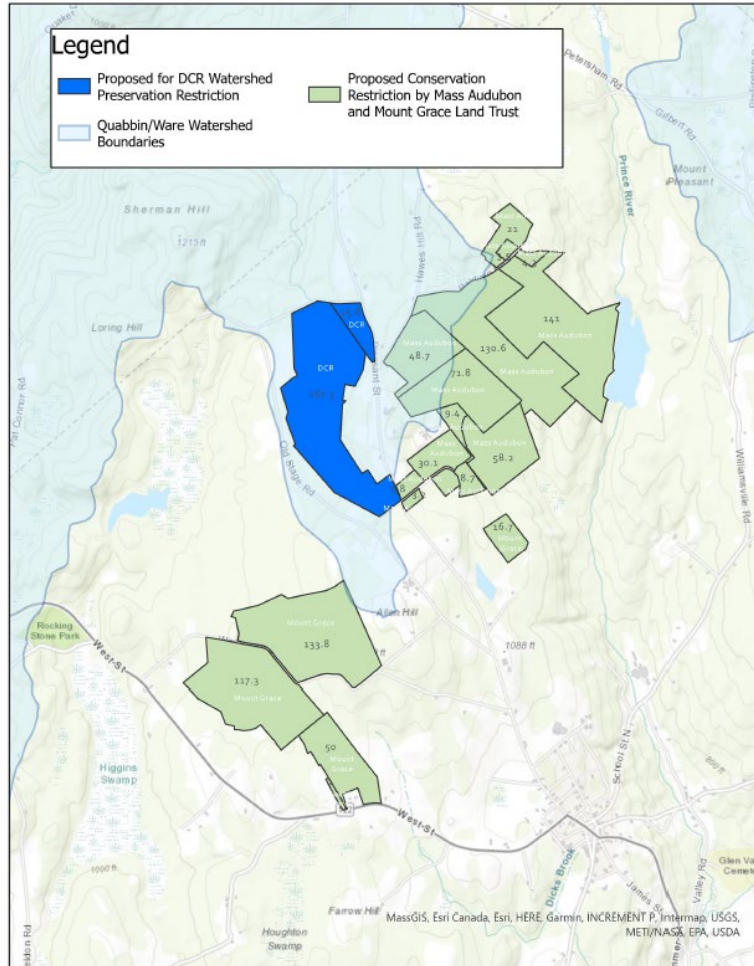




# Land Acquisition Grant Funding





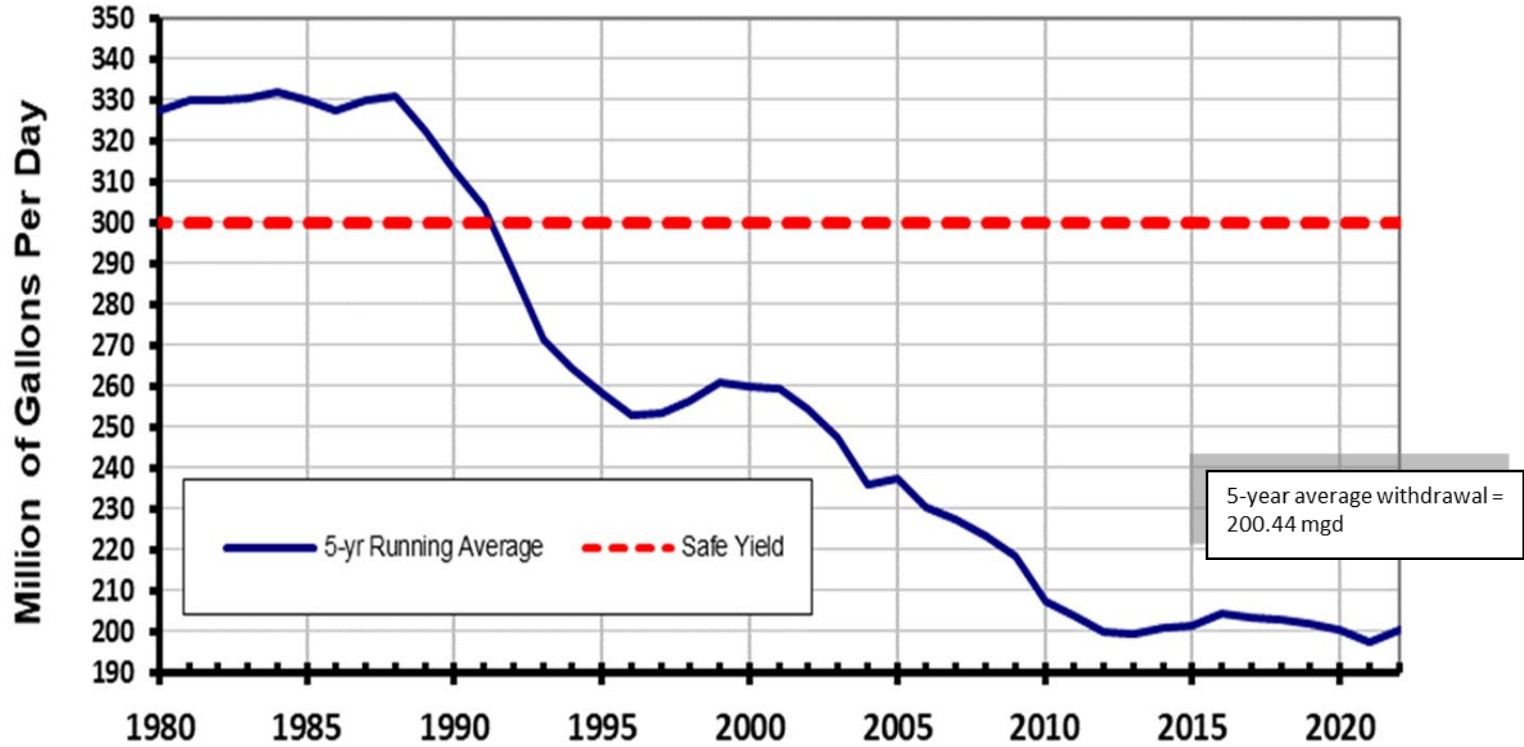


*Update on MWRA's  
System Expansion Efforts*

October 18, 2023

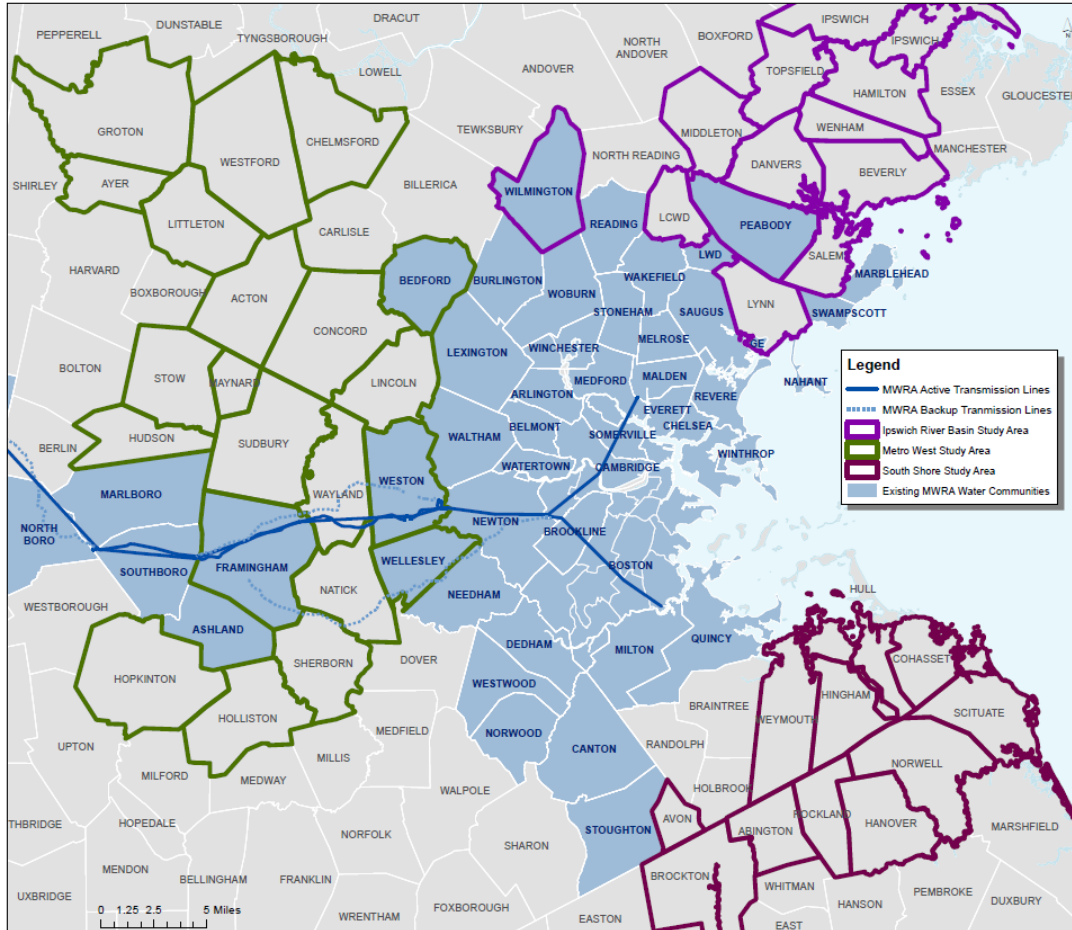


# Reservoir Withdrawals from 1980 to 2022





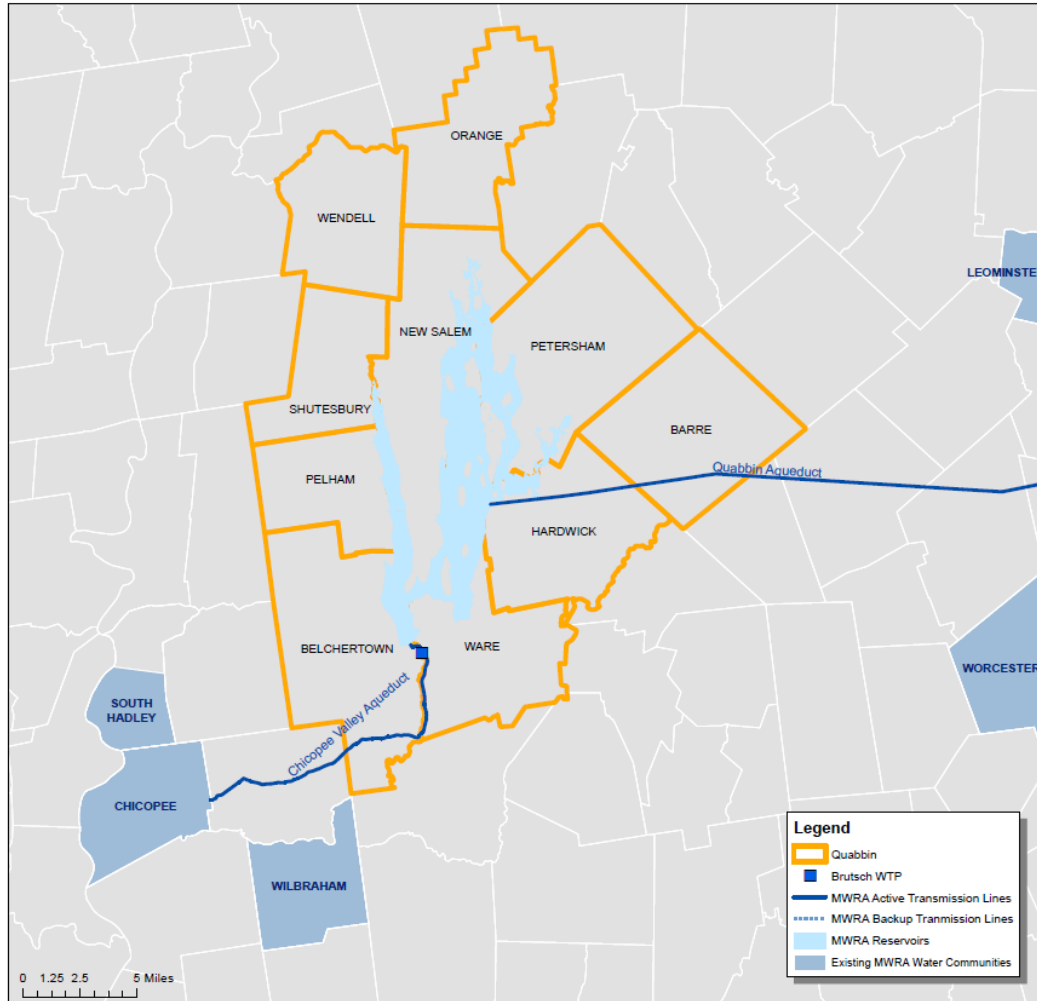
# MWRA System Expansion Feasibility Study Areas



- Ipswich River Basin (12 Communities)
- South Shore (10 Communities)
- Metro West (21 Communities)



# Quabbin Watershed System Expansion Evaluation





# Status of Recent Inquiries

- Partially Supplied Communities Considering Increasing Supply
  - Wellesley
  - Wilmington
- Communities have Received Approval to Pursue Admission from Governing Body
  - Hopkinton
  - Lynnfield Center Water District (currently undergoing MEPA review)
  - Natick
  - Wayland
- Various Stages in Decision-Making Process
  - Avon
  - Billerica
  - Hingham
  - North Sherborn Water and Wastewater District (proposed)
  - Select MetroWest Communities
  - Walpole
  - Weymouth/Former Naval Air Station



# Next Steps: Shaft L Connection

- Connection Options for potential expansion to the North and South
  - Existing Distribution Mains
  - Stub at Shaft 7D
- Connection Options in MetroWest are limited with minimal capacity
  - New Connection at Shaft L



