The Future of PCB Cleanup in the New Bedford Harbor

Researcher: Marika Massey-Bierman  
Home College: Williams College

Executive Summary

New Bedford is a port community in Massachusetts that has traditionally been a hub of industry (Figure 1). The town was famous as a whaling port, and later supported textile and electronics factories. Commercial fishing out of New Bedford generates $11.1 billion yearly which is the highest value of any commercial fishing port in the nation (Port of New Bedford, 2018). Today, many underrepresented communities of color, and low-income families live in the area. In 2010, 73% of households made less than $40,347 yearly and more than 25% of the community identified as a minority. Thirty-eight percent of New Bedford residents speak another language than English at
home and the indigenous population is four times the state average ("New Bedford", Conservation Law Foundation).

In the 1980s, two electronics manufacturing plants, Aerovox and Cornell Dubilier, released polychlorinated biphenyls (PCBs) – a toxic and carcinogenic class of compounds – into the New Bedford Harbor. The Environmental Protection Agency (EPA) declared the harbor declared a Superfund site in 1983, and EPA began a clean-up that has been ongoing until the present day.

Despite initial claims by the EPA that sediment would be moved offsite in the cleanup process, the clean-up plan changed in 2011 and large quantities of sediment have since been buried underwater in the harbor in confined aquatic disposal (CAD) cells. Many species of fish and shellfish still contain toxic levels of PCBs and are under a do-not-eat order ("Fish Consumption", EPA).

EPA primarily leads the on-going cleanup, with the Massachusetts Department of Environmental Protection also managing the site. The community that lives near the port is impacted by the contamination, as light-weight PCBs can become airborne and contaminate the air nearby. Touching or ingesting sediment is hazardous, so beachgoers and their children and pets are at risk. Those interested in recreational and sustenance fishing, especially immigrant communities and low-income families looking to provide food to their families, are at risk of eating contaminated seafood.

The current approach to policy around the cleanup is largely decided by the EPA as the project is federally funded. Concerned community members have not been given

Figure 1. Map of Massachusetts outlining New Bedford in red. (Wikipedia 2022)
much say in the process, demonstrated by the creation of CAD cells despite major community pushback in 2015. To improve communications, the EPA could target the most at-risk community members, such as immigrant communities who continue to fish in the harbor. If the EPA shared their technical expertise in a more accessible format, community members would have more reason to trust that the EPA’s cleanup plan was the fastest, safest, and cheapest path forward and would ensure the communities that it considered the well-being of citizens in decision making.

**Background Information**

The issue of legacy chemical contamination in the New Bedford Harbor is a longstanding issue. From the 1940s to 1970s, polychlorinated biphenyls (PCBs) were dumped into the New Bedford Harbor by two capacitor manufacturing companies: Aerovox and Cornell Dubilier Electronics. In 1983, EPA declared the harbor a Superfund site due to the high levels of these carcinogenic chemicals in the river sediments ("Sixth Explanation", EPA).

This contamination is an issue of environmental justice. The citizens of New Bedford, many of whom identify as minority and low-income households, have been exposed to extremely high levels of toxic PCBs due to living so close to an industrial area. This exposure is the result of environmental racism and housing inequity.

Under the Comprehensive Environmental Response, Protection, and Liability Act (CERCLA), commonly known as Superfund, the federal government allocated money to clean up the New Bedford harbor ("Beyond Bake Sales", Env. Law Reporter).
To facilitate cleanup, EPA split the harbor into three Operable Units (OUs) by the EPA: the Upper Harbor, the Lower Harbor, and the Outer Harbor beyond the hurricane barrier (Figure 2). The Upper Harbor and Lower Harbor are split by the I-195 bridge.

Acceptable levels of PCBs determined by the EPA varies between 1 part-per-million (ppm) near residential areas to 50 ppm in salt marshes with little access (“Sixth Explanation”, EPA). Although the EPA states that 1 ppm everywhere would be better ecologically than 50 ppm, it determined that maintaining the salt-marsh habitat was more important for the ecosystem than dredging up the entire area to the extent that 1 ppm would require (“Fact Sheet”, EPA). Varying concentrations lead to confusion and the idea that the EPA is allowing certain areas to be left to a lower standard of clean-up for no reason.

