined data--moisture, precipitation and temperature. Stream gages. \$16K per gage in O&M. annual total is \$890K

Climate response network--73 wells to measure ground water levels. Moving to real-time gages, but they cost more. Tide gages.

Whole budget: \$1.2m

## **Sewage Notification Regulations**

Will eventually become part of the Mass. Clean Waters Act. Next month draft regulations will be finalized so they can be enacted by January. Next month, will see the revisions.

All SSOs require some kind of notification. Not all under these regulations.

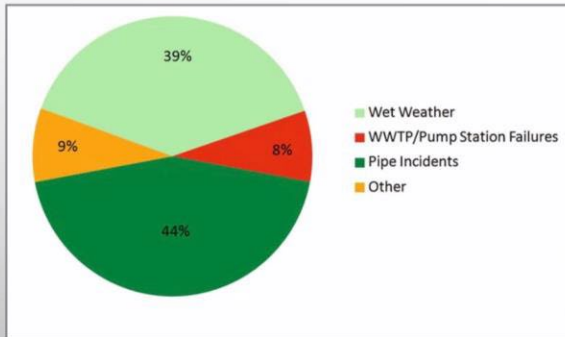
Types covered:

- From a wastewater outfall
- Surcharge during wet weather

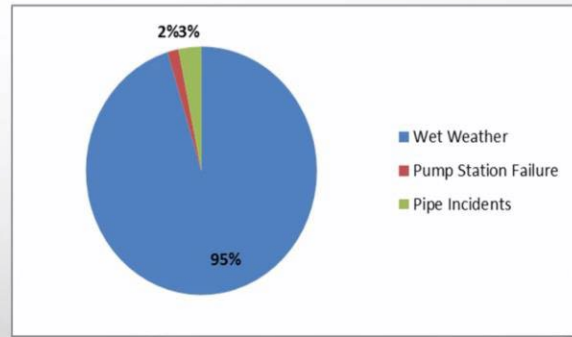
- Surcharge because of failure of a pump station or interceptor of greater than 1 m gallons

## BASED ON 10 YEARS OF SSO DATA IN THE NORTHEAST REGION

Number of SSO Events by Cause



Volume of SSOs by Cause



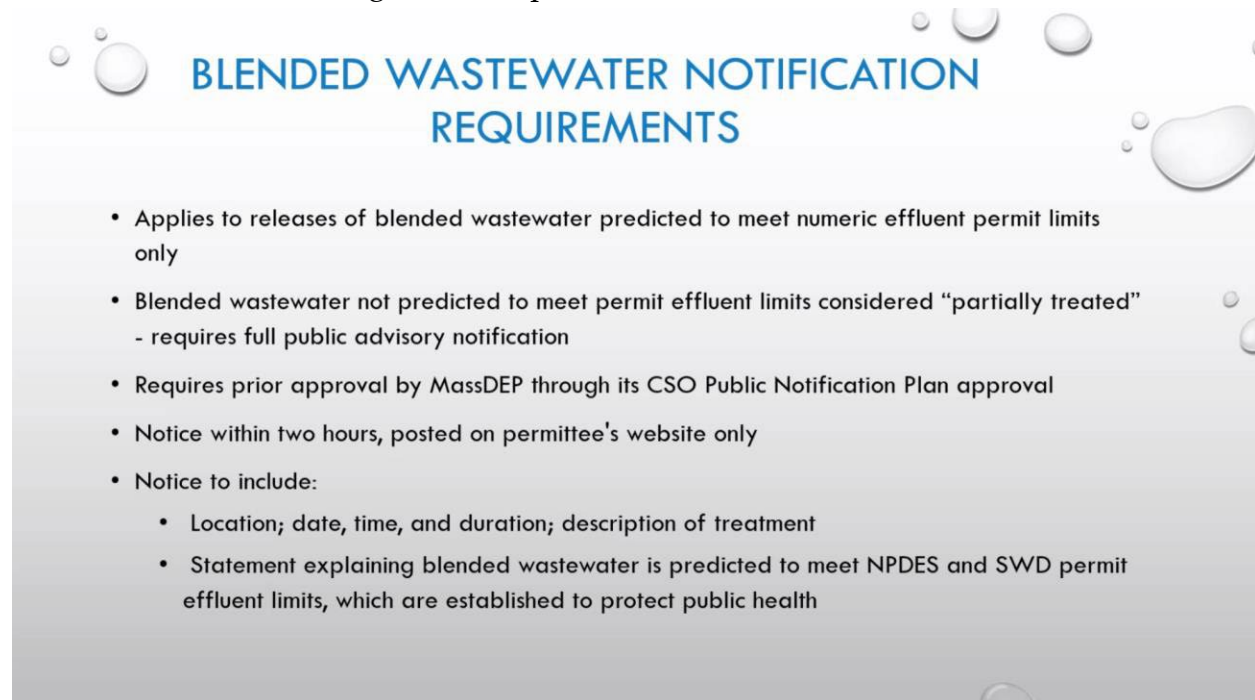
SSOs mostly because of wet weather or pipe incidents. Most volume is during wet weather.