Figure 1. Existing Configuration of Shaft L

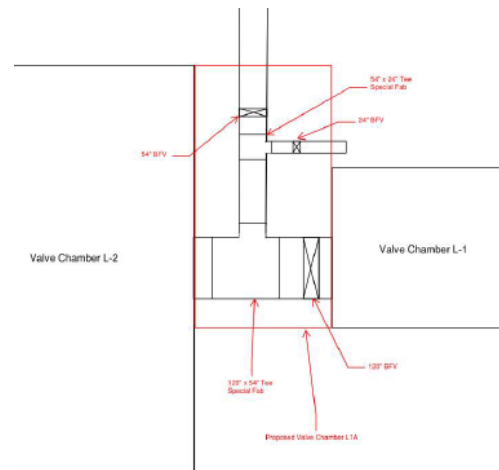


Figure 2. Conceptual new Connection at Shaft L





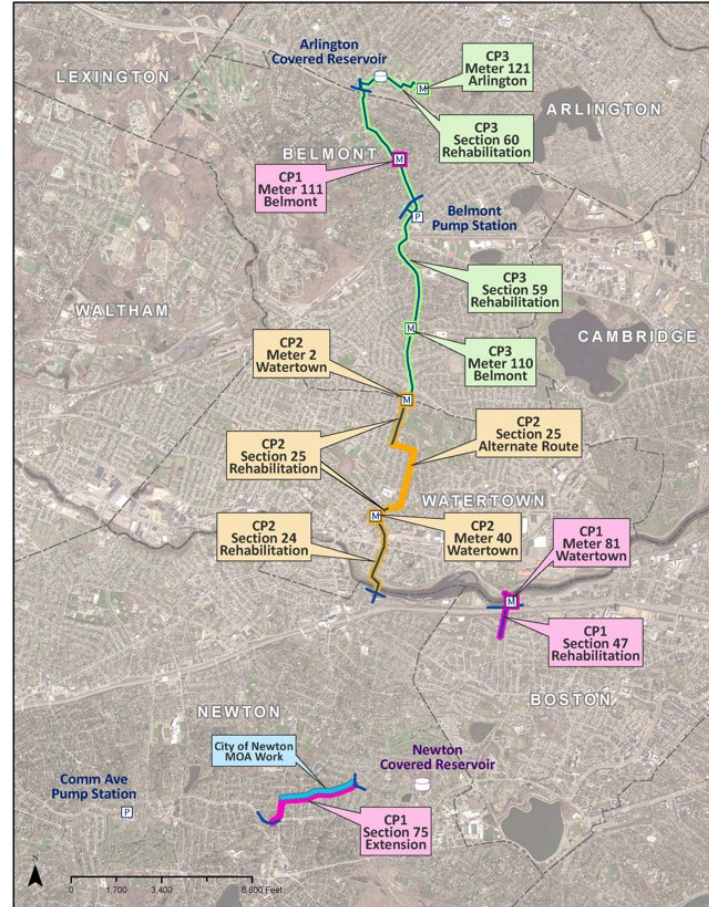
*Update on Contract 6955 and Memorandum of Agreement  
between MWRA and the City of Newton  
Intermediate High Pipeline Improvements,  
Section 75A and Section 47 - Belmont, Boston,  
Newton and Watertown, Contract 7484*

October 18, 2023



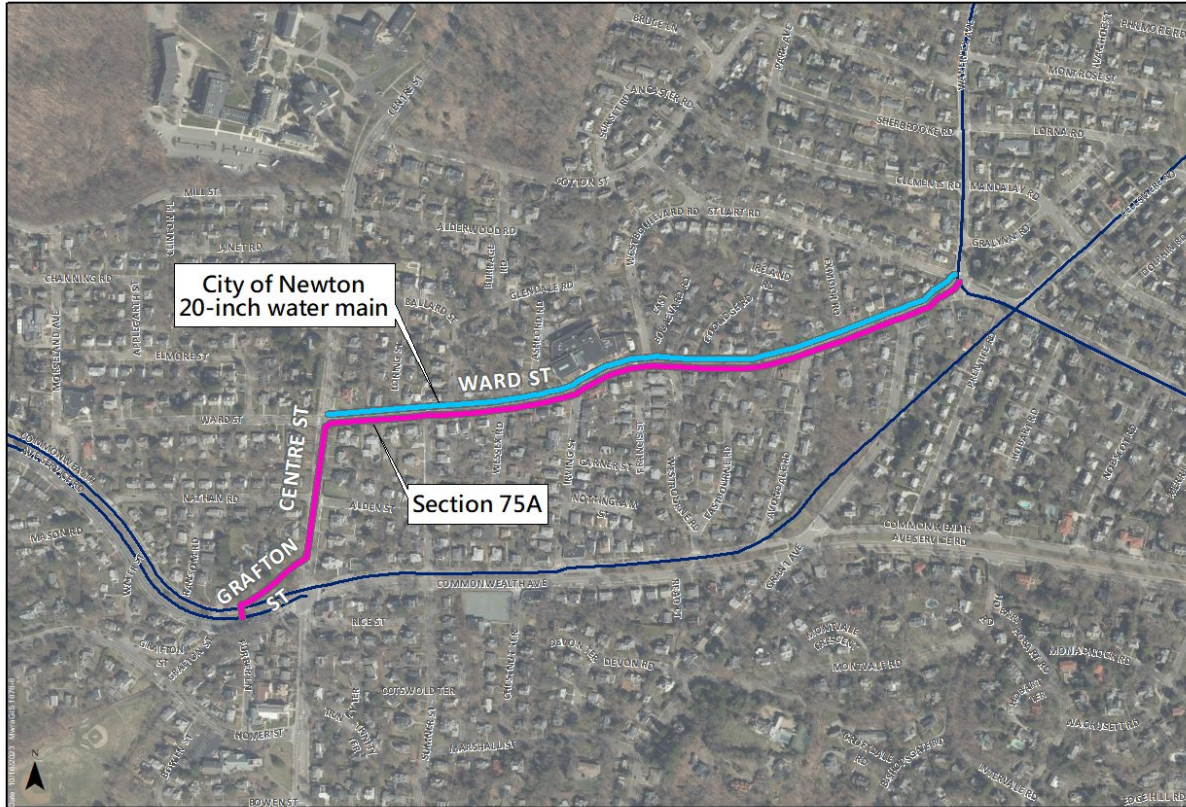
# Design Contract - Intermediate High Pipeline Improvements

- CP2 In-progress
- CP1 Original scope and proposed changes
- CP3 Pipeline interior findings





## Memorandum of Agreement between MWRA and the City of Newton



— MWRA Section 75A    
 — City of Newton 20-inch water main    
 — MWRA Distribution Pipes    
 0    250    500    1,000 Feet

