

**Testimony of Tim Dillingham, Executive Director  
American Littoral Society  
Before  
Senate Environment Committee  
December 14, 2009**

**Regarding Senate Bill 3041  
“An Act Concerning Permits for Certain Energy Generation Facilities”**

Good afternoon, Chairman Smith and members of the Committee. Thank you for the opportunity to testify today on this important issue. I want to start by thanking the Chairman for his leadership on crafting this bill and holding this hearing.

The bays and estuaries of New Jersey, and the country as a whole, are vital and irreplaceable natural resources which are not only central to our lives, but are critical to our economy.

The bill before you addresses what has been characterized by the USEPA's Barnegat Bay National Estuary Program as “undoubtedly one of the significant factors in the decline of the water quality in Barnegat Bay” – the operation of the Oyster Creek Nuclear Generating Station, owned by Exelon Corporation.

It also addresses a broader question – who should bear the cost of Exelon's pollution of Barnegat Bay – the fishermen who depend on the Bay, the businesses that make their livelihood from it, and the public who's enjoyment of the Bay is (as the credit card ad says) priceless – or Exelon itself: the second most profitable energy company in the country and owner of a profitable facility.

Our bays and coastal waters belong to the public, and should not be used as disposal tanks for industrial waste, including superheated water. The Oyster Creek plant has excelled in dodging its responsibilities under the Clean Water Act for decades. To take from the public the ability to rely upon the waters of the state for fishing, recreation and a healthy ecosystem is, simply put, to steal from them their rights under the Public Trust Doctrine. The Legislature must put a stop to this.

This bill will require action by the State of New Jersey that is long overdue, necessary to stop unacceptable environmental damage, legally required by the

Clean Water Act, and supported by every state and federal environmental agency that has reviewed the issue. The actions it requires are available, economically feasible and fair.

Representatives from Exelon will undoubtedly testify that they are unwilling to invest a small portion of their profits from Oyster Creek to protect the environment and the health of Barnegat Bay. We are here today to urge you to side with the public and those parts of the Ocean County and state economy that depend on a clean and healthy Barnegat Bay, and not with the corporation, and vote yes on this legislation.

### **The Operation of the Oyster Creek Antiquated Once Through Cooling System**

Since the plant opened in 1969, it has used an open-loop system in which water from Barnegat Bay is pumped into the plant and then discharged, warmer than when it came in.

The current cooling system draws more than 1.4 billion gallons of water per day from Oyster Creek, which is screened, heated and mixed with biocides to protect plant piping before being discharged. The process destroys fish, fish larvae, plankton and other living organisms, and the heated water not only renders a large area of the Bay unconducive to marine life, it contributes to the growth of unhealthy algae blooms that dissolve oxygen levels in Barnegat Bay, making it difficult for aquatic life to survive. Organic loading to the Bay due to Oyster Creek effluent is roughly 17,000 pounds per day: a large primary sewage treatment plant with a capacity of 25 MGD (million gallons per day) would cause a loading of 21,000 per day. A treatment plant of this type would not be allowed on Barnegat Bay.

### **Importance of Barnegat Bay and its Fisheries Resources**

As the committee is well aware, Barnegat Bay is recognized as an estuary of national significance. It serves as nursery and habitat for a large number of fish and shellfish, that have important ecological, recreational and commercial value; these fishery resources occur both within the Bay itself, and offshore.

These fisheries (both fin and shellfish) are an important economic resource: in 1991, freshwater and marine recreational fishing in New Jersey had a total economic impact of \$1.33 billion, which supported 16,754 jobs and generated \$630 million in retail sales to fishermen, \$402 million in salaries and wages, \$50

million in state tax revenues and \$46 million in federal income tax revenues. Barnegat Bay is the foundation of much of this economic activity.

### **Why the Legislature needs to act**

The New Jersey Water Pollution Discharge Elimination System (NJPDES) permit governing the operation of Oyster Creek was last issued in mid-1990's: it has been administratively extended since then.

Despite drafting several permits requiring closed system cooling or cooling towers, and finding the operation of the plant without cooling towers inconsistent with state's coastal zone management program, the Department of Environmental Protection has failed to act conclusively.

### **Impacts of Oyster Creek Power Plant**

As discussed above, Barnegat bay is the plant's cooling water source and heat sink. Each day it pulls through 1.7 Billion gallons of water (2.8% of the Bay); on a monthly basis it cycles 84% of the volume of the entire bay through its pipes.

The American Littoral Society, Clean Ocean Action, Save Barnegat Bay and a host of other organizations have submitted extensive comments throughout the various reviews of the NJPDES permit for Oyster Creek, which document the impacts of the Oyster Creek cooling system through impingement, entrainment, and heat shock impacts. We include these for the record. These same impacts have been recognized by the EPA, US Fish and Wildlife Service, National Marine Fisheries Service and others.

During earlier reviews of the Oyster Creek, DEP contracted its own studies to assess impacts of the plant on the marine communities of Barnegat Bay. This study provided information on representative important species and also provided loss and impact information in the context of populations. Species of particular concern included hard clam, blue crab, bay anchovy and sand shrimp: species critical to the Bay's ecology and important commercial and recreational fisheries.

