

INTERIM REPORT

Accession No. _____
Contractor's Report No. _____

Contract Program or Project Title: Hudson River White Perch

Subject of this Document: Quarterly Progress Report reported for
October 1 through December 31, 1979

Type of Document: Interim Contractor Report

Author(s): Webster Van Winkle

Date of Document: _____

Responsible NRC Individual and NRC Office or Division: Phillip R. Reed,
Environmental Effects Research Branch, Division of Safeguards, Fuel Cycle
and Environmental Research

This document was prepared primarily for preliminary or internal use. It has not received full review and approval. Since there may be substantive changes, this document should not be considered final.

Prepared for
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555

NRC FIN No. B0423

NRC Research and Technical
Assistance Report

INTERIM REPORT

8003270358

QUARTERLY PROGRESS REPORT FOR PERIOD

October 1 through December 31, 1979

ENVIRONMENTAL SCIENCES DIVISION
OAK RIDGE NATIONAL LABORATORY

PROJECT (189 No.): B0423 - Hudson River White Perch

PERSON IN CHARGE: Webster Van Winkle

PRINCIPAL SCIENTIST: Lawrence W. Barnthouse

TECHNICAL OBJECTIVES: To complete the topical reports on estimating and evaluating collection rates and conditional mortality rates due to impingement of white perch at the Indian Point Nuclear Station and the other power plants on the Hudson River. To collect, compile, and analyze data on white perch entrainment losses and density-dependent growth. To review data and information on white perch from other water bodies. To document in a second topical report the results of the new analyses and to make a determination whether the combined entrainment and impingement losses may have an adverse impact on the Hudson River white perch population.

STATUS OF SUBTASKS: Work on all subtasks is proceeding on schedule.

MAJOR ACCOMPLISHMENTS:

A. Direct Impact of Impingement on the Hudson River
White Perch Population

The computer program used for estimating conditional impingement mortality rates was modified to accept separate impingement totals for six power plants and to compute separate conditional impingement mortality rates for each plant.

B. Analysis of White Perch Impingement Rates

First drafts of two manuscripts, entitled "An evaluation of impingement rate as an index of year-class strength" and "An analysis of the minimum detectable reduction in year-class strength of the Hudson River white perch population based on impingement rate data" were prepared.

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C. Multispecies Effects

Two generalized multispecies models were constructed and analyzed using loop analysis. The first is a three-compartment food chain model consisting of white perch, benthic invertebrates, and detritus. The second is a four-compartment model in which a second fish species competes with white perch.

PUBLICATIONS, PRESENTATIONS, AND MEETINGS:

Meetings:

Meeting with J. Boreman and C. P. Goodyear (National Power Plant Team) to evaluate the feasibility of basing a settlement of the Hudson River Power Case on the achievement of mitigation criteria. This meeting was held in Oak Ridge on October 23-24, 1979 (L. W. Barnhouse, S. W. Christensen, W. Van Winkle, D. S. Vaughan).

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