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.

Proceedings of the Ocean Drilling Program

Volume 174AX Supplement
Initial Reports
New Jersey Coastal Plain

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

ANCORA SITE CONTRIBUTING SCIENTISTS
Kenneth G. Miller, Peter J. Sugarman, James V. Browning,
Marie-Pierre Aubry, Gilbert J. Brenner, Benjamin S. Cramer, Mark D. Feigenson, Marius D. Georgescu,
Keith T. Metzger, Donald H. Monteverde, Frederick L. Muller, Lloyd G. Mullikin, Richard K. Olsson,
Stephen F. Pekar, Don Queen, Timothy J. Reilly, Linda de Romero, Ethan S. Skinner, Jane Uptegrove

OCEAN VIEW SITE CONTRIBUTING SCIENTISTS
Kenneth G. Miller, Peter J. Sugarman, James V. Browning, Stephen F. Pekar,
Marie-Pierre Aubry, Stefanie J. Baxter, Benjamin S. Cramer, Mark D. Feigenson, Miriam E. Katz,
Francine McCarthy, Peter P. McLaughlin, Jr., Keith T. Metzger, Donald H. Monteverde,
Lloyd G. Mullikin, Richard K. Olsson, Sarah Tiffin, Jane Uptegrove, Bill Van Sickel

BETHANY BEACH SITE CONTRIBUTING SCIENTISTS
Kenneth G. Miller, Peter P. McLaughlin, James V. Browning,
Marie-Pierre Aubry, Stefanie J. Baxter, Richard N. Benson, Benjamin S. Cramer, Stephen E. Curtin,
Mark D. Feigenson, John Hernandez, Miriam E. Katz, Thomas E. McKenna, Donald H. Monteverde,
Stephen F. Pekar, Kelvin W. Ramsey, Scott A. Strohmeier, Peter J. Sugarman, Jane Uptegrove

VOLUME EDITORS
Katerina E. Petronotis
Lorri L. Peters

VOLUME GRAPHIC DESIGNERS
Nancy H. Luedke
Deborah L. Partain

VOLUME PRODUCTION EDITOR
Jaime Gracia

Reference to the whole or to part of this volume should be made as follows:

Print citation for summary chapter:
Miller, K.G., Browning, J.V., Sugarman, P.J., McLaughlin, P.P., Kominz, M.A., Olsson, R.K., Wright, J.D., Cramer, B.S., Pekar, S.J., and Van Sickel, W., 2003. 174AX leg summary: sequences, sea level, tectonics, and aquifer resources: coastal plain drilling. *In* Miller, K.G., Sugarman, P.J., Browning, J.V., et al., *Proc. ODP, Init. Repts*., 174AX (Suppl.): College Station TX (Ocean Drilling Program), 1–38.

CD-ROM volume citation:
Miller, K.G., Sugarman, P.J., Browning, J.V., et al., 2003. *Proc. ODP, Init. Repts.,* 174AX (Suppl.) [CD-ROM]. Available from: Ocean Drilling Program, Texas A&M University, College Station TX 77845-9547, USA.

CD-ROM chapter citation:
Miller, K.G., Sugarman, P.J., Browning, J.V., Cramer, B.S., Olsson, R.K., de Romero, L., Aubry, M.-P., Pekar, S.F., Georgescu, M.D., Metzger, K.T., Monteverde, D.H., Skinner, E.S., Uptegrove, J., Mullikin, L.G., Muller, F.L., Feigenson, M.D., Reilly, T.J., Brenner, G.J., 2003. Ancora Site. *In* Miller, K.G., Sugarman, P.J., Browning, J.V., et al., *Proc. ODP, Init. Repts*., 174AX (Suppl.), 1–65 [CD-ROM]. Available from: Ocean Drilling Program, Texas A&M University, College Station TX 77845-9547, USA.

This volume also appears on the World Wide Web. See **www-odp.tamu.edu/publications** for Web citation formats.

