

>>> History of the MWRA

The Water and Sewer Systems

When Boston area cities and towns first faced the problems of clean water sources and sewage disposal in the 1600s, their methods were primitive. But by 1795 wooden pipes delivered water from Jamaica Pond to Boston. By the late 1840s, however, Jamaica Pond was too small and too polluted to provide water to Boston's 50,000 residents.

And so, the pattern of moving continually westward in search of larger water sources began - from the 2-billion gallon Lake Cochituate in 1848, to the 19-billion gallon Sudbury Reservoir in 1878, to the 65-billion gallon Wachusett Reservoir in 1908, to the 412-billion gallon Quabbin Reservoir in 1939.

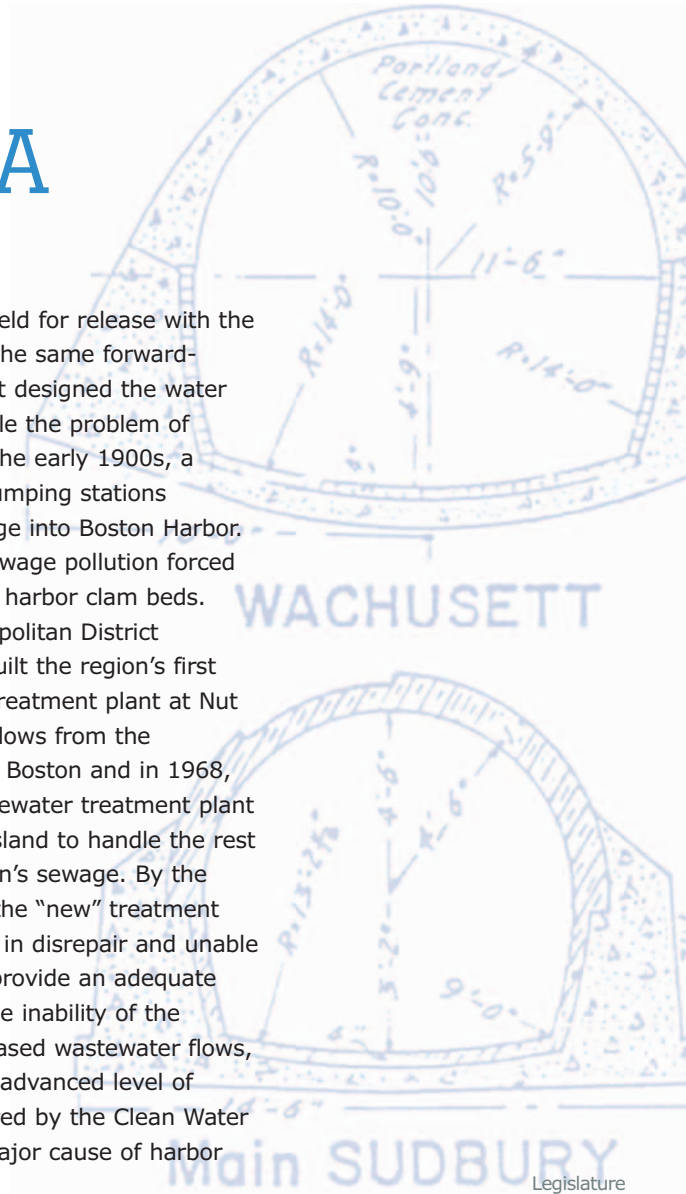
The construction of the Quabbin Reservoir was the last major investment in the water system and no plans were in place for upgrades to carry the system into the next century.

Fortunately, the foundations laid by the early water engineers were able to provide the backbone of the system we run today.

Meanwhile, in 1884, the Boston Main Drainage System was constructed to divert sewage from 18 cities and towns to Moon

Island where it was held for release with the outgoing tide. Then, the same forward-looking engineers that designed the water system began to tackle the problem of sewage disposal. By the early 1900s, a series of pipes and pumping stations transported the sewage into Boston Harbor. By 1919, however, sewage pollution forced the closure of several harbor clam beds.

In 1952, The Metropolitan District Commission (MDC) built the region's first primary wastewater treatment plant at Nut Island to handle the flows from the communities south of Boston and in 1968, another primary wastewater treatment plant was added on Deer Island to handle the rest of metropolitan Boston's sewage. By the early 1970s, both of the "new" treatment plants were obsolete, in disrepair and unable much of the time to provide an adequate level of treatment. The inability of the system to meet increased wastewater flows, combined with a less advanced level of treatment than required by the Clean Water Act of 1972, was a major cause of harbor pollution.



