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Alliance to Protect Nantucket Sound

Comments on the
U.S. Army Corps of Engineers
Draft Environmental Impact Statement
for the
Cape Wind Project

Exhibits for Volume 1

February 24, 2005

EXHIBITS FOR VOLUME 1

Exhibit No.	Exhibit Description
1.	Letter from Col. Thomas Koning, Army Corps of Engineers to APNS (January 10, 2005).
2.	APNS Technical Consultants Contributing to Comments on DEIS.
3.	*Alliance to Protect Nantucket Sound, et al v. U. S. Department of the Army, et al* No. 03-2604, 2005 WL 357636 (1st Cir. Feb. 16, 2005).
4.	Aaron M. Flynn, *Wind Energy: Offshore Permitting*, CRS Report for Congress (Nov. 1, 2004).
5.	Letter from Thomas F. Caver, Dept. Dir. Civils Works, Dept. of the Army to Representative Rodney Frelinghuysen (Sept. 3, 2003).
6.	Letter from Rebecca Watson, Asst. Sec. Minerals Management Service to Vice President Richard B. Cheney (June 20, 2002).
7.	Final Report: *Chapter 24: Managing Offshore Energy and Other Mineral Resources*, U.S. Commission on Ocean Policy (Sept. 20, 2004).
8.	Center for Coastal Studies, *Review of State and Federal Marine Protection of the Ecological Resources of Nantucket Sound* (Jan. 28, 2003).
9.	Provincetown Center for Coastal Studies, *Toward an Ocean Vision for the Nantucket Shelf Region* (January 2005).
10.	Memorandum, Office of the Solicitor, U.S. Dept. of the Interior to Director of Fish and Wildlife Service (Jan. 19, 2001).
11.	Gray & Pape, *A Review of the "Cultural Resources" and "Visual Studies" Sections of the Environmental Impact Statement Prepared for the Cape Wind Energy Project* (Feb. 2005).
12.	Candace Jenkins, *Identification of Potentially Eligible Properties Cape Wind Energy Project* (Feb. 16, 2005).
13.	Letter from APNS to Col. Koning, Army Corps (Oct. 5, 2004); Timothy J. Reilly, Report: *Proposed Wind-Generated Power Plant in Nantucket Sound: Oil and Hazardous Substance Information Needs* (Oct. 5, 2004).
14.	Cornelia Dean, *Much Heat and a Deep Split Over a Cape Cod Wind Farm*,

New York Times (Jan. 12, 2005) .

15. a) Letter from Governor Mitt Romney, Commonwealth of Massachusetts, to Lt. General Robert Flowers, U.S. Army Corps of Engineers (April 2, 2003);
b) Letter from Thomas Reilly, Office of the Attorney General, Commonwealth of Massachusetts to Thomas Sansonetti *et al.*, U.S. Dept. of Justice (Oct. 17, 2002).

16. Letter Governor Mitt Romney, Commonwealth of Massachusetts to Maj. General Carl Strock, U.S. Army Corps of Engineers (July 26, 2004).

17. David Abel and Beth Daley, *Border bid may imperil wind farm*, Boston Globe article(Feb. 16 2005).

18. Kevin Dennehy, *Bay State gets a bit bigger*, Cape Cod Times (Feb. 23, 2005).

19. Email from Dennis Duffy, Cape Wind Assoc. to Helen Golde, Dept. of Energy (Feb. 13, 2004).

20. Email from Helen Golde, Dept. of Energy to Carla Sullivan, National Oceanic Atmospheric Administration (Feb. 9, 2004).

21. Transmittal Letter from Terry Orr, Environmental Science Service, Inc. to Karen Adams, U.S. Army Corps of Engineers (April 2, 2002) with enclosure: Cape Wind Associates, LLC, *New England Region Alternative Siting Analysis* (Apr. 2, 2002).

22. Jennifer Atkinson, *et al.*, *The Wild Sea, Saving our Marine Heritage*, Conservation Law Foundation (Sept. 2000).

23. Press Advisory, Conservation Law Foundation, *Notes on Cape Wind DEIS* (Aug.-Sept. 2004).

24. Letter from Jeffrey R. Martin, ESS Environmental Science Services, Inc. to Brian Valiton, U.S. Army Corps of Engineers (Sept. 4, 2001).

25. Letter from Christine Godfrey, Department of the Army to Charles Natale, Environmental Science Services, Inc. (Sept. 6, 2002).

26. Environmental Notification Form, Commonwealth of Massachusetts, EOEA No. 12643.

27. Letter from Charles J. Natale, Environmental Science Services, Inc. to Karen Adams, Army Corps of Engineers (Nov. 21, 2001).

28. Letter from Col. Thomas Koning, Army Corps of Engineers to Douglas

Yearley, APNS (Nov. 8, 2002).

29. Letter from Jessica Almy, Cape Wildlife Center to Col. Thomas Koning, Army Corps of Engineers (May 5, 2003).

30. Jay Fitzgerald, *Critics hit corps' Cape mill report*, Boston Herald (Nov. 9, 2004).

31. a) Letter from Sue Nickerson, APNS to Col. Koning, Army Corps of Engineers (Oct. 25, 2004);
b). Letter from Sue Nickerson, APNS to Col. Koning, Army Corps of Engineers (Oct. 29, 2004).

32. Email from Karen Adams to Interagency team (data unknown, March-April 2002).

33. Email from Jane Mead, Massachusetts CZM to Interagency team (May 24, 2002).

34. Garrad Hassan and Partners LTD, *Review of Offshore Wind Project Features* (Final Draft).

35. Email from Colin Morgan, Garrad Hassan and Partners to Karen Adams, Army Corps of Engineers (July 23, 2003).

36. Email from Karen Adams, Army Corps of Engineers to Colin Morgan, Garrad Hassan and Partners (July 29, 2003).

37. Conclusion page from Garrad Hassan and Partners (Final version 1).

38. Letter Susan Nickerson, APNS to Col. Brian A. Green (May 17, 2004).

39. Email from T. Timmerman, Environmental Protection Agency to Karen Adams, Army Corps of Engineers (Oct. 15, 2003).

40. Email from V. Lang, United States Fish and Wildlife to Karen Adams, Army Corps of Engineers (Oct. 16, 2003).

41. Letter from Dennis Duffy, Cape Wind Associates to Karen Adams, Army Corps of Engineers (Sept. 23, 2003).

42. Letter from Dennis Duffy, Cape Wind Associates to Karen Adams, Army Corps of Engineers (Jan. 5, 2005).

43. Todd B. Bates, Asbury Park Press (Jan. 10, 2005).

44. Release from Congressman Frank Pallone, Jr., *Pallone Demands Federal*

Environmental and Socio-Economic Assessment of Wind Farm Proposals (Sept. 27, 2004).

45. Comments of the American Wind Energy Assoc. to the Draft Programmatic Environmental Impact Statement on Wind Energy Development on BLM-Administered Lands in the Western United States (Dec. 10, 2004).

46. Certificate of the Secretary of Environmental Affairs on the Environmental Notification Form (Apr. 22, 2002).

47. Letter from Barry Drucker, Minerals Management Service to Karen Adams, Army Corps of Engineers (Mar. 20, 2002).

48. Letter Margo Fenn, Cape Cod Commission to Karen Adams, Army Corps in Engineers (Mar. 28, 2002).

49. Email from Jane Mead to Brian Valiton (Mar. 29, 2002).

50. Letter from Michael J. Bartlett, U.S. Fish and Wildlife to Col. Brian Osterndorf, Army Corps of Engineers (Apr. 1, 2002).

51. Letter from Robert W. Varney, Environmental Protection Agency to Col. Brian Osterndorf, Army Corps of Engineers (Apr. 5, 2002).

52. Letter from Charles J. Natale, Environmental Science Services to Karen Adams, Army Corps of Engineers (Nov. 21, 2002).

53. Letter from Dennis Duffy, Cape Wind Assoc. to Col. Brian Osterndorf, Army Corps of Engineers (Apr. 16, 2002).

54. Letter from Terry Orr, Environmental Science Services to Karen Adams, Army Corps of Engineers (Apr. 19, 2002).

55. Letter from Mark C. Calpin, Hale and Dorr to Karen Adams, Army Corps of Engineers (Mar. 10, 2003).

56. Massachusetts Technology Collaborative; Karen Adams Power Point Presentation (Mar. 12, 2003).

57. Email from Dennis Duffy, Cape Wind Assoc. to Karen Adams, Army Corps of Engineers (Oct. 20, 2003).

58. Letter from Margo Fenn, Cape Cod Commission to Karen Adams, Army Corps of Engineers (Oct. 9, 2003).

59. Letter from John Almeida, Army Corps of Engineers to Jena MacLean, counsel APNS (July 14, 1004).

60. Letter from Philip Warburg, Conservation Law Foundation to Patrick Wood, Chairman Federal Energy Regulatory Commission (May 5, 2004).

61. Letter from Susan Nickerson, APNS to Col. Brian A. Green (May 25, 2004).

62. Letter from Philip Warburg, Conservation Law Foundation to Col. Brian A. Green, Army Corps of Engineers (June 10, 2004).

63. Letter from Susan Nickerson, APNS to Col. Brian A. Green (June 29, 2004).

64. Letter from Vernon Lang, U.S. Fish and Wildlife to Karen Adams, Army Corps of Engineers (Dec. 11, 2002).

65. Letter from Margo Fenn, Cape Cod Commission to Karen Adams, Army Corps of Engineers (Dec. 19, 2002).

66. Letter from Margo Fenn, Cape Cod Commission to Karen Adams, Army Corps of Engineers (Oct. 9, 2002).

67. Alexander Soule, *New Mass. Wind plans aloft*, Boston Business Journal (Oct. 22, 2004).

68. Source: Department of Energy.

69. Danish Offshore Wind Turbine Performance.

70. Cape Wind Estimated Performance Estimated Using NOAA Wind Speed Data For Nantucket Sound.

71. Cape Wind Output Projections Using Elevation Adjustment of Monitoring Tower Readings.

72. Cape Wind Output Projections Based Upon 8.89 m/sec Average Wind Speed.

73. Cape Wind Output Calculations Based Upon 8.5 m/sec Average Wind Speed From New England Wind Map.

DEPARTMENT OF THE ARMY

January 10, 2005

Executive Office

Ms. Susan Nickerson
Save Our Sound Alliance to Protect Nantucket Sound
396 Main Street
Hyannis, MA 02601

Dear Ms. Nickerson:

I am writing you in response to your letter dated December 28, 2004, which followed my November 16, 2004, letter to you. In your most recent letter, you suggest that the Corps may have misunderstood your previous requests to meet and discuss legal issues, clarifying that you requested to meet with my legal staff, not with me. Thank you for this clarification. However, I likewise decline your request to meet with my legal staff to discuss legal matters relating to the Cape Wind project.

In a July 8, 2004 letter, your attorney, Ms. Jena MacLean, similarly requested a meeting with Assistant District Counsel John Almeida. In his response to your attorney, Mr. Almeida explained that such a meeting would not result in a productive exchange, in light of his need to protect attorney-client privileges. I share Mr. Almeida's concerns. However, as both Mr. Almeida and I stated in our previous letters on the subject, I encourage you to submit written comments on legal matters or other issues of concern to you, as you have done in the past. You have raised various legal concerns, and we have received and considered them. Moreover, to affirm your understanding stated in the second to last paragraph of your letter, the comments you have previously submitted will be part of the record for the Cape Wind project, regardless of whether such comments were received during or before the public comment period for the DEIS.

In your letter, you state that "the applicant has been allowed to step over the line of proper involvement in this DEIS preparation," and appear to suggest that the Corps has improperly relied upon the legal analysis of the Cape Wind permit applicants. I would like to reiterate, as I stated in my November 16, 2004, letter to you, that while both your organization and the permit applicant have submitted their legal opinions to the Corps, I rely upon my Office of Counsel for legal advice. I have not requested nor relied on legal

advice or opinions from your attorneys, the applicants' attorney, or other attorneys outside the federal government, although as noted above, I carefully consider all materials in the record.

Sincerely,

Thomas L. Koning
Colonel, Corps of Engineers
District Engineer

Alliance to Protect Nantucket Sound Experts

Erich K. Bender

During Dr. Bender's 37 years with BBN Technologies, he held positions ranging from staff engineer in applied physics to senior V.P. for Intellectual Property. His tenure there also involved work in the physical sciences, acoustics technologies and speech and language processing areas, including the engineering of noise control solutions for transportation, construction, and mining equipment, as well as analysis of psychoacoustic and economic impacts. Dr. Bender received an M.S. and an Sc.D. from the Massachusetts Institute of Technology, and completed the Greater Boston Executive Program at MIT's Sloan School. He is a Fellow of the Acoustical Society of America and has published over 30 technical papers in acoustics and systems dynamics. He has served as a Trustee of the BBN Retirement Trust (for nine years) and on various professional-society committees.

Cary Bullock

Cary Bullock, a successful business owner and entrepreneur with thirty years of experience in the energy industry, is presently serving as a Project Manager and Principal Consultant at Prime Directions. He has founded and/or held a number of senior executive positions in several New England based energy companies, including one of the largest 'green power' companies in the US, and the largest wind power developer in the United States at that time. Mr. Bullock received his M.S. in Electrical Engineering from MIT, and is a registered professional engineer in the Commonwealth of Massachusetts. He is an expert in project/process management, technology performance measurement, and environment-friendly energy technologies. He has been a consultant to many electric and gas utilities as well as to many Fortune 500 companies on energy matters. In 2000, *Harts Energy Markets' Century of Power* named Cary Bullock as one of the 100 most influential people in the gas and electric industry in the 20th Century. In 2001, he was named as one of the top 50 leaders in utility IT. In 2002, he was also named as a finalist by Ernst and Young for the New England Entrepreneur of the Year Award. Mr. Bullock has served on the Boards of numerous companies, is the author of several books and numerous articles.

Ray Clark

Mr. Clark is currently President of The Clark Group, a consortium of senior level policy professionals that provides a wide range of client services, including Washington representation, strategic planning and policy development. He received his master's degree in Environmental Management from Duke University. From the outset of his career, he utilized and developed his environmental expertise serving in many capacities, for the State of Alabama, at the U.S. Army Chemical and Military Police Schools, at the U.S. Army Corps of Engineers, in the Office of the Secretary of the Army, and as Senior Policy Analyst then Acting Chair and finally Associate Director of the White House Council on Environmental Quality. In these posts, Mr. Clark was involved in environmental protection policy and strategy development, budget formulation, staff supervision and recruitment, and testifying before Congress. Most recently, he served as the Principal Deputy Assistant Secretary of the Army for Installations and Environment, and was named by the Secretary of Defense as Acting Assistant Secretary during the transition between the Clinton and Bush Administrations. During this service, Mr. Clark directed Army housing and energy initiatives, pioneered an effort to privatize environmental remediation and to ensure cost-effective cleanup, and led the conversion of closed Army installations to community economic development assets. His most recent publications examined NEPA and offered perspectives on impact assessment. He has earned several awards, including the Exceptional Public Service Award in 2001.