CP1 Schedule	
Advertise	January 2024
Construction Award	April 2024
NTP	May 2024

Estimated Cost	
MWRA - \$16.9M	Newton - \$5.6M



*Overview of Proposed  
Swap Agreement Termination*

October 18, 2023

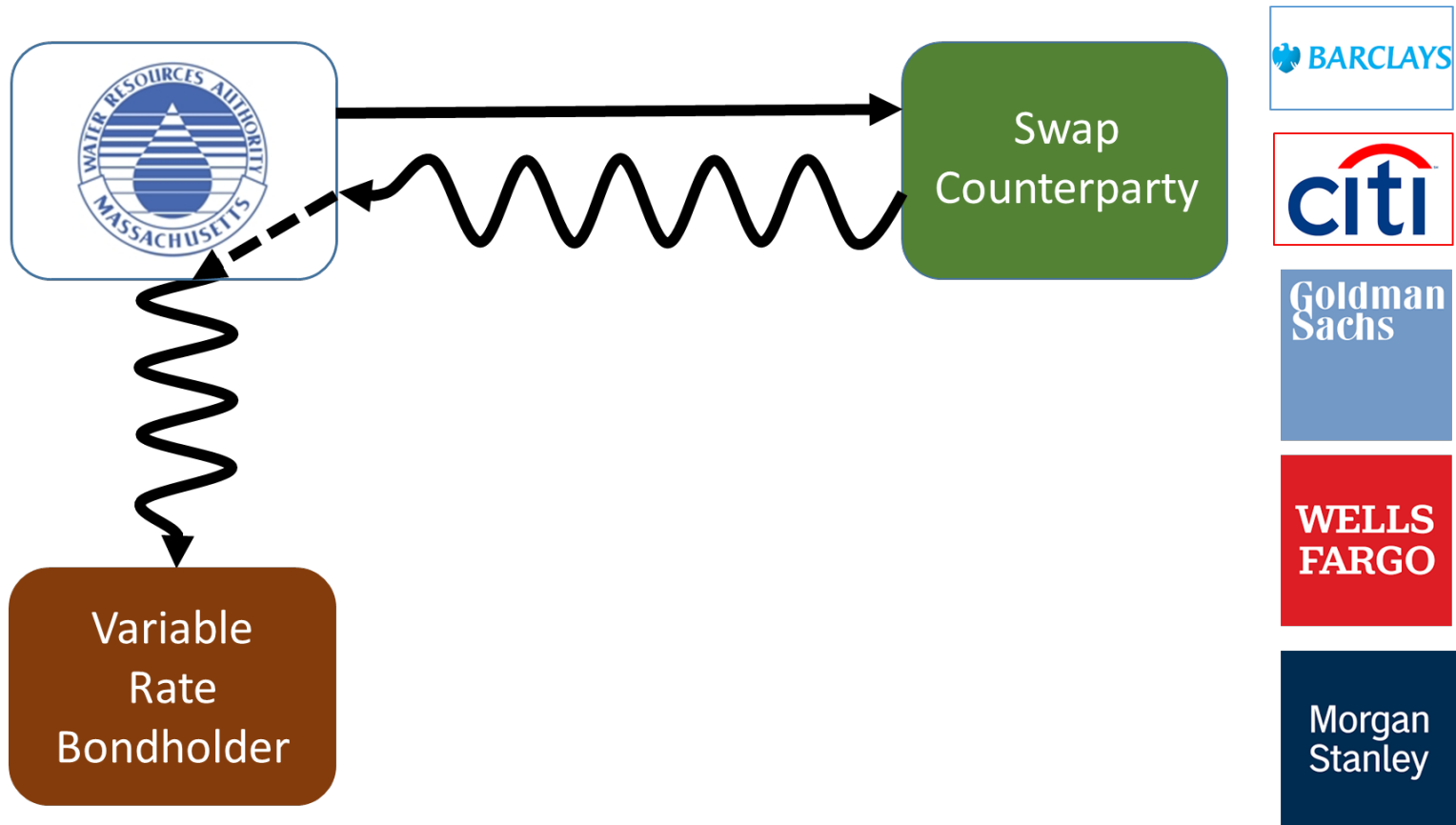


## When issuing debt MWRA had choices:

1. Fixed Rate
2. Variable Rate
3. Synthetic Fixed Rate  
Variable rate with a swap attached



# Swap Transaction Overview





# MWRA Swap Transactions

- Between 1998 and February 2001 MWRA entered into six swap agreements to hedge interest rate risk.
- During this period, synthetic fixed rate was more cost effective than traditional fixed rate.

Swap Counter Party	Original Execution Date	Maturity/Termination Date	Type	Status
Citigroup Financial Products, Inc.	December 22, 1998	November 1, 2026	Floating to Fixed	Active
Morgan Stanley Capital Services Inc.	December 22, 1998	November 1, 2026	Floating to Fixed	Active
Barclays Bank PLC	October 28, 2008 <sup>(1)</sup>	August 1, 2030	Floating to Fixed	Active
Wells Fargo Bank, NA	October 28, 2008 <sup>(1)</sup>	August 1, 2030	Floating to Fixed	Active
Barclays Bank PLC	November 24, 2008 <sup>(2)</sup>	August 1, 2037	Floating to Fixed	Future Starting
Merrill Lynch Capital Service Inc.	October 26, 2000	February 28, 2006	Fixed to Floating	Terminated
Goldman Sachs Capital Markets LP	February 21, 2001	August 1, 2015	Floating to Fixed	Matured

(1) Replacement for the Lehman Brothers Financial Products Swap dated March 2000

(2) Replacement for the Lehman Brothers Special Financing Swap dated March 2000



# Proposed Termination of All Swap Agreements

Swap Counter Party	Notional Amount Outstanding	MTM September 30, 2023	Fixed Payment Paid by MWRA	All In Cost of Swap
Citigroup Financial Products, Inc.	\$ 21,775,000	\$ (212,473)	3.994%	4.519%
Morgan Stanley Capital Services, Inc.	\$ 14,520,000	\$ (137,269)	4.032%	4.559%
Barclays Bank PLC	\$ 65,050,000	\$ (9,293,053)	6.585%	7.110%
Wells Fargo Bank, NA	\$ 65,050,000	\$ (9,994,997)	6.935%	7.460%
Barclays Bank PLC	\$ -	\$ (7,947,118)	6.585%	7.110%
<b>Total</b>	<b>\$ 166,395,000</b>	<b>\$ (27,584,910)</b>		





# Swap Termination Payments

## Swap Termination Cost





# Overview of Outstanding Swap Transactions

- MWRA's Variable Rate Exposure continues to decrease from 23% of total debt in 2008 to the current level of 9%.



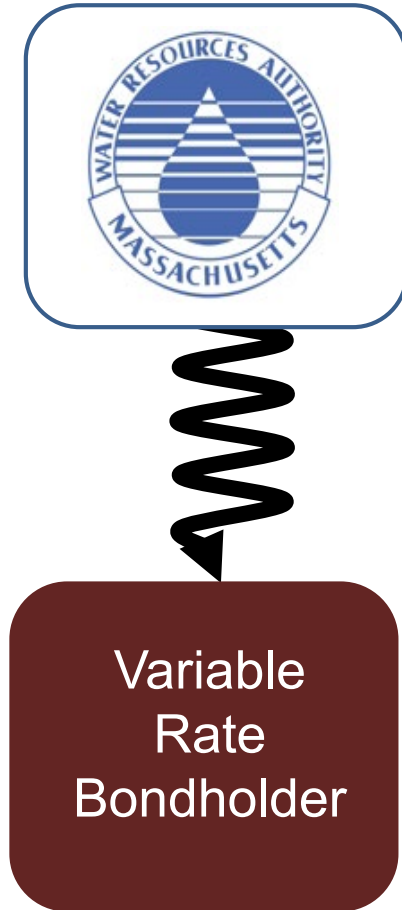


## Benefits of Terminating Existing Swaps

- Eliminate swap counterparty risk and associated credit risk
- Remove need for additional swap accounting in audit
- Provide more optionality in debt portfolio
- Reduce future debt service by avoiding higher swap agreement fixed interest rates



# Post Termination Structure





# Debt Service Impact of Termination

- Gross savings from the transaction could range from \$4.3 to \$14.5 million depending on future interests rates.