These impacts include not only the killing of billions of fish and other organisms, but contributing to changes in the Bay's environmental conditions and fish behavior and utilization (primarily related to the thermal discharge plume), and habitat qualities – including through a probable contribution to the

eutrophication of the Bay with its consequent impacts on the Bay's ability to support life.

The most recently collected information (2007) reveals that **a total of 1.4 billion organisms were entrained and 2.9 million impinged in Year 1 of the study, and 685,300,000 organisms entrained and 2.9 million impinged in Year 2.** The most commonly impinged or entrained organisms, including sand shrimp, grass shrimp, blue crab, bay anchovy, Atlantic menhaden and silversides make up the base of the Barnegat Bay food web and the substantial annual losses have far-reaching implications on the stability and success of fish populations throughout the Bay.

An estimated **118,820,000 winter flounder were entrained over a 49 week period, highlighting the impact Oyster Creek is having on a species of considerable recreational and commercial value.** Winter flounder were the 2<sup>nd</sup> most common species entrained (Year 2), comprising 17.34% of the total. Even the Nuclear Regulatory Commission recognized the significance of this loss, and its potential relationship to the ongoing concern about the status of winter flounder stocks along the eastern seaboard, where it has continued to decline despite efforts to reverse this trend.

A one year study of the entrainment of clam larvae reported that **112 Billion clam** larvae were entrained by the plant's once through cooling system. Adding to the seriousness of this finding is the conclusion of DEP that this huge number might be an underestimation.

A 1975 study found that during warm summer months, the thermal discharge adversely impacted hard clams by reducing growth rates and precluding spawning. Obviously, impacts that depress growth and reproduction can have long-term consequences on the viability of the population.

In fact, several species that utilize the Barnegat Bay continue to experience significant population declines, including blueback herring, hard clams and winter flounder.

The US EPA has recognized the drastic impact these losses can have for estuaries like Barnegat Bay:

Decreased numbers of aquatic organisms can disrupt aquatic food webs and alter species composition and overall levels of biodiversity. For

example, a model that examined the effect of large entrainment losses of forage fish, such as bay anchovy, predicted subsequent reductions in predator populations (including commercially and recreationally important species such as striped bass, weakfish and blue fish) as high as 25%. This is because forage species, which comprise a majority of entrainment losses at many facilities, are of a primary food source for predators.

### **Conclusions of federal agencies – EPA, NOAA Fisheries**

The operation and impact of Oyster Creek has been extensively reviewed by federal environmental authorities. Their conclusions about the negative environmental impacts of the plant are clear and unequivocal:

National Oceanic and Atmospheric Administration: National Marine Fisheries Service – “The history of the plant operation, as documented..., shows that thermal, entrainment and impingement impacts are directly impacting [Essential Fish Habitat] species and their prey species. These impacts have been well documented and the OCNGS operation continues to have direct and cumulative effects.”

The Service identified four species: bluefish, scup, summer flounder, and winter flounder, that have some life stage commonly destroyed by thermal, entrainment or impingement impacts. Winter flounder mortalities were identified as of greatest concern because “[they are] relatively high in relation to the population.”

The USEPA was direct in its conclusions – “This facility’s impacts to aquatic ecosystems over the course of its operation has been significant.”

### **Recommendations of federal agencies**

EPA – We support and strongly recommend the selection of a cooling tower as the mitigation measure....

NMFS – Implement the best available technology to mitigate impingement, entrainment and thermal impacts. This is...represented by the use of cooling towers to place the plant on a closed cycle cooling system.

NJDEP issued draft permit calling for cooling towers.

Each of these positions reflects the requirement of the Clean Water Act (Section 316(b)) that “the location, design, construction and capacity of cooling water intake structure reflect the best technology available for minimizing adverse environment impact.”

### **Oyster Creek in context of other sources of pollution to the Bay**

According to BBNEP, “undoubtedly, one significant factor for the decline of the bay’s water quality has been the operation of the OCNGS.” However, Oyster Creek isn’t the only contributor to the bay’s problems. While acknowledging that, it is important to understand that such a situation places greater emphasis on removing the detrimental impacts caused by Oyster Creek – not shifting accountability elsewhere, as Exelon has argued. As the resources of Barnegat Bay continue to decline due to the addition of new and increased environmental insults, the capacity of the Bay and its resources to absorb the continued level of impacts caused by Oyster Creek’s operation is diminished, and the overall effects due to the plant are increased. EPA clearly identified this in its rulemaking regarding compliance with Section 316(b) of the Clean Water Act:

The Agency is concerned that to the extent that many of the aquatic organisms subject to the effects of cooling water withdrawals reside in impaired waterbodies, they are potentially more vulnerable to cumulative impacts from an array of physical and chemical anthropogenic stressors.

### **Conclusion**

The 5000 members of the American Littoral Society join with the other voices from the public, fishermen and a broad range of public interest organizations to urge you to pass this legislation. We urge you to protect Barnegat Bay, its irreplaceable environmental resources and the economy that depends on it by requiring Oyster Creek Nuclear Generating Station to use the best available technology to control the plant’s environmental impacts by installing a closed loop cooling system (cooling towers).

This technology is a cost-effective way to stop the extensive environmental damage caused by the power plant’s current “once through” cooling method. Senate Bill 3041 will protect Barnegat Bay from the large scale environmental degradation caused by the plant, and is part of a series of actions needed to protect the Bay, which is dying.