



Massachusetts Water Resources Authority

Deer Island NPDES Permit

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Environmental Quality Department



Wastewater Advisory Committee

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MWRA's Deer Island Treatment Plant



Current permit effective August 2000, expired 2005, reapplication submitted 2005
No modifications are possible while the permit is “administratively continued”



Some history

- 1970s – unsuccessful applications for waiver of secondary treatment
- Early 1980s – legal action against state for violations of CWA
- Sewer moratorium
- Federal suit
- Creation of new agency





What we started out with

Two obsolete wastewater treatment plants

- insufficient capacity
- near-shore outfalls
- digested sludge mixed with primary effluent for discharge on outgoing tide



Overburdened collection system

- Combined sewer overflows
- Dry weather overflows

Contaminated sediments

Flounder liver disease

Excessive nutrients/algae in harbor



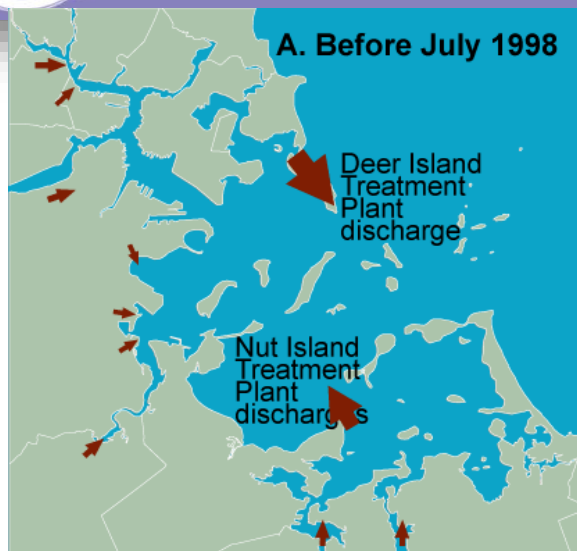
Winter flounder

Photograph: Robert Michelson

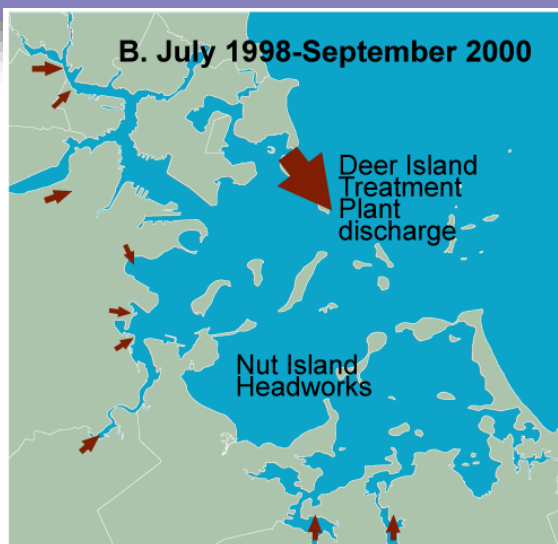




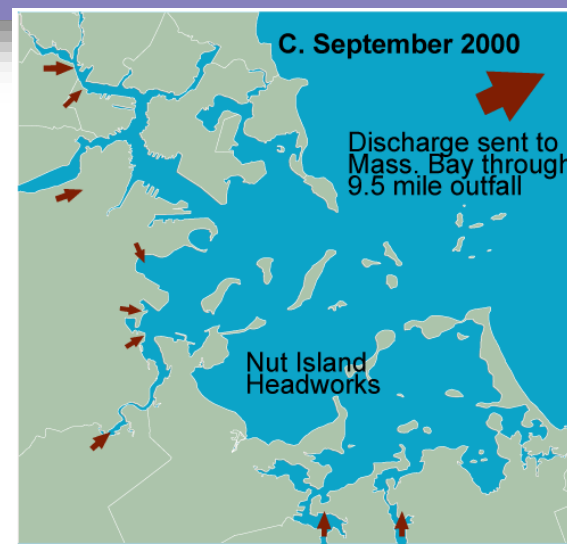
Stages of the Boston Harbor Project



Small arrows: rivers, storm runoff, and combined sewer overflows



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Month and Year

December 1991

January 1995

August 1997

March 1998

June 1998

September 2000

March 2001

Treatment milestone

Discharge of residuals ended

New primary treatment plant