Fiscal Year	Estimated Swap Payment	Projected Variable Rate			Gross Debt Service Difference		
		Average Rates Since 1989 (2.58%)	Average Rates Since July 2022 (3.18%)	Average Rates Before 2008 (3.71%)	Average Rates Since 1989 (2.58%)	Average Rates Since July 2022 (3.18%)	Average Rates Before 2008 (3.71%)
2024	\$ 6,412,493	\$ 2,480,154	\$ 3,056,934	\$ 3,566,423	\$ (3,932,339)	\$ (3,355,559)	\$ (2,846,070)
2025	\$ 9,360,615	\$ 3,392,141	\$ 4,181,011	\$ 4,877,846	\$ (5,968,474)	\$ (5,179,604)	\$ (4,482,769)
2026	\$ 8,414,023	\$ 2,413,031	\$ 2,974,201	\$ 3,469,901	\$ (6,000,992)	\$ (5,439,822)	\$ (4,944,121)
2027	\$ 5,924,812	\$ 1,916,467	\$ 2,362,157	\$ 2,755,850	\$ (4,008,345)	\$ (3,562,655)	\$ (3,168,962)
2028	\$ 5,073,913	\$ 1,816,320	\$ 2,238,720	\$ 2,611,840	\$ (3,257,593)	\$ (2,835,193)	\$ (2,462,073)
2029	\$ 5,026,560	\$ 1,816,320	\$ 2,238,720	\$ 2,611,840	\$ (3,210,240)	\$ (2,787,840)	\$ (2,414,720)
2030	\$ 5,026,560	\$ 1,816,320	\$ 2,238,720	\$ 2,611,840	\$ (3,210,240)	\$ (2,787,840)	\$ (2,414,720)
2031	\$ 5,105,467	\$ 1,967,680	\$ 2,425,280	\$ 2,829,493	\$ (3,137,787)	\$ (2,680,187)	\$ (2,275,973)
2032	\$ 4,433,100	\$ 1,683,880	\$ 2,075,480	\$ 2,421,393	\$ (2,749,220)	\$ (2,357,620)	\$ (2,011,707)
2033	\$ 3,705,800	\$ 1,406,960	\$ 1,734,160	\$ 2,023,187	\$ (2,298,840)	\$ (1,971,640)	\$ (1,682,613)
2034	\$ 2,889,543	\$ 1,096,715	\$ 1,351,765	\$ 1,577,059	\$ (1,792,828)	\$ (1,537,778)	\$ (1,312,483)
2035	\$ 2,018,373	\$ 765,615	\$ 943,665	\$ 1,100,943	\$ (1,252,758)	\$ (1,074,708)	\$ (917,430)
2036	\$ 1,086,685	\$ 411,510	\$ 507,210	\$ 591,745	\$ (675,175)	\$ (579,475)	\$ (494,940)
2037	\$ 1,004,920	\$ 381,840	\$ 470,640	\$ 549,080	\$ (623,080)	\$ (534,280)	\$ (455,840)
2038	\$ 40,330	\$ 31,820	\$ 39,220	\$ 45,757	\$ (8,510)	\$ (1,110)	\$ 5,427
<b>Total</b>	<b>\$ 65,523,191</b>	<b>\$ 23,396,773</b>	<b>\$ 28,837,883</b>	<b>\$ 33,644,197</b>	<b>\$ (42,126,418)</b>	<b>\$ (36,685,308)</b>	<b>\$ (31,878,995)</b>

<b>Estimated Termination Cost</b>	\$ 27,584,910	\$ 27,584,910	\$ 27,584,910
<b>Projected Transaction Impact</b>	\$ (14,541,509)	\$ (9,100,399)	\$ (4,294,085)



# Recent Massachusetts Swap Terminations

Entity	Swap Notional	Source of Termination Payment	Date
Commonwealth of Massachusetts	\$ 660,170,000	Available Funds	December 2020-March 2023
UMass Building Authority	\$ 376,380,000	Bond Proceeds	March 2021



## Next Steps

- Present the proposed termination to the State Finance and Governance Board for their review
- Work with Bond Counsel and Financial Advisor to finalize the termination notices and confirm termination calculations
- Execute the termination with Swap Counterparties



*MWRA's Outfall Monitoring Overview  
2022 Results*

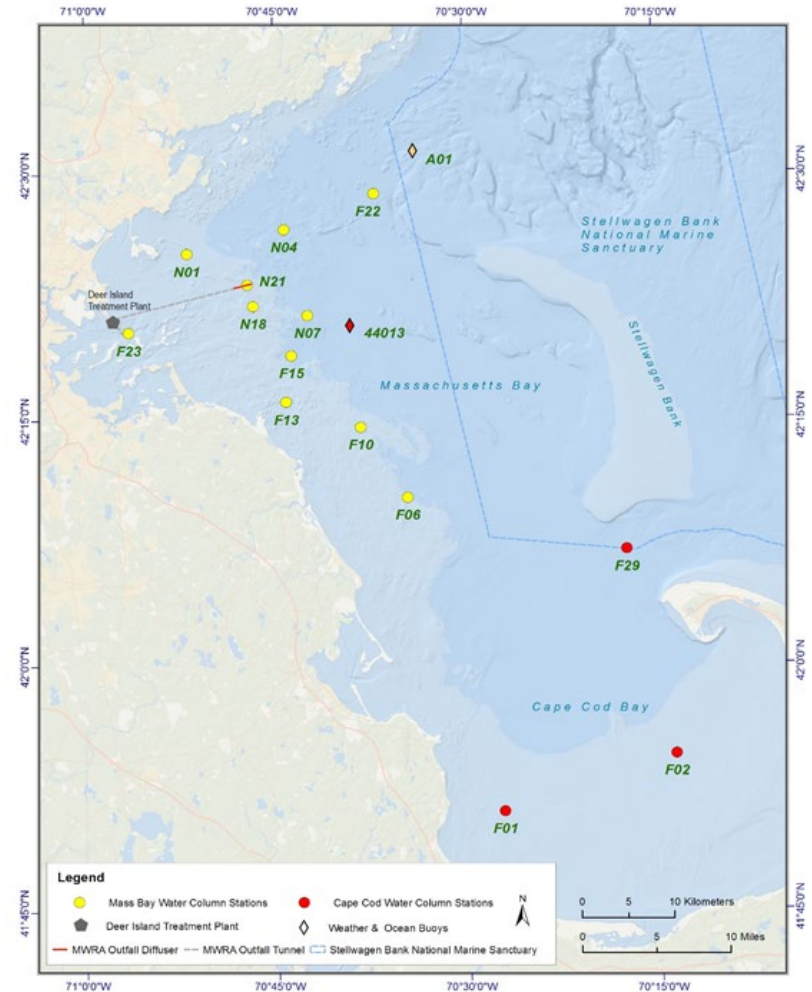
October 18, 2023





# MWRA Ambient Monitoring

- Annual report to regulatory agencies and the public required November 15
- Moving discharge from Harbor to Bay in 2000 caused environmental concerns
- Comprehensive monitoring required
- Monitoring has been reduced over time as concerns have been addressed
- The Outfall Monitoring Science Advisory Panel (OMSAP) reviews the results of this program