Wooden pipes carried water 5 miles from Jamaica Pond to Boston



1796

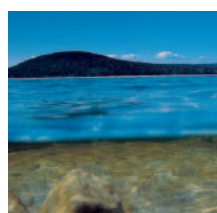
Boston Main Drainage System was constructed to divert sewage from 18 cities and towns to Moon Island where it was held for release with the outgoing tide



1884

Sudbury River diverted; Sudbury Aqueduct carried water 18 miles to Boston

Quabbin Reservoir constructed 65 miles from Boston



1939

First primary wastewater treatment plant built at Nut Island to handle the flows from the south shore

Primary wastewater treatment plant built on Deer Island to handle the metropolitan Boston sewage



1968

Legislature passed MWRA Enabling Act



1982



Cochituate Aqueduct carried water 14.5 miles from Lake Cochituate to Boston



Wachusett Reservoir constructed 38 miles from Boston

Metropolitan District Commission created



Hultman Aqueduct and Norumbega Reservoir constructed



Clean Water Act passed

Water Supply Citizen's Advisory Committee created

City of Quincy filed a civil suit against the MDC and other state agencies claiming that the Mass Clean Water Act had been violated as a result of discharges of untreated and partially treated sewage from Nut and Deer Islands



The Creation of the MWRA

In order to fulfill its mission of providing quality water and sewerage services to its communities, the MDC needed the ability to raise sufficient revenues to hire adequate staff, properly maintain plants and equipment, to finance major capital programs, and to develop operating budgets that were responsive to existing and future needs. Under the system that existed, it was impossible to achieve these goals.

In 1984, legislation was enacted to create the Massachusetts Water Resources Authority, an

independent agency with the ability to raise its revenues from ratepayers, bond sales and grants. The primary mission was to modernize the area's water and sewer systems and clean up Boston Harbor. Other key elements included a huge capital program to repair and upgrade the systems, increased staff to improve operations and maintenance, promotion of water conservation, and planning for the future to meet growing demand. In compromise with central and western Massachusetts communities, the MDC retained watershed and reservoir management, but the MWRA covered the costs.

MWRA assumes responsibility for MDC water and sewer systems



Federal Judge A. David Mazzone ordered 13-year schedule for Boston Harbor Project



Deer Island Wastewater Treatment Plant groundbreaking



1985

1986

1987

1988

1989



First MWRA Board of Directors is sworn in



Adopted drinking water policy based on demand management and conservation

MWRA purchased Fore River Shipyard in Quincy as staging area for Deer Island construction; pelletizing facility site

Project Labor Agreement for Boston Harbor Project signed



Water demand dropped below safe yield for the first time in 20 years



20 Years of Progress

In the early years, MWRA faced a wide range of challenges as a start-up organization. Even though the new agency was charged with all the financing and construction responsibilities, most of the MDC employees it inherited were operations personnel. As a department of the Commonwealth, the MDC had administrative, financial and legal support available to it. Now the MWRA

had to create a complete organizational structure and develop financial systems and policies for obtaining the goods and services it would need to complete projects.

There was also the challenge of keeping the existing water and sewer facilities up and running while undergoing the process of planning, design and construction of major new facilities, particularly the new Deer Island Treatment Plant.

The Boston Harbor Project

The first order of business was the siting and design of the new wastewater treatment facilities. Deer Island was chosen for the new secondary plant. This required the construction of a 5-mile tunnel between the Deer and Nut Islands to carry the South System flow to Deer Island for treatment. The old Nut Island plant was replaced by a headworks facility to screen the wastewater before it enters the tunnel.

In December 1991, the first major milestone was realized with the start-up of the facility in Quincy that converts sludge into fertilizer, ending the dumping of sludge into Boston Harbor. By 1995, the new primary treatment facilities on Deer Island were operational and the old plant was demolished. The first phase of secondary treatment began in 1997 and the final phase came on-line in 2000. Since September 2000, treated wastewater has been transported through the 9.5-mile outfall tunnel into the deeper waters of Massachusetts Bay.

