



Presentation to

MWRA Board of Directors

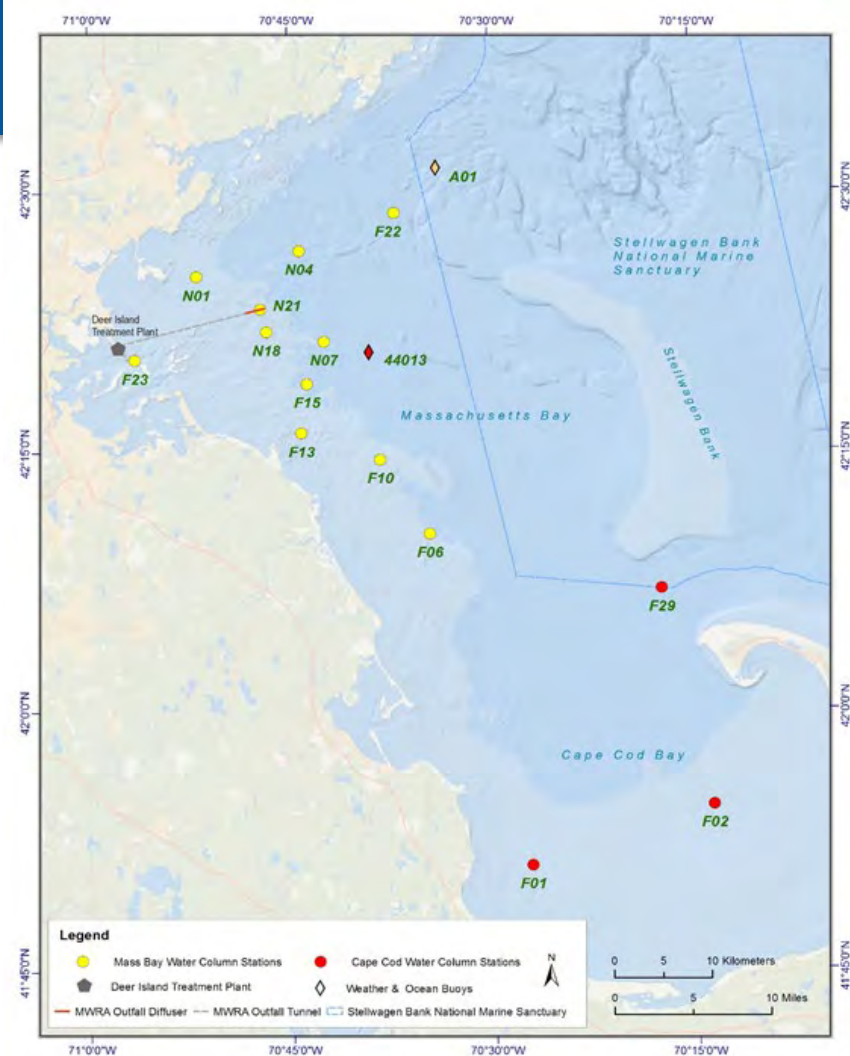
***MWRA's Outfall Monitoring Overview
2025 Results***

October 21, 2026



MWRA Ambient Monitoring

- Annual report to regulatory agencies and the public required November 15.
- Monitoring requirements have been reduced over time as data collected has not shown adverse impacts of the outfall.
- EPA and the Outfall Monitoring Science Advisory Panel review the monitoring results.





Outfall Monitoring Highlights – 2025



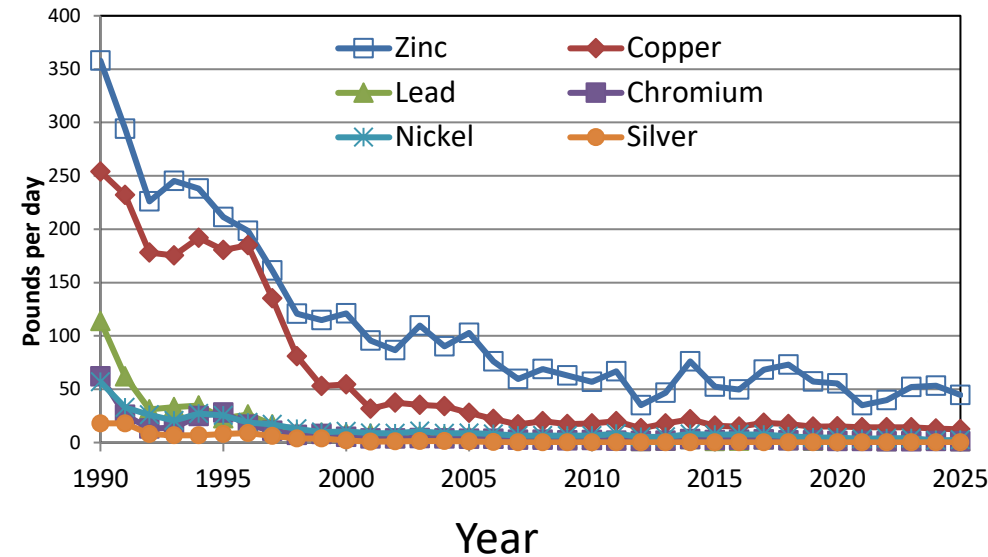
- Effluent quality is excellent (Silver award from NACWA).
- No adverse impacts of outfall discharge on environmental quality in MA or Cape Cod Bays.
 - Water quality remains generally good.
 - Flounder liver disease remains low.
- **Contingency Plan threshold exceedances:** two permit violations for acute toxicity, two for algal blooms.



