Public Involvement

On July 22, 2002, EPA and the Massachusetts DEP jointly issued a new proposed National Pollutant Discharge Elimination System (NPDES) Permit to Brayton Point Station and opened a public comment period on the permit. The agencies held information meetings on August 5 and 6, 2002, in Somerset, Massachusetts and Bristol, Rhode Island, respectively, to explain the draft permit and answer questions. The agencies held public hearings in Somerset and Bristol on August 26 and 27, 2002, respectively, to accept comments on the draft permit. The comment period, originally scheduled to close on September 4, 2002, was extended to October 4, 2002.

During this 2 1/2 month comment period, EPA received more than 150 comments from elected officials, federal, state and local government agencies, private organizations, individual citizens and the permittee. Careful consideration was given to these comments in development of the final permit.

EPA's response to these comments, published in a document of the same name, specifies which provisions of the draft permit have been changed in the final permit and the reasons for the change, and summarizes and responds to all significant comments on the draft permit submitted during the public comment period. This document can be reviewed at:

www.epa.gov/ne/braytonpoint

For More Information

What Impact will this Permit have on Electricity Rates for New England Consumers?

Even after its upgrades, Brayton Point Station's three coal and one oil / gas units will continue to be capable of producing more than 1500 megawatts of electricity at full capacity, while remaining a low cost producer of electricity for New England's energy market.

Using conservative (i.e., worst case) assumptions, the average household, using 500 KWh per month, would see long-term monthly increases of $0.06 to $0.18 in electricity rates as a result of the construction of a closed-cycle cooling system. The short-term impacts of unit outages during the construction period could result in a short-term rate effect of approximately $0.70 per month, but only for nine months.

For More Detailed Information

The final requirements for Brayton Point Station's thermal discharges and cooling water withdrawal are stated in the Final NPDES permit issued to the plant. The permit, along with EPA's response to comments, is available for review at the following locations:

Somerset Public Library	**Rogers Free Library**	**U.S. EPA Records Center**
1464 County Street	525 Hope Street	1 Congress Street
Somerset, MA	Bristol, RI	Boston, MA

information is also available for review on the world wide web at:

www.epa.gov/ne/braytonpoint

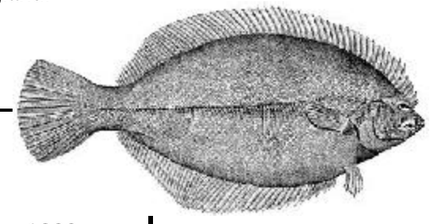
All documents may be downloaded and printed. (Adobe Acrobat Reader is required)

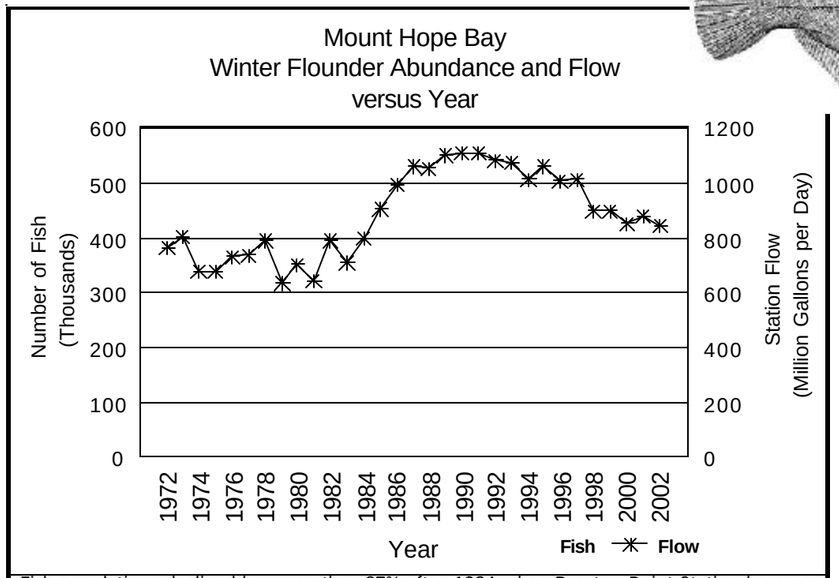
Brayton Point Station Somerset, MA

Final National Pollutant Discharge Elimination System (NPDES) Permit October 2003

EPA has developed a final permit for the Brayton Point Station power plant together with the MA Department of Environmental Protection (DEP) and in close coordination with the RI Department of Environmental Management (DEM) to meet requirements of the Clean Water Act. This permit seeks to substantially reduce the facility's impact on Mount Hope Bay. Compliance with this permit will be an essential complement to broader public and private efforts to restore and maintain the health of Mount Hope Bay and the greater Narragansett Bay ecosystem. These other efforts include fishing management, projects to improve sewage treatment, abatement of pollution from combined sewer overflows, and scientific research.

Brayton Point Station is the largest industrial source affecting Mount Hope Bay. Based on the scientific analyses to date, EPA, MA DEP and others have concluded that stronger controls are needed on the power plant's withdrawal of water from the bay and discharge of heated water back to the bay in order to satisfy Clean Water Act standards. These limits will help to protect the bay and give the fishery a chance to recover. The technology exists for Brayton Point Station to both meet the performance standards required by this permit and continue to produce reliable, inexpensive electricity for New England.