Cross-harbor power cable installed at Deer Island



1990



Water pipeline modernization program launched

1991



MWRA required communities to perform leak detection



Ended sludge discharged into Boston Harbor; pelletizing facility in Quincy began operation

1992

Caruso Pump Station completed



Clinton Wastewater Treatment Plant completed



1993

Legislature enacted sewer rate relief fund



DeLauri Pump Station completed

Began \$1.7 billion Integrated Water Supply Improvement Program



1994

Wellesley Extension Sewer Replacement completed

Finally, in May 2002, the lands surrounding Deer Island were opened for public access. On almost any day of the year, people are out jogging, pushing strollers or just enjoying the breathtaking views of a cleaner, healthier Boston Harbor. MWRA has completed 14 of the 25 projects designed to reduce and treat combined sewer overflows into the Harbor and its tributaries, and progress is being made on the rest: seven are in construction and the remaining four are in the design or planning stage. When complete, the CSO Program will help to ensure that safe swimming and boating standards are met.



MWRA has also completed a number of projects to improve pumping reliability and transport capacity around the service area, including the Braintree-Weymouth Relief Facilities Project.



Water Conservation

When MWRA began operations in 1985, its first step was to review the Long Range Water Supply Study begun by MDC that included options such as diverting the Connecticut River. In November 1986, the Board of Directors voted to try water conservation. A number of initiatives - which took ten years and millions of dollars - were undertaken, including leak detection and repair, conservation retrofits, and public education and outreach. The average daily demand has dropped dramatically from

Primary treatment began at new Deer Island Treatment



1995

New Neponset Valley Relief Sewer came on line

Interim Corrosion Control Facility in Marlborough completed



1996

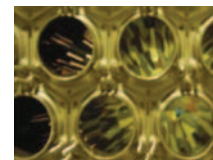
Secondary treatment began at new Deer Island Treatment Plant

1997

Spot Pond open reservoir taken out of service

1998

Board of Directors adopted ozonation as treatment technology for new Carroll Water Treatment Plant



Public Access at Nut Island opened

1999



Mining of Inter-Island Tunnel between Nut Island and Deer Island completed



MetroWest Water Supply Tunnel groundbreaking



Final approval received on CSO Facilities Plan and Environmental Impact Report

Nut Island Headworks completed, South System flows transferred from Nut Island for treatment at Deer Island



almost 350 million gallons in 1988 to 220 million gallons today. With this reduction in demand, MWRA avoided the costs of developing new sources and was able to scale back the size of new treatment facilities.

The Integrated Water Supply Program

In 1995, MWRA began the Integrated Water Supply Improvement Program to modernize the water system. The program includes a comprehensive watershed protection program, managed jointly with the Department of Conservation and Recreation (DCR, formerly the MDC); the 17.6-mile MetroWest Water Supply Tunnel, completed in 2003; five covered storage tanks, including the 115-million gallon Norumbega facility, brought on-line in phases and now complete; and a new, state-of-the-art ozone treatment plant finished in July 2005 to enhance the already excellent water quality and ensure compliance with state and federal regulations.

MWRA is also replacing or relining miles of water pipelines to improve the safety and reliability of the water system, as well as constructing upgrades to pumping facilities and monitoring systems.

Summing Up

Over the last 20 years, MWRA has completed \$6 billion worth of upgrades to the water and sewer systems that have all but reversed the effects of neglect and underfunding of the preceding decades.

It's hard to imagine that some of the components of "new" Deer Island Treatment Plant have already been in

service for over 10 years and that the 10-year Integrated Water Supply Improvement Program is complete with the start-up of the John J. Carroll Water Treatment Plant in the summer of 2005.

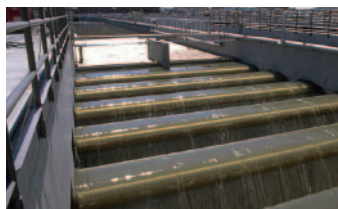
Now that the mega-projects have been completed, the really hard work begins - continuously operating and maintaining these critical facilities so that the water supply remains safe and secure and so that Boston Harbor never again earns the label "The Dirtiest Harbor in America."

And all of this, of course, has come at great expense to the ratepayers in the MWRA's customer communities. MWRA must continue to find ways to keep costs down and to ensure that every dollar spent provides tangible public health or environmental benefits.