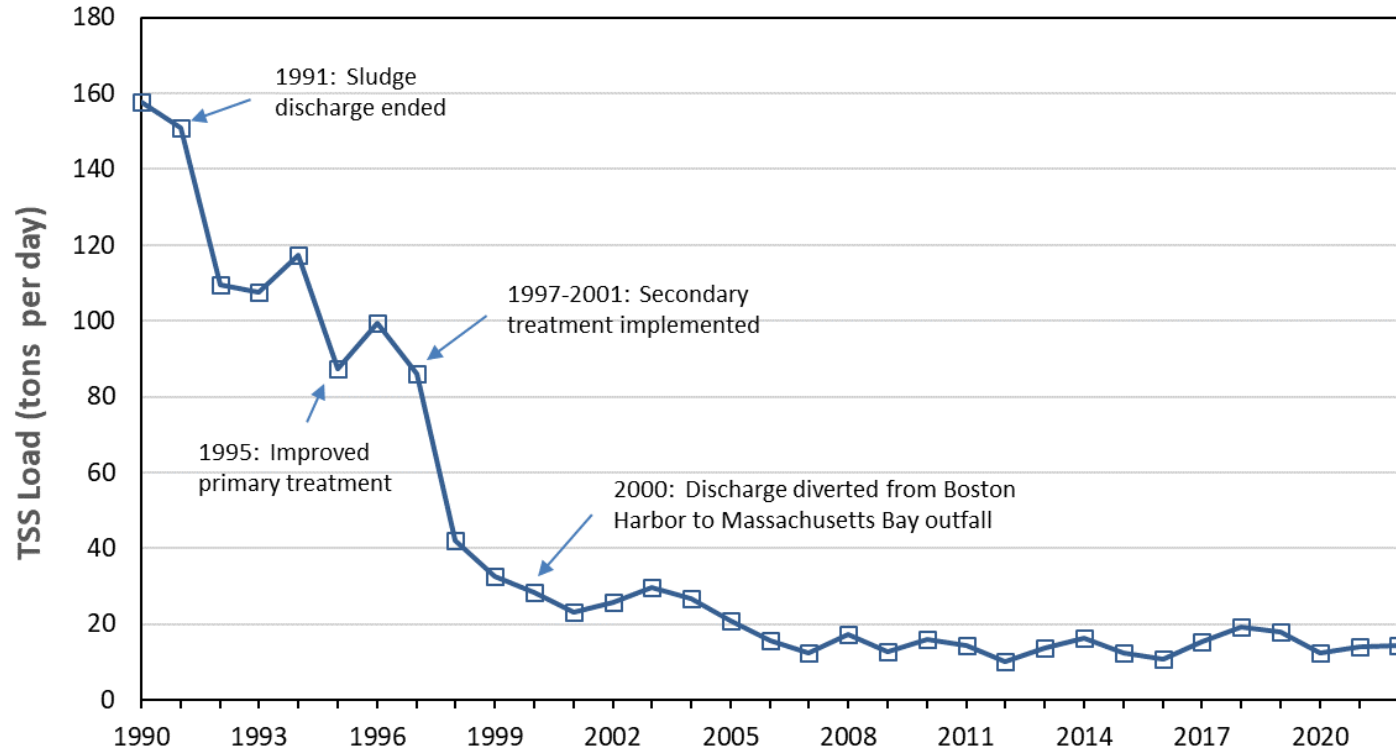
# Outfall Monitoring Highlights – 2022

- Effluent quality excellent (Platinum 16 award from NACWA).
- No adverse impacts of the outfall discharge on environmental quality in Massachusetts or Cape Cod Bays.
- Water quality remains good. Plankton communities remain diverse and normal. Flounder liver disease remains low.
- Some Contingency Plan threshold exceedances of dissolved oxygen and *Alexandrium*.
- There were no other Contingency Plan threshold exceedances of the 46 other thresholds in 2022.