Fish populations declined by more than 87% after 1984 when Brayton Point Station began a 45% increase in cooling water withdrawal from the bay. (It should also be noted that the facility's thermal discharge increased by a similar percentage at that time). Despite decreased fishing, many species have shown no signs of recovery. The above graph shows the decline of winter flounder relative to the increase in cooling water use. Similarly dramatic declines can be demonstrated for other fish species as well.

Average annual losses of fish eggs and larvae due to existing cooling water withdrawals at Brayton Point Station include:

- 251 million winter flounder
- 11.8 billion bay anchovy
- 375 million windowpane flounder
- 3.5 billion tautog

Brayton Point Station's Impact on Mount Hope Bay

Located in Mount Hope Bay at the confluence of the Taunton and Lee Rivers, the Brayton Point Station power plant produces about 6% of the electricity consumed in New England. In producing this electricity, however, Brayton Point Station destroys trillions of marine organisms each year and significantly alters the temperature of the bay.

Each day, the station withdraws nearly one billion gallons of water from the bay and circulates it through the facility to condense the steam used to produce electricity. The water is then discharged back to the bay at elevated temperatures of up to 95° Fahrenheit. This "once through" cooling system has contributed to the collapse of the Mount Hope Bay fishery in the following ways:

- **Destroying trillions of organisms.** Water taken from the bay by the facility contains trillions of organisms, including billions of fish eggs and larvae. These organisms are pulled through (or "entrained") in the facility and killed by severe physical and chemical impacts and extreme water temperatures. For example, 251 million winter flounder larvae, 3.5 billion tautog eggs and 375 million windowpane flounder eggs are harmed in an average year.

Cooling water withdrawals also create a water velocity at the intake pipes which traps (or "impinges") many juvenile and mature fish against the intake screens. For example, in 1999, more than 75,000 Atlantic Menhaden were killed during a month long impingement event.

Altogether, trillions of organisms are lost to entrainment and impingement each year, including species of commercial and recreational importance, and forage fish and other organisms integral to the food web.

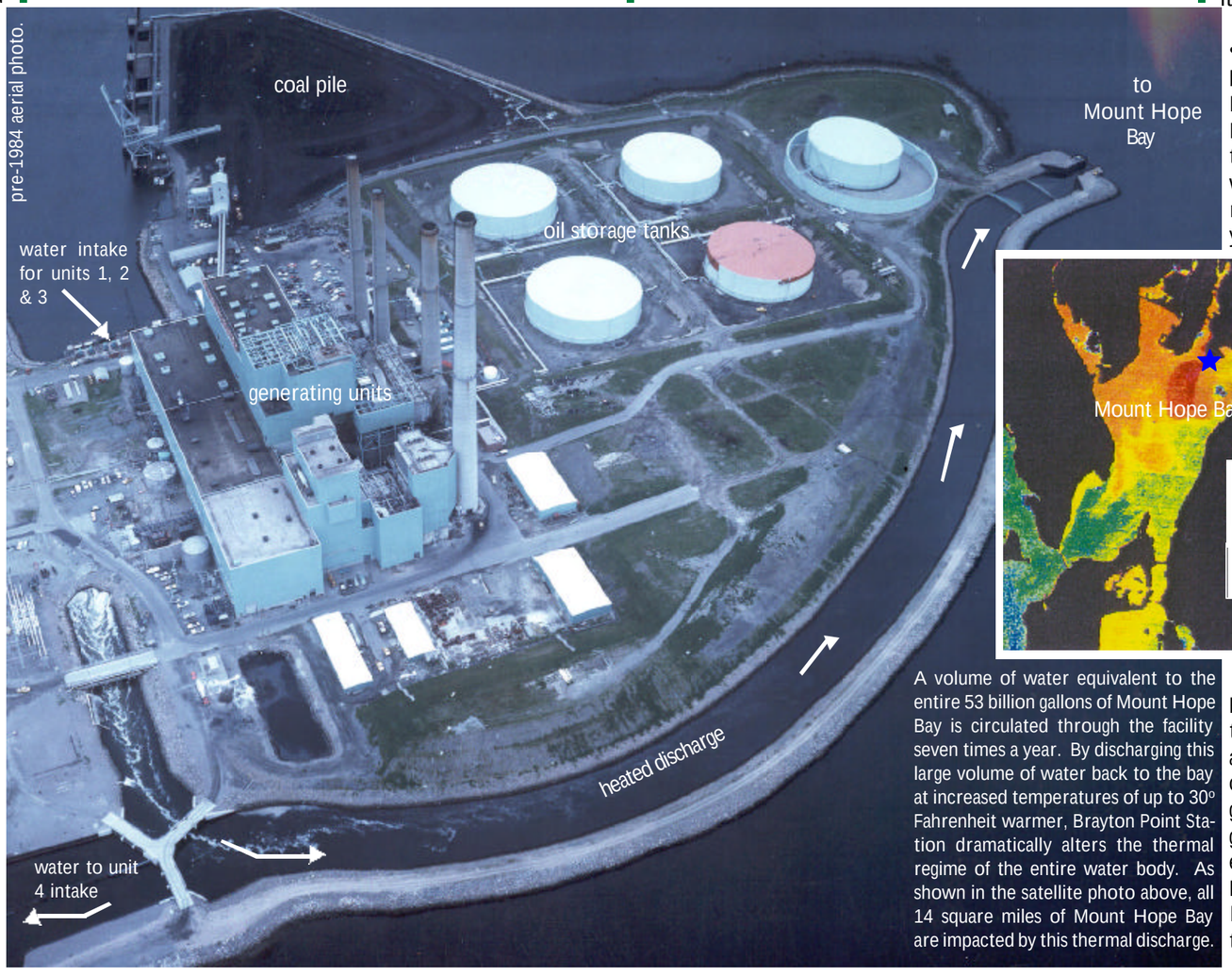
- **Dramatically altering the water temperature in the bay.** As a result of Brayton Point Station discharges of heated water, the temperature in the bay is about 1.5° Fahrenheit greater than other similar water bodies locally. This is a significant temperature difference in a fragile ecosystem. Altering the natural temperature of the bay has degraded the habitat, making areas inhospitable to native fish species, disrupting normal fish migration, and undermining the balanced, indigenous community of fish that should exist in Mount Hope Bay.