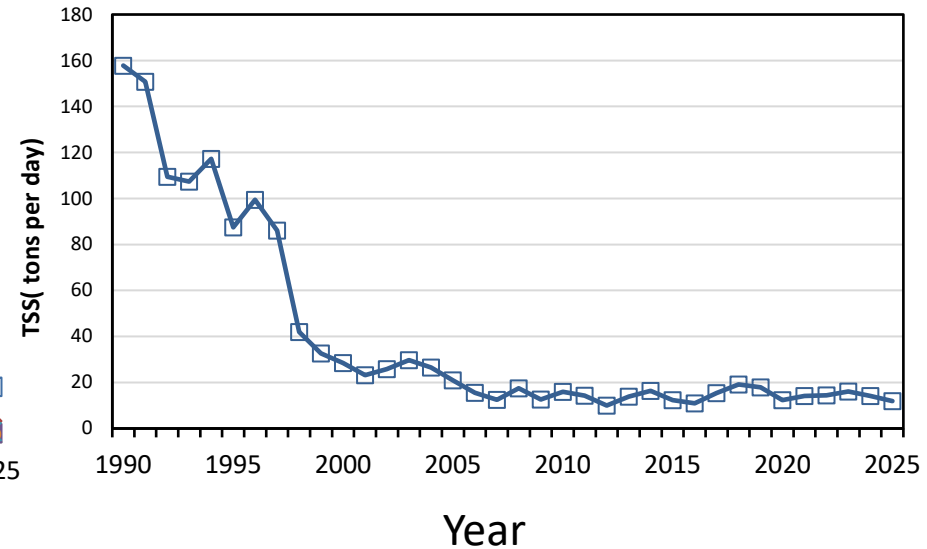


Effluent Metals and Solids Discharges Remain Low

Metals



Solids





Contingency Plan Threshold Exceedances

- **What is the purpose of the Contingency Plan thresholds?**
 - Designed to signal changes from pre-outfall conditions
 - Not to warn of imminent environmental harm

- **Exceedances in 2025:**

DITP effluent toxicity – two exceedances of acute toxicity in June and December.

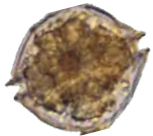
Alexandrium

- Bloom was observed first in Maine/NH before MA and no link to the outfall can be identified at this time.