Cam Daley

Cam Daley is a Partner and a Principal Consultant at Prime Directions. He brings over 30 years of experience as a consultant and senior executive within the energy industry, having provided consulting services to both electric utilities and independent energy owners and developers, as well as operations and engineering-related

advisory services to a number of clients in both New York and New England. He holds an M.S. in Power Engineering from Rensselear Polytechnic Institute, and is a registered professional engineer in the Commonwealth of Massachusetts. Mr. Daley also draws on over 25 years of senior level operations and engineering experience in the area of generation, transmission, and distribution of electricity. He successfully directed the siting and permitting for an early-stage, research-grade demonstration windmill on Moon Island in Boston Harbor. He also led an organization dedicated to the commercialization of hydrogen based fuel cells. Mr. Daley has served on both the NEPOOL and REMVEC Executive and Operations Committees, and has participated in a large number of community outreach forums where he worked in cooperation with community leaders to resolve concerns by local residents over power plant siting and operational issues. He has also provided testimony before the Massachusetts Energy Facilities Siting Council and the Massachusetts Department of Telecommunications and Energy.

Russell DeFusco, Ph.D.

Dr. Russell DeFusco, USAF (ret.) of BASH Incorporated has a degree in Biology from the US Air Force Academy, a master's degree in Wildlife Biology from Colorado State University, and a Ph.D. in Ecology/Ornithology from the University of Colorado. He was an Ecologist and Chief of the USAF's Bird Aircraft Strike Hazard Team specializing in minimizing bird and other wildlife conflicts with aircraft operations. He has worldwide experience in habitat management, population controls, remote sensing of animals and landscapes, and ecological modeling. Dr. DeFusco has conducted and sponsored research in radar ornithology, bird avoidance modeling, mishap investigations, ecological assessments, and other related fields. He served as the director of the Human Performance Laboratory and Professor of Biology at the USAF Academy and now runs an environmental consulting firm specializing in bird hazards and wildlife management. He works with the DOD, FAA, and private organizations in the development of radar and other remote sensing technologies, ecological modeling, and wildlife management techniques to minimize conflicts and conserve wildlife. He is a member of the International Bird Strike Committee and on the Steering Committee of the Bird Strike Committee USA/Canada.

Robert Dooling, PhD.

Dr. Robert Dooling is Professor of Psychology, Co-Director of the Center for the Comparative and Evolutionary Biology of Hearing, and Associate Vice-President for Research at the University of Maryland College Park. He has an M.S. in Biology and a Ph.D. in Psychology and over 200 research publications, books, and chapters on hearing and vocal communication in birds. Much of his work has focused on the masking effects of noise on hearing in birds as well as the auditory damage resulting from acoustic overexposure. He is a member of a number of scientific professional societies including the Acoustical Society of America, the American Association for the Advancement of Science, the American Psychological Society, the Animal Behaviour Society, and the Association for Research in Otolaryngology, among others. His research has been supported by the National Institute of Deafness and Communication Disorders of the NIH. Dr. Dooling has received a number of grants and scientific awards over his career including Research Scientist Career Development Awards from NIH and the Alexander von Humboldt Senior Scientist Award.

Tim Eichenberg

Tim Eichenberg is an environmental attorney and consultant, and Adjunct Professor of Law, based in San Francisco, who has published more than 25 articles and reports on environmental issues. He has served as Legal Counsel for the California Coastal Commission, The Ocean Conservancy, Oceana, and Environmental Defense Center. He is a former Chair of the Clean Water Network in Washington, D.C., and founded the Casco Baykeeper Program in Maine. Mr. Eichenberg teaches Ocean and Coastal Law at the Vermont Law School, and also has lectured at the University of Maine School of Law, Golden Gate University School of Law, and the Environmental Law Institute. He holds a B.A. from Earlham College, a J.D. from the Washington University School of Law, and was awarded post-doctoral fellowship in marine policy at the Woods Hole Oceanographic Institution. He is a member of the Bar in California and Washington, D.C.

William Evans

Bill Evans pioneered the modern study of avian night flight calls as a tool for investigating avian night migration. He recently co-authored a seminal identification catalogue of passerine flight calls -- this work enables researchers for the first time to acquire detailed species information of birds in active night migration. Mr. Evans initiated the Cornell Laboratory of Ornithology's avian night flight call research in 1994 and in 1998 founded the nonprofit called Old Bird to advance the application of acoustic monitoring of avian night flight calls for scientific and educational purposes. The specific research focus of this organization is on using acoustics for long-term monitoring of various songbird species and for mitigating bird mortality at tall man-made structures. Mr. Evans's work has been described in The New York Times, New Scientist, NPR, BBC, PBS, Science and many popular conservation and birding magazines. His publications on acoustic monitoring of avian nocturnal migration are available online at www.oldbird.org/pubs.htm.

Charles Flagg, Ph.D.

Dr. Charles Flagg is currently a Research Professor at the Marine Sciences Research Center, Stony Brook University, Stony Brook, NY. He obtained his Ph.D. in 1977 in physical oceanography from the M.I.T./W.H.O.I. Joint Program in Oceanography. His research has concentrated on the physical dynamics and hydrographic structure of the waters of continental shelves and coastal estuaries using a wide variety of observational and modeling techniques. He is also an authority on the use of shipboard acoustic Doppler techniques to measure water velocities on volunteer observing ships. He has produced more than 40 peer-reviewed publications, numerous technical reports and presented many papers to professional societies.

J. William Futrell

J. William Futrell, president of Sustainable Development Law Associates, is a consultant in environmental management, working with policy makers on development strategies and capacity building. This work follows his activities as President of the Environmental Law Institute from 1980 to 2003 and as an officer and director of the Sierra Club from 1970 to 1980. He has represented state and local agencies and environmental groups in litigation and has testified before U.S. Congressional Committees frequently on land use, energy policy, and urban environment issues. He has worked with USAID and other international agencies in 15 countries and serves as the North American vice-chair of the International Union for Conservation of Nature's Commission on Environmental Law. The American Bar Association recognized his work with its award for Distinguished Achievement in Environmental Law and Policy in 2004.

Col. Ronald Gatewood USMC (Ret)

After a career in U.S. Marines, Colonel Ronald Gatewood USMC (Ret) founded two aviation management and airport development firms. His last assignment with the Marine Corps was as the Senior Marine Planner who developed plans and policies for the Commandant of the Marine Corps and provided input to the Joint Chiefs of Staff. He has extensive hands-on aviation management experience in all phases of aviation, including transportation planning, facility planning and construction, flight operations, maintenance, logistics, real estate development, and financial planning. Colonel Gatewood has 27 years as a command pilot with extensive flying experience in the United States, Asia, and Africa. He was an attaché with the U.S. Department of State and held the position of Director of Logistics for U.S. Southern Command. While in that position he assisted in the planning for the withdrawal of U.S. Forces from Panama and for Operation Just Cause. Among other awards, he has the Distinguished Flying Cross (4 Awards), Legion of Merit, Defense Meritorious Service Medal, and Joint Service Commendation Medal (2 Awards). Colonel Gatewood has a B.S. in Industrial Education from Purdue University and an M.S. in Business Administration from Webster University, and is a graduate of both the Naval War College—a graduate level executive program focusing on operational analysis, efficient administration, organizational staff functioning, management decision making, and defense economics—and the Inter-American Defense College—a graduate level military college that studies the elements of national power. Currently he is on the Board of Directors of EarthWalk Communications, Inc. and the Virginia Aviation Business Association.

James R. Gilbert, Ph.D.

Dr. James Gilbert is presently Professor of Wildlife Ecology and Marine Science at the University of Maine. He received an M.S. in Ecology from the University of Washington and a Ph.D. in Wildlife from the University of Idaho. His primary experience has been on assessment of marine mammals, especially pinnipeds. Dr. Gilbert has field experience with marine mammals in Antarctica, Alaska and Russia, as well as the State of Mississippi and the New England Coast. He has been working with harbor seals and gray seals in New England for the last 24 years.

Raymond L. Harris

Based on his experience building more than a dozen advanced airborne and ground-based radars for military and commercial applications and conducting numerous airborne, shipboard, and ground-based measurement programs, Mr Harris provides consulting services in the areas of advanced radar system design and analysis, synthetic aperture radar remote sensing, diagnostic measurements of stealth targets, radar countermeasures, and high-speed radar data acquisition systems. Mr. Harris holds one M.S. in Electrical Engineering and another in Management Science, both from the Johns Hopkins University, and is a Life Senior Member of the Institute of Electrical and Electronic Engineers. Founder and CEO of Metratek, Inc.—a builder of innovative radar systems supporting stealth vehicle development and airborne remote sensing and a provider of radar measurement services—Mr. Harris has served on Blue-Ribbon Committees for FAA Radar, F-14 Navy Fighter Study, Strategic Defense Initiative, USMC, the USS Stark Investigation, and DARPA.

David Harrison, Jr., Ph.D.

Dr. David Harrison is a Senior Vice President at NERA Economic Consulting, a firm of about 450 consulting economists with ten offices in the United States and seven offices abroad. Dr. Harrison directs NERA's environment practice. Dr. Harrison has participated actively for more than 30 years as a consultant, academic and public official in the analysis of air quality regulations, including the development of emissions trading programs and other innovative means of increasing the flexibility and reducing the costs of environmental regulation. He was a member of the advisory committee for the RECLAIM program, an innovative emissions trading program in the Los Angeles air basin, and has advised on numerous other programs including the acid rain trading program and the averaging, banking and trading programs developed for mobile sources. Most recently, Dr. Harrison has led NERA efforts to assist the European Commission and various European governments with regard to the European Union Emissions Trading Scheme for carbon dioxide. Dr. Harrison and NERA colleagues currently are assisting the UK government in the development of their National Allocation Plan for the EU ETS. Dr. Harrison is a frequent speaker on these issues in the U.S. and abroad. Before joining NERA, Dr. Harrison was an Associate Professor at the John F. Kennedy School of Government at Harvard University, where he taught energy and environmental economics and policy, microeconomics, regional development, and other courses for more than a decade. He also served as a Senior Staff Economist on the President's Council of Economic Advisors, where he had responsibility for environment and energy policy issues. He is the author or co-author of five books or monographs on environmental policy and numerous articles in professional journals. Dr. Harrison received an M.Sc. in Economics from the London School of Economics, where he was the Rees Jeffreys Scholar, and a Ph.D. in Economics from Harvard University, where he was a Graduate Prize Fellow.

Thomas A Hewson, Jr.

Since 1981, Mr. Hewson has been a principal at Energy Ventures Analysis Inc in Arlington, Virginia, where he directs the firm's electric modeling and environmental practices. He provides annual forecasts of power capacity, generation, fuel costs, emission allowance costs and electricity prices and fuel prices for utility systems throughout the US. Over the past 28 years, Mr. Hewson has authored numerous studies on the impact of environmental legislation on the electric power industry for major electric utility systems, major power consumers, the Electric Power Research Institute, Gas Research Institute, environmental control vendors, fuel suppliers and transporters. He has testified before Congress and several state legislatures, public utility commissions and in several court proceedings on electric utility industry issues. Mr. Hewson has evaluated state renewable portfolio standards effect on electric prices and generation mixes, provided assessments of

proposed wind projects in over seven states and participated in several expert panels on wind issues in the United States and Canada. Mr. Hewson has a B.S.E. in Civil Engineering from Princeton University.

Robert J. Hofman, Ph.D.

Dr. Hofman received B.S. and M.S. degrees from Indiana University of Pennsylvania in 1962 and 1967 respectively. He taught biology at Warren Harding High School in Warren, Ohio from 1962 to 1967. He received his Ph.D. in 1975 from the Department of Ecology and Behavioral Biology, College of Biological Sciences, at the University of Minnesota. His dissertation research was on the biology and ecology of Antarctic seals. From 1975 until June 2000, Dr. Hofman was the Scientific Program Director of the Marine Mammal Commission, a federal agency established by the 1972 Marine Mammal Protection Act to overview all federal activities bearing on the conservation and protection of marine mammals. In this position, he managed a small research program, organized workshops and reviews of other agencies' marine mammal research programs, facilitated Commission reviews of domestic and international policies and programs affecting marine mammals, and represented the Commission at both national and international meetings where issues of interest to the Commission were considered. Dr. Hofman retired in June 2000 and, since then, has been working as a consultant on a number of marine mammal issues, and writing a history of the Marine Mammal Protection Act and the Marine Mammal Commission.

Ad. J. Kalmijn, Ph.D.

Dr. Kalmijn is presently Senior Research Oceanographer Emeritus, an active physical oceanographer in the Biophysics of Sensory Systems, at the Scripps Institution of Oceanography, University of California, San Diego, La Jolla, California. He received his Ph.D. degrees *cum laude* in Physics and Biology from the University of Utrecht. Dr. Kalmijn is the discoverer of the electric sense in sharks and rays, and a specialist in low-frequency, underwater, near-field hearing. He is also an authority on electric and magnetic effects of industrial and military installations on marine animals. He has done extensive research on the biophysics of electric and magnetic field detection in sharks and rays, and has developed shark-inspired applications, nanovolt sensors, detection algorithms, and ionic electrodes/amplifiers. Dr. Kalmijn is widely published in U.S. and European peer-reviewed publications.

Dirk Kooman

Dirk Kooman presently serves as Principal Consultant at Prime Directions. He is an expert in wind development and off-shore siting issues, having been involved with both land-based and off-shore wind projects in Europe for a number of years. Mr. Kooman holds a master's degree in Coastal Engineering and Fluid Dynamics from Delft Technical University. He started his career as a research engineer with the Storm Surge Barrier project, part of the famous Delta Plan to protect the southwestern part of the Netherlands against flooding. He held various positions in this multi billion Euro project in the seventies and eighties, finally serving as the Research and Design Manager of that project and as a member of the Board. He continued as Managing Director of an Offshore and Steel Structure Company and was invited to become CEO of the Dutch Wind turbine manufacturing company NedWind. Early in 1995, he started his own consulting company involved in the development, financing, and operations of wind energy projects. Mr. Kooman has developed and operated a number of wind farms in the Netherlands, and initiated the development of the first offshore wind farm in the Netherlands in 1998. He was invited to establish the international renewable energy business for Nuon (the second largest utility company in the Netherlands). In his role at Nuon, he has managed the expansion of their renewable energy business resulting in the development of a number of renewable energy projects in seven countries outside the Netherlands and two subsidiary companies in Spain and the United Kingdom. He has served as a member of the Steering Committee for the first Dutch offshore 100 MW Wind farm, with Nuon and Shell as sponsors.

Thomas H. Kunz, Ph.D.

Thomas H. Kunz received a Ph.D. from the University of Kansas and is currently Professor of Biology and Director of the Center for Ecology and Conservation Biology at Boston University, where he has been on the faculty for the past 33 years. His research focuses on the ecology, behavior, and conservation biology of bats.

