

# CASE STUDY



## Environmental Services for Dominion

### NATIONWIDE OFFICES

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#### Delaware

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#### Maine

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#### Massachusetts

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West Haverstraw

#### Pennsylvania

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#### Wisconsin

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### A Long-Standing and On-Going History of Service

## BACKGROUND

Normandeu Associates has had a long-standing, continuous relationship with Dominion (formerly New England Power Company and PG&E National Energy Group's U.S. Gen New England, Inc.) which dates back to the early 1970's mainly through our Falmouth, Massachusetts office. In those early days we completed an extensive, unprecedented ichthyoplankton survey of Narragansett Bay which involved weekly visits in support of Dominion's proposed Rome Point Nuclear Power Station in North Kingstown, Rhode Island. Since the beginning of this initial project Normandeu Associates and Dominion have fostered a long-term, mutually beneficial relationship. Our work with Dominion has expanded over the years to include support for Dominion's Brayton Point Station in Somerset, Massachusetts, the Manchester Street Station in Providence, Rhode Island, and the Salem Harbor Station in Salem, Massachusetts. We have also conducted multiyear aquatic ecology studies in Block Island Sound for the Dominion's proposed nuclear power station located in Charlestown, Rhode Island.

**BRAYTON POINT** Environmental monitoring tasks that Normandeu Associates is conducting today have continued since the inception of the project in the early 1970's as this work is required by Federal and state regulatory permits. For the Brayton Point Station these studies continue to include water quality monitoring, impingement and entrainment monitoring, and fish sampling programs that involve bottom trawling, nearshore fish sampling and ichthyoplankton surveys. Normandeu Associates also continues to conduct the monitoring of heavy metals in shellfish tissue, a program that Normandeu Associates personnel have been managing for over 30 years. In addition, Normandeu Associates personnel have conducted nutrient and productivity studies, phytoplankton, zooplankton, and benthos programs for over ten years until regulatory agencies were satisfied that we had demonstrated no adverse environmental impacts were taking place as a result of Dominion's plant operations. All combined, these studies constitute one of the longest, continuous estuarine databases in New England.



Our work at Brayton Point has evolved: Over time as Technical Advisory Committee questions for Brayton Point evolved additional shorter term studies were designed and completed by Normandeau staff. For example, the conversion of Unit 4 to open-cycle cooling required entrainment sampling and near field ichthyoplankton studies. A resident population of striped bass and Atlantic menhaden in the discharge canal led to a mark and recapture population estimate. Phytoplankton and zooplankton entrainment survival studies were also conducted for a number of years. We supported thermal plume and dissolved oxygen mapping and hydrothermal modeling by deploying numerous thermistor strings and data loggers in Mount Hope Bay. Our biologists conducted an intensive field and laboratory study of two porous dike designs for reducing fish impingement as well as entrainment of zooplankton and ichthyoplankton. Determining if the structure would become ineffective due to biofouling or the accumulation of inorganic material was an important goal of the study.

**MANCHESTER STREET** At Manchester Street Station we have conducted impingement sampling continuously since 1975. These directed studies included fish survival determinations before and after an intake screen update. We conducted impingement monitoring at the adjacent South Street Station until that plant was decommissioned in the early 1990's. When Manchester Street Station became the largest repowering project in the nation in the mid-1990's Normandeau began a more extensive RIPDES mandated monitoring program involving water quality monitoring, thermal discharge mapping, analyses of phytoplankton, periphyton, zooplankton, epibenthos and ichthyoplankton. Processing and analyzing samples within each of these disciplines are handled by one of our three biological laboratories. These studies continue today.

**SALEM HARBOR** Our work at Salem Harbor Station dates back to 1972 with multi-year studies designed to determine the effects of entrainment on phytoplankton and zooplankton. More recently, to provide information for regulatory agencies to renew the operating license for Salem Harbor Station Normandeau designed and completed entrainment, impingement, near field and far field ichthyoplankton studies from 2000-2003 and from 2006-2007.

*Banner Photo of Brayton Point Station Copyright Dominion*

#### **About Normandeau Associates**

Normandeau Associates, Inc., an employee-owned company, was founded in 1970 as an environmental consulting firm. Today, Normandeau is considered one of the nation's foremost companies in the field. Our deep and broad background as both environmental and public involvement consultants provides a wealth of knowledge and experience in disciplines ranging from environmental assessment and permitting to stakeholder interviews and facilitation.

From offices nationwide, Normandeau's staff of over 170 employees work closely with clients, regulators, and the public to seek solutions that enhance economic development, meet regulatory requirements, protect and restore natural resources, and improve communities.

Our diverse team includes marine, aquatic, wetland, and terrestrial ecologists; environmental planners; fisheries biologists and limnologists; ornithologists and botanists; soil scientists, geologists, and hydrologists; engineers; statisticians and data processing specialists; report production personnel; and public involvement professionals.

Normandeau Associates, Inc., combines experience, continuous training, hard work, and a rigorous commitment to excellence to deliver the highest possible level of service to our clients.