Pseudo-nitzschia

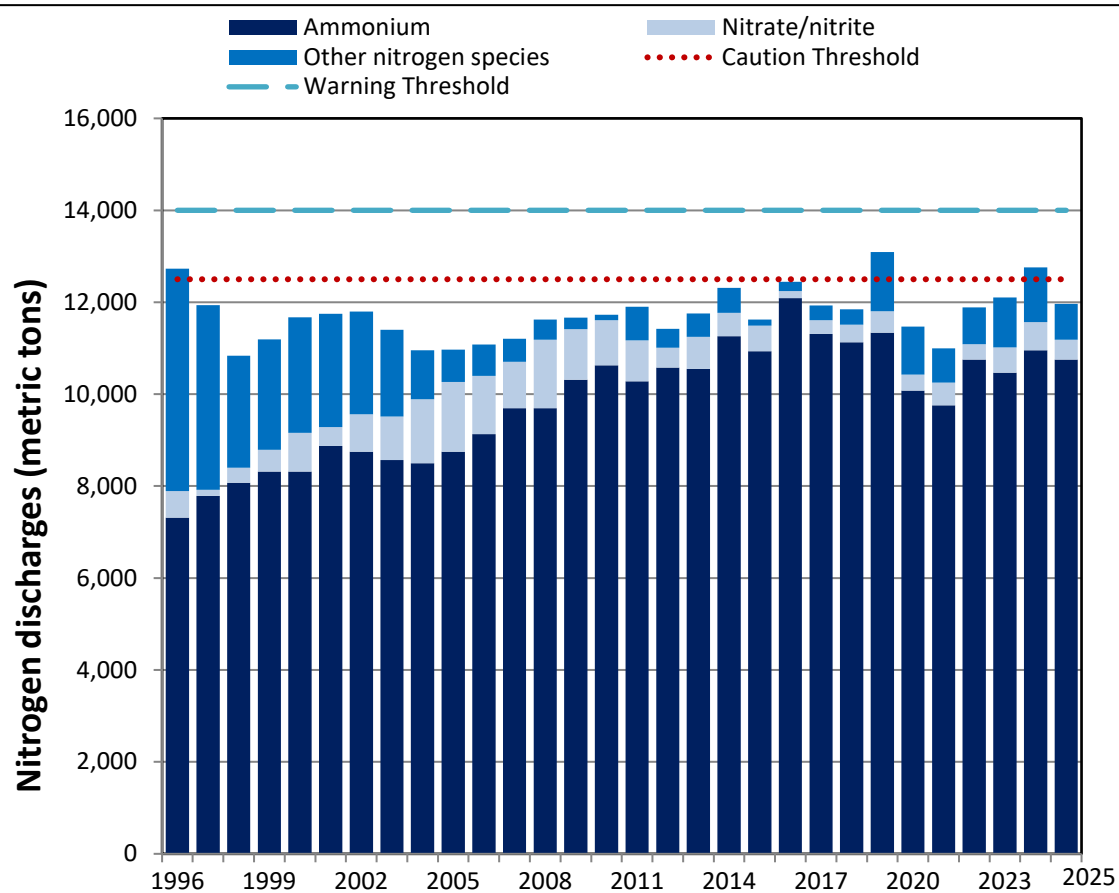
- Bloom was observed throughout the Gulf of Maine region and no link to the outfall was evident.

- **No exceedances** in 2026 to date.





Effluent Nitrogen Loading Was Below the Threshold in 2025



- Annual effluent nitrogen load for 2025 was 11,962 metric tons (mt), below the Contingency Plan Caution Threshold of 12,500 mt.
- This threshold was exceeded in 2019 and 2024.
- Population growth, plant flows, nitrogen species ratio, and sampling pattern all impact this annual load and its calculation. MWRA staff continue to investigate these factors.
- No adverse impacts observed in the environment.



Two Acute Toxicity Exceedances Occurred in 2025

- DITP effluent undergoes four toxicity tests each month (two acute, two chronic).
- These tests are a standard component of NPDES permits and assess the overall toxic effect from all pollutants that could be in the effluent.
- There were two exceedances of acute toxicity in 2025. The last effluent exceedance for the DITP effluent was for chronic toxicity in June 2006.

June 2025 – Inland silverside fish (*Menidia beryllina*)



- Effluent concentration of 42.6% resulted in mortality to half the organisms

December 2025 – Opposum shrimp (*Mysidopsis bahia*)



- Effluent concentration of 2% resulted in mortality to half the organisms

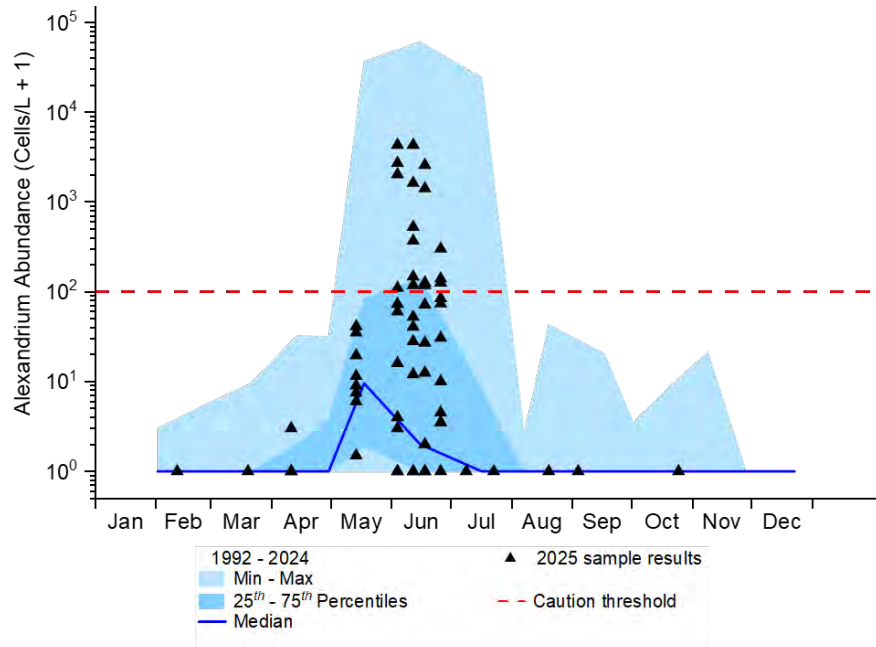
- Both tests below the permit limit of $\geq 50\%$
- All other effluent testing met permit limits, and common toxicants (copper, ammonia) were within historic ranges.
- MWRA analysis shows conditions during the testing contributed to mortality of the organisms (high pH, low DO).
- Dilution at the outfall site is higher than the concentrations of these exceedances, so there is no anticipated impact to marine life.