Effective publication dates of ODP *Proceedings*

According to the International Code of Zoological Nomenclature, the date of publication of a work and of a contained name or statement affecting nomenclature is the date on which the publication was mailed to subscribers, placed on sale, or when the whole edition is distributed free of charge, mailed to institutions and individuals to whom free copies are distributed. The mailing date, *not the printing date,* is the correct one.

The printing date of this volume: February 2003

The mailing dates of recent *Proceedings of the Ocean Drilling Program:*

Volume 198 (*Initial Reports*): October 2002
Volume 199 (*Initial Reports*): November 2002
Volume 200 (*Initial Reports*): January 2003
Volume 176 (*Scientific Results*): December 2002
Volume 178 (*Scientific Results*): December 2002
Volume 180 (*Scientific Results*): September 2002

Copies of this publication may be obtained from Publications Distribution Center, Ocean Drilling Program, Texas A&M University, 1000 Discovery Drive, College Station TX 77845-9547, USA. See the ODP publication list at **www-odp.tamu.edu/publications** or contact ODP for prices and ordering information. Orders for copies require advance payment.

ISSN
Book: 0884-5883; CD-ROM: 1096-2522; World Wide Web: 1096-2158
Library of Congress 87-642-462

Publisher's Notes

This volume also appears on the World Wide Web. Any scientific corrections, revisions, or additions will be noted in the chapter (see "Chapter Notes") at **www-odp.tamu.edu/publications**.

This publication was prepared by the Ocean Drilling Program, Texas A&M University, as an account of work performed under the international Ocean Drilling Program, which is managed by Joint Oceanographic Institutions, Inc., under contract with the National Science Foundation. Funding for the program was provided by the following agencies at the time of this cruise:

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)

Marine High-Technology Bureau of the State Science and Technology Commission of the People's Republic of China†

National Science Foundation (United States)

Natural Environment Research Council (United Kingdom)

University of Tokyo, Ocean Research Institute (Japan)

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 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
Washington, D.C.

Ocean Drilling Program*

National Science Foundation
4201 Wilson Boulevard
Arlington VA 22230, USA
Tel: (703) 306-1581; Fax: (703) 306-0390
Web site: www.nsf.gov

Member Organizations of the Joint Oceanographic Institutions for Deep Earth Sampling (JOIDES)

Columbia University, Lamont-Doherty Earth Observatory

Florida State University

Oregon State University, College of Oceanic and Atmospheric Sciences

Pennsylvania State University, College of Earth and Mineral Sciences

Rutgers, The State University of New Jersey, Institute of Marine and Coastal Sciences and Faculty of Arts and Sciences

Stanford University, School of Earth Sciences

Texas A&M University, College of Geosciences

University of California at San Diego, Scripps Institution of Oceanography

University of California, Santa Cruz

University of Florida

University of Hawaii, School of Ocean and Earth Science and Technology

University of Miami, Rosenstiel School of Marine and Atmospheric Science

University of Michigan, College of Literature, Science, and the Arts

University of Rhode Island, Graduate School of Oceanography

University of South Florida, College of Marine Science

University of Texas at Austin, Institute for Geophysics

*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.**

University of Washington, College of Ocean and Fishery Sciences

Woods Hole Oceanographic Institution

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

European Science Foundation Consortium for Ocean Drilling (Belgium, Denmark, Finland, Iceland, Ireland, Italy, The Netherlands, Norway, Portugal, Spain, Sweden, and Switzerland)

Federal Republic of Germany, Bundesanstalt für Geowissenschaften und Rohstoffe

France, Institut National des Sciences de l'Univers–Centre National de la Recherche Scientifique (INSU-CNRS)

Japan, University of Tokyo, Ocean Research Institute

People's Republic of China, Marine High-Technology Bureau of the State Science and Technology Commission of the People's Republic of China

United Kingdom, Natural Environment Research Council

Ocean Drilling Program (ODP)

Web site: **www.oceandrilling.org**

ODP Science Advisory Structure (JOIDES)