Notification--two hours of discovery required by law. Posted & sent out.

## CONTENTS OF PUBLIC ADVISORY NOTIFICATIONS

- Location of discharge or overflow
- Date, time, duration of discharge or overflow
- Estimated volume based on data from prior 3 years
- Identity of permittee
- Whether discharge or overflow has ceased
- Description of treatment (if any)
- Waters and land areas potentially affected
- Precautionary measures to be taken by the public
- Link to permittee's website
- Statement that discharge or overflow consists of, or likely consists of untreated or partially treated sewage and waste

Blended--regulations allows DEP to exempt blended wastewater that meets effluent limits, once that's demonstrated, from push notifications. No set frequency of modifications or revisiting this exemption.

A graphic with a light blue background and water bubbles. The title "BLENDED WASTEWATER NOTIFICATION REQUIREMENTS" is centered in blue. Below it is a list of requirements.

## BLENDED WASTEWATER NOTIFICATION REQUIREMENTS

- Applies to releases of blended wastewater predicted to meet numeric effluent permit limits only
- Blended wastewater not predicted to meet permit effluent limits considered "partially treated" - requires full public advisory notification
- Requires prior approval by MassDEP through its CSO Public Notification Plan approval
- Notice within two hours, posted on permittee's website only
- Notice to include:
  - Location; date, time, and duration; description of treatment
  - Statement explaining blended wastewater is predicted to meet NPDES and SWD permit effluent limits, which are established to protect public health

Plans for CSO public notifications--DEP approvals, due **2/1/22**. 30-day comment period.

Reporting via DEP data system--should be up by July 6th.

Prior month report on 15th of each month

Departments of public health must issue a warning every time notified of a CSO/SSO--excludes blending.

Use reverse 911 if available; include location, date, time. Recommendation. to avoid contact with water for 48 hours

Also erect temporary signage on affected waterbodies

Environmental justice components--language news organizations, translation,



## SIGNIFICANT COMMENTS RECEIVED

- Notifications for blended wastewater
- Public health warnings and temporary signage at access points
- Due date for CSO Notification Plans
- SSO Notification Plans should be required
- How to identify communities affected by the discharge
- Regulations should include the requirement for MassDEP to maintain a website for notifications

Phil Guerin--blending--main point, don't want to wash out the microbes & plants fail for weeks or months. Protective measure. Talking about meeting NPDES requirements. Notification of something that doesn't affect public health & not needed. River systems are getting CSOs at the same time, blending doesn't make much difference.

Feb. 1 deadline--3 weeks after regulation is finalized. Probably nobody in compliance.

Jenn Pederson--Additional notification for EJ communities. Where is it in the law? By census tract? By community?

DEP has been working on DEI and including language-isolated communities in communications. This is an important initiative to hear and speak with all communities.

Dec. 9 next meeting. Hoping to hear back from DEP on these regulations. If not, they may need a special meeting the following week. Regs should be promulgated by January 12, 2022.

Advisory Board 11/18

### Legislators of the Year

- Senator Anne M. Gobi – Chair, Committee on Higher Education  
Long been an advocate for constituents and MWRA drinking water customers, but this year led charge to strengthen role of Water Protection Trust. No more restrictions on DCR hiring adequate staff.
- Senator Michael J. Rodrigues – Senate Chair of Ways and Means  
Successfully pushed to keep the outside section on the water protection trust over two gubernatorial vetoes
- Representative Aaron M. Michlewitz – House Chair of Ways and Means  
Prevented the switch from the EEOEA Commissioner to a designee. Also led the charge for Debt Service Assistance

### Legislative Staffers of the Year

- W. Stuart Loosemore, Esq. – Chief of Staff/General Counsel for Senator Gobi  
Hands-on in protecting and strengthening the Water Protection Trust
- Joseph Masciangioli – Counsel for House Speaker Mariano  
Worked on DSA. Mentions PFAS challenge.