Summer Algae Blooms Resulted in Contingency Plan Exceedances

Alexandrium

- Peaked in June in Massachusetts Bay.
- Five rapid response surveys conducted as required by NPDES permit.
- Followed regional pattern of historic blooms.



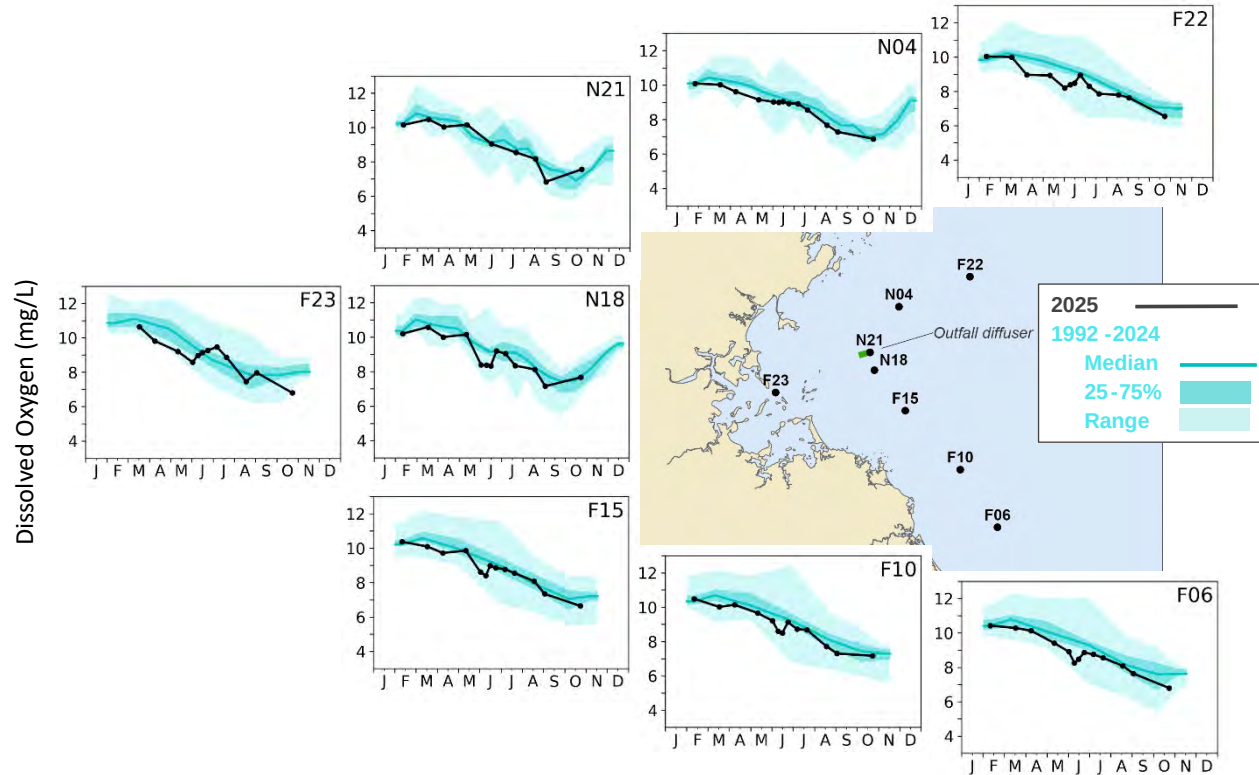
Pseudo-nitzschia

- June peak throughout the region drove seasonal threshold exceedance.
- Can produce a toxin responsible for amnesic shellfish poisoning; no toxin detected in 2025.
- Elevated abundances seen again throughout the region in 2026.

SURVEY DATE	AVERAGE <i>PSEUDO-NITZSCHIA</i> ABUNDANCE (cells/L)
May 13, 2025	2,020
June 17, 2025	287,000
July 22, 2025	8,900
August 19, 2025	139
Summer Average	74,400
Threshold	41,300



Dissolved Oxygen – No Exceedance in 2025



Bottom-water dissolved oxygen showed the typical seasonal decline observed in Massachusetts Bay. 2025 marked the second straight year without a Contingency Plan exceedance.