Federal Judge Richard G. Sterns ruled MWRA does not have to build water filtration plant

9.5 mile Deer Island Effluent Outfall Tunnel put into service



MWRA staff from 9 field sites were consolidated into the new Chelsea Facility

MWRA was in compliance with the Lead and Copper Rule for the first time

Rehabilitation of Wachusett Aqueduct completed

Quincy Pump Facilities completed
Hultman Aqueduct and Norumbega Reservoir were taken off line



2000

2001

2002

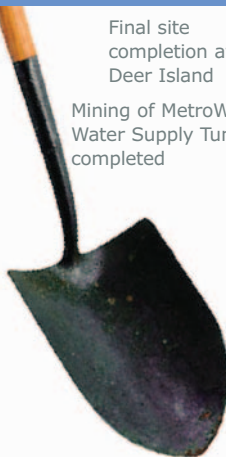
2003

2004

Braintree-Weymouth Relief Facilities groundbreaking
Old MDC Waterworks and Sewerage Divisions merged into Operations Division



Final site completion at Deer Island
Mining of MetroWest Water Supply Tunnel completed



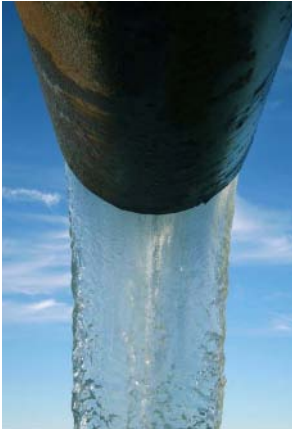
Public Access at Deer Island opened



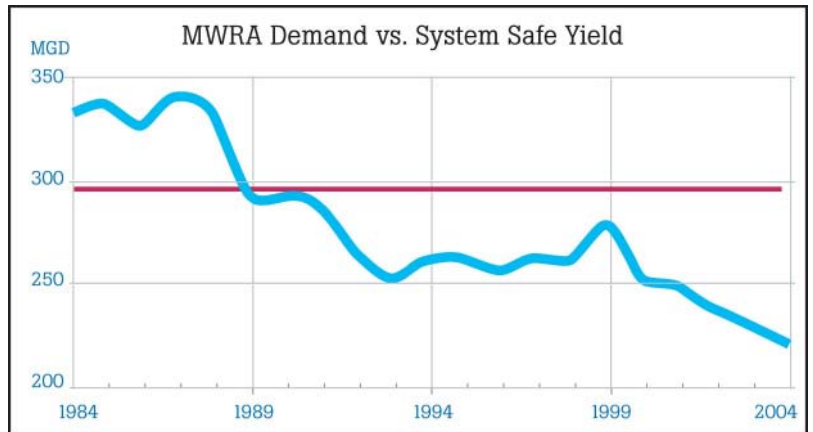
MetroWest Water Supply Tunnel put into service



The improvements MWRA has made to the water and sewer systems have resulted in measurable public health and environmental gains.

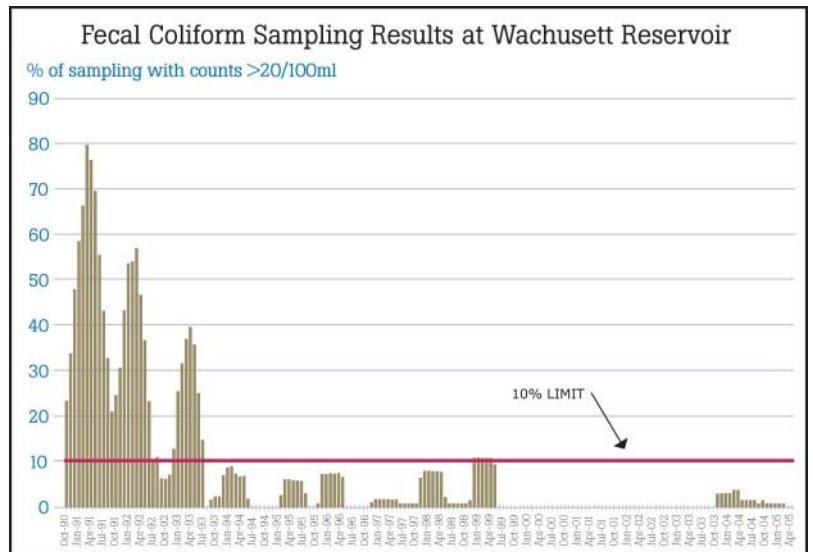


Since 1985, MWRA has undertaken a number of initiatives to conserve water including leak detection and repair, conservation retrofits, and public education and outreach. As a result, there has been a steady decline in water system demand - from 350 million gallons per day in 1988 to 220 million gallons per day today.