JOIDES Office
University of Miami—RSMAS
4600 Rickenbacker Causeway
Miami FL 33149, USA
Tel: (305) 361-4668; Fax: (305) 361-4632
E-mail: **joides@rsmas.miami.edu**
Web site: **joides.rsmas.miami.edu**

ODP Program Manager

Joint Oceanographic Institutions, Inc.
1755 Massachusetts Avenue, NW, Suite 700
Washington DC 20036-2102, USA
Tel: (202) 232-3900; Fax: (202) 462-8754
E-mail: **joi@joiscience.org**
Web site: **www.joiscience.org**

ODP Science Operator

Ocean Drilling Program
Texas A&M University
1000 Discovery Drive
College Station TX 77845-9547, USA
Tel: (979) 845-2673; Fax: (979) 845-4857
E-mail: **odp@odpemail.tamu.edu**
Web site: **www-odp.tamu.edu**

ODP Logging Services Operator

Borehole Research Group
Lamont-Doherty Earth Observatory
of Columbia University
PO Box 1000, 61 Route 9W
Palisades NY 10964, USA
Tel: (845) 365-8341; Fax: (845) 365-3182
E-mail: **borehole@ldeo.columbia.edu**
Web site: **www.ldeo.columbia.edu/BRG/ODP**

ODP Site Survey Data Bank

Lamont-Doherty Earth Observatory
of Columbia University
PO Box 1000, 61 Route 9W
Palisades NY 10964, USA
Tel: (845) 365-8542; Fax: (845) 365-8159
E-mail: **odp@ldeo.columbia.edu**
Web site: **www.ldeo.columbia.edu/databank**

Contributors to the New Jersey Coastal Plain Drilling Project, Leg 174AX Supplement*

Kenneth G. Miller
Co-Chief Scientist
Department of Geological Sciences
Rutgers University
610 Taylor Road
Piscataway NJ 08854
USA
kgm@rci.rutgers.edu

Peter J. Sugarman
Co-Chief Scientist
New Jersey Geological Survey
PO Box 427
Trenton NJ 08625
USA
pete.sugarman@njgs.dep.state.nj.us

Peter P. McLaughlin Jr.
Co-Chief Scientist
Delaware Geological Survey
University of Delaware
DGS Building
Newark DE 19716-7501
USA
ppmclau@udel.edu

James V. Browning
Staff Scientist/Paleontologist (foraminifers)
Department of Geological Sciences
Rutgers University
610 Taylor Road
Piscataway NJ 08854
USA
jvb@email.rci.rutgers.edu

Stephen F. Pekar
Staff Scientist/Sedimentologist
Department of Geological Sciences
Rutgers University
610 Taylor Road
Piscataway NJ 08854
USA
pekar@ldeo.columbia.edu

*Addresses at time of drilling, except where updated by the leg participants before publication.

Marie-Pierre Aubry
Paleontologist (nannofossils)
Institut des Sciences de l'Evolution
Université Montpellier II
Place Eugène Bataillon
34095 Montpellier Cedex 05
France

Woods Hole Oceanographic Institution
Woods Hole MA 02543
USA

Present address (17 April 2001):
Department of Geological Sciences
Rutgers University
610 Taylor Road
Piscataway NJ 08854
USA
aubry@email.rci.rutgers.edu

Stefanie J. Baxter
Logging
Delaware Geological Survey
University of Delaware
DGS Building
Newark DE 19716-7501
USA
steff@udel.edu

Richard N. Benson
Paleontologist (foraminifers and radiolarians)
Delaware Geological Survey
University of Delaware
DGS Building
Newark DE 19716-7501
USA
rnbenson@udel.edu

Gilbert J. Brenner
Paleontologist (pollen)
Department of Geological Sciences
SUNY at New Paltz
New Paltz NY 12561
USA
brennerg@matrix.newpaltz.edu