Sea Floor Biological Communities

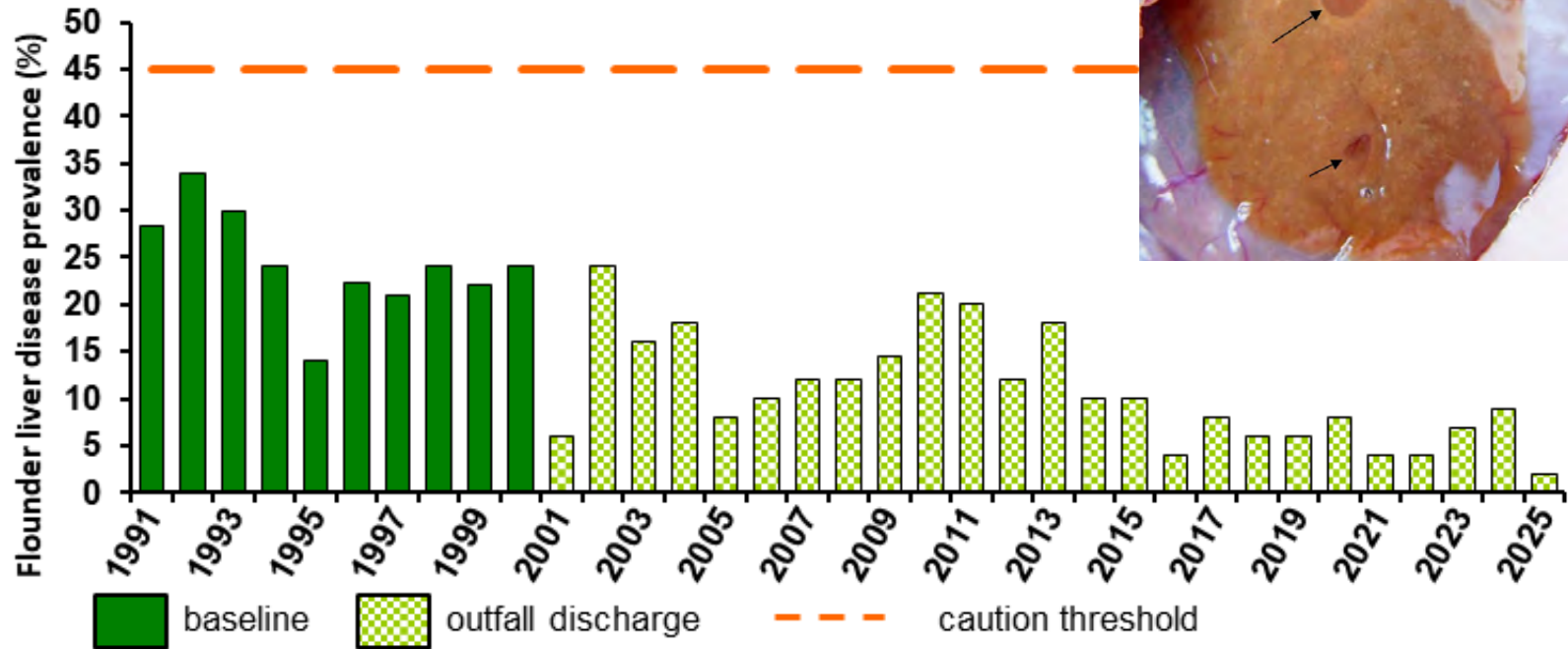
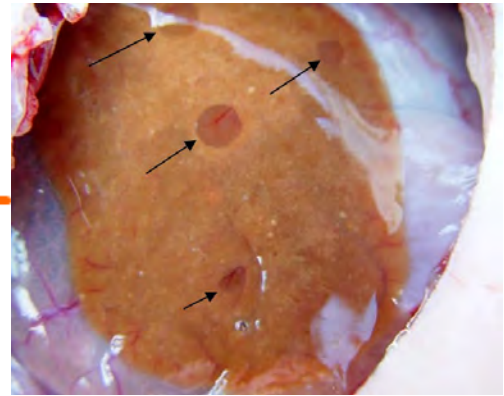
There is no detectable impact of the outfall on sea floor communities:

- Soft-bottom species composition shows strong relationships with the sediment texture, rather than outfall proximity.
- Sediment texture remains consistent with previous years.



