

# BENTHIC MAP OVERLAYS

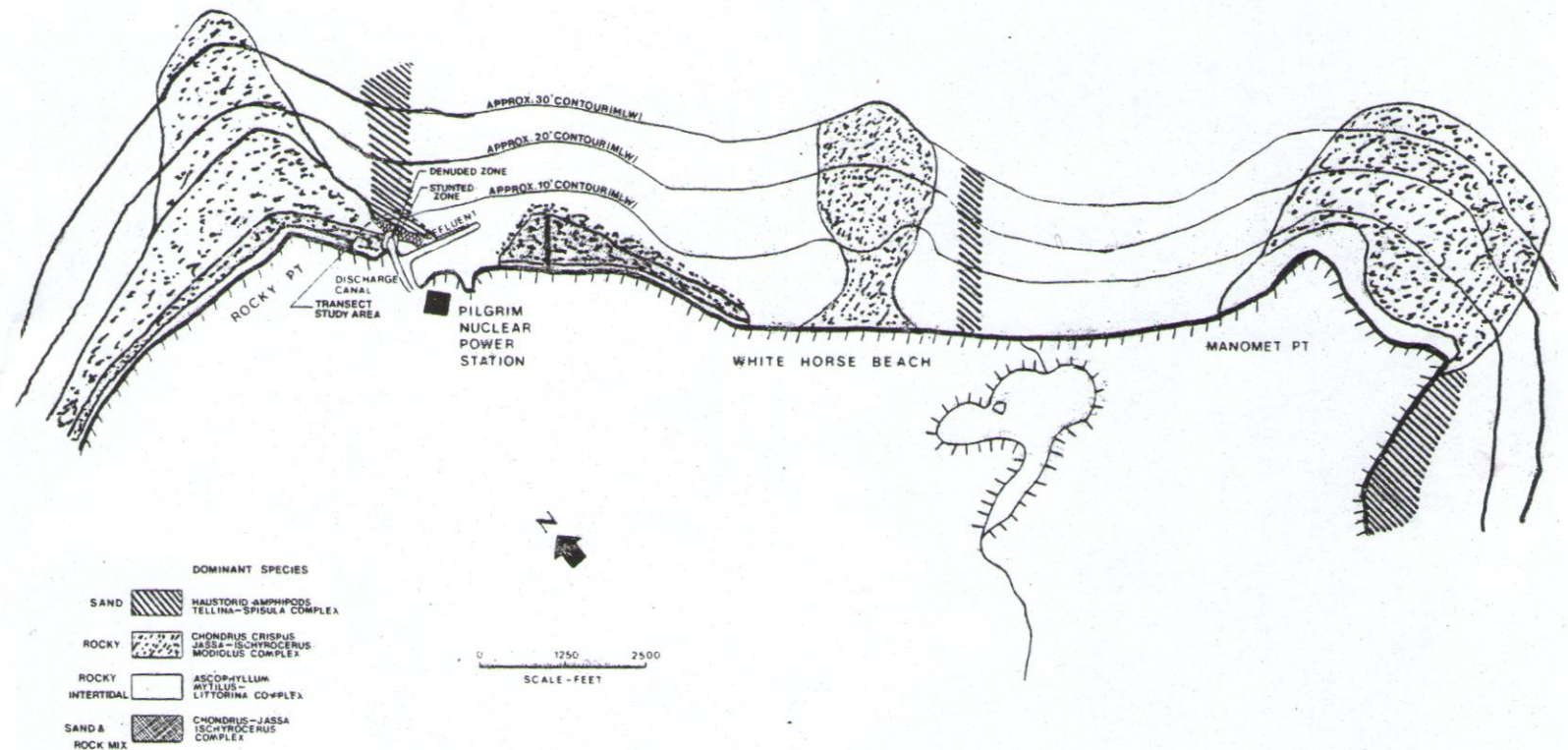
&

## ASSESSMENT OF BENTHIC

## MONITORING PROGRAMS

[ VOLUME 1 ]

CAPE COD BAY



PILGRIM NUCLEAR POWER STATION

NUCLEAR ENGINEERING DEPARTMENT

ENVIRONMENTAL SCIENCES GROUP

JUNE 1980

BOSTON  
  
Edison COMPANY

BENTHIC MAP  
OVERLAYS AND ASSESSMENT  
OF THE PILGRIM NUCLEAR POWER STATION  
BENTHIC MONITORING PROGRAMS

PREPARED BY: Lewis N. Scotton  
L. N. Scotton  
Senior Marine Fisheries Biologist

REVIEWED BY: Robert D. Anderson  
R. D. Anderson  
Senior Marine Fisheries Biologist

APPROVED BY: Fred J. Mogolesko  
Dr. F. J. Mogolesko  
Group Leader Environmental Sciences

Boston Edison Company  
Boston, Massachusetts  
June 1980

MAP REPORT CONTENTS

<u>VOLUME 1</u>	<u>PAGE</u>
1.0 INTRODUCTION.....	5
1.1 Report Organization.....	5
2.0 ASSESSMENT OF BECo.'s PILGRIM NUCLEAR POWER STATION BENTHIC MONITORING PROGRAMS (Prepared by Taxon, Inc.).....	7
2.1 Sampling Program History.....	9
2.2 Results.....	14
2.2.1 Long Term Studies.....	14
2.2.2 Transect Study.....	18
2.3 Discussion.....	23
2.3.1 Adequacy of Studies with Respect to Aims.....	24
2.4 The Predictive Utility of the Data.....	27
2.5 Summary and Recommendations.....	29
3.0 OVERLAY DATA APPENCIES	
3.1 Pilgrim Station Unit 1, Biological Overlays.....	31
3.1.1 Information.....	31
3.1.2 References.....	32
3.2 Pilgrim Station Unit 1, Thermal Plume Bottom Isotherms.....	33
3.2.1 References.....	35
3.2.2 Figures.....	36

4.0 BIOLOGICAL OVERLAYS

4.1 Transect Area

- Fig. 1. Boundaries of Denuded and Stunted Areas (Large Scale)
- Fig. 2. Boundaries of Denuded and Stunted Areas (Small Scale)
- Fig. 3. Amphipod and Starfish Density Per  $m^2$
- Fig. 4. Chondrus crispus Density as Percent Cover, and Height
- Fig. 5. Bottom Type Boundaries and Mean Grain Size
- Fig. 6. 6' and 12' Depth Contours (MLW)
- Fig. 7. Distribution of the Thermally Sensitive Snail,  
Margarites umbilicalis
- Fig. 8. Location of Mass. Division Marine Fisheries Dive and Gill  
Net Stations Off Discharge Canal

4.2 Rocky Point - Manomet Point Sampling Area

- Fig. 9. Location of Benthic Transects and Sampling Stations Utilized  
Between 1971 - 1979
- Fig. 10. Location of Benthic Transects and Sampling Stations Utilized  
Between August 1971 - May 1974
- Fig. 11. Location of Benthic Transects and Sampling Stations Utilized  
Between September 1974 - June 1978
- Fig. 12. Location of Benthic Transects and Sampling Stations Utilized  
Between September 1978 - December 1979
- Fig. 13. Major Benthic Communities in Vicinity of Pilgrim Station
- Fig. 14. Distribution of Large Rocks in the Rocky Point - Manomet  
Point Area