### 2021 Advisory Board Retail Rate Survey

Not doing preview this month. Will do both in January. Survey is active on the Advisory Board website. Municipal emails are bouncing more--possibly COVID security upgrades.

New Website--includes 35 years of documents. Linked to events, so can see when topics were discussed.

### Regionalization

Speaker Mariano is actively working with MWRA on PFAS and economic development. Globe picked up Joe's op-ed of expanding MWRA drinking water system. How to make that work?

Infrastructure bill will add \$\$ to water infrastructure.

ARPA funds available

### Committee Reports

Executive Committee – Louis M. Taverna

Action Item: Approval of Advisory Board Mission Statement

Action Item: Approval of Updates to Advisory Board Bylaws

Finance Committee – Joseph Favaloro

\$2.5 b for transit. \$1.1 b for water infrastructure...

ARPA--\$4 b or so. Still another \$1b not allocated. Includes a number of line items for water infrastructure. One line-item funds a study to see how MWRA could supply more water to more parts of the state.

### Operations Committee – John Sanchez

Report on wastewater metering meeting, above. Dramatic increases? Yes--Quincy.

Pandemic has also affected the last 2 years.

New Business--Laskey

About to issue a bond & hoping gets either forgiveness or a low interest rate on some of the federal COVID loans

Had more (all vaccinated) employees test positive this month as head into cold weather. Not sure that the Advisory Board or MWRA will return to in-person meetings soon.

OMSAP 12/6

Betsy Reilley, 2020-21 Monitoring Results

### **2020 Highlights--**

- MWRA met all permit requirements (platinum 14)
- No adverse impacts on the environmental quality of MA or Cape Cod Bays
- No contingency plan threshold exceedances
- Water quality good. Plankton communities diverse and normal. Flounder liver disease low.



## Observations:

- Short *Alexandrium* bloom in June 2020--no toxicity
- Bloom of *Karenia mikimotoi*, throughout, increased persistence
- Record high water temperatures in July. Air and water temperatures are increasing over time.