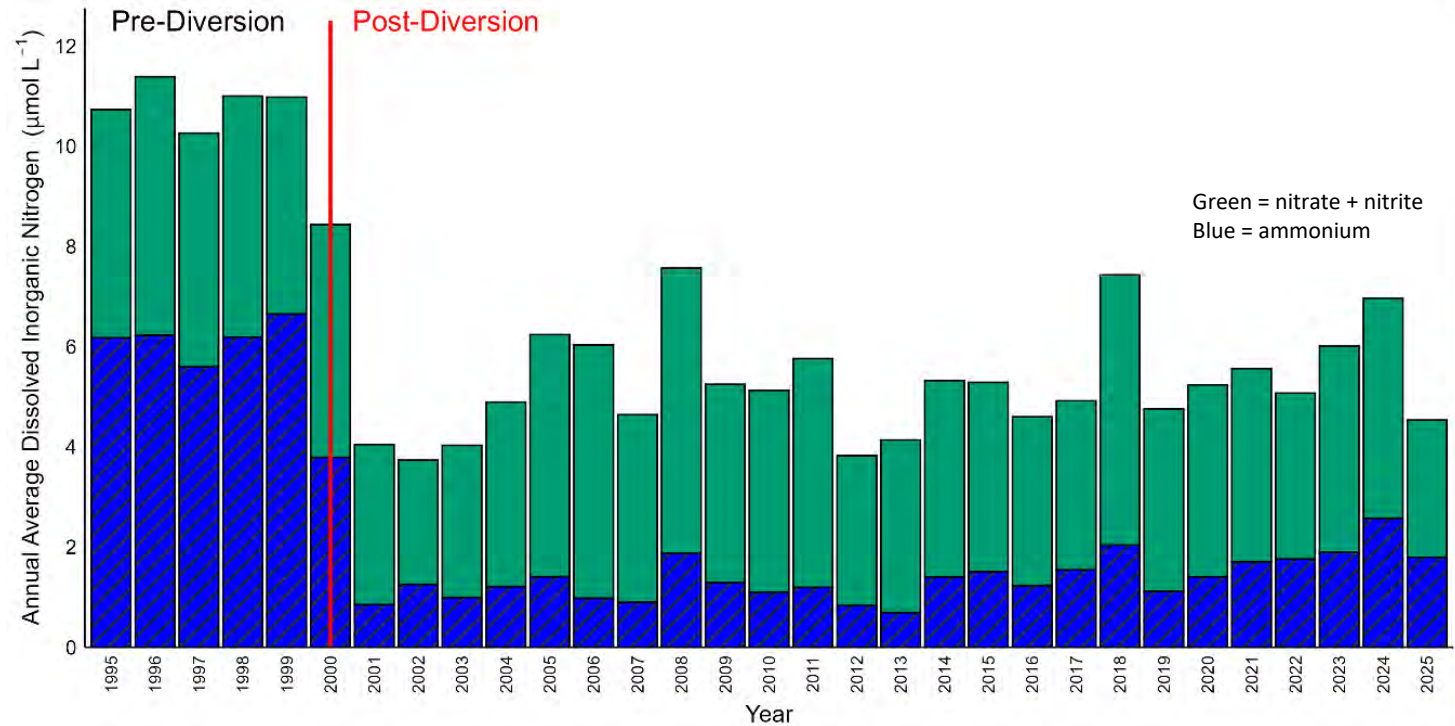


Flounder liver disease prevalence is very low in Mass Bay





Boston Harbor recovers from decades of pollution



Updated analysis by MWRA staff documents a shift from the wastewater driven system to one driven by natural processes like physical mixing.



ROV flyover of active outfall diffuser - 2026





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***Industrial Waste Report #42
EPA Annual Report Toxic Reduction & Control***

October 21, 2026



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 171 SIUs inspected
- 1433 Total Industrial Inspections
- 1,441 Monitoring events (sampling) at permitted facilities
- 297 enforcement actions issued





MWRA and Mass DEP Investigating and Sampling





EPA 2026 Industrial Pretreatment Program Audit

Industrial Pretreatment Program for Deer Island and Clinton NPDES permits

September 9-16th, 2026

Focus- 9 Selected Categorical Significant Industrial Users

The review consisted of an assessment of the following documents:

- Section II Checklist

- Industrial User Permit Application

- Industrial User Permit

- Industrial User Inspection Report

- Control Authority Industrial User Monitoring Reports

- Industrial User Self-Monitoring Reports

- Sewer Use Ordinance

- Enforcement Response Plan

- POTW/SIU Correspondence

- Pretreatment Annual Report



Overall, very complimentary of the program

Four items to be addressed:

1. For 40 CFR 433 Metal Finishing industries- Assure that permits require all tests that make up total toxic organics
2. Update language in the permit application from 40 CFR 403.12 to 40 CFR 403.12(I)
3. Reach out to Industrial User's to improve the Chain of Custody
4. Have SIUs submit monitoring reports by mail or email to the MWRA

EPA made additional recommendations for program improvements.



Electronic Pretreatment Annual Report

Once Submitted by October 31, 2026, the report can be found at this link....