The removal of PCB laden sediments has been a slow process since the 1980s. To remove the contaminated sediments, the harbor is being dredged. Since the beginning of the cleanup, about 1 million cubic yards of sediment has been removed from the harbor (“General Information”, EPA). During hydraulic dredging, the silt is pulled from the bottom of the harbor, the excess water is removed, and the contaminated filtrate is sent to an approved landfill system in Michigan for permanent storage (“Fourth Five-Year Report”, EPA). However, changes in the disposal plan in 2011 allowed large quantities of sediment to remain in the river, covered by layers of silt.
and boulders called “subtidal caps” ("Sixth Explanation", EPA). Additional less-contaminated sediments from the lower and more seaward section of the harbor have been transferred to several Confined Aquatic Disposal Cells (CAD cells) located at the bottom of the harbor for permanent storage ("Background Information", EPA). In this process, manual dredging was used instead of hydraulic, requiring sediments to be exposed on a barge prior to being buried in the CAD cell. The Aerovox property site near the water was also highly contaminated. The building was demolished and covered by several sediment caps to contain the toxic waste in 2020 ("Sixth Explanation", EPA).

Obtaining funding to continue the cleanup is the main obstacle to finishing any Superfund project. Superfund cleanups are primarily funded by the federal government, with the state contributing 10% of the cost (Craffey, Mass DEP). Settlements with liable companies are another way to speed up the cleaning. In 2013, AVX (formerly Aerovox), one of the electronic companies responsible for the contamination, was forced by a US District decision to pay $366 million towards the remediation of the harbor ("EPA Secures Funding"). Recently, the Biden administration, as a part of the Bipartisan Infrastructure Law, allocated $72.7 million towards finishing the project along with $3.6 million from a settlement with the electronics company Cornell Dubilier ("EPA Secures Funding").
If there is any change to the clean-up plan, the EPA is required to release an “Explanation of Significant Differences” (ESD) The new plan is published, and the public have 30-90 days to review it and submit comments (Personal Interview, Deegan). The clean-up in New Bedford has had six ESD reports since 2001 (“Sixth Explanation”, EPA).

Analysis of Current and Proposed Policies

Sediment Removal and Storage

Stakeholders had varying responses to the efficacy and safety of the dredging plan. Karen Villandry is a community member and President of Hands Across the River Coalition, a local group advocating for transparency and justice within the PCB cleanup. She worries about the exposure of her community to lightweight PCBs – those with a smaller molar mass that are more prone to becoming airborne– from the open-air dredging in the Lower Harbor. Karen Villandry argues that the disposal of sediments in the CAD cell is not a permanent solution, and rather the EPA deciding to do things “on the cheap” instead of bringing the sediments to a lined landfill. Paul Craffey, the project manager with the Massachusetts Department of Environmental Protection (Mass DEP), disagrees, stating that he wouldn’t have implemented the CAD cell storage unless he believed it was a long-term solution. Paul Craffey told me there is no other financially viable solution, and that one of the priorities of this cleanup is that it needs to be cost effective. From Paul Craffey’s observation, superfund sites are about managing waste and minimizing risk in the most efficient manner. Ceasar Duarte, Director of Engineering and Operations at the New Bedford Port Authority, agrees. Ceasar Duarte mentions that without using CAD cells, the project would have only had enough money to clean up a
fraction of what they did. By relying on the low-cost method, a larger area of the harbor was remediated faster. Michele Paul, Director of Resilience and Environmental Stewardship at the City of New Bedford, believes that the cells will be effective long-term storage. Michele Paul is worried, however, about other onsite capped contamination, such as the heavily concentrated PCBs at the former Aerovox site. This area, although protected from the river by 25 feet of fill along with iron and activated carbon to filter outgoing groundwater, is being affected by rising sea levels in the harbor. Once the contractors prove the efficacy of the design, this site will be the responsibility of the city and Michele Paul is worried that maintaining it with a changing river will be difficult.

Fishing

PCB concentrations have been slowly decreasing in fish since the 1980s as more contaminated sediment is removed, but there are no plans on the EPA website for a concentrated attempt at making the harbor fishable. Paul Craffey and Michelle Paul both stated that despite the remaining contamination in fish, this can only get better with time. Jim Kendall, a local commercial fisherman who now works for New Bedford Seafood Consulting, told me that while at work as a fisherman, the contamination didn’t get in the way of his work. Jim Kendall caught Atlantic scallops many miles offshore from North Carolina to the Gulf of Maine, and any fishing regulations in the port didn’t affect his livelihood. If this contamination directly affected the commercial fishing industry, much more money would be on the line.

Several stakeholders expressed concerns at local community members fishing anyway—especially those from immigrant communities who may not understand the
dangers. Karen Villandry argues that there was not enough effort put into interpretable signage in different languages to keep people out of the harbor. Jim Kendall remarked that he had seen locals from immigrant communities out shellfishing. He said people had been arrested for fishing illegally. Jim Kendall acknowledged that if you don’t have access to a boat, it’s difficult to get beyond the harbor where it’s legal to catch fish. If resources are limited, fishing from the contaminated shoreline is much easier.