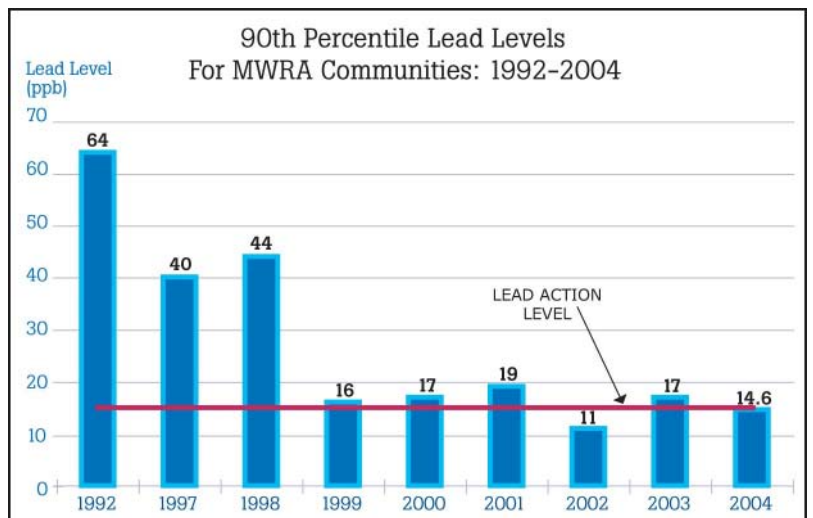
MWRA's source reservoirs' water quality continues to be excellent and meets all regulatory standards. A watershed protection program, already one of the most aggressive in the nation, was bolstered by the 2004 establishment of a Water Supply Protection Trust by the Legislature and Governor, and the development of a

Memorandum of Understanding between MWRA and DCR that capitalized on the strengths of each agency in assuring watershed protection.



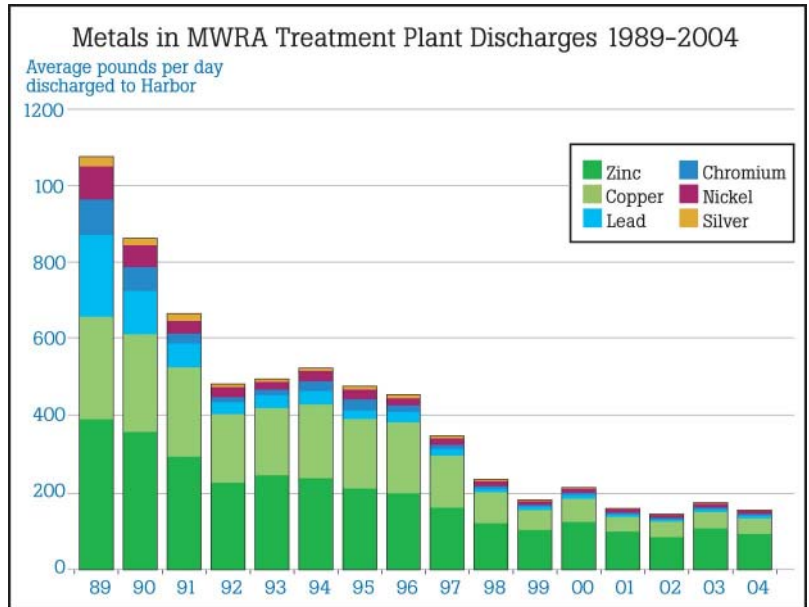
Interim treatment improvements improved water quality at the customer's tap. There were no outbreaks of waterborne illness attributable to drinking water, standards for disinfection of water

more than met requirements, and fine-tuning of corrosion control reduced leaching of lead from service lines, to a point where MWRA, for most sampling rounds, meets regulatory standards for lead. With the new covered storage facilities, MetroWest Water Supply Tunnel and John J. Carroll Water Treatment Plant on-line, the water quality will only get better.