<https://permitsearch.epa.gov/epermit-search/ui/search>

The screenshot shows the EPA Permit Search interface. At the top is the EPA logo and the text "United States Environmental Protection Agency". Below this is a blue header bar labeled "Resources". The main section is titled "Permit Search". It contains several dropdown menus: "Program (required)" with "NPDES" selected, "Program Area (required)" with "Pretreatment" selected, "Issuer (required)" with "EPA Region 1" selected, "Document Type" with "Annual Reports" selected, and "Action Type" with "New" selected. There are also input fields for "NPDES ID" and "Regulated Entity Name". To the right of the search form is a sidebar with expandable sections: "What is permit search?", "What permits can I find?", "Contact Information", and "Source". At the bottom of the form are "Reset" and "Search" buttons.



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***Cryogenic Oxygen Facility Valve Replacement
MWRA Contract 8150***

October 21, 2026

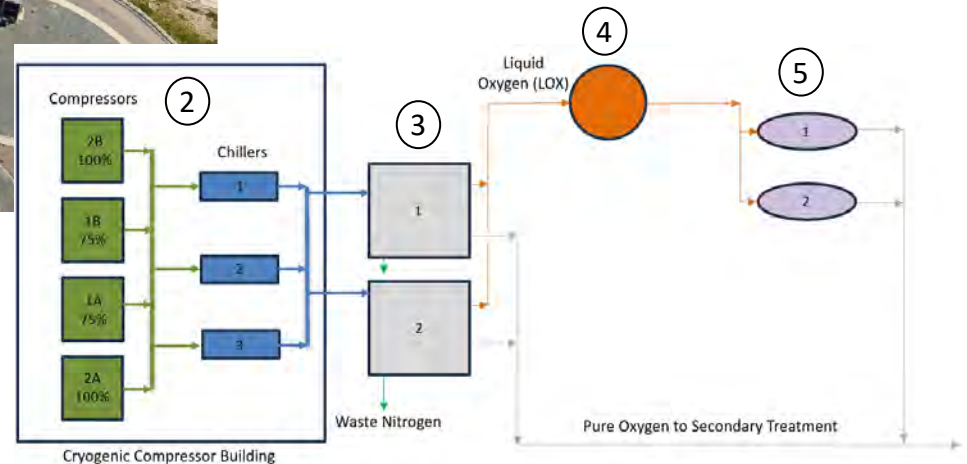


Cryogenic Oxygen Facility Valve Replacement

Cryogenic Oxygen Generation Facility Overview and Process Flow Diagram

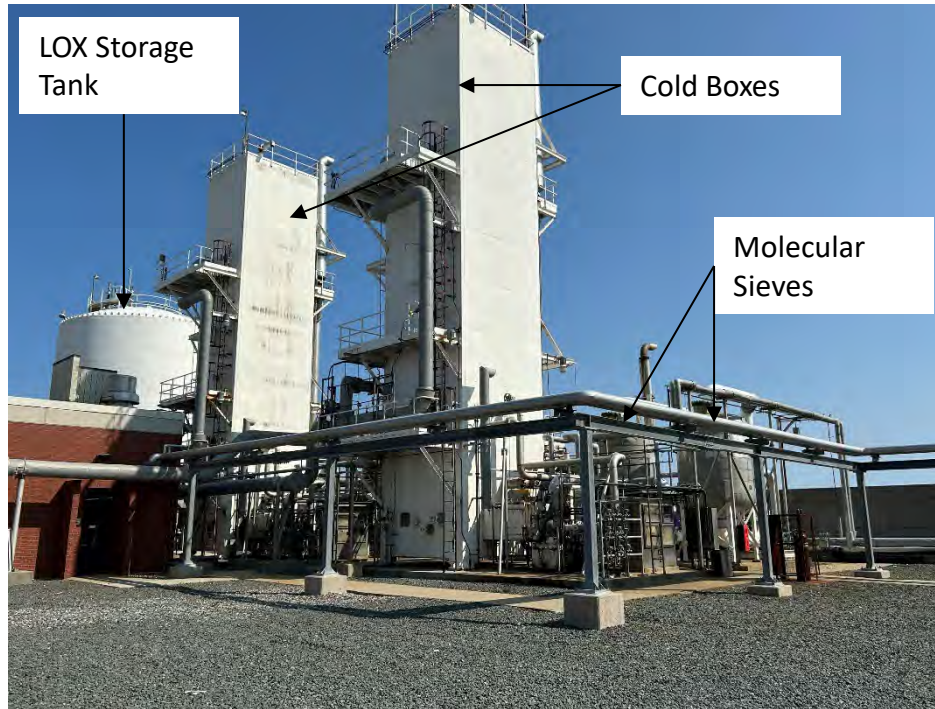


1. Cooling Towers
2. Cryogenic Compressor Building
3. Air Separation Units
4. LOX Storage Tank
5. Vaporizers





Cryogenic Oxygen Facility Valve Replacement



- Contract 8150 Scope
 - Mandatory 30-Year LOX Tank Internal Inspection & Cleaning
 - Replacement of 85 Critical Process Isolation & Control Valves
 - Replacement piping insulation
 - Replacement of Obsolete Programmable Logic Controllers for the 4 Main Air Compressors