First battery of secondary treatment

Second battery of secondary treatment

Nut Island Headworks and Inter-Island Tunnel

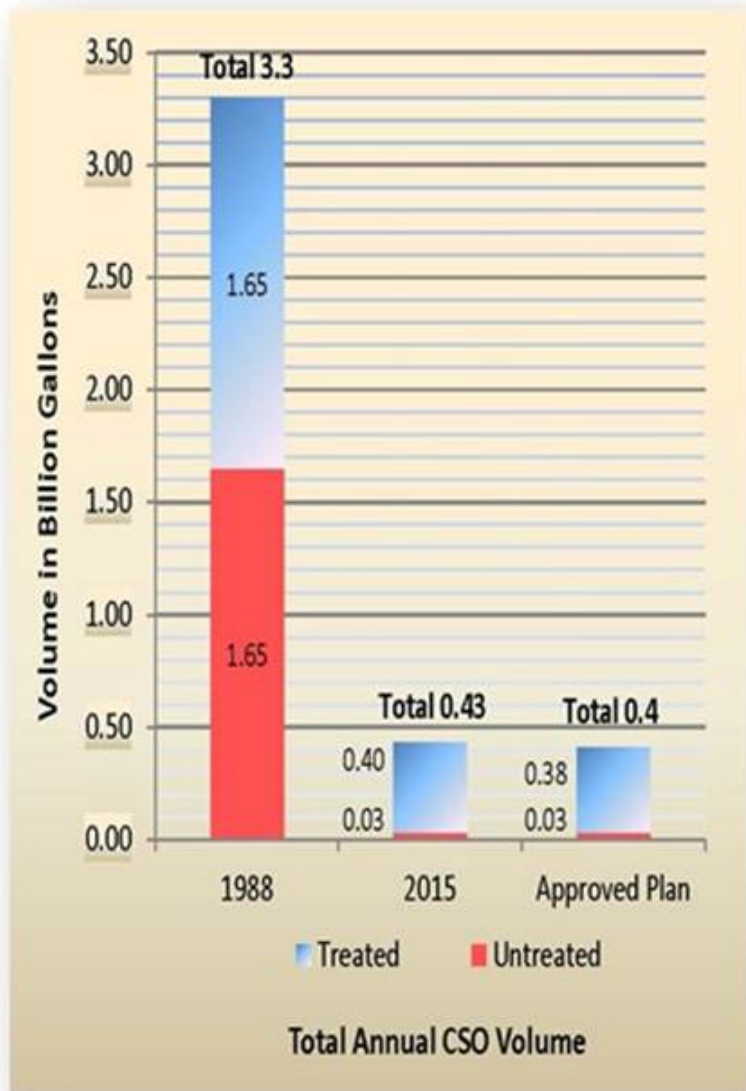
Effluent outfall tunnel
(15 km (9.5 miles) from shore in 30 m (100') of water)

The third and last battery of secondary treatment



CSO Long-Term Control Plan

- Annual CSO volumes have been reduced by 2.9 billion gallons
- 95% of the remaining CSO flows are treated



Union Park detention/treatment facility



Process/timeline

- Timeline
 - Permit application, at least 6 months before permit expires
 - Draft permit and Fact Sheet
 - <https://www.epa.gov/npdes-permits/massachusetts-draft-individual-npdes-permits>
 - **30 day** comment period
 - Final permit
 - Appeals (anything not appealed goes into effect)
 - Effective date (~60 days from signature)
- Fact Sheet, Draft permit, comments, responses = the administrative record
- Appeals
 - Within 30 days of receipt
 - Can only appeal provisions on which you commented,
OR if there is something added to final that wasn't in the draft
 - Only organizations which commented can appeal
 - Appeals to EPA's Environmental Appeals Board



2000 DITP permit requirements – the usual suspects

- Numerical limits for conventional pollutants, bacteria, chlorine, pH, whole-effluent toxicity
- “Report only” for metals, organic contaminants, types of nitrogen
- Permit limits for CSO treatment facilities
- CSO “Nine Minimum Controls”
- Pretreatment program
- Operations & Maintenance best management practices e.g. backup power
- Management of biosolids