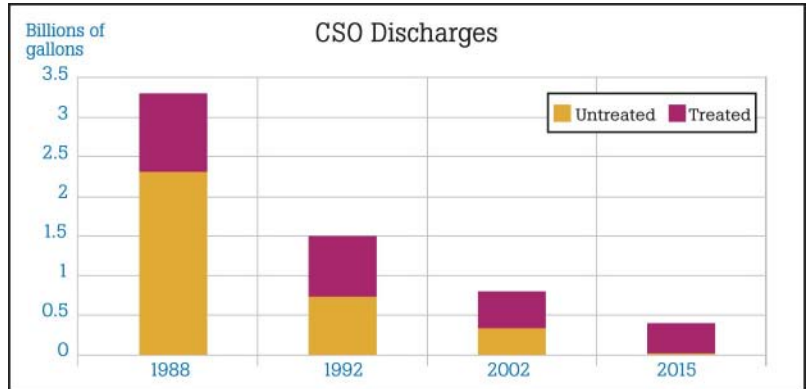




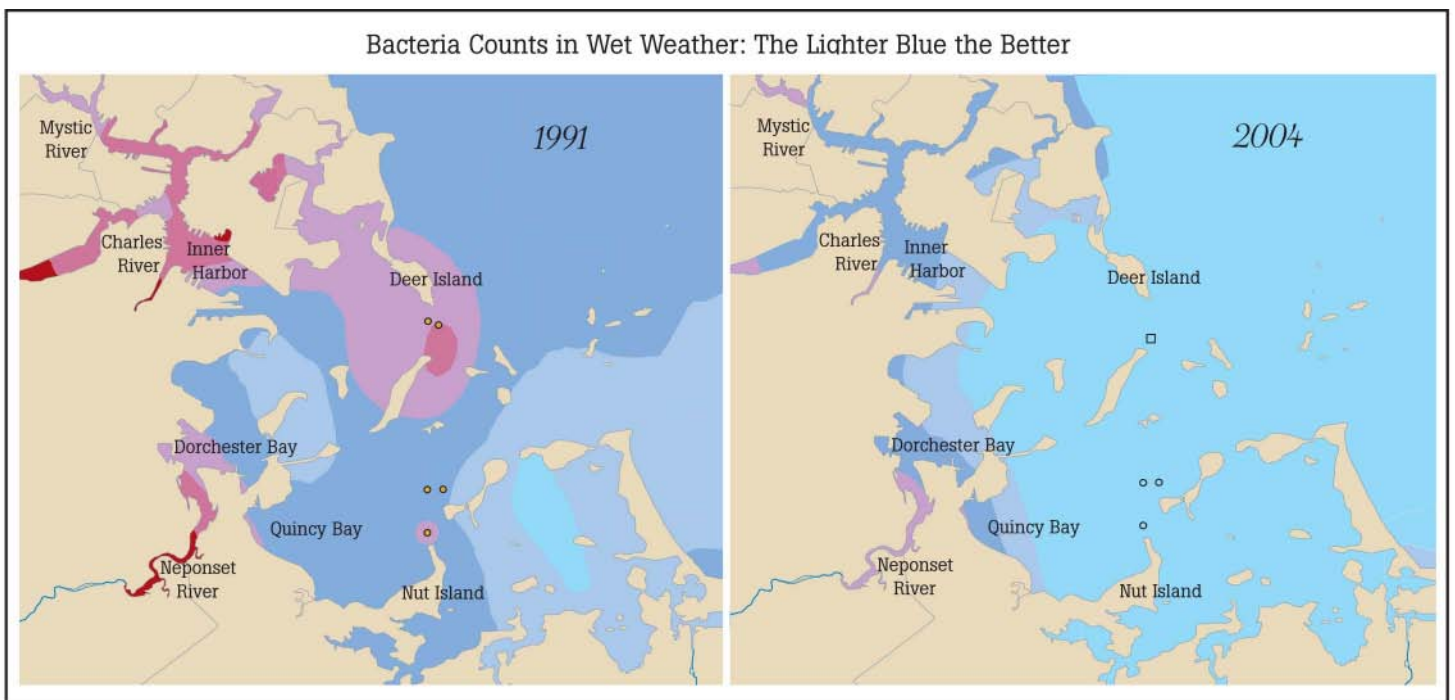
A decade of environmental monitoring data shows both obvious and subtle changes in Boston Harbor's water, sediment and marine life. Marked improvements track implementation of various phases of the Boston Harbor Project. With the new outfall tunnel and completion of the last battery of secondary treatment in 2001 and upgrades of CSO facilities, bacteria levels in the harbor declined, water clarity improved, and harmful nutrient levels decreased to levels essentially typical of a natural estuary.