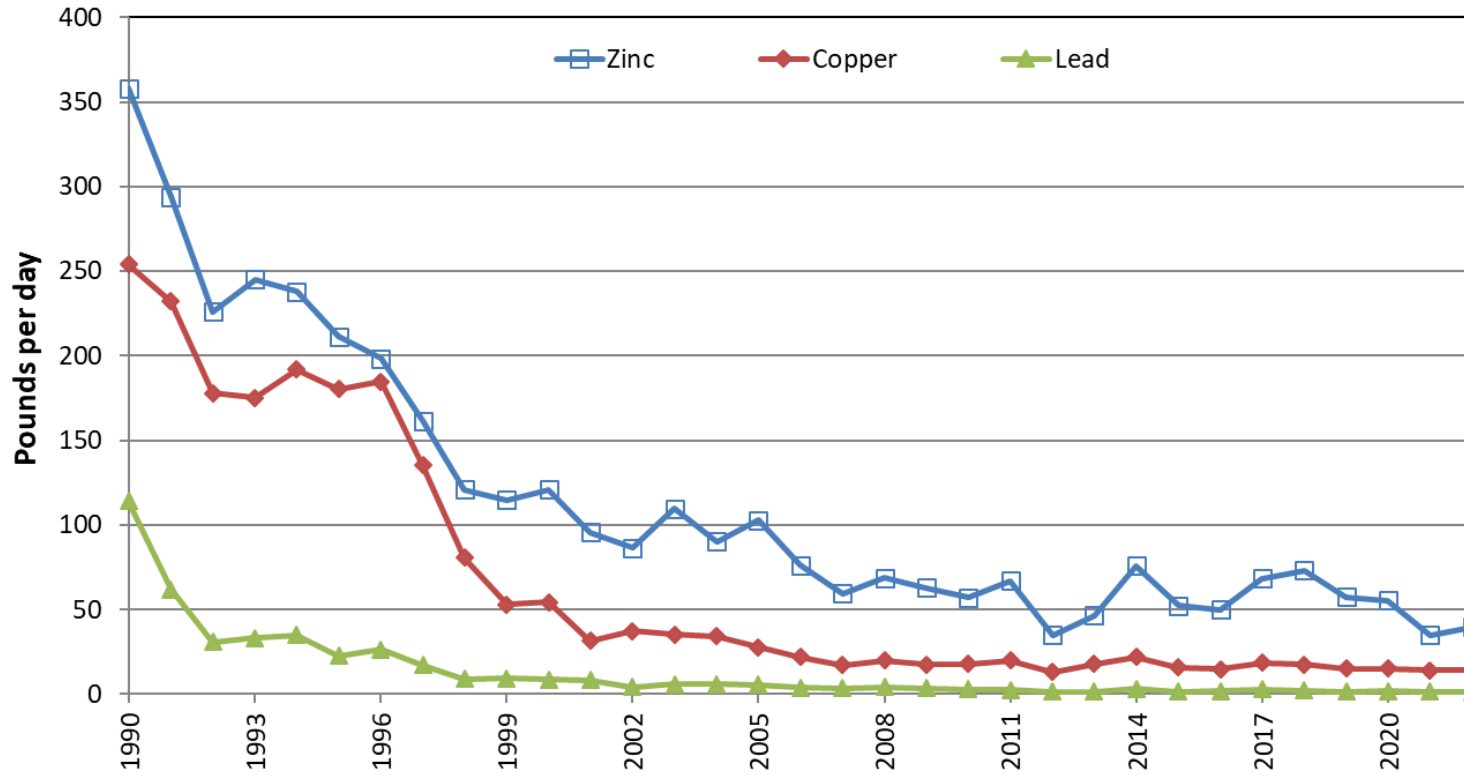


# Solids Discharges Remain Low



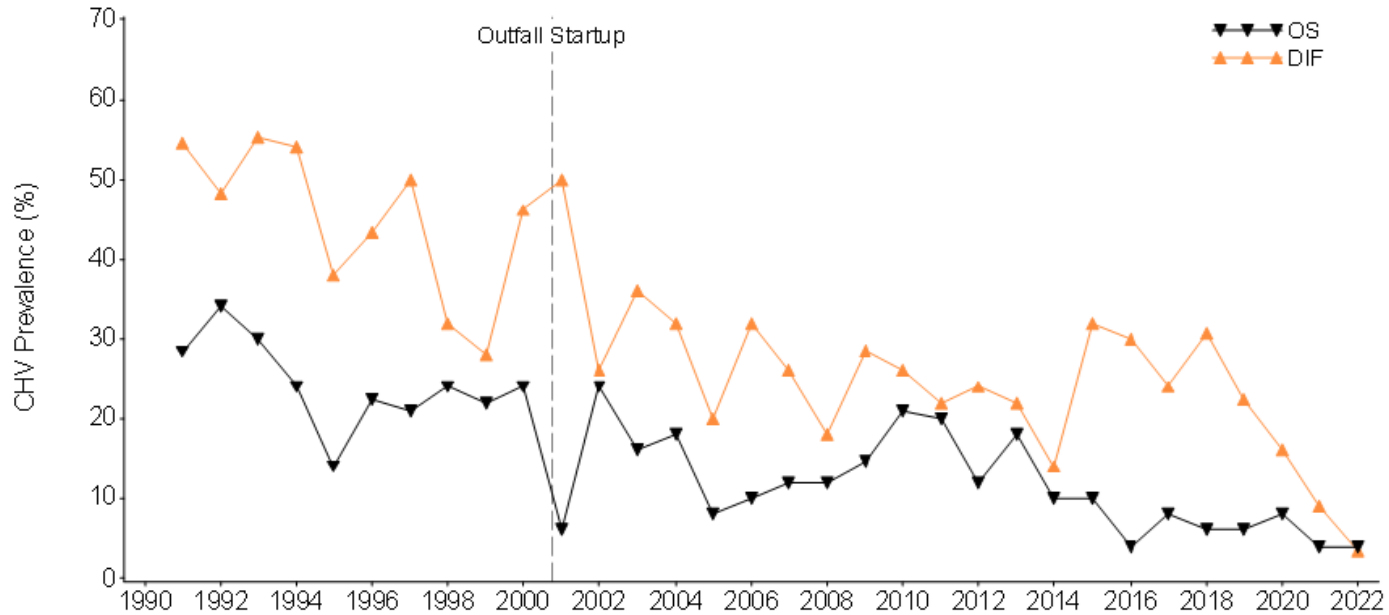


# Metals Discharges Remain Low





# Flounder Health Remains Excellent



OS = Outfall Site; DIF = Deer Island Flats



# Contingency Plan Threshold Exceedances: 2022 and 2023

- Contingency Plan thresholds
  - Designed to signal changes from pre-outfall conditions
  - Not to warn of imminent environmental harm
- Exceedances in 2022 and 2023:
  - Dissolved oxygen: August, September, and October 2022; July and September 2023
  - Alexandrium (red tide): July 2022
- Outfall not believed to be linked to exceedances. Exceedances may be related to region-wide, long term trends.



# Regional Increases in Ocean Temperature

- The Gulf of Maine – of which Massachusetts Bay is a part – is warming
- Warmer waters hold less oxygen

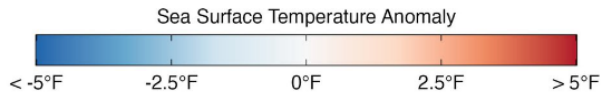
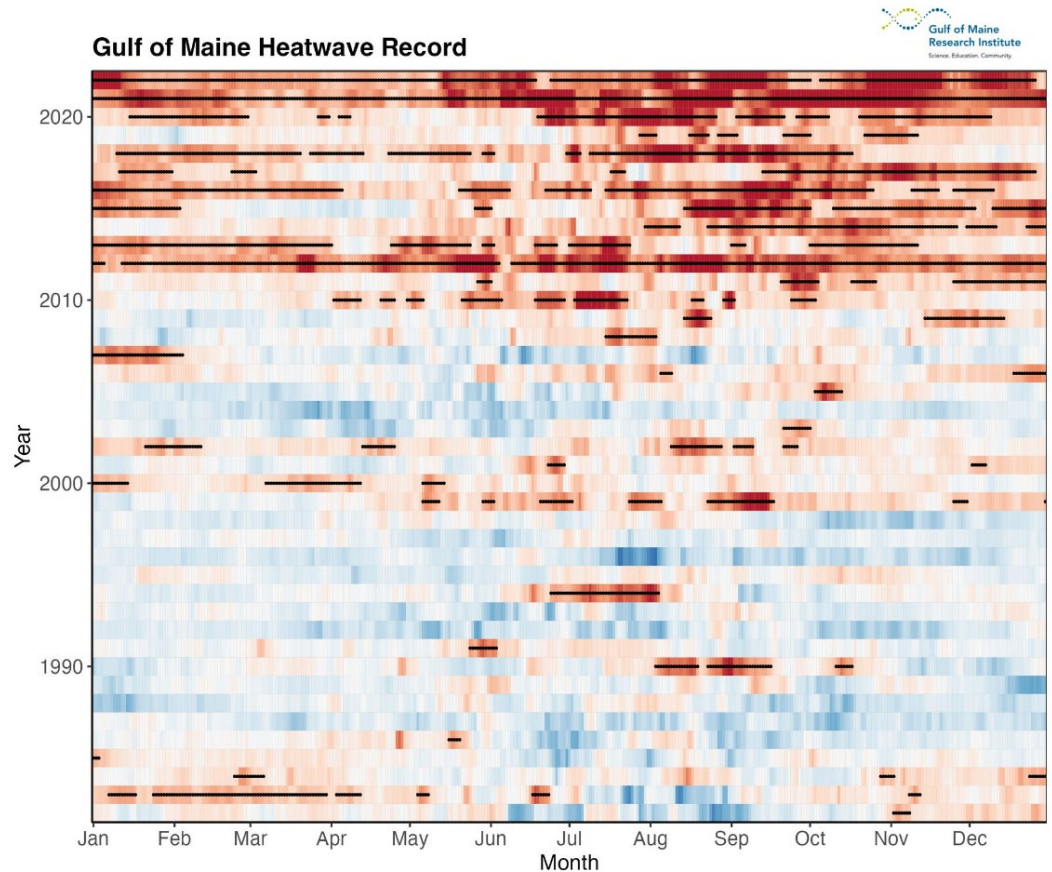


