NEW JERSEY COASTAL PLAIN
ANCORA, OCEAN VIEW, AND BETHANY BEACH SITES

VOLUME 174AX SUPPLEMENT
INITIAL REPORTS

PROCEEDINGS OF THE OCEAN DRILLING PROGRAM

Prepared by the OCEAN DRILLING PROGRAM, TEXAS A&M UNIVERSITY, in cooperation with the NATIONAL SCIENCE FOUNDATION and JOINT OCEANOGRAPHIC INSTITUTIONS, INC.
Frontispiece 1. Ancora Site. The Ancora (New Jersey) Site was drilled in July 1998 with a U.S. Geological Survey rig. The barn on the left was used as a field laboratory.
Frontispiece 2. Ocean View Site. U.S. Geological Survey Eastern Earth Surface Processes Team truck-mounted drill rig at the Ocean View, New Jersey, drill site (September–October 1999). The trailer at the right was used for preliminary core description and core photography. The Garden State Parkway is in the background.
Frontispiece 3. Bethany Beach Site. U.S. Geological Survey, Eastern Earth Surface Processes Team truck-mounted drill rig at the Bethany Beach, Delaware, drill site (May–June 2000). The trailer on the right was used as a field laboratory.
Covering onshore boreholes as part of the New Jersey Sea-Level Transect
Ancora Site: July–August 1998
Ocean View Site: September–October 1999
Bethany Beach Site: May–June 2000

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- Australia/Canada/Chinese Taipei/Korea Consortium for Ocean Drilling: Department of Primary Industries and Energy (Australia), Natural Resources Canada, National Taiwan University in Taipei, and Korean Institute for Geology, Mining and Minerals
- Deutsche Forschungsgemeinschaft (Federal Republic of Germany)
- European Science Foundation Consortium for Ocean Drilling (Belgium, Denmark, Finland, Iceland, Ireland, Italy, The Netherlands, Norway, Portugal, Spain, Sweden, Switzerland, and Turkey*)
- Institut National des Sciences de l’Univers–Centre National de la Recherche Scientifique (INSU-CNRS) (France)
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Any opinions, findings, and conclusions or recommendations expressed in this publication are those of the author(s) and do not necessarily reflect the views of the National Science Foundation, the participating agencies, Joint Oceanographic Institutions, Inc., Texas A&M University, or Texas A&M Research Foundation.

Abbreviations for names of organizations and publications in ODP reference lists follow the style given in Chemical Abstracts Service Source Index (published by American Chemical Society).

*Turkey was a member during drilling at the Ancora Site.
†People’s Republic of China was a member during drilling at the Ocean View and Bethany Beach sites.
The bulk of the data from this leg is available on the World Wide Web and is accessible at www-odp.tamu.edu/database. If you cannot access this site or need additional data, please contact the ODP Data Librarian, Ocean Drilling Program, Texas A&M University, College Station TX 77845-9547, USA. E-mail: database@odpemail.tamu.edu.

A site map showing the drilling locations for this leg and maps showing the drilling locations of all Ocean Drilling Program (ODP) and Deep Sea Drilling Project (DSDP) drilling sites are available on the volume CD-ROM in PDF format. These maps were produced using Generic Mapping Tools (GMT) of Paul Wessel and Walter H.F. Smith (gmt.soest.hawaii.edu).

The Leg 174AX Initial Reports volume, which includes the Bass River Site, is reprinted on the volume CD-ROM.

Cover photograph is by ODP Photographer John Beck.
FOREWORD

BY JOINT OCEANOGRAPHIC INSTITUTIONS, INC.

This volume presents scientific and engineering results from the Ocean Drilling Program (ODP). These results address the scientific and technical goals of the program, which are focused on the study of the dynamics of Earth’s interior and environment, the evolution of oceanic crust, and the fluctuations of climate. In addition, study of the Earth’s deep biosphere is an emergent research objective.

ODP, an international partnership of scientists and research institutions from 22 countries, operates the drillship JOIDES Resolution. This state-of-the-art research vessel contains eight levels of laboratories and other scientific facilities required for carrying out the program’s objectives.

The management of ODP involves a partnership of scientists and governments. International oversight and coordination are provided by the ODP Council, which is made up of representatives from the member countries. Overall scientific and management guidance is provided by representatives from the Joint Oceanographic Institutions for Deep Earth Sampling (JOIDES).

Joint Oceanographic Institutions, Inc. (JOI), a nonprofit consortium of 18 U.S. oceanographic institutions, serves as the National Science Foundation’s prime contractor for ODP. JOI implements scientific objectives, plans, and recommendations of the JOIDES committees through major subcontracts to Texas A&M University (TAMU) for science operations and to Lamont-Doherty Earth Observatory (LDEO) of Columbia University for geochemical and geophysical well-logging services.

JOI, TAMU, and LDEO have worked together successfully for many years to manage the Ocean Drilling Program. We look forward to many exciting discoveries and continued international collaboration as we further our scientific mission, especially the planning for the future of ocean drilling beyond 2003.