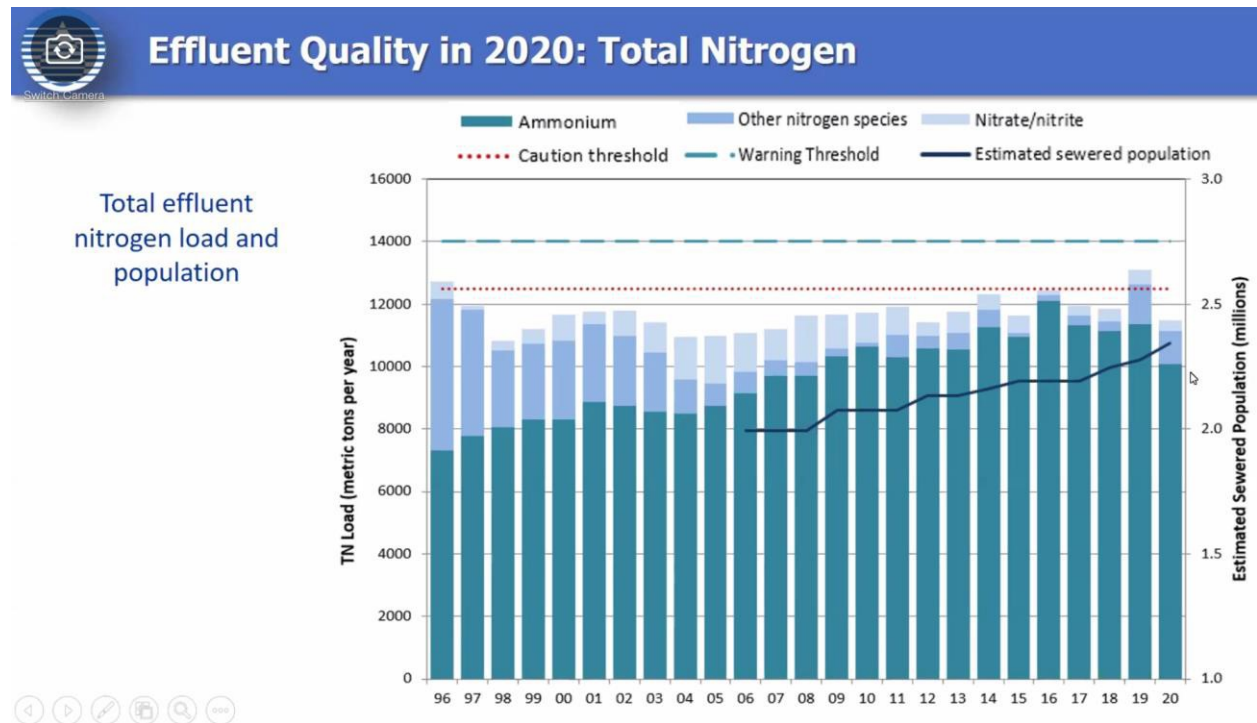
## 2021 Highlights

Analyzing data still

## Threshold exceedances

- *Alexandrium*
- Low DO in Stellwagon in Sept.
- Low DO in Stellwagon Nov.
- No nitrogen exceedance expected in 2021. Probably lower than in 2020

This year additional samples (every 3 years) of lobster, flounder and mussels--but nothing unusual found so far.



Even when nitrogen levels are higher than threshold, no negative effect on the bay

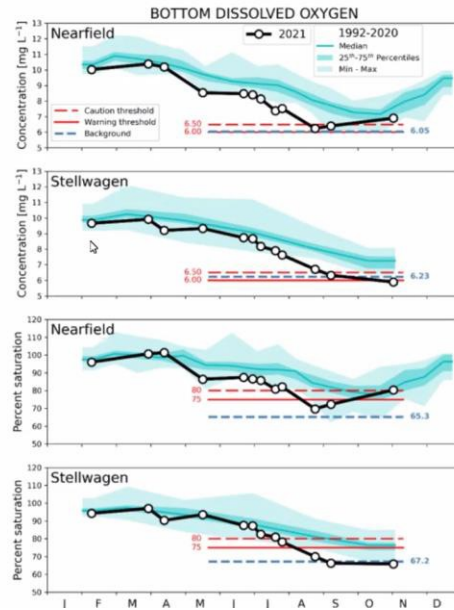


## DO saturation and Concentration - 2021

- Seasonal Trends
- Lower than prior years
- Decline earlier in the season
- Differences between Nearfield and Stellwagen Basin
- Stellwagen Basin is deepest location in the program (over 80 m deep)
- Nearfield sites also declined, but not as much and have recovered in last survey.
- There were no DO CP Exceedances in the Nearfield.



*Alexandrium* bloom started earlier, but was not hazardous.

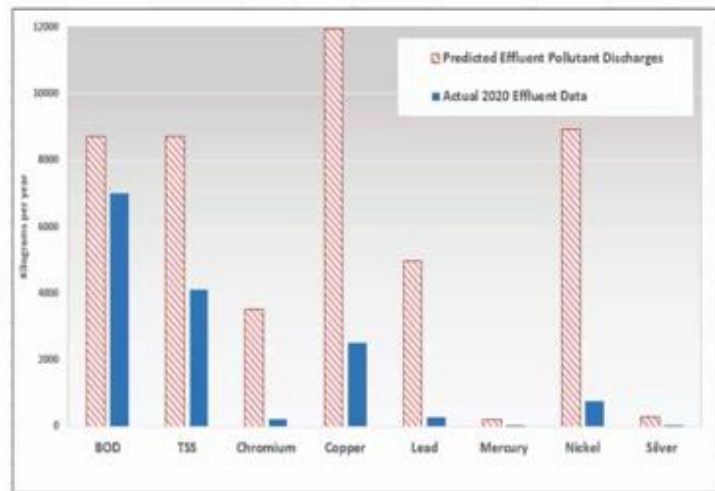


**Hypoxia in Cape Cod Bay**--science forum. No event in 2021. Linked to warming temperatures, changing winds, bloom of phytoplankton (*K. mikimotoi*, likely)  
Special section--additional data provided by MWRA to OMSAP--here's what the EPA expected to find in effluent contamination in the 1980s, and what actually has happened.