Corinn Williams, from the Community Economic Development Center (CEDC), an organization that provides support to immigrant communities in New Bedford, said that the EPA subcontracts with their organization for help with community outreach. Staff at the CEDC walk around areas known for fishing and engage with locals, asking them to fill out a form about their fishing practices in the harbor. One anonymous citizen had responded that, yes, he did fish in the harbor, and he usually gave the fish to his grandparents or froze it to eat later. When asked why he was okay with fishing, his response was that “the harbor’s clean now.” Corrin Williams mentioned that the EPA community coordinators are not on the ground as much as in 2017, and that activism around the issue has petered out.

Recreation

Residents also engage with the shoreline in other ways. Karen Villandry told me that the local Fairhaven High school, close to the location of several CAD cells, had to prevent students from walking in the water for a science project. She was worried that beach-clean up events expose well-meaning citizens to more PCBs, as the chemicals attach to the trash that is handled by volunteers. The trash is later disposed of as hazardous waste. Once the clean-up is complete, Michele Paul, the city planner, says
the city is planning a riverside walking path to allow citizens to regain the ability to enjoy the natural space. The River Walk will be constructed in the Upper Harbor and connect to the Acushnet River. Jim Kendall, the fisherman, mentioned that since his youth, the river has been transformed from a terrible state to “pristine”. Several residents mentioned enjoying the increase of waterfowl, such as swans or birds of prey returning to the river area as the cleanup progressed.

*Community Impact*

Although some are satisfied with the current level of cleanup, Karen Villandry was not so sure. She recalled hearing about many cases of cancer on Fort Street, located on the east side of the Lower Harbor. Despite the high rate of cancer, she said the Mass Dept. of Public Health did not call it a “cancer cluster” for fear of scaring the community. A friend told her that she hadn’t been able to grow tomatoes for years—that they always came out weird-shaped. Karen Villandry blames the PCBs.

After twenty years of work on the project, Paul Craffey from the Mass DEP is satisfied with the cleanup. “It’s not the most perfect cleanup,” he told me, “but it’s better than it was before.” Paul Craffey said it would be impossible to clean up this area to a pristine level, as it was never a pristine place to begin with. This mindset affects the way that government officials approach the cleanup, and likely has roots in a biased idea that low-income minorities living in these areas do not necessitate the best clean up possible. After the efforts of the EPA and the State, people are at a lot less risk than they would have been twenty years prior, but that should not allow the government to treat New Bedford differently than a less-contaminated site.
Recommendations for Change

Based on input from several community members, along with government and city officials, I believe the best way to move forward with this cleanup is to focus on community engagement and education.

Dave Deegan, the Regional Press Contact for EPA Region 1 (New England), assured me that the EPA has a robust website and that they try their very best to get the most accurate information to people. He, like many of the government officials I spoke with, was frustrated that there was so much backlash against the CAD cell initiative despite its proven efficacy by EPA engineers. The issue is not a lack of technical expertise by the EPA, but a lack of communication of the efficacy of these methods to the public. Decades of environmental racism and the sacrifice of human health at the financial benefit of corporations have led to a distrust in governmental clean-up methods, especially when the clean-up plan changes.

Although I think the direct contact that the CEDC is making with local fishermen is helpful, the EPA could put more effort into education rather than attempting to deal with violators of the policy. Perhaps an event hosted by the CEDC could go over the current standing of the harbor cleanup, or the EPA could direct funds towards a weekly bus to a less contaminated fishing spot on the outer harbor.

When the clean-up plan is changed, information is available through the EPA Explanation of Significant Differences reports but they are lengthy and dense. The links to these reports cannot be found easily from the New Bedford EPA webpage. Additionally, switching the title of these reports to something more understandable, such as "Recent Changes to the Clean-Up Plan" would be much more informative. In 2017,
the EPA published a column in the local newspaper advertising a community meeting to discuss the ESD and the creation of CAD cells, but it was only a two-hour meeting, and the advertisement was quite small ("Sixth Explanation", EPA). In the report, they answer several technical questions posed by community members with supplemental data but make no mention of the public activism that was occurring during this time. A thorough explanation of the reasoning behind switching clean-up plans, with multiple public Q&A sessions is necessary. Additionally, more accessible formatting (such as an infographic or having the information easily available in multiple languages) would increase the community awareness surrounding the change and lead to more cohesion between the government and the community on how to implement the best and safest solutions.

Sources


Pul, Michele. Director, Resilience and Environmental Stewardship, City of New Bedford. Personal interview, November 10, 2022.