He has conducted research in the continental United States, India, Malaysia, Trinidad, Ecuador, and Costa Rica. He is the author of over 180 publications and is the editor of *Ecology of Bats* (Plenum Press, 1982); *Ecological and Behavioral Methods for the Study of Bats* (Smithsonian Institution Press, 1988); co-editor (with P.A. Racey) of *Bat Biology and Conservation* (Smithsonian Institution Press, 1998), and co-editor (with M.B. Fenton) of *Bat Ecology* (University of Chicago Press, 2003). He is an elected Fellow of the American Association for the Advancement of Science, Past-President of the American Society of Mammalogists, and a recipient of the Gerrit S. Miller Jr. Award (presented in 1984 by the North American Symposium on Bat Research) and the C. Hart Merriam Award (presented in 2000 by the American Society of Mammalogists). His research is frequently covered in video documentaries by BBC, National Geographic Society, Discovery Channel, and Texas Parks and Wildlife, as well as various print and radio media. He is currently funded by grants from the National Science Foundation and the National Park Service, where his research focuses on assessing the ecological and economic impact of Brazilian free-tailed bats on agroecosystems and the influence of anthropogenic factors on the incidence of rabies infections in two species of North American insectivorous bats. Much of his current research employs infrared thermal imaging to census colonies of bats and to investigate their nightly dispersal and foraging behavior in different landscapes.

Richard S. ("Steve") LeGore, Ph.D.

An independent consultant, Dr. LeGore has held the positions of President of Mote Environmental Services, Inc. at Mote Marine Laboratory; Director of Battelle Ocean Sciences, Duxbury; AVP for International and Industrial Programs at Environmental Science and Engineering, Inc.; and Director of Marine Sciences at NALCO Environmental Sciences. He has an M.S. in Invertebrate Pathology and a Ph.D. in Pollution Ecology from the University of Washington College of Fisheries. Dr. LeGore currently serves as pro bono Executive Director of the Association of Marine Laboratories of the Caribbean, an organization of 30 marine research and education institutions throughout the Greater Caribbean Region. He has conducted numerous projects in the United States, and his international experience includes projects in Abu Dhabi, Armenia, Bahrain, Brunei, Egypt, Georgia, Indonesia, Kuwait, Malaysia, North Sea, Norway, Puerto Rico, Qatar, Romania, Sabah, Sarawak, Saudi Arabia, Scotland, Thailand, Vietnam and Yemen. Project sponsors include The World Bank, USAID, UN International Maritime Organization, U.S. National Commission on Water Quality, several multinational oil companies, and foreign government natural resource management agencies. Dr. LeGore has published 20 peer-reviewed papers and written 150 technical reports.

Phillip S. Lobel, Ph.D.

Dr. Lobel is Professor of Biology (Ichthyology) at Boston University. In addition to ichthyology (phylogeny, ecology, behavior and biogeography), his research specialties include bioacoustics, fisheries oceanography and coral reef ecology. Dr. Lobel received his Ph.D. in Biology from Harvard University, where he was a Post-Doctoral Fellow in Oceanography. He has conducted field studies of descriptive physical oceanography, conservation biology, ecological impact assessment studies, marine pollution and fisheries management, and has worked with state, federal and corporate entities on various matters—outfall monitoring, biological review and assessment, the problem of dredging and ciguatera—involving EIS evaluations. Currently, Dr. Lobel is the lead scientist responsible for establishing the Department of Defense's Coral Reef Protection plan. See http://osiris.cso.uiuc.edu/denix/Public/ES-Programs/Conservation/Legacy/Coral/coral.html and https://www.denix.osd.mil/denix/Public/ES-Programs/Conservation/Legacy/Coral-Reef/Plan/coralreef.html.

Erik Martin

Erik Martin is the Scientific Director for Ecological Associates, Inc., a private environmental consulting company in Jensen Beach, Florida. He earned his B.S. in Biological Science from Florida State University. Mr. Martin has over 30 years of professional experience as a marine biologist and has been active for the last 24 years in the fields of sea turtle research and conservation. His research has addressed the effects of coastal construction, beach restoration, and power plant operation on sea turtles. He has served as a consultant to governments and non-governmental organizations concerning proper management of artificial lighting to minimize impacts to sea turtles. Mr. Martin has served as a member of the World Conservation Union's Marine Turtle Specialist Group since 1990 and has been formally recognized by the U.S. Fish and Wildlife Service and

the State of Florida for his contributions to sea turtle research and conservation. He has authored numerous technical reports and scientific publications on sea turtles.

RADM John F. McGowan, U.S. Coast Guard (Ret.)

Jack McGowan's experience includes over 30 years in service rising to the rank of Rear Admiral in the U.S. Coast Guard. RADM McGowan's last operational assignment was Commander, Ninth Coast Guard District, leading the region's 7,000 Coast Guard members for eight northern states. He graduated from the Coast Guard Academy in 1969 and served in various tours of duty including Captain of the Port for the coast of Maine and New Hampshire. He has extensively advised on maritime safety, security, navigation and in environmental protection matters. RADM McGowan's experience culminated with formation of The McGowan Group, LLC as a maritime consulting company, specializing in providing systems-approach integrated marine solutions. RADM McGowan holds two degrees from the Massachusetts Institute of Technology. He is a published authority and has spoken in various arenas including those sponsored by the Pugh Foundation and by the FBI. He has received the Legion of Merit, the Secretary of Transportation's Gold Medal, and the Bay of Fundy Visionary Award.

Ernie Niemi

Ernie Niemi is Vice President of ECONorthwest, an economics and financial consulting firm with offices in Oregon and Washington. He has an M.C.R.P. from Harvard and has taught cost-benefit analysis and economic development at the University of Oregon's Department of Planning, Public Policy, and Management. Mr. Niemi's publications include The Ecosystem-Economy Relationship: Insights from Six Forested LTER Sites, National Science Foundation (with P.N. Courant and W.E. Whitelaw), November 1997; Assessing Economic Tradeoffs in Forest Management (with E. Whitelaw), Forest Service, PNW-GTR-403. August 1997; The Economic Consequences of River and Wetland Restoration: A Conceptual Manual (with T.M. Power) U.S. EPA Region 8. March, 1998; and "The Sky Will Not Fall: Economic Responses to Protection of At-Risk Species and Natural Ecosystems," Fisheries 27 (1): 24-28. 2002.

James F. Palmer, Ph.D.

James F. Palmer is an independent consultant in matters relating to landscape aesthetics, and Professor of Landscape Architecture at SUNY ESF. He received his Ph.D. and M.L.A. from the University of Massachusetts, Amherst. Dr. Palmer has conducted and published peer-reviewed landscape perception and recreation research for 25 years, including a long-term study on Cape Cod. He co-authored the primary reference in the area of visual assessment, as well as the U.S. Army Corps of Engineers' VIA procedure. His research has received professional recognition, including the election to Fellow of the American Association of Landscape Architects.

William Pedersen

Bill Pedersen, a lawyer in private practice, is one of the country's leading authorities on the Clean Air Act, and on environmental law in general. During his thirteen years at EPA he served as Associate General Counsel for Air - the country's chief Clean Air Act lawyer - among other positions. His private law practice also focuses on the Clean Air Act. In 1977 and 1990 Congress incorporated suggestions from his law review articles into the Clean Air Act. He has taught environmental law at Harvard Law School and the University of Michigan Law School.

Robert J. Pierce, Ph.D.

Dr. Pierce has been President of Wetland Science Applications and the Wetland Training Institute since 1989. He received an M.A. and a Ph.D. from Miami University, with emphasis on aquatic ecology and fish physiology. Dr. Pierce chaired a national committee for the COE to develop a testing protocol for the Section 404(b)(1) Guidelines, and served on the COE/EPA interagency committee, which wrote the policy portion of the current Guidelines. While working in the Regulatory Branch at COE Headquarters, he had national oversight on the COE general permit program, including the Nationwide Permits; acted as technical monitor for the COE wetland research program, which developed the 1987 Delineation Manual; was proponent

of two wetland training courses; and served on both the National review panel for plants that occur in wetlands and the interagency committee which developed the 1989 Manual. Dr. Pierce is credited with numerous publications, has provided testimony before Congress and presentations at professional meetings, and has taught numerous courses on regulatory policy, wetland delineation, wetland soils and hydrology, functions and values, and field ecology for the COE, the WTI and Johns Hopkins University.

Arthur Popper, Ph.D.

Dr. Popper is professor in the Department of Biology at the University of Maryland. He has served as chair of Biology and is currently co-director of the Center for Comparative and Evolutionary Biology of Hearing. His research interests center around the structure, function, and evolution of the vertebrate auditory system. Current basic science research interests also include mechanisms of sound source localization by fishes. More applied research is involved with issues of the effects of high intensity sounds such as air-guns, windmills, pile driving, sonars and other high intensity anthropogenic signals on fish, and on the effects of lower intensity, but long-term, sounds on hearing and fish physiology. Dr. Popper's research has been supported for over 30 years by grants from NIH, NSF, ONR, NASA, NSF, and private agencies. He has published over 160 journal articles and 25 edited books, and is co-editor of the Springer Handbook of Auditory Research, considered the definitive work on hearing. He is on the editorial board of several international journals, and has served as consultant to numerous private and government agencies. He is a member of many national and international scientific organizations, and is a Fellow of the Acoustical Society of America and of the American Association for the Advancement of Science. Dr. Popper was recently designated a Distinguished Scholar-Teacher by the University of Maryland in recognition of his contributions to both research and education at that campus.

Randall Reeves, Ph.D.

Dr. Randall Reeves is a consultant based in Hudson, Quebec (near Montreal, Canada). His main areas of interest and expertise are marine mammal biology and conservation. He has a master's degree in Public Policy from Princeton and a doctorate in Geography from McGill. During the 1980s and early 1990s he was involved in field research with bowhead whales in Alaska, the Canadian Arctic and Greenland, and with right whales in the western North Atlantic. He has also conducted extensive research on river dolphins in Asia and South America and on the history of whaling worldwide. As chairman of the IUCN Species Survival Commission's Cetacean Specialist Group since 1996, Dr. Reeves has been responsible for preparing and evaluating Red List assessments, drafting action plans for threatened species and populations, and advising government agencies, intergovernmental bodies and non-governmental organizations on science and conservation issues. He has published numerous articles in scientific journals and co-authored or co-edited several books including, most recently, Conservation and Management of Marine Mammals (Smithsonian Institution Press, 1999) and Guide to Marine Mammals of the World (Alfred A. Knopf, 2002).

Timothy J. Reilly

Timothy J. Reilly is a marine environmental scientist with over 19 years of experience specializing in oil and hazardous substance spill fate and effects. He holds a master's degree in Hazardous Waste Management/Environmental Chemistry from the University of Minnesota. Mr. Reilly has responded to hundreds of oil and chemical spills domestically and internationally, providing scientific support on issues such as natural resources at risk, human health, and strategies for response and remediation. He has directed multi-million dollar research and development efforts that address the impacts of oil spills and methods to reduce environmental impacts during spill response operations. He is an internationally recognized expert in the field of natural resource damage assessments (NRDA), and has led many NRDA projects following oil and hazardous substance releases. Mr. Reilly has conducted projects in tropical, temperate, desert and arctic environments, and is adept at unique environmental issues facing these regions. He is a Principal at Lighthouse Technical Consultants, Incorporated, an environmental and professional services firm in Rockport, Massachusetts.

Peter Rosen, Ph.D.

Dr. Rosen is currently Associate Professor, Chair, and Marine Studies Coordinator in the Department of Earth and Environmental Sciences at Northeastern University. He received an M.S. in Geology from the University

of Massachusetts, and a Ph. D. in Marine Science from the College of William and Mary. His research specialization is coastal geology, and his investigations include erosion processes of Nantucket, evolution of Boston Harbor shorelines, barrier beach development, Duxbury, evolution of Chesapeake Bay beaches, sediment transport by ice in Labrador, coastal structure impacts in Massachusetts, sand dune processes in eastern Canada and Israel, and gravel beach processes in eastern Massachusetts. Dr. Rosen has been a visiting professor at the Center for Coastal Studies, Federal University of Rio Grande in Brazil; a research fellow with the Geological Survey of Canada, Bedford Institute of Oceanography, Nova Scotia; and an assistant marine scientist at the Virginia Institute of Marine Science. His publications number over 100, including two books, and his honors include the Clemens Herschel Award, Boston Society of Civil Engineers; Environmental Achievement Award, Move Massachusetts 2000; Excellence in Teaching Award, Northeastern University.

Lois Schiffer

Lois Schiffer is a partner at Baach Robinson & Lewis in Washington, D.C., where she practices in the area of environmental law, including counseling, litigation, planning, and mediation. From 1993 to 2001, Ms. Schiffer was the Assistant Attorney General for the Environment and Natural Resources Division at the U.S. Department of Justice, with responsibility for litigation on behalf of all federal agencies related to pollution, natural resources, wildlife, certain Indian issues, and land condemnation. She has argued cases before a number of Courts of Appeals and the U.S. Supreme Court. She also worked on international environmental issues and legislation related to the environment. She has for almost 20 years been an adjunct professor of environmental law at Georgetown University Law Center, and in Spring 2004 was a Lecturer at Harvard Law School. She has worked extensively on the National Environmental Policy Act, including litigating cases, giving speeches, and writing articles. Ms. Schiffer's previous work includes: Senior Vice President for Public Policy at the National Audubon Society; General Counsel at National Public Radio; and staff attorney at the Women's Rights Project of the Center for Law and Social policy. Ms. Schiffer has authored many articles on environmental law topics. She is the recipient of the Charles Fahy Distinguished Adjunct Professor Award, and of the Edmund J. Randolph Award for outstanding service at the Department of Justice. She serves on the Boards of the Keystone Center, DC Appleseed, and the International Senior Lawyers Project, and is a delegate from the District of Columbia Bar to the American Bar Association Board of Governors. She is a Member of the American Law Institute and a Fellow of the American Bar Foundation. She has served on the Boards of a number of non-profit organizations, including the District of Columbia Bar and American Rivers. She is a graduate of Harvard Law School (1969) and Radcliffe College (1966).

John R. Stilgoe, Ph.D.

John R. Stilgoe, Orchard Professor in the History of Landscape Development, Department of Visual & Environmental Studies, Faculty of Arts and Sciences at Harvard University, has taught at Harvard since 1977. He is author of many books, including *Common Landscape Of America*, *Metropolitan Corridor: Railroads and the American Scene*, *Borderland: Origins of the American Suburb*, *Alongshore*, *Outside Lies Magic*, and, most recently, Lifeboat: *A History of Courage, Cravenness, and Survival at Sea*, his next book, *Landscape and Image*, will appear in May, 2005 (University of Virginia Press). Professor Stilgoe teaches graduate-level courses on the history and future of the North American Built environment, the forces changing contemporary environments, coastal landscapes, and environments in mediated format (especially digitized video). His current research focuses on rural landscape, metropolitan sprawl, and regions inhabited by or owned by economic and cultural elites.

John R. Twiss, Jr.

After over 25 years as the Executive Director of the Marine Mammal Commission in Washington, D.C. and Bethesda, MD, Mr. Twiss now works as a wildlife consultant, while serving on the Council of the National Whale Conservation Fund. He received his B.A. from Yale University in 1961, and subsequently worked in logistic support of polar research for the U.S. Government; as the National Science Foundation Representative in charge of the U.S. summer scientific field program in Antarctica; in the International Division of Smith Kline & French Laboratories; as vice president of EPC Laboratories; as scientific leader of the National Science Foundation Southern Ocean oceanographic expedition and consultant on oceanographic equipment development; and as Acting Head and Special Assistant to the Head of the International Decade of Ocean

Exploration, for the National Science Foundation. Mr. Twiss is also a member of numerous committees on oceanographic and environmental issues.