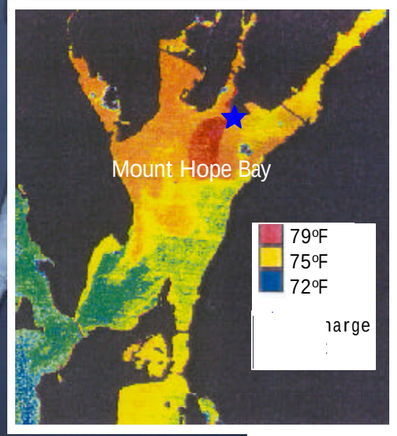
What Does EPA's Permit Require?

Consistent with the Clean Water Act, EPA is requiring thermal discharge limits that protect the marine life that should thrive in Mount Hope Bay. In addition, EPA is setting cooling water intake flow limits so that Brayton Point Station's cooling system reflects the best technology available to minimize the facility's adverse environmental impacts. The permit specifically requires Brayton Point Station to:

- Reduce total annual heat discharge to the bay by 96%, from 42 trillion British Thermal Units (BTUs) a year to 1.7 trillion BTUs a year, and
- Reduce water withdrawal from the bay by approximately 94%, from nearly 1 billion gallons a day to 56 million gallons a day. This flow requirement is consistent with well-established closed-cycle cooling technology using wet, mechanical draft cooling towers for generating units 1 through 4.

Compliance with these permit limits will eliminate annual fishery losses by an estimated 94% and improve habitat quality, thereby helping to give the bay an opportunity to recover.





A volume of water equivalent to the entire 53 billion gallons of Mount Hope Bay is circulated through the facility seven times a year. By discharging this large volume of water back to the bay at increased temperatures of up to 30° Fahrenheit warmer, Brayton Point Station dramatically alters the thermal regime of the entire water body. As shown in the satellite photo above, all 14 square miles of Mount Hope Bay are impacted by this thermal discharge.

Protecting Mount Hope Bay

While many federal, state and local efforts have been underway to protect Mount Hope Bay and the larger Narragansett Bay estuary, Brayton Point Station has continued to operate with nearly the same "once-through" cooling technology that was installed almost 40 years ago. Requiring the power plant to meet limits consistent with modern cooling system equipment complements these other efforts, which include:

- Sewage treatment improvements in Fall River, including a $115 million combined sewer overflow abatement program, being implemented to meet state and federal water quality requirements.
- Strict commercial and recreational fishing limits have been imposed in Massachusetts and Rhode Island for Mount Hope Bay in an effort to help restore fish stocks. Mount Hope Bay, and most areas of upper Narragansett Bay, is closed to commercial trawlers. In addition, recreational fishing for winter flounder is closed for 10 months of the year. A small recreational fishing effort is allowed for two months of the year.
- At the regional level, the National Marine Fisheries Service has spent $160 million in the last 10 years buying back fishing vessels and licenses from fishermen in the northeast to reduce fishing pressure on groundfish, including winter flounder. Moreover, additional stringent federal fishing restrictions are expected to be put in place next year.
- Enhancing knowledge about the Narragansett Bay estuary and implementing activities to protect and restore the estuary and its resources through the Narragansett Bay Estuary Program, which has spent approximately $15 million in federal and state matching funds on this effort since 1984.

Brayton Point Station's cooling water system has contributed to the collapse of the fishery and inhibited its recovery, even as steps to reduce fishing pressure and improve pollution controls are being taken to facilitate the bay's recovery. Upgrading the facility's cooling system with modern technologies that cut water withdrawals and thermal discharges will enable Brayton Point Station to reduce its harmful effects on Mount Hope Bay while continuing to generate electricity for New England. These improvements are expected to allow the fishery to recover and restrictions on fishing to be eased.