Benjamin S. Cramer
Sedimentologist
Department of Geological Sciences
Rutgers University
610 Taylor Road
Piscataway NJ 08854
USA
bcramer@rci.rutgers.edu

Steve E. Curtain
Logger
U.S. Geological Survey, WRD
Tawes State Office Building, B-3
580 Taylor Avenue
Annapolis MD 21401
USA
securtin@usgs.gov

Mark D. Feigenson
Geochemist (Sr isotopes)
Department of Geological Sciences
Rutgers University
610 Taylor Road
Piscataway NJ 08854
USA
feigy@rci.rutgers.edu

Marius D. Georgescu
Paleontologist (foraminifers and ostracodes)
National Institute of Marine Geology and Geoecology
304 Mamaia Street
8700-Constanta
Romania
gdanna@hotmail.com

John Hernandez
Sedimentologist
Department of Geological Sciences
Rutgers University
610 Taylor Road
Piscataway NJ 08854
USA
jhernand@email.eden.rutgers.edu

Miriam E. Katz
Sedimentologist
Department of Geological Sciences
Rutgers University
610 Taylor Road
Piscataway NJ 08854
USA
mkatz@ldeo.columbia.edu

Francine McCarthy
Paleontologist (dinocysts)
Department of Earth Sciences
Brock University
St. Catherines ON L2S 3AI
Canada
francine@craton.geol.BrockU.CA

Thomas E. McKenna
Sedimentologist
Delaware Geological Survey
University of Delaware
DGS Building
Newark DE 19716-7501
USA
mckennat@udel.edu

Keith T. Metzger
Sedimentologist
Department of Geological Sciences
Rutgers University
610 Taylor Road
Piscataway NJ 08854
USA

Donald H. Monteverde
Sedimentologist
New Jersey Geological Survey
PO Box 427
Trenton NJ 08625
USA
donm@njgs.dep.state.nj.us

Frederick L. Muller
Sedimentologist
New Jersey Geological Survey
PO Box 427
Trenton NJ 08625
USA

Lloyd G. Mullikin
Sedimentologist
New Jersey Geological Survey
PO Box 427
Trenton NJ 08625
USA
lloydm@njgs.dep.state.nj.us

Richard K. Olsson
Paleontologist (foraminifers)
Department of Geological Sciences
Rutgers University
610 Taylor Road
Piscataway NJ 08854
USA
olsson@rci.rutgers.edu

Don Queen
Head Driller
U.S. Geological Survey
Reston VA 22092
USA
dqueen@usgs.gov

Kelvin W. Ramsey
Sedimentologist
Delaware Geological Survey
University of Delaware
DGS Building
Newark DE 19716-7501
USA
kwramsey@udel.edu

Timothy J. Reilly
Sedimentologist
Department of Geological Sciences
Rutgers University
610 Taylor Road
Piscataway NJ 08855
USA
tjreilly@wrdmail.er.usgs.gov

Linda de Romero
Paleontologist (nannofossils)
Department of Geological Sciences
University of North Carolina at Chapel Hill
Chapel Hill NC 27599
USA
deromero@email.unc.edu

Ethan S. Skinner
Sedimentologist
Department of Geological Sciences
Rutgers University
610 Taylor Road
Piscataway NJ 08854
USA

Scott A. Strohmeier
Sedimentologist
Delaware Geological Survey
University of Delaware
DGS Building
Newark DE 19716-7501
USA
54171@udel.edu

Sarah Tiffen
Paleontologist (dinocysts)
Department of Earth Sciences
Brock University
St. Catherines ON L2S 3AI
Canada
tiffins@niagara.com

Jane Uptegrove
Sedimentologist
New Jersey Geological Survey
PO Box 427
Trenton NJ 08625
USA
jane.uptegrove@njgs.dep.state.nj.us

Bill Van Sickel
Sedimentologist
Department of Geosciences
Western Michigan University
Kalamazoo MI 49006
USA
William_VanSickel@excite.com

