



Jersey Central Power & Light Company
Madison Avenue at Punch Bowl Road
Morristown, New Jersey 07960
(201) 455-8200

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REGISTRATION UNIT
ENVIRONMENTAL SERVICES
BRANCH

Mr. Boyce Grier
Office of Inspection and Enforcement
Region I
United States Nuclear Regulatory Commission
631 Park Avenue
King of Prussia, Pa. 19406

Dear Mr. Grier:

Subject: Jersey Central Power & Light Company
Progress Report of Ecological Studies at
the Oyster Creek Nuclear Generating Station
September 1979 - August 1980

In accordance with the Oyster Creek Environmental Technical Specifications (OCETS) Section 3.1, JCP&L submits herewith the Progress Report for Ecological studies at the Oyster Creek Nuclear Generating Station for the period covering September 1979 to August 1980.

As previously stated by JCP&L, the inter- and intra-study analyses had not been included in the 1980 Ecological Studies Progress Report because the period of data collection since the issuance of OCETS in June 1979 had been too short. This program data has been included in the data base used for statistical analyses in the 1981 report.

If you have any questions regarding this report, please contact Ron Lacey, Supervisor Environmental Licensing at (201) 455-8757.

Very truly yours,

Ivan R. Finrock, Jr.
Ivan R. Finrock, Jr.
Vice President

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cc:
Office of Nuclear Reactor Regulations
U.S. Nuclear Regulatory Commission
Washington, D. C. 20555

Richard Block
U.S. Environmental Protection Agency
26 Federal Plaza
New York, N. Y.

Dr. M. Masnik
U.S. Nuclear Regulatory Commission
Washington, D. C. 20555

J. P. Proctor
Debevoise & Liberman
1200 Seventeenth Street N. W.
Washington, D. C. 20036

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Executive Summary

This report presents the results of the ecological studies conducted at the Oyster Creek Nuclear Generating Station and in Barnegat Bay and contiguous streams, pursuant to Appendix B of the Environmental Technical Specifications issued by the United States Nuclear Regulatory Commission. These studies were conducted by Ecological Analysts, Inc. during the period 1 September 1979 - 31 August 1980.

The ecological studies required in the Environmental Technical Specifications were designed to determine the impact, if any, of station operation on the local environment. The studies consist of four major elements:

- 1) Monitoring the impingement of finfish and macroinvertebrates on the station's intake screens;
- 2) Monitoring the entrainment of invertebrates and the larval and juvenile stages of finfish through the stations condensers;
- 3) Monitoring the species composition and abundance trends of finfish and macroinvertebrates in Barnegat Bay;
- 4) Monitoring the species composition and abundance of woodborers in Barnegat Bay and vicinity.

The woodborer studies are being conducted by William F. Clapp Laboratories and will be reported on at a later date.

The intent of the program design is to compare the numbers and types of organisms removed from the Barnegat Bay system via impingement and entrainment at the station with the numbers and types of organisms present in the system. Scientific judgements can then be made as to the relative importance of these losses to the ecosystem. Largely due to the high variability inherent in biological systems, the goal of determining the impact of plant operations on the Barnegat Bay system has yet to be achieved, even after six years of study.

A brief summary of the major program elements follows.

Impingement of organisms was shown to be primarily correlated with season of the year, time of day, abundance of the various organisms in the system and, in some cases, high winds. As one might expect, the major influence is the abundance of organisms in the vicinity of the plant.

Entrainment of invertebrates and larval fishes was also shown to be controlled primarily by natural phenomena, such as seasonal temperature cycles, rather than plant operating parameters. The 1979-80 densities of the eggs and larvae of one particularly sensitive species, the Bay anchovy, were the lowest observed since 1975. The numbers of adults and juveniles have also declined steadily during the past five years. Whether this decline in abundance is related to plant operation or natural phenomena cannot be determined at this time. Future studies are planned which will focus upon this problem.

The monitoring results of species composition and abundance trends of finfish and macroinvertebrates in Barnegat Bay indicate that while species composition has remained quite stable over time, the abundance of individual species is highly variable. This pattern is typical of estuarine populations of fishes and invertebrates. No strong relationship between plant operation and species composition and abundance was indicated.