Beach closings attributable to combined sewer overflows (CSOs) have been reduced, and beaches in Boston Harbor are generally swimmable. Progress continues on the CSO Control Program: to date, 21 CSO outlets have been closed and overflow volumes have been reduced by 70%. Of the remaining flow, 60% is treated. When the Program is complete, 95% of the remaining flows will be treated.



The transformation of "The Dirtiest Harbor in America" to the centerpiece of metropolitan Boston is widely recognized as one of the nation's greatest environmental achievements.





In celebration of the MWRA's 20th Anniversary, we would like to recognize all of the men and women who have worked for the MWRA over the years and helped to achieve all of the successes we have enjoyed so far. To all of you, thank you for a job well done.

We would also like to recognize the employees listed here who have been with the agency from the beginning - whether they transferred over from the MDC in 1985 or whether they joined the MWRA that year to work on the important projects that lay ahead.

Stephen Abner
Paul Addivino
Nancy Aftosmes
Gregory Alessandro
James Andon
Edward Arcese
William Austin
John Balfour
Richard Barbarisi
George Barras
Corinne Barrett
Patrick Barrett
Timothy Barry
M. Altaf Bhatti
Terry Bickford
Grace Bigornia Vitale
Robert Billotte
J. James Burns
Richard Burns
William Burns
Joseph Bussone
Brian Callely
Dennis Capraro
Philip Carbone
James Carey
Edward Carpman
Frank Cascarano
Brian Cashman
Funmei Chang
David Ciano
Richard Cipriano
David Codair
James Collins
Matthew Condon
Walter Connors
William Coughlin
John Cunningham
Daniel Cushing
Robert DeChellis
Joseph Del Greco
Michael DelPrete

Charles Demeo
Thomas Derosier
Richard Desmond
David DiBona
Timothy D'Ortona
Stephen Dwyer
Viviane Edward
Anthony Errichetti
Lafleur Etienne
John Farino
Kevin Feeley
Michael Ferro
Paul Flaherty
Mark Forti
Guy Foss
Thomas Fulkerson
Edward Gallagher
Gary Garrity
Lettie Genovitch
Rocco Giovanniello
Peter Gogan
Robert Gorham
George Goros
William Graham
Peter Green
David Hale
Alan Hanscombe
David Harnett
Thomas Harrow
Eric Holman
Robert Holthaus
Joseph Jamilowski
Lisa Jenkins
Lee Jensen
Robert Johnson
Frank Kay
Paul Kelley
Gerard Kelly
Marcis Kempe
James King
Richard Krumpus

Randolph Lahey
Christine Lane
William Lane
Daniel Leary
William Lewey
Dennis Linehan
Brian Littlefield
David Lombard
Charles Lombardi
Edward Luongo
James MacPherson
William Magnell
Richard Mandell
Ronald Maxwell
Joseph McCarty
John McDonough
Robert McGee
Sean McGillicuddy
James McMahan
Nancy McSweeney
James Mele
Glenn Merlini
Lawrence Minincleri
Joseph Monestere
George Morano
Robert Moses
Patrick Moynihan
William Mueller
Andrea Murphy
John Norton
Kevin O'Brien
Joseph O'Donnell
Charles Olsen
James Padova
Deborah Palmer
Albert Parker
Kenneth Perry
Salvatore Pinto
Paul Polito
James Polk
Keith Portell

Michelle Potts
John Powers
Julian Rainey
Eric Renda
Alfred Renrick
John Riccio
George Riley
Gino Rizzo
Steve Rocke
Charles Ronayne
Thomas Rosado
David Rota
Romeo Rovinelli
Flora Sanders
Walter Schultz
Samuel Sclafani
John Shdeed
William Sheehan
William Slattery
Russell Smith
William Smith
Carmine Sorrentino
Herbert Spencer
Richard Staples
Mark Sullivan
Carol Swirbalus
Scott Tamagna
Paul Teneriello
Vincent Thompson
Richard Tobin
Richard Trubiano
John Vetere
Gerald Walsh
Michael Walsh
James Waterman
Kenneth Witkowski
Vivienne Wright
William Young
Gordon Yu