Cryogenic Oxygen Facility Valve Replacement

Procurement

Bid Results

Walsh Construction	\$8,580,000
Methuen Construction Company	\$9,675,490
Engineer's Estimate	\$9,700,000
Harding & Smith, LLC	\$10,763,368
WES Construction Corporation	\$15,705,000

Walsh's bid 11.5% less than engineers estimate



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***Technical Assistance Consulting Services
Deer Island Treatment Plant***

MWRA Contract 7981 - AECOM Technical Services, Inc

MWRA Contract 7982 – CDM Smith, Inc.

MWRA Contract 8018 – Hazen and Sawyer, P.C.

October 21, 2026



Technical Assistance Consulting Services

- Provide the following multi-discipline services from qualified, professional engineering firms:
 - Studies and Design;
 - Engineering Services During Construction; and
 - Resident Engineering and Inspection.

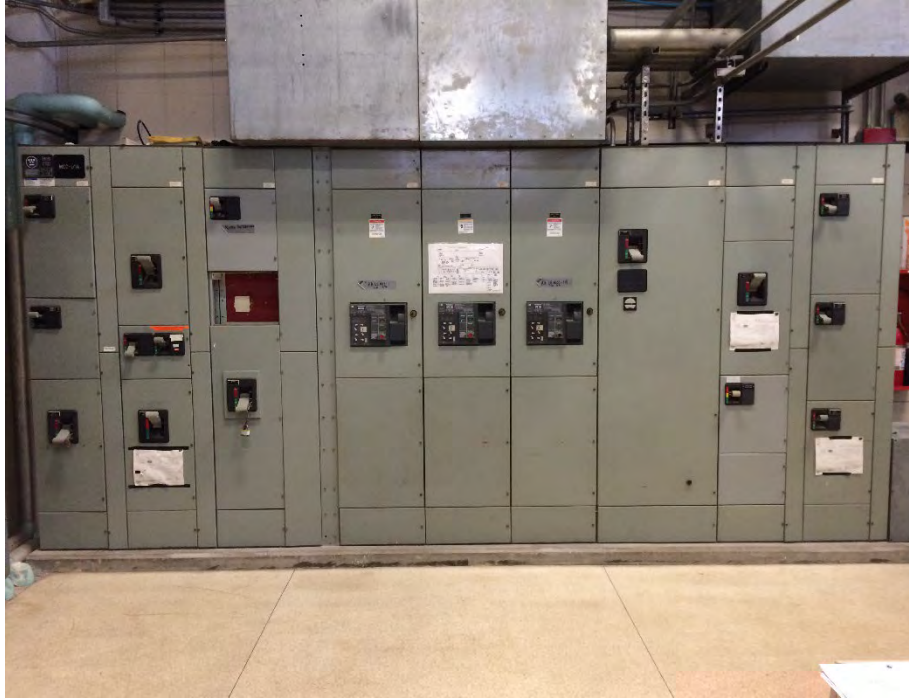
Typically used for:

- high priority or unanticipated projects;
- small to mid-size projects such as roof and equipment replacement;
- expertise / specialized disciplines
- and emergency or unanticipated situations.



Technical Assistance Consulting Services

Contract 7981-Major On-Going/Future Projects



MCC/Switchgear Replacement



East Odor Control Roof Replacement



Contract 7982-Major On-Going/Future Projects



Reception/Training Bldg. Replacement



Clinton Landfill No 4



Technical Assistance Consulting Services

Contract 8018-Major On-Going/Future Projects



Biosolids Facility Equipment Replacement



Dig. Gas/Sludge Tank Dome Replacement



Technical Assistance Consulting Services

- Additional Contract time required to complete projects either in design or scope of services (Task Order) is complete
- Significant delays and/or additional costs will be encountered if projects are delayed or reassigned to different consultants

Contract	NTP	Duration	Award (in Mil)	Additional Time (Mo.)	Revised SC Date
7981	12/1/2023	3 Years	\$2.4	40	04/01/30
7982	12/1/2023	3 Years	\$2.4	37	01/02/30
8018	12/1/2023	3 Years	\$2.4	48	12/01/30