## Special Section in OMO – Projected vs Actual Loads

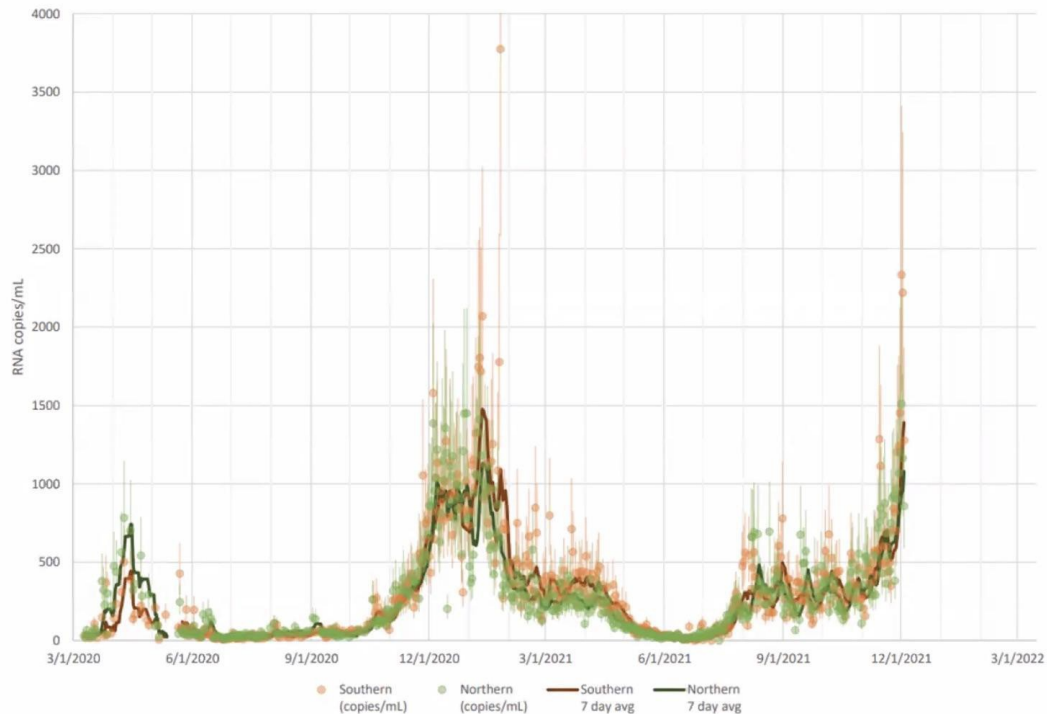
The Supplemental Environmental Impact statement (SEIS) projected the loads of conventional contaminants, such as suspended solids and biological oxygen demand; toxic heavy metals; and organic contaminants in both the influent received to the Deer Island Treatment Plant and in the effluent to be discharged to Massachusetts Bay. The projections were made for the year 2020, at that point more than 30 years in the future.



Credits TRAC.