Richard Veit, Ph.D.

Richard Veit is Professor and Chairman of the Biology Department at The College of Staten Island/City University of New York. His research involves ecology and behavior of vertebrate animals, primarily birds. He has studied the distribution at sea and foraging behavior of pelagic birds in the Antarctic since 1982 with American, British and French teams of biologists and oceanographers. These studies have been funded by the National Science Foundation/Office of Polar Programs. Dr. Veit also initiated a study of long-term change in pelagic bird populations of the California Current System in 1987; this project is ongoing and has already demonstrated significant linkage between climate change and seabird decline. During summers since 1998, Dr. Veit has worked for The Nature Conservancy on the islands of Tuckernuck and Muskeget off Nantucket, Massachusetts helping to promote conservation of endangered birds. During the same time period, he has studied the offshore distribution and foraging behavior of long-tailed ducks.

Mark Weissman

Mark Weissman is currently serving in his twelfth year as an appointed member of the Massachusetts Marine Fisheries Advisory Commission, which regulates the rule-making of the Massachusetts Division of Marine Fisheries. He has an S.B. from M.I.T. and an M.A. from Rutgers University. Mr. Weissman was a founding director and the first chairman of the Massachusetts chapter of the Coast Conservation Association, and has 55 years experience as a recreational fishermen, 40 years of it fishing in Nantucket Sound. During his career, he has worked as an instructor at Rutgers University and Carnegie-Mellon University, a statistician at Harvard University, a senior editor and writer of environmental science textbooks at Houghton Mifflin Company, and president or vice-president of four business start-ups. Mr. Weissman holds five U.S. Patents.

Roman N. Zajac, Ph.D.

Dr. Zajac is Professor and Coordinator of the Graduate Program in Environmental Science at the University of New Haven. He received both his M.S. in Zoology and his Ph.D. in Ecology from the University of Connecticut. Dr. Zajac is credited with 41 peer-reviewed publications, as well as 78 technical reports and 10 CD-based publications. Last year alone, he spoke by invitation at several environmental workshops and symposia around the country, on such topics as applications of landscape ecology approaches to coastal systems; developing a benthoscape ecology for coastal sea floor environments; coastal landscapes, seascapes and benthoscapes of Long Island Sound; developing landscape pattern indicators for the coastal zone; and the state of the nation's ecosystems project. Previously, Dr. Zajac was invited to address a NATO workshop in Poland on assessing coastal impacts, and a Scale Expert workshop in Australia on applications of underwater remote sensing for assessing sea floor habitats and communities.

Rick Zimbone

Rick Zimbone serves as the Managing Director and a Principal Consultant at Prime Directions. He is a seasoned executive and entrepreneur with over 30 years of experience in the energy industry. Mr. Zimbone holds an M.B.A. from Boston University. Specializing in strategic planning and organizational effectiveness, he has provided strategic and management consulting services to a number of energy and energy services companies. He started up and served as CEO for Energy New England, LLC., an energy and energy services company providing wholesale power brokering, power trading and risk management services to publicly owned power companies throughout New England. As President and CEO of Boston Edison's unregulated venture capital investment group, Mr. Zimbone directed the screening and analysis of over two hundred investment opportunities, led the acquisition and start-up of a number of energy related companies, and bore P&L responsibility for six operating subsidiaries. He also has extensive operations and engineering experience in the power supply industry. He has successfully licensed and received approvals for the siting of a large combined cycle power plant, and has managed an 800 MW fossil fueled power plant and has directed the maintenance and construction activities for over 3000 MW of fossil fueled generation. Mr. Zimbone has extensive experience and an in-depth understanding of power pool management and operations. He has been responsible for overseeing the successful design, installation and operation of an underwater transmission cable from a waste

treatment facility to a transmission substation. Mr. Zimbone also has testified on numerous occasions before the Massachusetts Department of Telecommunications and Energy. In addition, he has participated in a number of community outreach forums, and has served on the NEPOOL Operations Committee, as well as the REMVEC Executive and Operations Committees.

H

Briefs and Other Related Documents

Only the Westlaw citation is currently available.

United States Court of Appeals,
First Circuit.
ALLIANCE TO PROTECT NANTUCKET SOUND, INC.; Ronald G. Borjeson; Wayne G. Kurker; Shareen Davis; Ernest R. Eldredge; David Ellsworth; Robert Hazelton; Osterville Anglers Club, Inc.; Hyannis Anglers Club, Inc., Plaintiffs, Appellants,
v.
UNITED STATES DEPARTMENT OF the ARMY; Thomas E. White, in his Official Capacity as Secretary of the Army; United States Army Corps of Engineers; Lt. General Robert B. Flowers, in his Official Capacity as Chief of Engineers for the United States Army Corps of Engineers; Colonel Thomas L. Koning, in his Official Capacity as District Engineer for the United States Army Corps of Engineers; Cape Wind Associates, LLC, Defendants, Appellees.
No. 03-2604.

Heard Sept. 16, 2004.
Decided Feb. 16, 2005.

Background: Residents' association and others challenged decision of United States Army Corps of Engineers to issue permit under Rivers and Harbors Appropriation Act authorizing construction of scientific measurement devices station on outer continental shelf (OCS) off Nantucket Sound. Permittee intervened. The United States District Court for the District of Massachusetts, 288 F.Supp.2d 64, Tauro, J., granted summary judgment for Corps and permittee, and association appealed.

Holdings: The Court of Appeals, Torruella, Circuit Judge, held that:
(1) Corps' authority to issue permits for construction on OCS was not restricted to structures related to mineral extraction;
(2) Corps was under no duty to evaluate sufficiency of applicant's averred property interests in OCS;
(3) Corps did not act arbitrarily by granting permit without inquiring into additional authorization for station; and
(4) Corps was not required to circulate for public comment draft finding of no significant impact (FONSI) or environmental assessment (EA) prepared in conjunction with permit application.
Affirmed.

[1] Navigable Waters 43(3)

270k43(3) Most Cited Cases
Army Corps of Engineers' authority under Outer Continental Shelf Lands Act (OCSLA) to issue permits under Rivers and Harbors Appropriation Act for construction of "all installations and other devices permanently or temporarily attached to the seabed" was not restricted to structures related to mineral extraction, despite phrase in same provision, "which may be erected [on seabed] for the purpose of exploring for, developing, or producing resources therefrom." 33 U.S.C. § 403; 43 U.S.C. § 1333(a)(1) and (f); 33 C.F.R. § 320.2(b).

[2] Navigable Waters 43(3)
270k43(3) Most Cited Cases
Army Corps of Engineers, in deciding whether to issue permit under Rivers and Harbors Appropriation Act for structure to be placed on outer continental shelf (OCS), was under no duty to evaluate sufficiency of applicant's averred property interests in OCS; rather, Corps' only obligation was to remind applicant of need to possess all requisite property interests. 33 U.S.C. § 403; Outer Continental Shelf Lands Act (OCSLA), 43 U.S.C. § 1333; 33 C.F.R. § § 320.4(g)(6), 325.1(d)(7).

[3] Navigable Waters 43(3)
270k43(3) Most Cited Cases
On application to Army Corps of Engineers for permit under Rivers and Harbors Appropriation Act for construction of scientific measurement devices station on outer continental shelf (OCS), no additional authorization was necessary, beyond Act permit, and thus Corps did not act arbitrarily and capriciously by finding "negligible impact" on property ownership and granting permit without inquiring into such additional authorization; station involved no real infringement on federal interests in OCS, since structure was temporary, station was non-exclusive, i.e. required to accept data collection devices form

government and others, and permittee was required to furnish data from station to government. Administrative Procedures Act, 5 U.S.C.A. § 706(2)(A); 33 U.S.C. § 403; Outer Continental Shelf Lands Act (OCSLA), 43 U.S.C. § 1333.

[4] Environmental Law 596
149Ek596 Most Cited Cases
Army Corps of Engineers was not required to circulate for public comment draft finding of no significant impact (FONSI) or environmental assessment (EA) prepared in conjunction with application for permit under Rivers and Harbors Appropriation Act for construction of scientific measurement devices station on outer continental shelf (OCS), on theory that nature of proposed structure was "one without precedent"; similar pile-driven structures had been erected in same general area, and whether or not similar structures had been erected without additional authorization beyond Corps' grant of permit was irrelevant. National Environmental Policy Act of 1969, 42 U.S.C.A. § § 4342, 4344; 40 C.F.R. § 1501.4(e)(2)(ii).

[5] Environmental Law 596
149Ek596 Most Cited Cases
Council on Environmental Quality (CEQ) regulations promulgated to ensure federal agencies' compliance with NEPA do not require circulation of draft Environmental Assessment (EA) for public comment, except under expressly limited circumstances. National Environmental Policy Act, 42 U.S.C.A. § § 4342, 4344; 40 C.F.R. § 1501.4(e)(2).
Appeal from the United States District Court for the District of Massachusetts, Joseph L. Tauro, U.S. District Judge.

Benjamin S. Sharp, with whom Donald C. Baur, Perkins Coie LLP, Franklin H. Levy and Duane Morris, LLP, were on brief, for appellants.

David C. Shilton, Attorney, United States Department of Justice, with whom Thomas L. Sansonetti, Assistant Attorney General, Environment and Natural Resources Division, Gerard T. Leone, Acting United States Attorney, Anton P. Giedt, Assistant United States Attorney, Jon M. Lipshultz, John A. Bryson, and Richard Santino, of cousel, Army Corps of Engineers, Concord, MA, were on brief, for the federal appellees.

Timothy J. Dacey, with whom Kurt W. Hague and Goulston & Storrs, P.C., were on brief, for appellee Cape Wind Associates, LLC.

Before TORRUELLA, Circuit Judge, COFFIN, Senior Circuit Judge, and LYNCH, Circuit Judge.

TORRUELLA, Circuit Judge.

*1 On November 20, 2001, Cape Wind Associates, L.L.C. ("Cape Wind") submitted an application to the U.S. Army Corps of Engineers ("Corps") for a navigability permit under Section 10 of the Rivers and Harbors Act of 1899 ("Section 10"), 33 U.S.C. § 403, [FN1] to construct and operate an offshore data tower in an area of Nantucket Sound known as Horseshoe Shoals. Horseshoe Shoals is located on the Outer Continental Shelf ("OCS"), land subject to federal jurisdiction and control under the Outer Continental Shelf Lands Act ("OCSLA"), 43 U.S.C. § 1331.

The proposed tower was to consist of a platform and a fixed monopole approximately 170 feet high, supported by three steel piles driven into the ocean floor. Various instrumentation was to be attached to the data tower in order to gather data for use in determining the feasibility of locating a wind energy plant on Horseshoe Shoals. A separate permit application for the wind energy plant--a complex originally proposed to include 170 wind turbines with blade rotors rising 423 feet above mean sea level, occupying twenty-six square miles of Horseshoe Shoals--was submitted to the Corps in November 2001. That application is not at issue in the instant appeal, and we therefore will not engage in any analysis of the Corps's authority to permit construction of the wind energy plant.

On December 4, 2001, the Corps announced that it was considering Cape Wind's application for the data tower, and invited the public to submit comments during a period that included two public hearings and ended on May 13, 2002. On August 19, the Corps issued a Section 10 permit authorizing Cape Wind to construct and maintain the data tower, subject to the imposition of sixteen special conditions, including that Cape Wind remove the data tower within five years, that it post a $300,000 bond for emergency repairs or removal, and that it share the data collected with, and permit the installation of additional data-gathering equipment by, government agencies, research institutions, and others. Department of the Army Permit No. 199902477 (Aug. 19, 2002). The permit was accompanied by an Environmental Assessment ("EA") and Finding of No Significant Impact ("FONSI"), as required by the National Environmental Policy Act ("NEPA"), 42 U.S.C. § § 4331-32.

Appellants subsequently filed an action against the Corps in the District of Massachusetts, arguing that (1) the Corps lacked authority to issue a Section 10 permit for the data tower; (2) the Corps acted arbitrarily and capriciously, in violation of the Administrative Procedure Act ("APA"), 5 U.S.C. § 706(2)(A), by granting Cape Wind's permit application in spite of Cape Wind's lack of property rights on the OCS; and (3) the Corps failed to comply with NEPA requirements for evaluating the data tower's environmental impacts. Upon the receipt of cross motions for summary judgment, the district court granted summary judgment in favor of the Corps and intervenor Cape Wind. We review that decision *de novo*, construing the evidence in the light most favorable to appellants. *See* Straughn v. Delta Air Lines, Inc., 250 F.3d 23, 33 (1st Cir.2001). We will uphold the grant of summary judgment if there is no genuine issue of material fact and appellees are entitled to judgment as a matter of law. Fed.R.Civ.P. 56(c). We affirm the decision of the district court.

I. *Discussion*

A. Corps jurisdiction

*2 [1] The reach of the Corps's Section 10 permitting authority on the OCS turns on a question of statutory interpretation. Congress passed OCSLA in 1953 to assert federal jurisdiction over the OCS and to establish a regulatory framework for the extraction of minerals therefrom. *See* 43 U.S.C. § 1332; *see also* Ten Taxpayer Citizens Group v. Cape Wind Assocs., 373 F.3d 183, 188 (1st Cir.2004) ("A major purpose of the OCSLA was to specify that federal law governs on the [OCS] ....") (internal quotation marks omitted). Accordingly, OCSLA extended the Corps's Section 10 regulatory authority "to prevent obstruction to navigation in the navigable waters of the United States ... to artificial islands and fixed structures located on the [OCS]." 43 U.S.C. § 1333(f) (1953). In 1978, this grant of authority was amended to apply instead to "the artificial islands, installations, and other devices referred to in subsection (a) of this section." 43 U.S.C. § 1333(e) (2004). Subsection (a), in turn, extends federal jurisdiction to:

> *all* artificial islands, and *all* installations and other devices permanently or temporarily attached to the seabed, *which may be erected thereon for the purpose of exploring for, developing, or producing resources therefrom,* or any such installation or other device (other than a ship or vessel) for the purpose of transporting such resources.

Id. at § 1333(a)(1) (emphasis supplied). Appellants argue that the clause "which may be erected thereon for the purpose of exploring for, developing, or producing resources therefrom," is restrictive, and limits the Corps's permitting authority on the OCS to structures related to the extraction of mineral resources. [FN2] Thus, they argue, the Corps lacked authority to grant a Section 10 permit for construction of Cape Wind's data tower. The Corps, on the other hand, has determined that its Section 10 authority "was extended to artificial islands, installations, and other devices located on the seabed, to the seaward limit of the [OCS], by section 4(f) of [OCSLA] as amended." 33 C.F.R. § 320.2(b) (internal citation omitted).