Drilling in Cooperation with Rutgers University

Kenneth G. Miller
Principal Investigator

James V. Browning
Staff Scientist

Drilling in Cooperation with the New Jersey Geological Survey

Peter J. Sugarman
Principal Investigator and Supervising Geologist

Haig F. Kasabach (retired)
State Geologist

Richard F. Falton
Chief Geologist

John Curran
Logger

Drilling in Cooperation with the Delaware Geological Survey

Peter P. McLaughlin Jr.
Principal Investigator

Robert R. Jordan
Director and State Geologist

John H. Talley
Associate Director

Drilling in Cooperation with the U.S. Geological Survey, Eastern Earth Surface Processes Team

Don Queen
Head Driller

Gene Cobbs
Driller

ODP Publications Staff*

Karen Benson
Production Editor

Mary Chapman
Editor

Gudelia ("Gigi") Delgado
Senior Publications Coordinator

Patrick H. Edwards
Production Editor III

Jaime A. Gracia
Senior Production Editor

Mendy A. Harrison
Assistant Editor

Ann Klaus
Publication Services Manager

Kathryn M. Kozelsky
Graphic Designer

Jennie L. Lamb
Graphic Designer II

Nancy H. Luedke
Graphic Designer II

Amy McLeod
Student Assistant

Angeline T. Miller
Senior Editor

Mary Elizabeth Mitchell
Publications Coordinator Assistant

Heather M. Nevill
Editor

Deborah L. Partain
Senior Graphic Designer

Lorri L. Peters
Associate Editor

Katerina E. Petronotis
WWW Administrator

M. Kathleen Phillips
Publications Specialist

Jennifer Pattison Rumford
Electronic Publications Specialist

Kenneth Sherar
Production Editor II

Ann Yeager
Distribution Specialist

*At time of publication.

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[1]

[1]The 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

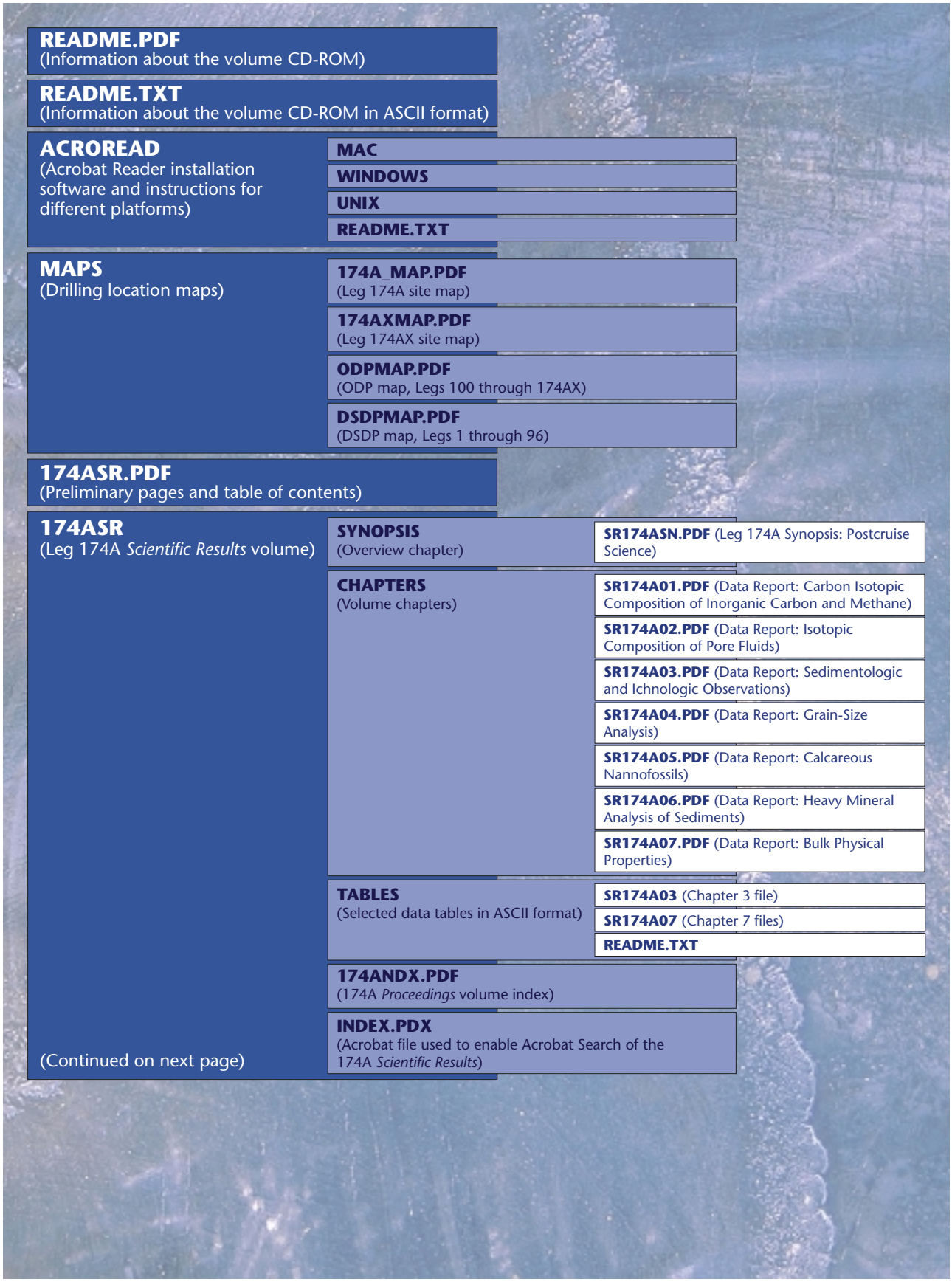
The index covers the *Initial Reports* portion of Volume 174AX of the *Proceedings of the Ocean Drilling Program.* The index contains a subject and taxonomic index.