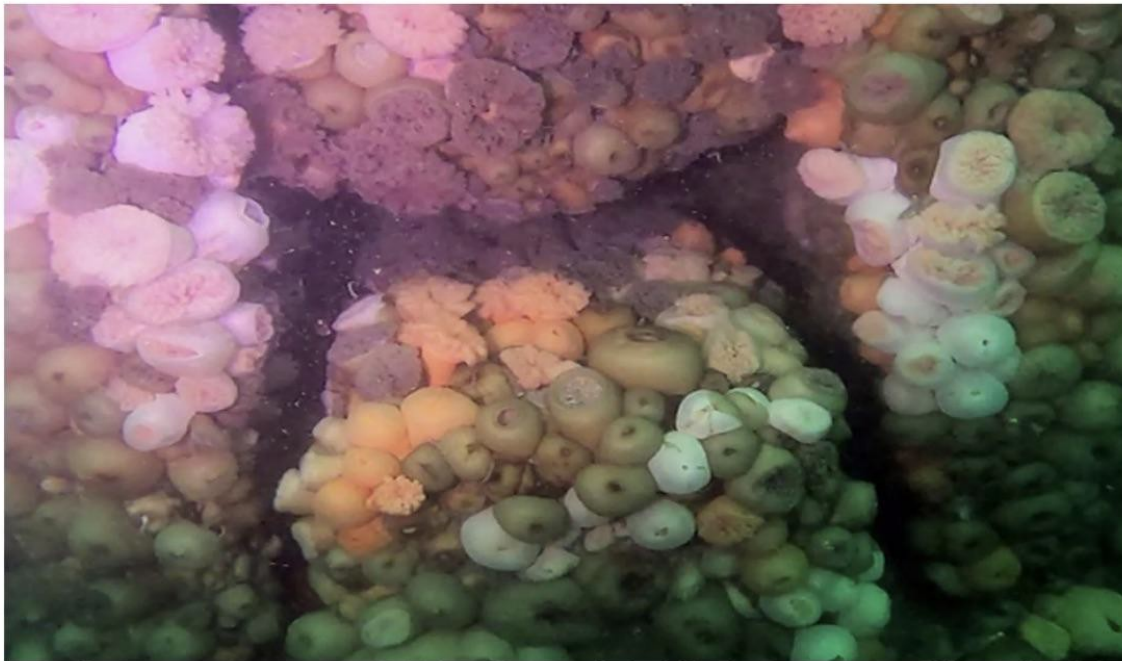
## Other Activities - SARS-CoV-2 RNA

DITP Viral RNA Signal by Date



COVID testing --levels of virus in wastewater are rising. Not sure if this includes the variant

## Outfall Diffuser, July 2020



Dave Wu--Exceedences

1. *Alexandrium catenella (fundyense)*--causes red tide.

June 23, 2020 was in all water column samples, two in the nearfield

Rise & fall of counts was typical

BUT--usually *Alexandrium* came in from outside of the bay, and this time it appears that it came from within the bay. Possible cyst beds now in MassBay?

MWRA looked at *Alexandrium* and its relation to the outfall, but found no connection.

Bruce Berman: Did Gulf of Maine have a bloom (usually originates there)? Not a significant one.

Maine's blooms were further offshore--not getting into the mussels

## 2. Dissolved Oxygen

Concentration threshold is 6.0 mg/L

Percent saturation 75%, but not based on current state standards.

Also, background condition

Two further surveys were also below background, but not in the nearfield



### November: Stellwagen Basin DO

- Late October survey moved to November 2 due to weather
- November 2 water column survey showed both DO concentration and % saturation at F22 (Stellwagen Basin) was below the CP warning level and background condition

DO parameter	Warning level	Background condition	Result @ F22
Concentration (mg/L)	6	6.23	<b>5.89</b>
Saturation (%)	75	67.17	<b>65.9</b>

- Again, nearfield measurements met the thresholds

Discussion: DO depletion in deep water is seasonally natural in normal circumstances. Both exceedances were at 80 meters deep, which is MWRA's deepest.

Winter storms mix the water column completely.

No evidence that nutrients drove the DO exceedances.

Is that a clear climate change signal? Maybe.

MWRA thinks it may. Not a clear narrative to explain potential differences in trend between temperature and DO.

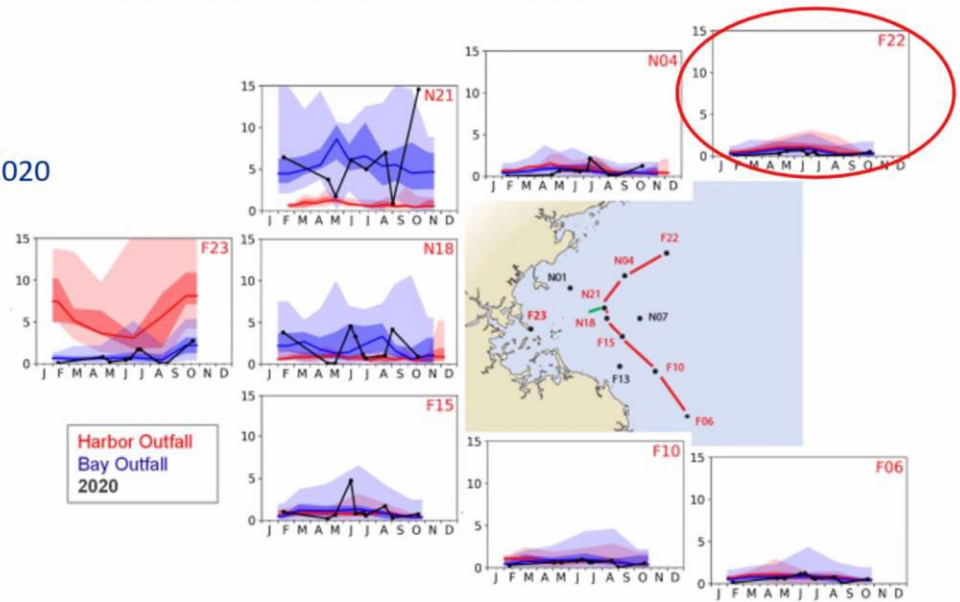
If water is warmer, it can't hold as much DO--and we know the Gulf of Maine is warming faster than any other ocean water out there.