The district court determined that the "which may be" clause of Subsection (a) was not restrictive. *See* Alliance to Protect Nantucket Sound, Inc. v. United States Dep't of the Army, 288 F.Supp.2d 64, 75 (D.Mass.2003) (finding that OCSLA's text supports the Corps's position that Section 10 jurisdiction extends to all OCS structures "including, but not limited to, those that '*may be* ' used to explore for, develop, or produce resources" (quoting 43 U.S .C. § 1333(a)(1)) (emphasis supplied by district court)). Thus, the district court held, the Corps has authority to grant a Section 10 permit for all structures on the OCS, regardless of their function.

We find the statutory text in question ambiguous. It is not apparent whether the reference to Subsection (a) inserted into Subsection (e) in 1978 refers to "all artificial islands, and all installations and other devices permanently or temporarily attached to the seabed," 43 U.S.C. § 1333(a)(1), or only to all such installations used to explore, develop or produce resources. In light of this ambiguity, the Corps and Cape Wind invite us to defer to the Corps's interpretation of its authority, *see* 33 C.F.R. § 320.2(b), under the *Chevron* doctrine. *See* Chevron U.S.A., Inc. v. Natural Res. Def. Council, Inc., 467 U.S. 837, 104 S.Ct. 2778, 81 L.Ed.2d 694 (1984). In this case, however, we find it unnecessary to reach the question of *Chevron* deference because legislative history reveals, with exceptional clarity, Congress's intent that Section 10 authority under OCSLA not be restricted to structures related to mineral extraction. [FN3] *See id.* at 843 n. 9 ("If a court, employing traditional tools of statutory construction, ascertains that Congress had an intention on the precise question at issue, that intention is the law and must be given effect."); Strickland v. Comm'r, ME. Dept. of Human Servs., 48 F.3d 12, 19-20 (1st Cir.1995) (evaluating legislative history to determine whether Congressional intent was unambiguously expressed).

*3 In the conference report for the 1978 OSCLA

amendments, Congress explained that the changes to Subsection (e)

> were technical only and there was no intent to change present law. The existing authority of the Corps of Engineers ... applies to all artificial islands and fixed structures on the [OCS], *whether or not they are erected for the purpose of exploring for, developing, removing and transporting resources therefrom.* The amendment ... is not intended to change the scope of this authority, but merely to conform the description of the types of structures, no matter what their purpose, to the types of structures listed in subsection (a), namely all installations and other devices permanently or temporarily attached to the seabed. It is not the intention of the conferees to limit the authority of the Corps [ ] as to structures used for the exploration, development, removal, and transportation of resources.

H.R. Conf. Rep. No. 95-1474 ("Conference Report") at 82 (1978), *reprinted in* 1978 U.S.C.C.A.N. 1674, 1681 (emphasis supplied). [FN4] Appellants suggest that the intent expressed in the above-quoted language was not that Corps authority be unlimited with regard to the *purpose* of the structure in question, but rather with regard to different *types* of structures within the subset of structures related to exploring for, developing, removing or transporting minerals. This interpretation strains the Conference Report language well beyond the meaning it can bear, especially in light of Congress's awareness when it amended OCSLA that the Corps had issued Section 10 permits for OCS structures unrelated to mineral extraction on several occasions between 1953 and 1978, implying its approval of the exercise of such jurisdiction. *See* Conference Report at 81 ("[The Corps's existing] authority has been used ... to regulate the construction and location of ... artificial fishing reefs, radio towers, and a proposed gambling casino which was to be constructed on reefs. It *also* applies to structures erected for the purpose of exploring for and transporting resources ...." (emphasis supplied)). Appellants' efforts to counter this legislative history with language from the Senate Report from the original 1953 OCSLA that could be read to imply a limitation of Corps permitting authority to structures intended for mineral resource development is unavailing. The Corps's current authority is determined by OCSLA as amended in 1978, and the Conference Report addresses Congress's intent at that time. *See also* United States v. Commonwealth Energy Sys. & Subsidiary Cos., 235 F.3d 11, 16 (1st Cir.2000) ("The most dispositive indicator of congressional intent is the conference report.").

Congress made clear that "[t]he existing authority of the Corps ... applies to all artificial islands and fixed structures on the [OCS], whether or not they are erected for the purpose of exploring for, developing, removing, and transporting resources therefrom." Conference Report at 82. This express legislative intent is determinative of the scope of the Corps's authority. Accordingly, we hold that the Corps had jurisdiction to issue a Section 10 permit for Cape Wind's data tower.

B. Property interest

*4 Appellants argue that the Corps failed to properly consider Cape Wind's lack of a property interest in the OCS land on which it sought to build the data tower when it granted the Section 10 permit.

1. Agency regulations

[2] Appellants first argue that the Corps has a regulation, 33 C.F.R. § 325.1(d)(7), that requires that the applicant actually have necessary property rights in the area of the project and make an affirmation to that effect. The regulation states: "The application must be signed by the person who desires to undertake the proposed activity.... The signature of the applicant ... will be an affirmation that the applicant possesses or will possess the requisite property interest to undertake the activity proposed in the application...." *Id.* Of course, the regulation does not say that the applicant must actually possess, or possess in the future, the requisite property rights, but only that the applicant must make an affirmation to that effect.

The Corps responds to appellants' argument by referring to another of its regulations, which provides that:

> *A [Corps] permit does not convey any property rights ... or any exclusive privileges. Furthermore a [Corps] permit does not authorize any injury to property or invasion of rights or any infringement of Federal,* state or local laws or regulations. The applicant's signature on an application is an affirmation that the applicant possesses or will possess the requisite property interest to undertake the activity proposed in the application. The [Corps] will not enter into disputes but will remind the applicant of the above. *The dispute over property ownership will not be a factor in the Corps public interest decision.*

33 C.F.R. § 320.4(g)(6) (emphasis supplied); *see also* Environmental Assessment and Statement of Findings at 13 (Aug. 19, 2002) (paraphrasing § 320.4(g)(6) in response to comments about Cape

Wind's lack of property interest).

The Corps indicated in its response to comments about Cape Wind's lack of a property interest, and articulated more fully during the course of this litigation, that it deems § 320.4(g)(6) to require only that it remind applicants of their need to possess all requisite property interests. In the Corps's view, § 320.4(g)(6)'s requirement that a "dispute over property ownership will not be a factor in the Corps public interest decision" applies to preclude consideration of a dispute over the adequacy of an applicant's property interests in the project site. *See* Environmental Assessment at 14.

Appellants argued before the district court that the requirement that applicants affirm possession of the requisite property interests for the proposed activity, 33 C.F.R. § 320.4(g)(6), means that such property interests must, in fact, be possessed by the applicant. Because Cape Wind had no property interest in the proposed data tower site, nor could it obtain such an interest under current law, its Section 10 permit application ought to have been denied. The district court rejected this argument, deferring instead to the Corps's interpretation that § 320.4(g)(6) requires only an affirmation from the applicant, which Cape Wind provided. According to the district court, § 320.4(g)(6), as interpreted by the Corps, fit in as "part of a [regulatory] scheme designed to keep the Corps out of property disputes." *Alliance*, 288 F.Supp.2d at 77. Accordingly, not only did the regulation relieve the Corps of any obligation to consider the sufficiency of Cape Wind's property interests, but it precluded such consideration altogether. *Id.* at 77-78.

***5** The face of § 320.4(g)(6) evidences the Corps's intent not to be involved in private property disputes. And as to disputes over public land, § 320.4(g)(6), by its own terms, says that a permit does not "convey any property rights ... or any exclusive privileges." Thus, the regulation does not purport to address disputes over public property, but rather attempts to insulate the Corps from addressing those disputes. Appellants' argument that the regulations impose an obligation on the Corps in a Section 10 case to resolve disputes over the ownership of public (or private) property is simply wrong.

Even if the regulation did not clearly support the Corps's interpretation on its face, the Corps's interpretation would nonetheless be entitled to deference. *See* Thomas Jefferson Univ. v. Shalala, 512 U.S. 504, 512, 114 S.Ct. 2381, 129 L.Ed.2d 405 (1994) (holding that agency's interpretation during administrative adjudication of its own regulations "must be given controlling weight unless it is plainly erroneous or inconsistent with the regulation") (internal quotation marks omitted); *South Shore Hosp., Inc. v. Thompson*, 308 F.3d 91, 98 (1st Cir.2002) (deference appropriate where language of regulations "admits of differing interpretations, and the [agency] chooses reasonably among them"). Deference would be appropriate even though the interpretation was offered in a less formal session than the interpretation in *Thomas Jefferson*. *See* Auer v. Robbins, 519 U.S. 452, 462, 117 S.Ct. 905, 137 L.Ed.2d 79 (1997) (deferring to agency interpretation contained in amicus brief submitted in dispute between private parties); *see also* Christensen v. Harris County, 529 U.S. 576, 588, 120 S.Ct. 1655, 146 L.Ed.2d 621 (2000) (limiting *Auer* deference to ambiguous regulations); *United States v. Hoyts Cinemas Corp.*, 380 F.3d 558, 567 (1st Cir.2004) (affording "some weight" to Justice Department's interpretation of its regulation "even though the Department's gloss is offered only in a brief rather than in some more formal manner"). [FN5]

We find that the Corps's reading of § 320.4(g)(6) is a reasonable one: the regulation's text states first that an applicant must affirm possession of the requisite property interests, then that the Corps "will not enter into disputes but will remind the applicant of the above"--that is, the Corps will remind the applicant of its need to possess the requisite property interest. The regulation next states that "[t]he dispute over property ownership will not be a factor in the Corps public interest decision." "The dispute" refers back to the category of disputes that result in a reminder of the need to obtain all required property interests. It is reasonable, in this context, to determine that "the dispute over property ownership" into which the Corps may not enter includes a dispute over whether the applicant has acquired all requisite property interests--that is, a dispute over the sufficiency of the applicant's property interests. Further, the goal of preventing the Corps from expending its resources on evaluating the legal question of the sufficiency of property interests is a reasonable one. This is so whether the dispute is over the sufficiency of the applicant's interests as opposed to those of other private property holders in the area, or as opposed to those of the federal government, especially since the Corps is permitted to consider the potential *impact* of the project on others' property interests during its public interest review. *See* 33 C.F.R. § 320.4(a)(1) (listing "considerations of property ownership" as factor to consider in determining whether, and under what conditions, to grant permit). Accordingly, we find that the district court did not err in deferring to the

Corps's interpretation of its regulations and its decision not to evaluate the sufficiency of Cape Wind's property interests in the OCS.

2. Public interest review

*6 Appellants also argue that the Corps's duty to act in the public interest required it to consider the effect that granting Cape Wind's application would have on the federal government's interest in the OCS. The Corps is not shielded from this line of attack by its reliance on § 320.4(g)(6). Appellants properly point out that the Corps must consider, despite § 320.4(g)(6), the impact of a permit issuance on federal property rights in various ways, as part of its general public interest review. *See* 33 C.F.R. § 320.4(a)(1) (impact of project on "considerations of property ownership" must be a factor in the Corps's analysis); *United States v. Alaska*, 503 U.S. 569, 590-91, 112 S.Ct. 1606, 118 L.Ed.2d 222 (1992) (§ 320.4(g)(6) does not prohibit Corps from considering effect of proposed port construction on federal-state boundary in submerged waters, under 33 C.F.R. § 320.4(f)). Here, as we explain below, the Corps reasonably found that the data tower's impact on federal property rights would be "negligible," Environmental Assessment at 4, and thus appellants' public interest argument fails.

3. Reliance on Cape Wind's affirmation

[3] Finally, appellants argue that Cape Wind's affirmation that it possessed the requisite property interests was obviously false, as there exists no mechanism by which private entities can obtain a license to construct a data tower on the federally controlled OCS. The Corps's grant of a Section 10 permit on the basis of this false affirmation was therefore arbitrary and capricious, in violation of the Administrative Procedure Act, 5 U.S.C. § 706(2)(A). Again, this line of attack is not deflected by reference to Corps regulations. Appellants note that agency decisions based on false factual information run afoul of the Administrative Procedure Act. *See, e.g.*, *Missouri Serv. Comm'n v. FERC*, 337 F.3d 1066, 1075 (D.C.Cir.2003) ("Reliance on facts that an agency knows are false at the time it relies on them is the essence of arbitrary and capricious decisionmaking."). [FN6] Appellants' argument hinges on the veracity of Cape Wind's affirmation, which in turn depends, appellants argue, on whether authorization in addition to a Section 10 permit is necessary for construction of the data tower. [FN7] The first part of our opinion holds that a Section 10 permit is *necessary* for all structures on the OCS unless otherwise indicated by law, but does not determine whether such a permit is *sufficient* to authorize building on the federally controlled OCS.

Whether, and under what circumstances, additional authorization is necessary before a developer infringes on the federal government's rights in the OCS is a thorny issue, one that is unnecessary to delve into in the instant case. The data tower at issue here involves no real infringement on federal interests in the OCS lands. To start, the structure is temporary, of five years' duration, more than two of which have now passed. The tower is also not exclusive--it must accept data collection devices form the government and others, and it must give the data to the government. The tower is a single structure, and it provides valuable information that the Corps requires in order to evaluate the larger wind energy plant proposal. The Corps's public interest evaluation of the data tower resulted in a finding of "negligible impact" on property ownership and stated that collection of the data is in the public interest. Environmental Assessment at 4-5. It is inconceivable to us that permission to erect a single, temporary scientific device, like this, which gives the federal government information it requires, could be an infringement on any federal property ownership interest in the OCS.

*7 Thus, the question of infringement of federal property interests is entirely hypothetical in this case. As a result, appellants' arguments based both on the arbitrary and capricious provision in the APA and the public interest standards discussed in *Alaska* are misplaced. We do not here evaluate whether congressional authorization is necessary for construction of Cape Wind's proposed wind energy plant, a structure vastly larger in scale, complexity, and duration, which is not at issue in the present action. Our analysis is limited to whether additional Congressional authorization is necessary for the data tower, which does not infringe on any federal property interest, and we conclude that it is not.

C. National Environmental Policy Act

[4][5] The Council on Environmental Quality ("CEQ") is authorized to enact regulations to ensure federal agencies' compliance with NEPA. *See* 42 U.S.C. § § 4342, 4344. Appellants argue that the Corps violated CEQ regulations by failing to circulate for public comment a draft EA and FONSI. We evaluate agency action to determine if it is "arbitrary, capricious, an abuse of discretion, or otherwise not in accordance with law." 5 U.S.C. § 706(2)(A), (C).

CEQ regulations require that an "agency shall

involve ... the public, to the extent practicable, in preparing [an EA]," 40 C.F.R. § 1501.4(b), and that "[a]gencies shall ... make diligent efforts to involve the public in preparing and implementing their NEPA procedures[,] ... provide public notice of ... the availability of environmental documents so as to inform those persons ... who may be interested or affected," and "[s]olicit appropriate information from the public," *Id.* § 1506.6. Appellants inform us that the Ninth Circuit has held that, under these regulations, "[t]he public must be given an opportunity to comment on draft EAs." *See* Citizens for Better Forestry v. United States Dep't of Agric., 341 F.3d 961, 970 (9th Cir.2003) (quoting *Anderson v. Evans*, 314 F.3d 1006, 1016 (9th Cir.2002), *opinion amended and reissued without change to this section*, 371 F.3d 475 (9th Cir.2004)). Appellees reject this interpretation, citing contrary precedent from a number of other circuits and noting that the quoted language in *Citizens for Better Forestry* was *dicta.* Appellees argue that the Corps met the requirement of involving the public "to the extent practicable" in preparing the EA by issuing public notice of Cape Wind's application, providing a comment period that they later extended to over five months, carrying out two public hearings, noting and responding to public comments in the EA, and conferring with federal and state environmental agencies. We agree. Nothing in the CEQ regulations requires circulation of a draft EA for public comment, except under certain "limited circumstances." 40 C.F.R. § 1501.4(e)(2).