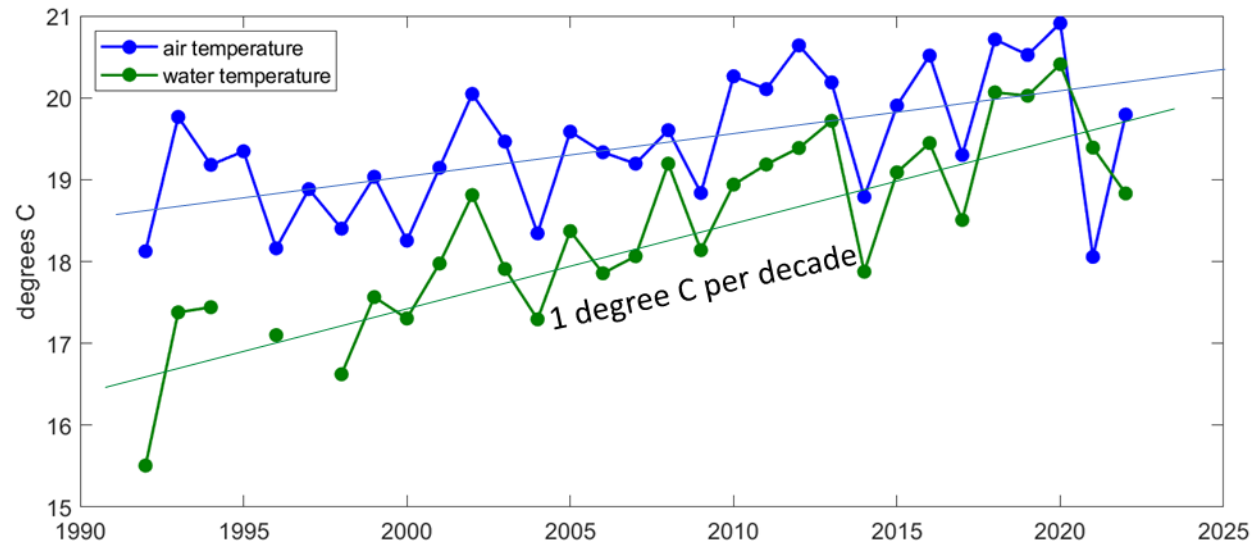
Figure courtesy of the Gulf of Maine Research Institute (<https://gmri.org/stories/warming-22/>)





# Temperature Increases in Massachusetts Bay

- MWRA data as well as data from other sources show a similar warming trend in Massachusetts Bay
- This figure is from the Boston Buoy, southeast of the outfall





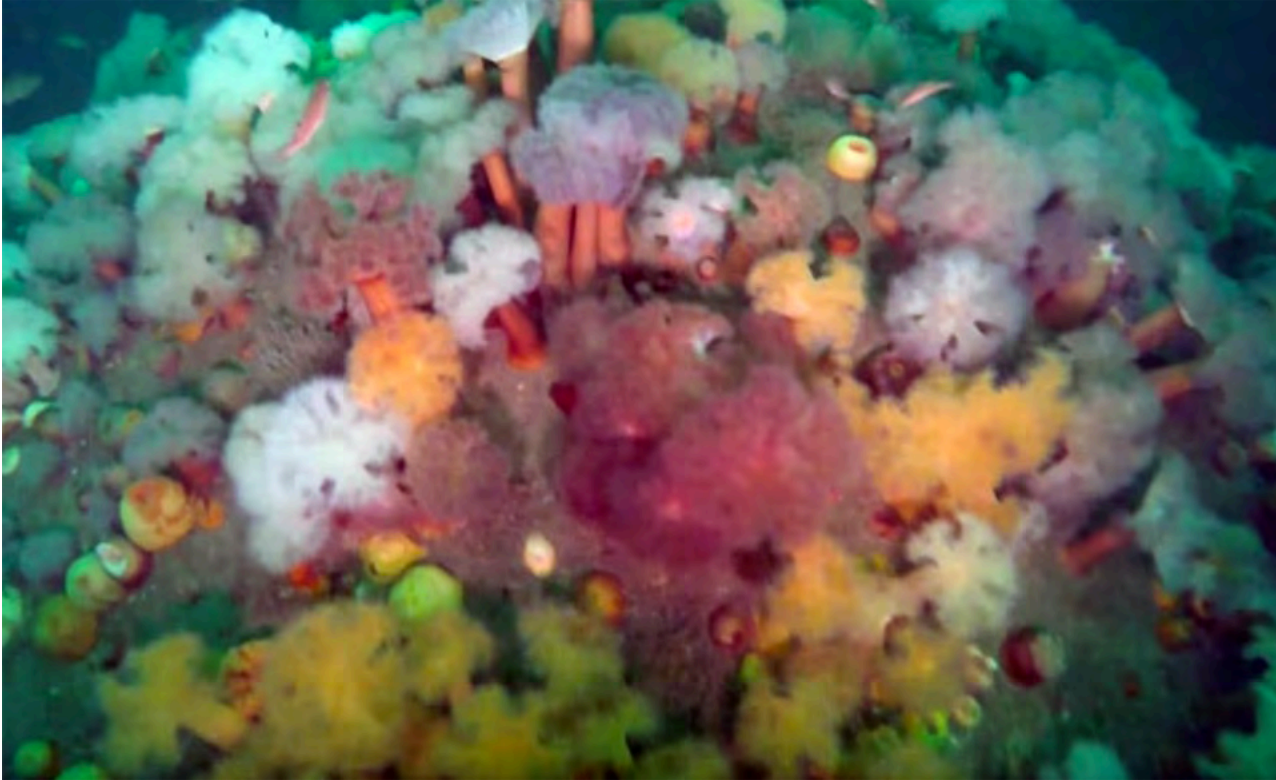


# Monitoring Requirement Changes in the Draft NPDES Permit

- Monitoring in Massachusetts Bay has been updated in the draft NPDES permit for DITP:
  - Water column monitoring continues
    - Addition of monitoring for more harmful and nuisance algae species
  - Benthic monitoring as well as fish and shellfish monitoring deleted
  - Contingency Plan and its associated thresholds have been removed
- The permit is out for Public Comment (comments due 11/28), it will be revised and finalized based on comments received



# Video From Outfall Diffuser: July 2020





***Industrial Waste Report #39:  
Toxic Reduction & Control Program  
Annual Report to EPA***

October 18, 2023



# Industrial Waste Report - Program Highlights

- 2,200 permitted sewer users
- Focus on Significant Industrial Users (SIUs)
  - SIUs based on flow, nature of discharge or potential to violate standards
- All 186 SIUs inspected
- 1,158 Total Industrial Inspections
  - 358 at the 186 SIUs
- 1,262 Monitoring events (sampling) at permitted facilities
  - 160 at SIUs
- 271 enforcement actions issued