## DO exceedances: Discussion

Depth-averaged ammonium levels ( $\mu\text{M}$ ) from 1992-2020



Long-term trends are that DO is trending lower as temperatures trend higher



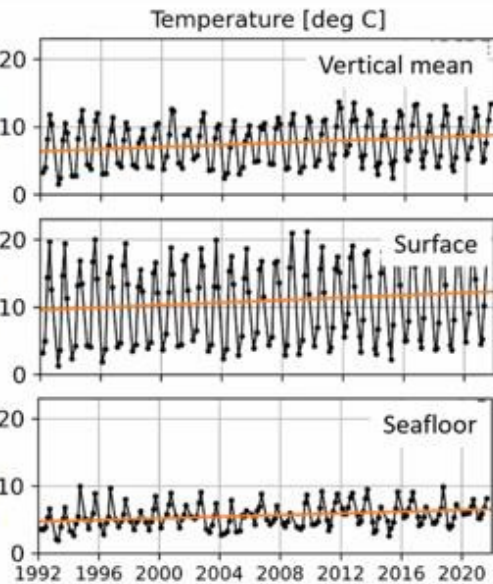
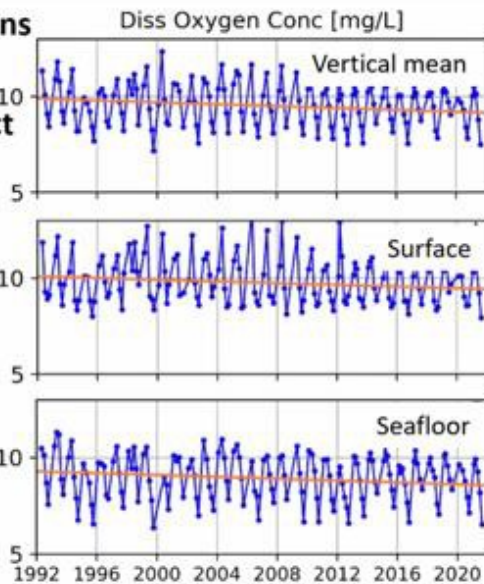
## Preliminary: Long-term trends in oxygen and temperature

**F22 observations**

**1992-2021**  
**(30 yrs) Feb-Oct**

Visible oxygen decline and temperature increase

Superposed Theil-Sen slopes for de-seasoned values



MassBay is similar to other bodies of water around the world, regionally and nationally. Warming might account for the DO decline.

## **Bays Eutrophication Model--Dan Codiga, MWRA**

1. Not predictive, focused on potential eutrophication
2. Calibrated on 2012-16 period
3. Report on the MWRA website: [mwra.com/harbor/enquad/pdf/2021-02.pdf](http://mwra.com/harbor/enquad/pdf/2021-02.pdf)

Reviewers recommend looking nearer to the outfall to better calibrate nearfield nitrogen.

Additional investigations--effluent dilution, nitrogen budgets (modeled in 1990s)  
New calculations--fraction of nitrogen from MWRA effluent, map plots

BEM is easiest near the outfall, not calibrated for Cape Cod Bay.

## **Status of white papers; PPCP, PFAS, Microplastics, Judy Pederson MIT Sea Grant**

Two of these papers are completed and one is under review.

### Status of CEC papers

- Two of the CEC papers are completed and accepted by OMSAP; one is under review.
- Actions taken: MADEP adopted drinking water standards; 6 PFAS included in new NPDES permits; and EPA released strategy for addressing PFAS (not yet finalized).
- Recommendation highlights from the CEC papers:
  - Lack of standardized protocols and methodologies for monitoring PPCPs, PFAS, microplastics in WWTP
  - There is a need for literature reviews on sources, presence, risk assessments, and what is in the influent and effluent from MWRA with a focus on the compounds likely to cause impacts.
  - Conduct special studies to address gaps; model transport and fate
  - Reduction at sources
  - "Research level" recommendations

**Overview from the Hypoxia in Cape Cod Bay forum on October 29, Pam DiBona of Mass Bays (includes discussion of next steps)**

Primary hypothesis is *Karenia* is driving the hypoxia, which feeds off excess nitrogen (septic?) and that more monitoring is important. Betsy Reilley--actually, temperature is more correlated than the nitrogen, plus *Karenia*, which can outcompete & dominate--huge impact on DO. Noticeable blooms, and don't need light.