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



- **README.PDF** (Information about the volume CD-ROM)
- **README.TXT** (Information about the volume CD-ROM in ASCII format)
- **ACROREAD** (Acrobat Reader installation software and instructions for different platforms)
  - **MAC**
  - **WINDOWS**
  - **UNIX**
  - **README.TXT**
- **MAPS** (Drilling location maps)
  - **174A_MAP.PDF** (Leg 174A site map)
  - **174AXMAP.PDF** (Leg 174AX site map)
  - **ODPMAP.PDF** (ODP map, Legs 100 through 174AX)
  - **DSDPMAP.PDF** (DSDP map, Legs 1 through 96)
- **174ASR.PDF** (Preliminary pages and table of contents)
- **174ASR** (Leg 174A *Scientific Results* volume)
  - **SYNOPSIS** (Overview chapter)
    - **SR174ASN.PDF** (Leg 174A Synopsis: Postcruise Science)
  - **CHAPTERS** (Volume chapters)
    - **SR174A01.PDF** (Data Report: Carbon Isotopic Composition of Inorganic Carbon and Methane)
    - **SR174A02.PDF** (Data Report: Isotopic Composition of Pore Fluids)
    - **SR174A03.PDF** (Data Report: Sedimentologic and Ichnologic Observations)
    - **SR174A04.PDF** (Data Report: Grain-Size Analysis)
    - **SR174A05.PDF** (Data Report: Calcareous Nannofossils)
    - **SR174A06.PDF** (Data Report: Heavy Mineral Analysis of Sediments)
    - **SR174A07.PDF** (Data Report: Bulk Physical Properties)
  - **TABLES** (Selected data tables in ASCII format)
    - **SR174A03** (Chapter 3 file)
    - **SR174A07** (Chapter 7 files)
    - **README.TXT**
  - **174ANDX.PDF** (174A *Proceedings* volume index)
  - **INDEX.PDX** (Acrobat file used to enable Acrobat Search of the 174A *Scientific Results*)

(Continued on next page)

CD-ROM Directory Structure (continued)