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Boston Harbor, once dirtiest, now clean, agency tells judge

By Beth Treffeisen April 19, 2016 at 5:00 EDT

The Deer Island treatment plant's egg-shaped structures process sewage from around Greater Boston. (New Boston Post photo by Beth Treffeisen)

BOSTON – In 1982, former Quincy city Solicitor William Golden took a run along Wollaston Beach and came across bits of raw sewage in the sand, prompting him to take action.

Quincy soon sued the Metropolitan District Commission and other agencies over discharges of untreated waste from Nut Island, at the end of Houghs Neck in the city. Eventually, the case led to a court-ordered, multibillion-dollar harbor cleanup and the creation of the Massachusetts Water Resources Authority.

"The waterfront wasn't a magnet for anything but sewage" in the early 1980s, said Peter Shelley, a lawyer for the Boston-based Conservation Law Foundation, who was involved in the case. In fact, it was listed as the dirtiest harbor in the nation, and smelled foul, according to the authority.

Recently, the agency published its final report on the 20-year cleanup with U.S. District Court Judge Richard Stearns. It recapped a $900 million program to improve sewage and runoff handling to protect the waterway.

Previously, overflows from the sewer system went to low-lying release points directly into local waters, adding unsafe pathogens like E.coli into the harbor and tributaries, including the Charles River. In the 1980s, the agency said, "If someone fell into the Charles, Mystic, and Neponset Rivers, a trip to the hospital for disinfection was strongly recommended."

According to the 2015 Annual Progress Report, before 1988, untreated discharges occurred approximately 100 times a year, or almost every time it rained. Now, with improvements that have worked to separate storm drains from sewage pipes, the discharges have been cut to about a half-dozen occurrences each year and about 93 percent of wastewater is treated before it reaches the water.

"It is an extraordinary success story," said Bruce

Berman, a spokesman for Save the Harbor/Save the Bay in Boston. "The project has transformed the waterfront. The beaches went from a national disgrace in the 1980s to some of the cleanest in the country."
The improvements were a part of a series of projects undertaken to ensure that greater Boston residents would have access to clean drinking water and waterways safe for recreation.

The harbor, once referred to as "the Harbor of Shame" by local newspapers, was often used to dispose of raw sewage. Before a treatment plant opened at Deer Island, across the harbor from Quincy, in 2000, more than 100 tons of raw sewage was pumped into Massachusetts Bay just each day just 9.5 miles from Boston's shores, according to Water World.

"There was an assumption that it was being pushed out," taken by the receding tide, said Shelley, the Conservation Law Foundation lawyer. "But in reality 60 to 70 percent was staying in the harbor permanently and it was building up for decades – that's why it stank."

In an opening message for the water authority's 2015 report, Fred Laskey, the executive director wrote, "Much of the harbor floor was considered virtually dead, with a black mayonnaise consistency."

Before the cleanup effort, the treatment plants on Nut Island and Deer Island in Winthrop were only used to separate heavy solids from oil, grease and lighter solids and collect both types before releasing the partially treated water. The retained sludge was sent to landfills or burned. During heavy rainfall, untreated sewage overflowed from the old system when it exceeded its capacity and went directly into Boston Harbor.

"We have to remember that they were doing state-of-the-art at the time," said David F. Duest, the director of the new Deer Island Treatment Plant. Today, the process at the plant looks a lot a different and uses more "green," or environmentally friendly, technology.

The Deer Island treatment plant on average handles 365 million gallons of wastewater a day from 43 communities in the greater Boston area, including waste sent throung an underwater tunnel from the Nut Island plant. The Deer Island facility is one of the largest electricity users in the Northeast and currently self-generates 25 percent of its electricity needs.

Methane generated from sludge processing in the large egg-like structures on the island near Logan International Airport is collected and burned in an on-site power plant, generating heat used to create steam to heat hot water and warm the facility. The steam also powers turbines that produce electricity for the plant.

The processed sludge is sent through a seven-mile tunnel to the Nut Island plant in Quincy, where it is formed into pellets used as fertilizer.

On Deer Island, a National Recreation Area was created, providing foot trails that line the perimeter of the treatment plant.

"Just like the Quabbin is an accidental wilderness, Deer Island is the accidental recreation area," said Ria Convery, an authority spokeswoman.

But all these improvements came at a large price tag. The total cost to re-do major parts of the water infrastructure for both drinking water and sewage cost $3.9 billion and must be covered by ratepayers, the property owners who use the system. Still, that's far less than the expected $6.1 billion total.

"That was a big relief," Shelley said, adding that in 1982, annual residential water and sewer bills averaged $90 a year. Now, bills average in the low four-figure range. Still, that's a relatively small price to pay, advocates say.

"Clean water is a core family value," Berman said. "We will work to make sure it is done."

Berman says there is yet work to be done to deal with continuing hazards involving water quality, such as fertilizer and animal waste that enters the harbor and its tributaries through runoff into storm drains.

The nutrients from these sources feed algal blooms, or explosions in growth of sometimes toxic algae. Bright green algae, or cyanobacteria, is among those potentially harmful blooms, and the Environmental Protection Agency advises staying away from water that is green, scummy or smells bad.

"We are not done until that's done," Berman said. "It's hard to say that we are finished."

But the improvement so far has been dramatic, with the return of plants like eelgrass, an important habitat for spawning sea life, and aquatic creatures like seals.

"For me the moment that I know it was worth it was when I saw Harbor porpoises right off the dock in the North End," Shelley said. "It is an unexpected miracle that Mother Nature recovered as much as it did."