Appellants argue that one of those circumstances [FN8] applies to this case: A draft FONSI must be made available for public comment when "[t]he nature of the proposed action is one without precedent." *Id.* § 1501.4(e)(2)(ii). Appellants argue that the data tower proposal is "without precedent" because Nantucket Sound is a pristine, undeveloped area and because "there is no precedent for permitting a privately-owned structure for wind energy, or even related research, on OCS lands." The Corps, however, determined that "[t]here is precedent for this type of structure in Massachusetts's waters," in the form of a data tower in Martha's Vineyard. Environmental Assessment at 10. The district court agreed, relying on the Corps's findings that while "[t]here are no other similar structures or devices in Horseshoe Shoals," a data tower was permitted in state waters off Martha's Vineyard, and Cape Wind's data tower was "not inconsistent with other pile supported structures in the marine environment in Nantucket Sound." *Id.* at 2; *see Alliance*, 288 F.Supp.2d at 78-79.

***8** We find that the Corps's determination that the data tower is not without precedent, on the basis of physically similar structures in nearby waters, was reasonable. We do not agree with appellants' argument that construction of structures like the data tower on the OCS without additional authorization from Congress is without precedent, but even if that were so, it would suggest only that issuance of the permit is *legally* unprecedented. The CEQ regulations, however, are designed to address environmental impact. Based on the Corps's findings about the existence of similar pile-driven structures in Martha's Vineyard and near the shore of Nantucket Sound, we can see nothing unprecedented about the way this data tower will impact the environment. [FN9] Thus, we find that the Corps fully complied with its obligations under NEPA and CEQ regulations to engage with the public in preparing the EA and FONSI.

II. *Conclusion*

For the reasons stated above, the judgment of the district court is ***affirmed.***

FN1. Section 10 delegates authority to the Corps to issue permits for projects that impact on the navigability of United States waters. 33 U.S.C. § 403.

FN2. While the term "resources" is not defined in OCSLA, "exploration," "development," and "production" are all defined in terms of "mineral," which is in turn defined as "includ[ing] oil, gas, sulphur, geopressured-geothermal and associated resources, and all other minerals which are authorized by an Act of Congress to be produced from 'public lands'." 43 U.S.C. § 1331(k), (l), (m), (q).

FN3. Appellants' argument that the district court erred by elevating the importance of legislative history to supercede that of the plain language of OCSLA is without merit in this case. Even were the text less ambiguous, a reviewing court may consider legislative history to determine "whether there is clearly expressed legislative intention contrary to [the statutory] language, which would require [the court] to question the strong presumption that Congress expresses its intent through the language it chooses." *INS v. Cardoza-Fonseca*, 480 U.S. 421, 432 n. 12, 107 S.Ct. 1207, 94 L.Ed.2d 434 (1987)(internal quotation marks omitted); *see also Train v. Colorado Public Interest Research Group, Inc.*, 426 U.S. 1, 10, 96 S.Ct.

1938, 48 L.Ed.2d 434 (1976) ("When aid to construction of the meaning of words, as used in the statute, is available, there certainly can be no 'rule of law' which forbids its use, however clear the words may appear on 'superficial examination.' ").

FN4. The need to bring the types of structures referred to in Subsection (e) into agreement with those referred to in Subsection (a) becomes apparent when one considers the amendments made to the latter in 1978. The original text of Subsection (a) extended federal jurisdiction over "all artificial islands and *fixed structures* which may be erected thereon for the purpose of exploring for, developing, removing, and transporting resources therefrom." 43 U.S.C. § 1333(a) (1953) (emphasis supplied). Because of the development of relatively impermanent structures, which did not clearly fall within the "fixed structures" rubric, Congress amended Subsection (a) in 1978 to apply instead to "all artificial islands and *all installations and other devices permanently or temporarily attached to the seabed,* which may be erected thereon for the purpose of exploring for, developing, or producing resources therefrom." *See* H.R.Rep. No. 95- 590, at 128 (1977), *reprinted in* 1978 U.S.C.C.A.N. 1450, 1534 (emphasis supplied) (explaining that change in Subsection (a) was made because "the Committee intends that federal law is ... to be applicable to all activities on drilling ships, semi-submersible drilling rigs, and other watercraft, when they are attached to the seabed"). The reference to "fixed structures" in the predecessor of the current Subsection (e), 43 U.S.C. § 1333(f) (1953), was accordingly revised to refer instead to those structures "referred to in subsection (a)," 43 U.S.C. § 1333(e) (2005).

FN5. While deference is not due to interpretations that are "*post hoc* rationalizations offered by an agency seeking to defend past agency action against attack," *Auer,* 519 U.S. at 462, or to interpretations that have varied erratically over time, *see South Shore,* 308 F.3d at 102, we find neither of these stumbling blocks in the instant case. The Corps's interpretation was issued simultaneously with the permit, and so does not appear to be a post hoc rationalization. Further, the Corps has consistently taken the position that nothing in Section 10 requires it to resolve property disputes.

FN6. Indeed, at oral argument, the Corps's attorney stated that if an applicant sought a permit to build a structure for extraction purposes under OCSLA and affirmed possession of all requisite property interests, but was refused a lease by the Department of the Interior, then the Corps would consider the lack of an Interior lease and would deny the permit.

FN7. Congress has established regulatory schemes for certain types of structures on the OCS. OCSLA itself sets up a system of oil and gas leases that require both a lease from the Secretary of the Interior as well as a Corps permit. *See* 43 U.S.C. § 1331 *et seq.* The Ocean Thermal Energy Conversion Act of 1980, 42 U.S.C. § 9101 *et seq.*, authorizes the creation of large thermal energy plants by requiring a license from the National Oceanic and Atmospheric Administration, while the Coast Guard is authorized to make rules ensuring safety of navigation. *Id.* § § 9111, 9118. The Deepwater Ports Act of 1975, 33 U.S.C. § 1501 *et seq.*, requires a license from the Secretary of Transportation in order to authorize construction of deepwater ports. *Id.* § 1503. The National Fishing Enhancement Act of 1984, 33 U.S.C. § 2101 *et seq.*, in contrast, does not require approval for artificial reefs placed on the OCS beyond a Section 10 permit. *Id.* § 2104.

FN8. The other circumstance, when "[t]he proposed action is, or is closely similar to, one which normally requires the preparation of an environmental impact statement," § 1501.4(e)(2)(i), has not been argued to apply in this case.

FN9. To the extent that appellants' arguments are concerned with unprecedented impact of the proposed wind energy plant, that project is not at issue in the current action.

Briefs and Other Related Documents (Back to top)

03-2604 (Docket)
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CRS Report for Congress

Wind Energy: Offshore Permitting

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Wind Energy: Offshore Permitting

Summary

Technological advancements and tax incentives have driven a global expansion in the development of renewable energy resources. Wind energy, in particular, is now often cited as the fastest growing commercial energy source in the world. Currently all U.S. wind energy facilities are based on land; however, multiple offshore projects have ben proposed and are moving through the permitting process.

It would seem relatively clear that the United States has the authority to permit and regulate offshore wind energy development within the zones of the ocean under its jurisdiction. The federal government and coastal states each have roles in the permitting process, the extent of which depends on whether the project is located in state or federal waters. Currently, no single federal agency is responsible for permitting activities on the submerged lands in federal waters, with regulatory authority allocated among various agencies based on the nature of the resource to be exploited. In addition to basic jurisdictional questions, it is not necessarily clear that current federal law should be interpreted to apply to offshore wind energy facilities or whether new laws will be needed.

The Army Corps of Engineers (Corps) has been exercising jurisdiction under the Rivers and Harbors Act and the Outer Continental Shelf Lands Act. Recently, in *Alliance to Protect Nantucket Sound v. United States Department of the Army*, a federal district court held that the Corps' jurisdiction under these laws was legally sound and upheld the Corps' decision to permit a preliminary data collection tower in federal waters. The reasoning of the court may be applied to the permitting of the larger-scale wind energy project itself, although the decision has been appealed and certain issues remain unresolved. Currently, it is arguable whether the Army Corps' jurisdiction extends to renewable energy projects in federal waters, and there would appear to be no present mechanism for providing an applicant with the necessary property rights to begin construction.

Several bills have been introduced in the 108th Congresses to address this issue, offering two distinct approaches to regulation. H.R. 793 would place authority for granting easements and rights-of-way on submerged federal lands in the hands of the Secretary of the Department of the Interior. Several versions of the Energy Policy Act of 2003, H.R. 6, and S. 2095, contain similar provisions. On the other hand, H.R. 1183 would place regulatory authority in the Secretary of the Department of Commerce by amending the Coastal Zone Management Act to allow specifically for renewable energy projects and the designation of ocean areas that would make suitable candidates for development.

This report will discuss the current law applicable to siting offshore wind facilities, the recent court challenges to the federal offshore permitting process, and the above-mentioned legislation that addresses offshore wind energy regulation. This report will be updated as events warrant.

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Wind Energy: Offshore Permitting

Technological advancements and tax incentives have driven a global expansion in the development of renewable energy resources. Wind energy, in particular, is now often cited as the fastest growing commercial energy source in the world.[1] Currently, unlike much of Europe,[2] all wind power facilities in the United States are based on land; however, multiple offshore projects have now been proposed, including the Cape Wind project off the coast of Massachusetts and Winergy's proposals off the coasts of Massachusetts, New York, New Jersey, Delaware, Maryland, and Virginia.[3] These projects are relatively large undertakings requiring substantial investment; proposed wind farms off the coast of Massachusetts, consisting of approximately 170 turbines, are estimated to cost between $500 million and $700 million.[4]

There are multiple policy questions related to the feasibility and relative attractiveness of developing wind energy; however, the focus of this report is the current law applicable to siting offshore wind facilities, including the interplay between state and federal jurisdictional authorities. This report will also discuss the recent court challenges to the federal offshore permitting process and recent legislation that would address offshore wind energy regulation. This report will be updated as events warrant.

Ocean Jurisdiction. The jurisdiction of coastal nations over the world's oceans extends across various adjoining zones by operation of international conventions and by the domestic laws and proclamations of individual governments. Jurisdiction over U.S. waters is divided into four functional areas:, the Territorial Sea, the Contiguous Zone, the Exclusive Economic Zone, and state-controlled waters. The federal government has differing levels of authority in each of these zones, vis-a-vis the states and vis-a-vis other nations. Even within these U.S. zones, all nations enjoy freedom of navigation and overflight as well as other internationally lawful uses of the sea, subject to the regulatory jurisdiction granted the coastal state

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[1] *See* U.S. DEP'T OF ENERGY & U.S. DEP'T OF THE INTERIOR, WHITE HOUSE REPORT IN RESPONSE TO THE NATIONAL ENERGY POLICY RECOMMENDATIONS TO INCREASE RENEWABLE ENERGY PRODUCTION ON FEDERAL LANDS at 6 (Aug. 2002).

[2] For an overview of offshore wind farm regulation in the United Kingdom, *see*, Nathanael D. Hartland, *The Wind and the Waves: Regulatory Uncertainty and Offshore Wind Power in the United States and United Kingdom*, 24 U. PA. J. INT'L ECON. L. 691 (2003).

[3] Betsie Blumberg, *Wind Farms: An Emerging Dilemma for East Coast National Parks, in* NATIONAL PARK SERVICE, NATURAL RESOURCE YEAR IN REVIEW–2003 63 (March 2004).

[4] Testimony of Attorney General Thomas F. Reilly, Subcommittee on Energy and Mineral Resources, Hearing Regarding HR 793, 108th Cong. (March 6, 2003) (*available at* [http://resourcescommittee.house.gov/108cong/energy/2003mar06/reilly.htm]).

over such things as setting optimum fishing allowances.[5] It would seem relatively clear, however, that, generally, the United States would have sufficient jurisdiction over each of its zones to authorize the construction and operation of offshore wind projects.

U.S. authority as against other nations begins at its coast — called the baseline — and extends 200 nautical miles out to sea. The first twelve nautical miles comprise the U.S. territorial sea.[6] Under the 1982 United Nations Convention on the Law of the Sea[7] (UNCLOS III), a coastal nation may claim sovereignty over the air space, water seabed, and subsoil within its territorial sea.[8] U.S. Supreme Court precedent and international practice indicate that this sovereignty authorizes coastal nations to permit offshore development within its territorial sea.[9]

The U.S. contiguous zone extends beyond the territorial sea to twenty-four nautical miles from the baseline. In this area, a coastal nation may regulate to protect its territorial sea and to enforce its customs, fiscal, immigration, and sanitary laws.[10] The exact contours of U.S. authority in the contiguous zone are not clearly defined, although the U.S. does not claim full sovereignty.[11] However, in addition to the jurisdiction specifically applicable to the contiguous zone, the jurisdiction the United States exercises over the EEZ is also applicable.

The U.S. EEZ extends 200 nautical miles from the baseline. In accordance with international law, the U.S. has claimed sovereign rights to explore, exploit, conserve, and manage EEZ natural resources of the sea-bed, subsoil, and the superadjacent waters.[12] U.S. jurisdiction also extends over "other activities for the economic exploitation and exploration of the zone, *such as the production of energy from the water, currents and winds*"[13] and, subject to some limitations, "the establishment and use of artificial islands, installations and structures; marine scientific research; and

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[5] Restatement (Third) of the Foreign Relations Law of the United States, § 514 (1986).

[6] Proc. No. 5928 (Dec. 27, 1988).

[7] United Nations Convention on the Law of the Sea, Dec. 10, 1982, 21 I.L.M. 1261 (entered into force Nov. 16, 1994)(hereinafter UNCLOS III).

[8] UNCLOS III arts. 2.1, 2.2, 3; *see also* United States v. California, 332 U.S. 19 (1947); Alabama v. Texas, 347 U.S. 272, 273-74 (1954).

[9] *See* United States v. California, 436 U.S. 32, 36 (1978); United States v. Alaska, 422 U.S. 184, 199 (1975); Alabama v. Texas, 347 U.S. 272, 273-74 (1954); United States v. California, 332 U.S. 19 (1947).

[10] UNCLOS III art. 33.

[11] United States v. De Leon, 270 F.3d 90, 91 n.1 (1st Cir. 2001); *see also* Vermilya-Brown Co. v. Connell, 335 U.S. 377, 381 (1948); Cuban Am. Bar Ass'n v. Christopher, 43 F.3d 1412, 1425 (11th Cir.1995) (control and jurisdiction is not equivalent to sovereignty).

[12] UNCLOS III arts. 56, 58.