Steven R. Bohlen
President of the Joint Oceanographic Institutions and Executive Director of the Ocean Drilling Programs
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*At time of publication. See Publisher’s Notes, p. 8, for list of funding agencies at time of drilling. For an up-to-date list of current member organizations and office contact information, see the ODP Web site: [www.oceandrilling.org](http://www.oceandrilling.org).
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ACKNOWLEDGMENTS

The New Jersey Coastal Plain Drilling Project Leg 174AX represents a continuation of the onshore component of the New Jersey Sea-Level Transect that began with Leg 150X. Onshore drilling complements Ocean Drilling Program (ODP) Leg 150 slope drilling and Leg 174A shelf drilling. The JOIDES Planning (PCOM) and Science Committees (SCICOM) recognized the Bass River (1996), Ancora (1998), Ocean View (1999), and Bethany Beach (2000) boreholes as ODP Leg 174AX. Leg 174AX is an international effort that follows the guidelines and procedures of the ODP including all sampling protocols. Contributors to Leg 174AX thank the many individuals that made this study possible. The National Science Foundation (NSF) Continental Dynamic Program (L. Johnson, Program Director) and Ocean Drilling Program (B. Malfait, Program Director) co-funded the onshore boreholes (Legs 150X and 174AX; NSF grants EAR92-18210, EAR94-17108, and EAR97-08664). The New Jersey Geological Survey (NJGS) partially funded direct drilling costs for Leg 174AX through the 1981 State Water Bond issue and supplied materials, personnel, and logging support. We thank H. Kasabach (State Geologist, NJGS) for his foresight in funding deep, continuous coring of aquifers and R. Canace (NJGS) for administering the Water Bond funding for Ancora. We thank J. Curran for logging and D. Kent for advice. The Department of Geological Sciences (M. Carr, Chair) and Institute of Marine and Coastal Sciences (F. Grassle, Director) at Rutgers University provided space and facilities for core storage and core analyses. G.S. Mountain (Lamont-Doherty Earth Observatory [LDEO], Leg 150 Co-Chief Scientist), N. Christie-Blick (LDEO, Leg 174A Co-Chief Scientist), and J. Austin (University of Texas Institute for Geophysics, Leg 174A Co-Chief Scientist) collaborated in designing the New Jersey Sea-Level Transect, which includes the New Jersey Coastal Plain Drilling Project. We thank the U.S. Geological Survey drillers (D. Queen, Gene Cobbs, and Gene Cobbs III) for their exemplary efforts and T. Bralower for support and advice on Cretaceous nannofossil studies. The ODP Publication Services staff (A. Klaus, Manager) responded well to the challenge of this unusual “leg.” The NSF, PCOM/SCICOM, and ODP, are to be commended for their flexibility and vision in authorizing both Legs 150X and 174AX as an ODP activity.
CD-ROM CONTENTS: CHAPTERS

174AX Leg Summary: Sequences, Sea Level, Tectonics, and Aquifer Resources: Coastal Plain Drilling

1. Ancora Site
   Scientific Party

2. Ocean View Site
   Scientific Party

3. Bethany Beach Site
   Scientific Party

1The Leg 174AX Initial Reports volume, which includes the Bass River Site, is reprinted on the volume CD.
CD-ROM CONTENTS: CORE DESCRIPTIONS

Visual core descriptions (VCDs) and digital images are included in this section.

Ancora Site
Visual Core Descriptions

Ocean View Site
Visual Core Descriptions

Bethany Beach Site
Visual Core Descriptions
OVERSIZED MATERIAL

These oversized figures are available on the volume CD-ROM in PDF format.

Leg Summary Chapter

Figure F11. Summary for Bass River, NJ.
Figure F12. Summary for Ancora, NJ.
Figure F13. Summary for Ocean View, NJ.
Figure F14. Summary for Bethany Beach, DE.
CD-ROM CONTENTS: DRILLING LOCATION MAPS

A site map showing the drilling locations for this leg and maps showing the drilling locations of all Ocean Drilling Program (ODP) and Deep Sea Drilling Project (DSDP) drilling sites are available in PDF format.

ODP Leg 174AX Site Map
ODP Map (Legs 100–174AX)
DSDP Map (Legs 1–96)
CD-ROM CONTENTS: INDEX TO 174AX INITIAL REPORTS VOLUME

The index covers the Initial Reports portion of Volume 174AX of the Proceedings of the Ocean Drilling Program. The index contains a subject and taxonomic index.

Index to Leg 174AX

COMPiled ELECTRONIC INDEX

The Compiled Electronic Index of the Proceedings of the Ocean Drilling Program included on the volume CD-ROM contains individual indexes of Volumes 101–176, 178, and 180. The indexes are contained in the directory titled ODPINDEX and are named ###NDX.PDF (### = the leg number). These indexes can be searched individually or collectively.
## CD-ROM Directory Structure

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(Information about the volume CD-ROM)

### README.TXT
(Information about the volume CD-ROM in ASCII format)

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(Acrobat Reader installation software and instructions for different platforms)

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### MAPS
(Drilling location maps)

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<td>Leg 174A site map</td>
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<tr>
<td>174AXMAP.PDF</td>
<td>Leg 174AX site map</td>
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