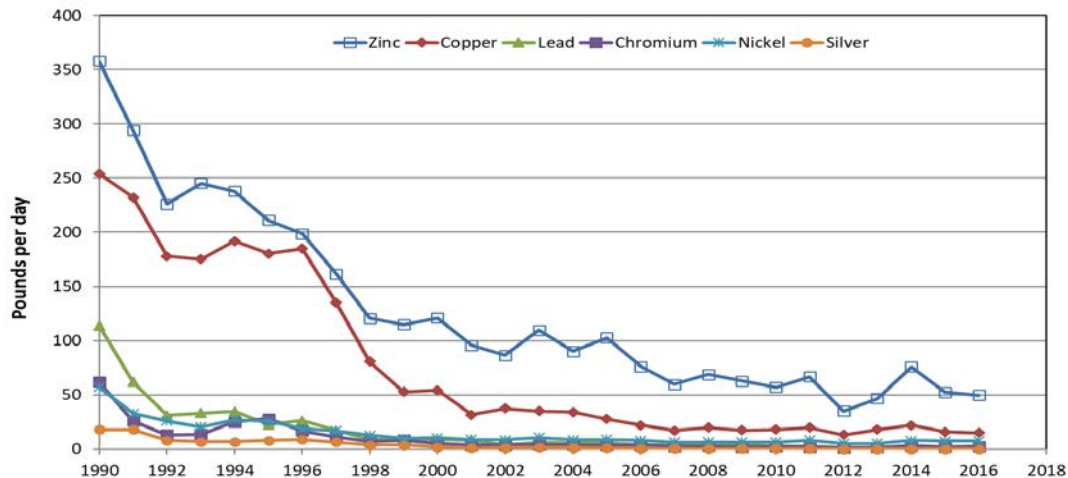
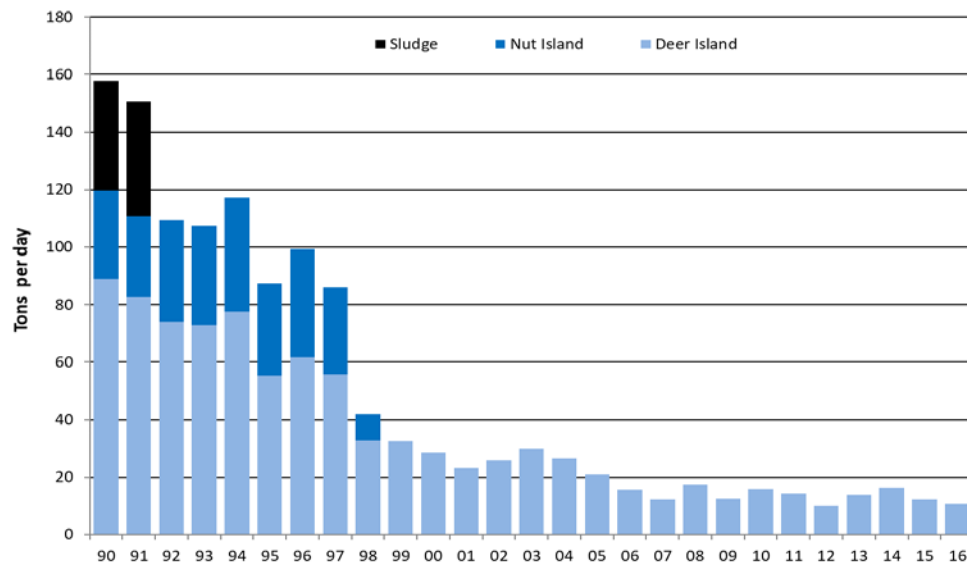
2000 DITP permit special permit provisions

- Ambient monitoring requirement, with plan attached to the permit
- “Contingency Plan” to allow for rapid response in case unexpected adverse impacts occurred from relocating outfall
- Outfall Monitoring Science Advisory Panel
- Permit limit for dry-day flow
- Infiltration/Inflow Task Force and regional I/I plan
- Water conservation requirements
- Web reporting and repository library



Results – Plant Performance and Effluent Monitoring

- Deer Island Treatment Plant earned NACWA Platinum 10 award in 2016
- Current effluent solids and metals loads small fraction of discharges into Harbor in early 1990s.
- Metals and organic contaminants like PCBs, DDTs, and other pesticides in effluent (not shown) are a small fraction of loads projected when EPA approved the outfall.





Current Status

- Current permit is in force until a new permit is issued.
- There are no current negotiations or discussions with EPA



Some highlights of other recent NPDES permits in MA, NH

- Co-permittees
- No dilution for bacteria
- Seasonal limits for bacteria
- Nitrogen limits
 - especially if discharging into tributary of Narragansett Bay or Long Island Sound
- Weekly load limits for TSS and BOD
- Ambient monitoring (rare, limited, focused on a single pollutant)
- Disinfection problems – rapid reporting
- CSO reporting
- Blending (“bypass”)



Potential issues for future permit

- Nitrogen
- Co-permittees
- Dilution for bacteria
- *Enterococcus* limit
- CSO reporting
- Blending
- Loading limits
- Ambient monitoring
- Contingency Plan



Possible “emerging” issues

- Viruses
- Pharmaceuticals & personal care products
- Plastics

Reliance on whole effluent toxicity as a catch-all for “other” pollutants



Process/timeline recap

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 - Final permit (*no way to estimate the period for this to occur*)
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Questions?