[13] *Id.* art. 56.1 (emphasis added).

the protection and preservation of the marine environment."[14] In almost all situations, the U.S. EEZ overlaps geographically with the Outer Continental Shelf (OCS), a geologically distinct area of appurtenant seabed referenced in several federal laws.[15]

Thus, it would seem clear that as against other nations, the United States would have legal authority to permit wind energy projects within the full range of its territorial sea, contiguous zone, and EEZ.

The relative jurisdiction of the federal government and the states is also of importance. The Submerged Lands Act of 1953[16] assured coastal states title to the lands beneath coastal waters in an area stretching, in general, three geographical miles from the shore.[17] Thus states, subject to federal regulation for "commerce, navigation, national defense, and international affairs" and the power of the federal government to preempt state law, may regulate the coastal waters within this area.[18] The remaining outer portions of waters over which the United States exercises jurisdiction are federal waters.[19]

In sum, it would seem relatively clear that the U.S. federal government would have permitting authority, supported by international law, for offshore wind farms. However, federal authority would be limited by the internationally recognized right of free passage and by the jurisdiction granted to the states under the Submerged Lands Act.

Federal and State Permitting. For *onshore* wind projects on federal public lands, the Department of the Interior, through the Bureau of Land Management, has created a comprehensive regulatory program under the Federal Land Policy and Management Act,[20] but no similarly comprehensive federal statutory or regulatory scheme exists for *offshore* wind energy development at this time. Still, the Army Corps of Engineers has undertaken the lead role in the federal permitting process, although some have questioned the Corps' statutory authority to issue permits for wind energy facilities. States may also play a role in the permitting process in some

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[14] *Id.* art. 56.1(b).

[15] *See* U.S. Commission on Ocean Policy, An Ocean Blueprint for the 21st Century: Final Report of the U.S. Commission on Ocean Policy, Primer on Ocean Jurisdictions: Drawing Lines in the Water, Pre-Publication Copy 41-44 (2004), *available at* [http://www.oceancommission.gov/documents/prepub_report/primer.pdf].

[16] 43 U.S.C. §§ 1301-1303, 1311-1315.

[17] *Id.* § 1301(a)(2). State jurisdiction typically extends three nautical miles (approximately 3.3 miles) seaward of the coast or "baseline." Texas and the Gulf coast of Florida have jurisdiction over an area extending 3 "marine leagues" (9 nautical miles) from the baseline. Louisiana's jurisdiction extends 3 "imperial nautical miles" (imperial nautical mile = 6080.2 feet) seaward of the baseline. 43 U.S.C. § 1301(a)(2).

[18] *Id.* §§ 1314(a), 1311(a)(2).

[19] *Id.* § 1302.

[20] 43 U.S.C. §§ 1701 *et. seq.*

instances, although their jurisdiction is more limited with regard to offshore projects located in federal waters. The following paragraphs will describe the nature of the permitting process as it is currently being implemented and the challenges to existing Corps practice.

Federal Regulation. Currently, the Army Corp of Engineers has taken the lead role in the federal permitting process, claiming jurisdiction under the Rivers and Harbors Act (RHA),[21] as amended by the Outer Continental Shelf Lands Act (OCSLA).[22] The Corps has jurisdiction under these laws to regulate obstructions to navigation within the "navigable waters of the United States"[23] and, under what are arguably more limited circumstances, on the Outer Continental Shelf — thus the Corps has authority over structures in state and federal navigable waters. No federal legislation explicitly addresses the permitting of offshore renewable energy facilities, and the Corps position is based on what some argue is an overly broad interpretation of its statutory authority. In addition to the Corps' review for navigability-related purposes, the views of other federal agencies that have jurisdiction by law or special subject matter expertise, along with the views of state and local agencies, are taken into consideration during the environmental review process mandated by the National Environmental Policy Act (NEPA).[24]

NEPA requires federal agencies to take a "hard look" at the environmental consequences of their actions. In general, NEPA and its implementing regulations require various levels of environmental analysis depending on the circumstances and the type of federal action contemplated. Certain actions that have been determined to have little or no environmental effect are exempted from preparation of NEPA documents entirely and are commonly referred to as "categorical exclusions."[25] In situations where a categorical exclusion does not apply, an intermediate level of review, an environmental assessment (EA), may be required. If, based on the EA, the agency finds that an action will not have a significant effect on the environment, the agency issues a "finding of no significant impact" (FONSI), thus terminating the NEPA review process. On the other hand, major federal actions that are found to significantly affect the environment require the preparation of an environmental impact statement (EIS), a document containing detailed analysis of the project as proposed, as well as other options, including taking no action at all. NEPA does not

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[21] 33 U.S.C. §§ 407-687.

[22] 43 U.S.C. §§ 1331-1356a.

[23] Corps regulations define the "navigable waters of the United States" as "those waters that are subject to the ebb and flow of the tide and/or are presently used, or have been used in the past, or may be susceptible for use to transport interstate or foreign commerce." 33 C.F.R. § 329.4. Under the RHA, navigable waters "includes only those ocean and coastal waters that can be found up to three geographic miles seaward of the coast." Alliance To Protect Nantucket Sound, Inc. v. U.S. Dept. of Army 288 F.Supp.2d 64, 72 (D.Mass.,2003); *see also* 33 C.F.R. § 329.12(a). On the OCS, however, the Corps' regulatory jurisdiction extends beyond that three-mile limit for, at least certain purposes. 43 U.S.C. § 1333(a)(1), (e).

[24] 42 U.S.C. §§ 4321 *et. seq.*

[25] 40 C.F.R. § 1508.4 (2003).

direct an agency to choose any particular course of action; the only purpose of an EIS is to ensure that environmental consequences are considered. Thus, in practice, NEPA review will provide information on wind energy projects beyond mere impacts on navigability, and will include impacts to:

> existing resources of the final alternative sites in terms of physical oceanography and geology; wildlife, avian, shellfish, finfish and benthic habitat; aesthetics, cultural resources, socioeconomic conditions, and air and water quality. Human uses such as boating and fishing will also be described.[26]

In addition to the role interested parties and cooperating agencies may play under NEPA, certain federal agencies have independent sources of jurisdiction over specific ocean resources. Thus, they would also likely be involved in the permitting of offshore wind energy facilities. Some of the most relevant authorities are the Endangered Species Act (ESA)[27] and the Migratory Bird Treaty Act (MBTA).[28]

Briefly, each of these laws makes it illegal to inflict certain kinds of harm upon designated species of plants and animals. The ESA prohibits any person, including private entities, from "taking" a "listed" species.[29] "Take" is broadly defined as "to

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[26] *See* U.S. ARMY CORPS OF ENG'RS, ENVIRONMENTAL IMPACT STATEMENT: SCOPE OF WORK, WIND POWER FACILITY PROPOSED BY CAPE WIND ASSOCIATES, LLC 3, *available at* [http://www.nae.usace.army.mil/projects/ma/ccwf/windscope.pdf] (last visited Feb. 20, 2004).

[27] 16 U.S.C. §§ 1531-1544. It should also be noted that it is perhaps arguable that the ESA does not apply in certain U.S. waters or extraterritorially. However, section 9, which prohibits the taking of listed species, specifically states that it applies in the U.S. territorial sea and upon the high seas (i.e. areas beyond national jurisdiction). 16 U.S.C. § 1538(a)(1)(A), (C). So far, all U.S. wind farm proposals have been within the boundaries of the U.S. territorial sea and would thus appear to be covered by section 9. The section 7 consultation provision described above does not appear to expressly address applicability in U.S. waters or extraterritorially; however, the law states that it applies, to "any action authorized, funded, or carried out" by a federal agency, and regulations implementing section 7 make clear that consultation is required for actions taken within the United States and on the high seas. 16 U.S.C. § 1536; 50 C.F.R. § 402.01. The extent to which the phrase "within the United States" includes portions of the ocean under U.S. sovereignty or control is unclear; however, it may arguably include the territorial sea, over which the U.S. exercises full sovereignty. The application of the ESA in areas under the jurisdiction of other nations would be more questionable but is beyond the scope of this report. *See* Lujan v. Defenders of Wildlife, 504 U.S. 555, 589 (1992) (Stevens, J., concurring). In addition to ESA language pertaining to jurisdiction, the OCSLA does state that "[t]he Constitution and laws and civil and political jurisdiction of the United States are hereby extended to the subsoil and seabed of the outer Continental Shelf and to all artificial islands, and all installations ... to the same extent as if the outer Continental Shelf were an area of exclusive Federal jurisdiction located within a State....," lending credence to the idea that the ESA will apply in U.S. waters. 43 U.S.C. § 1333(a)(1).

[28] 16 U.S.C. §§ 703-712.

[29] Under the ESA, species are listed as either "endangered" or "threatened" based on the risk of their extinction. An "endangered" species is "any species which is in danger of extinction

(continued...)

harass, harm, pursue, hunt, shoot, wound, kill, trap, capture or collect, or to attempt to engage in any such conduct."[30] Additionally, a federal agency permitting or undertaking action that could impact a protected species is subject to section 7 of the ESA, which requires consultation with the U.S. Fish and Wildlife Service (FWS) or the National Marine Fisheries Service (NMFS or NOAA Fisheries), depending upon the species affected.[31]

The section 7 consultation process involves several initial steps leading to a determination of whether a listed species or its designated critical habitat is present in a project area.[32] If a species or critical habitat is present, then the permitting/acting federal agency must prepare a biological assessment, evaluating the potential effects of the action.[33] If the acting federal agency determines that a project may adversely affect a listed species or critical habitat, formal consultation and preparation of a biological opinion is required.[34] The biological opinion contains a detailed analysis of the effects of the agency action and contains the final determination as to whether the proposed action is likely to jeopardize the species or destroy or adversely modify its critical habitat.[35] If review results in a jeopardy or adverse modification determination, the biological opinion must identify any "reasonable and prudent alternatives" that could allow the project to proceed.[36] Projects that will result in a level of injury to a species or habitat that will fall short of jeopardizing survival may still be approved subject to certain terms.[37] The agency may be allowed to "take" some individuals of a listed species without triggering penalties under the act. These incidental takings are to be described in a statement accompanying the biological opinion.[38] Takings allowed under the consultation process are deemed consistent

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[29] (...continued)
throughout all or a significant portion of its range ...." A "threatened" species is "any species which is likely to become an endangered species within the foreseeable future throughout all or a significant portion of its range." 16 U.S.C. §§ 1532(6), (20).

[30] 16 U.S.C. § 1532(19).

[31] *Id.* § 1536(2).

[32] 50 C.F.R. § 402.12(c) (2004). It should also be noted that some protections also attach to "candidate" species, i.e. those proposed but not officially listed. Under current law, an agency must "confer" with the appropriate Secretary if agency action will likely jeopardize the continued existence of any candidate species or adversely modify critical habitat proposed for designation. This is distinct from the section 7 consultation process, less formal, and meant to assist planning early in the process should the species be listed and more definite protections attach. *See* 16 U.S.C. § 1536(a)(4); 50 C.F.R. § 402.10.

[33] 50 C.F.R. § 402.12(b), (d) (2004).

[34] *Id.* § 402.14(e).

[35] *Id.* § 402.14(h).

[36] *Id.* § 402.14(h)(3).

[37] *Id.* § 402.14(i).

[38] *Id.* § 402.14(i)(1)(i)-(v).

with the ESA and, thus, are not subject to the penalties under the act and no other authorization or permit is required.[39]

The MBTA is the domestic law that implements the United States' obligations under separate treaties with Canada, Japan, Mexico and Russia for the protection of migratory birds.[40] The MBTA generally prohibits the taking, killing, possession, transportation, and trafficking in of migratory birds, their eggs, parts, and nests.[41] Like the ESA, the general ban on taking protected birds can be waived under certain circumstances. Pursuant to section 704, the Secretary of the Interior is authorized to determine if, and by what means, the take of migratory birds should be allowed.[42] FWS is responsible for permitting activities that would otherwise violate the MBTA. Its regulations at 50 C.F.R. § 21 make exceptions from permitting requirements for various purposes and provide for several specific types of permits, such as import and export permits, banding and marking permits, and scientific collection permits.[43] More general permits for special uses are also provided for under the regulations, although an applicant must make "a sufficient showing of benefit to the migratory bird resource, important research reasons, reasons of human concern for individual birds, or other compelling justification."[44] It would not appear that FWS has promulgated regulations specific to the sort of unintentional harm caused by the rotating turbines of wind energy projects, thus it is not clear that the permitting process provided for under current regulations is immediately applicable to wind energy projects.[45] The Service has, however, adopted voluntary, interim guidelines for minimizing the wildlife impacts from wind energy turbines.[46] As these guidelines indicate, compliance does not shield a company from prosecution for MBTA violations; however, "the Office of Law Enforcement and Department of Justice have used enforcement and prosecutorial discretion in the past regarding individuals, companies, or agencies who have made good faith efforts to avoid the take of migratory birds."[47]

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[39] 16 U.S.C. § 1536(b)(4); 50 C.F.R. § 402.14(i)(5).

[40] Birds that receive protection under the MBTA are listed at 50 C.F.R. 10.13 (2003).

[41] 16 U.S.C. § 703.

[42] 16 U.S.C. § 704.

[43] 50 C.F.R. §§ 21.11-21.26 (2003).

[44] *Id.* § 21.27.

[45] *See* 69 Fed. Reg. 31074 (June 2, 2004) ("Current regulations authorize permits for take of migratory birds for activities such as scientific research, education, and depredation control. However, these regulations do not expressly address the issuance of permits for incidental take.").

[46] U.S. Fish and Wildlife Service, Interim Guidelines to Avoid and Minimize Wildlife Impacts from Wind Turbines, (May 2003) (*available at* [http://www.fws.gov/r9dhcbfa/wind.pdf].

[47] U.S. Fish and Wildlife Service, Memorandum, Service Interim Guidance on Avoiding and Minimizing Wildlife Impacts from Wind Turbines at 2 (May 2003).

State Regulation. States may also play a regulatory role, whether the project is proposed for construction in federal or state waters. State jurisdiction over projects located in federal areas is substantially circumscribed; however, under the Coastal Zone Management Act[48] (CZMA) states are explicitly granted some regulatory authority. In general, the CZMA encourages states to enact coastal zone management plans to coordinate protection of habitats and resources in coastal waters.[49] The act establishes a policy of preservation alongside sustainable use and development that is compatible with resource protection.[50] Under the act, state coastal zone management programs that are approved by the Secretary of Commerce receive federal monetary and technical assistance. State programs must designate land and water conservation measures and permissible uses,[51] and must address various sources of water pollution.[52] Of particular importance here, the CZMA also requires that the federal government and federally permitted activities comply with state programs.[53] Responding to a Supreme Court decision that excluded OCS oil and gas leasing from state review under the CZMA, Congress amended the "consistency review" provision to include the impacts on a state coastal zone from federal actions in federal waters.[54] Thus, states have some authority to assure themselves that federally-permitted projects in federal waters will not result in a violation of state coastal zone management regulation.