Next steps: January 22 Mass Bays' STAC meeting--generate recommendations for further study & monitoring

March 22, reconvene larger group

### PFAS webinar-NACWA

AECOM--Chris Curran: Recommends treating PFAS from one water perspective--WWTP are not a source but a collection & mitigation point.

Madison, WI--focus on source reduction was most cost-effective.

Common sources (MI): metal finishing, electroplating, landfills, paper, laundry.

If can't land apply or landfill PFAS-contaminated biosolids: looking at incineration (question of emissions, ash testing), pyrolysis/gasification (require a drying step, no PFAS in ash, but emissions?), BioCon ERS--oxidation (high-temperature incineration--question of PFAS in residuals), fluid bed gasification, supercritical water oxidation--hydrothermal processing...

### Mass Rivers Annual Meeting 12/8

Mark Smith, president of the board.

Herron--MyRWA--biggest accomplishments this year--pedestrian bridge promised, many storm water trenches, study of risks of heat in the watershed & grant to protect people from heat, recruited more staff & board--more representative.

### Water Resources Commission 12/9

Hydrologic conditions--November was dryer, but things still pretty damp around the state.



Annual report draft, passed.

Interbasin application--Auburn water district proposal to buy water from Worcester.

Auburn's wells are shallow and easily subject to contamination from the nearby highways. Have had to discontinue use of other wells because of chloride. MEPA application complete. Some of Worcester's water is from the same basin, so not subject to IBT

### MWRA Board 12/15

Director's Report--\$100m for water & sewer infrastructure in the ARPA bill signed today

Covid numbers rising dramatically--biobot numbers. 3 staff members today, up to 33 cases; last year this time 19. People are contracting outside of MWRA workplace.

Successful \$748m bond deal at very low interest rate, lower than SRF. Demand driven by green bonds--investors all over the world. MWRA is fifth-largest municipal green bond issuer in the nation, largest in the state.

Advisory Board suggesting new task force of board members, AB, MWRA staff, community members identifying CIP projects that benefit MWRA and others.

John Carroll in the hospital with dehydration (too many carbonated, caffeinated drinks. Now back on water).

Godfrey Ezegwe is retiring.

### Administration & Finance

1. Delegated authority--LED lights at Nut Island--getting \$16,550 back from National Grid, \$6K savings, calculate 7-year payback.

## 2. Year to date financial update

\$15m variance so far--mostly wages as people retire (77 last year, 81 already this year), their spots are backfilled, and hiring isn't keeping up--down 45 positions. Having difficulty finding tradespeople (plumbers, electricians, drivers). \$4.7m is short-term interest rate variance.

## Wastewater

1. Cottage Farm--50 years old, getting rehabilitated. PCBs found in paint on diesel engines (3) and their pads. One engine failed this year & parts had to be created. Staff recommends replacing all 3. Electric would require building expansion for the more-powerful diesel backup. This facility activates twice in a "typical" year.
2. Prison Point -- subcontractors couldn't do work because of supply chain issues. Increased cost of \$5m plus 20 months. Would also need extended time for contractors. Taking stock and considering canceling the project. Report back in a month or so. Vitale worries inflation will only go up, and that MWRA, like BWSC, will only be paying more.
3. Clinton Screw Pump replacement--two of the three pumps not working any more. Using portable diesel as well as one functioning pump. Looking for Ngrid incentive funding to help.
4. DI Gravity Thickeners--in the middle of cleaning out the thickeners, found a piece of the liner in the bottom. Needed additional procedures & safety precautions because they had to enter the tank. \$244K more.

## Water Supply

1. Lead & Copper update--this year's tests were below the action level. 5 communities had one elevated test--Boston, Melrose, Winthrop... Investigating corrosion control methods to prevent lead leaching into water.
2. Waltham water mains
3. Wachusett Dam bastion repairs
4. Northern extra high pressure zone improvements--they are pre-ordering pipe anticipating that the cost of pipe will increase.

## Personnel

1. New TRAC program manager--Shawn Owen, under Matt Dam

2. Kristin Hall promoted
3. Katie Ronan promoted