In addition to consistency review, projects to be constructed in state waters, including any cables that would be necessary to transmit power back to shore, are subject to all state regulation or permitting requirements. Coastal zone regulation varies significantly among the states. The CZMA itself establishes three generally acceptable frameworks: (1) "[s]tate establishment of criteria and standards for local implementation, subject to administrative review and enforcement;" (2) "[d]irect State land and water use planning and regulation;" and (3) regulation development and implementation by local agencies, with state-level review of program decisions.[55]

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[48] 16 U.S.C. §§ 1451-1464.

[49] Coastal U.S. states and territories, including the Great Lakes states are eligible to receive federal assistance for their coastal zone management programs. Currently, there are 33 approved state and territorial plans. Of eligible states, only Illinois does not have an approved program. *See* National Oceanic and Atmospheric Administration, Office of Ocean and Coastal Resource Management, State and Territory Coastal Management Program Summaries, *available at* [http://www.ocrm.nos.noaa.gov/czm/czmsitelist.html].

[50] *Id.* § 1452(1), (2).

[51] *Id.* § 1455(d)(2), (9)-(12).

[52] *Id.* § 1455(d)(16).

[53] *Id.* § 1456(c).

[54] *Id*; Sec'y of the Interior v. California, 464 U.S. 312, 315 (1984).

[55] 16 U.S.C. § 1455(d)(11).

Within this framework, several states, such as New Jersey, California, and Rhode Island, centralize authority for their programs in one agency.[56] In New Jersey, for instance, the state Department of Environmental Protection (through the Coastal Management Office within the Commissioner's Office of Policy, Planning, and Science) is the lead agency for coastal zone management under several state laws.[57] The majority of states, however, operate coastal zone management programs under "networks" of parallel agencies, with various roles defined by policy guidance and memoranda of understanding.[58] In Massachusetts, for instance, coastal zone management is tended to by a variety of agencies, including the Departments of Environmental Protection, Environmental Management, Fisheries and Wildlife, and Food and Agriculture, the Metropolitan District Commission, the Energy Facilities Siting Board, and the Executive Office of Transportation and Construction.[59] Based on a series of MOUs, each agency is obligated to issue and apply state regulations and permits consistently with the state's coastal zone management program.[60] Thus, depending on the state with jurisdiction, offshore wind energy projects can be subject to comprehensive regulation with permitting authority located within multiple state and local level agencies.

Corps Regulation Challenge. The authority of the Army Corps of Engineers to permit offshore wind energy projects has already been challenged in court in *Alliance to Protect Nantucket Sound v. United States Department of the Army*.[61] The case deals with the two primary obstacles to the current federal system applied to offshore wind energy permitting: (1) the limits of Corps jurisdiction on the outer continental shelf and (2) the current lack of administrative authority to convey OCS property rights for renewable energy.[62] In September 2003, a Massachusetts district court granted summary judgment in favor of the Army Corps interpretation, at least with respect to construction of an initial data gathering tower, although it would appear that its reasoning would be applicable to the larger-scale wind farm project itself. At present, the case is on appeal with the United States Court of

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[56] *See* Rusty Russell, *Neither Out Far Nor In Deep: The Prospects for Utility-Scale Wind Power in the Coastal Zone*, 31 B.C. ENVTL. AFF. L. REV. 221, 240-41 (2004).

[57] E.g. Freshwater Wetlands Protection Act N.J.S.A. 13:9B; Flood Hazard Area Control Act, N.J.S.A. 58:16A; Wetlands Act of 1970, N.J.S.A. 13:9A; Waterfront Development Act, N.J.S.A. 12:5-3; NJ Water Pollution Control Act - N.J.S.A. 58:10A; Coastal Area Facility Review Act (CAFRA), N.J.S.A. 13:19; Tidelands Act, N.J.S.A. 12:3.

[58] Rusty Russell, *supra* note 23, at 241.

[59] MASSACHUSETTS OFFICE OF COASTAL ZONE MGMT., MASSACHUSETTS COASTAL ZONE MANAGEMENT PLAN 113-121 (Mar. 2002), *available at* [http://www.state.ma.us/czm/managementplan.pdf].

[60] *Id.* at App. E.

[61] Alliance to Protect Nantucket Sound v. United States Department of the Army, 288 F.Supp.2d 64 (D. Mass. 2003).

[62] *Id.* at 67. Additional arguments were also presented regarding the adequacy of the Corps' NEPA analysis.

Appeals for the First Circuit.[63] The following paragraphs discuss the generally applicable jurisdiction concerns as well as the interpretation accepted in the *Alliance* case.

Corps OCS Jurisdiction. The first major issue facing offshore wind energy projects is the applicability of the Rivers and Harbors Act and the Outer Continental Shelf Lands Act to these projects. Section 10 of the Rivers and Harbors Act authorizes the Army Corps to review and permit any project that would obstruct the "navigable waters of the United States."[64] Under this law, as interpreted by the Corps, jurisdiction is limited to state-controlled waters.[65] Thus, it would seem relatively clear that the Corps has permitting jurisdiction under the Rivers and Harbors Act for any wind energy project that would be sited in state-controlled portions of the territorial sea. The OCSLA extends the Corps' jurisdiction to the OCS, although it is arguable that renewable energy projects to be sited in federal waters are beyond the scope of the Corps' extended jurisdiction. In general, the OCSLA authorizes the Department of the Interior to lease certain mineral resources of the submerged lands in federal waters.[66] Leasing of the seabed can thus only occur for specified purposes. 43 U.S.C. § 1333(e) of the OCSLA extends Corp navigability permit jurisdiction to the OCS. It states:

> The authority of the Secretary of the Army to prevent obstruction to navigation in the navigable waters of the United States is extended to the artificial islands, installations, and other devices referred to in subsection (a) of this section.[67]

43 U.S.C. § 1333(a), referenced in (e) states, in relevant part:

> The Constitution and laws and civil and political jurisdiction of the United States are extended to the subsoil and seabed of the outer Continental Shelf and to all artificial islands, and all installations and other devices permanently or temporarily attached to the seabed, *which may be erected thereon for the purpose of exploring for, developing, or producing resources therefrom*, or any such installation or other device (other than a ship or vessel) for the purpose of *transporting* such resources ....[68]

The meaning of this section is subject to differing interpretations. Arguably, the language of these provisions indicates that Corps permitting authority on the OCS is limited to those structures that might be built and used for the purpose of exploring for, developing, producing, or transporting the resources that have been extracted from the seabed. Such an interpretation would appear to exclude wind energy

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[63] *See* Appellants' Designation of the Contents of the Appendix and Statement of Issues, Alliance to Protect Nantucket Sound, Inc. v. U.S. Dep't of the Army, 288 F. Supp. 2d 64 (D. Mass. 2003), appeal docketed, No. 03-2604 (1st Cir. Nov. 24, 2003).

[64] 33 U.S.C. § 403.

[65] 33 C.F.R. § 329.12.

[66] *See generally* 43 U.S.C. § 1337.

[67] 43 U.S.C. § 1333(e).

[68] 43 U.S.C. § 1333(a)(1).

facilities from the Corps' authority. On the other hand, the court in the *Alliance* case found significance in the use of the word "may," holding that Corp jurisdiction extends to all structures that *may or may not* be used to explore for, develop, or produce resources.[69] It is arguable, however, that the phrase "may be" implies only that construction may or may not occur and does not indicate that the designated purposes are optional. Thus, the language of the statute can be read so as to deny Corps jurisdiction over offshore renewable energy projects; however, OCSLA legislative history and agency interpretation indicate that Congress did not intend to limit the Corps' authority to structures used for mineral exploration, development, extraction, or transportation, as discussed below.

Army Corps regulations do not explicitly address the extent of its authority on the OCS. They do recognize that Corps jurisdiction over the OCS is based on the OCSLA, stating that Corps jurisdiction has been extended to "artificial islands, installations, and other devices located on the seabed, to the seaward limit of the outer continental shelf...."[70] Notably, unlike the OCSLA itself, this provision does not make reference to the purpose for which these structures are used, arguably indicating that the Corps interprets its jurisdiction broadly. Additionally, Guidance Letter 88-08, a Corps policy statement and not itself enforceable law, interprets the legislative history of the OCSLA to indicate that Congress intended that the Corps regulate all OCS structures regardless of the purpose served, including even such things as offshore gambling casinos.[71] The Letter does not provide the analysis leading up to this conclusion; however, the court in the *Alliance* case relied heavily on the statute's legislative history in upholding the Corps interpretation, according the Corps deference under the *Chevron* standard.[72]

As originally enacted, the OCSLA provided that the jurisdiction of the Corps "extended to artificial islands and fixed structures located on the outer Continental

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[69] Alliance to Protect Nantucket Sound v. United States Department of the Army, 288 F. Supp.2d 64, 75 (D. Mass. 2003).

[70] 33 C.F.R. § 320.2(b).

[71] Army Corps of Engineers, Regulatory Guidance Letter 88-08 (July 20, 1988), *available at* [http://www.usace.army.mil/inet/functions/cw/cecwo/reg/rgls/rgl88-08.htm]. Guidance Letter 88-08 was set to expire in 1990; however, the Corps indicates that unless superseded by subsequently issued regulations or guidance letters, "the guidance provided in RGL's generally remains valid after the expiration date." *See* Army Corps of Engineers, Regulatory Guidance Letters, *at* [http://www.usace.army.mil/inet/functions/cw/cecwo/reg/rglsindx.htm]. Regulations and subsequent guidance letters do not appear to address or revise the Corps position contained in the 1988 opinion.

[72] As established in *Chevron, U.S.A., Inc. v. Natural Res. Def. Council, Inc.*, an agency's interpretation of a statute it is charged with administering it is entitled to special deference. If Congressional intent is not clear from the face of a statute, agency interpretation is generally upheld so long as it is reasonable. Chevron, 467 U.S. at 842-45 (1984). If Congressional intent is clear from the face of the statute, "the court, as well as the agency, must give effect to the unambiguously expressed intent of Congress." *Id.* at 843.

Shelf," making no explicit reference to the purpose of such structures.[73] The provision was subsequently amended, taking on its current form so as to reference the resource development purposes of OCS structures. However, as the legislative history indicates, at the time of the amendment, Congress understood the Corps' jurisdiction under the OCSLA to apply to all artificial islands and fixed structures on the OCS, regardless of purpose.[74] Further, the conference report indicates that Congress did not intend to limit the Corps' jurisdiction in this respect, but rather to conform the section to other amended provisions.[75]

Use of the OCS. An additional issue relevant to the construction of offshore wind facilities is the matter of who is authorized to use the federally-controlled submerged lands of the OCS. Because any wind turbines would be attached to the seabed of the OCS, some authorization to occupy the submerged lands of the OCS would be required before construction could legally take place. Use of federal lands, including the OCS, requires some form of permission, such as a right-of-way, easement, or license.[76] Use or occupancy of the OCS without such authorization arguably constitutes common law trespass.[77] However, the Court of Appeals for the Fifth Circuit has held that because the United States does not own the OCS in fee simple, it cannot claim trespass based on unauthorized construction on OCS.[78] On the other hand, the court stated, "[n]either ownership nor possession is, however, a necessary requisite for the granting of injunctive relief," because the United States has paramount rights to the OCS and an interest to protect.[79] Thus damages, available under trespass, may not be available for unauthorized construction on the OCS, while injunctive relief would appear possible even under more constrained interpretations of U.S. authority.

It appears that no federal agency, including the Army Corps of Engineers, which permits structures only for navigability purposes, can authorize the occupation and use of OCS lands for wind or other renewable energy purposes under current law. In the *Alliance* case, the plaintiffs claimed that the Corps had acted unlawfully by issuing its permit knowing that the project applicant would not be able to acquire the

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[73] Act of Aug. 7, 1953, ch. 345, 67 Stat. 462 § 4(f).

[74] H.R. Conf. Rep. No. 95-1474 at 82 (1978), reprinted in U.S.C.C.A.N. at 1674, 1681.

[75] *Id.*

[76] Several federal laws would appear to indicate that Congress intends usage of the OCS to be undertaken only when permission has been expressly granted. *See* 43 U.S.C. § 1332(1), (3) ("the subsoil and seabed of the outer Continental Shelf appertain to the United States and are subject to its jurisdiction, control, and power of disposition ....;" *see also* 42 U.S.C. § 9101(a)(1)(stating that the purpose of the Ocean Thermal Energy Conversion Act is to "authorize and regulate the construction, location, ownership, and operation of ocean thermal energy conversion facilities.").

[77] *See* 43 U.S.C. § 1333(a)(2)(A) (applying the criminal and civil laws of states adjacent to the OCS as federal law); see also Guy R. Martin, *The World's Largest Wind Energy Facility in Nantucket Sound? Deficiencies in the Current Regulatory Process for Offshore Wind Energy Development*, 31 B.C. Envtl. Aff. L. Rev. 300, n.96 (2004).

[78] United States v. Ray, 423 F.2d 16, 22 (5th Cir. 1970).

[79] *Id.*

requisite property rights to construct its project.[80] The court did not directly address the issue of whether property rights on the OCS could be granted for renewable energy projects under the current administrative system; however, the court did decide that the Army Corps is not required to validate existing property rights or otherwise become involved in ongoing property disputes prior to issuing a navigability-related permit.[81] The Alliance to Protect Nantucket Sound argued, and continues to argue on appeal, that because the applicant for the permit could not legally obtain the requisite property rights, the Corps was in violation of its own regulations.[82] Corps regulations state:

> A DA [Department of the Army] permit does not convey any property rights, either in real estate or material, or any exclusive privileges. Furthermore, a DA permit does not authorize any injury to property or invasion of rights or any infringement of Federal, state or local laws or regulations. The applicant's signature on an application is an affirmation that the applicant possesses or will possess the requisite property interest to undertake the activity proposed in the application. The district engineer will not enter into disputes but will remind the applicant of the above. The dispute over property ownership will not be a factor in the Corps public interest decision.[83]

The Corps interprets these regulations to require only that an applicant affirm that it possesses or will possess the requisite property rights prior to construction. The court found the agency's interpretation to be "entirely consistent with its regulations."[84] Thus, in accordance with this decision, the Corps does not have a responsibility to deny a permit even when property rights cannot presently be obtained; however, construction on the OCS without first obtaining these rights would remain unlawful.

Recent Legislation. Several bills that address offshore wind facility siting have been introduced. H.R. 793 would amend the OCSLA to authorize the Secretary of the Department of the Interior to grant easements or rights-of-way on the OCS for activities, such as renewable energy projects, not otherwise authorized in the OCSLA or other law.[85] Among other things, H.R. 793 would require the Secretary to establish "reasonable forms of annual or one-time payments" that are not based on "throughput or production" for any property interests granted under its provisions, and would also authorize the Secretary to establish "fees, rentals, bonus, or other

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[80] Alliance to Protect Nantucket Sound v. United States Department of the Army, 288 F.Supp. 2d 64, 67 (D. Mass. 2003).

[81] *Id.* at 77-78.

[82] *See id.* at 77.

[83] 33 C.F.R. § 320.4(g)(6).

[84] Alliance to Protect Nantucket Sound, 288 F.Supp.2d at 78.

[85] H.R. 793, 108th Cong. (2003); *see also* H.R. 5156, 107th Cong. (2002).

payments" that would not appear to be subject to these limitations.[86] Additionally, the bill would require the Secretary to consult with other federal agencies and to prescribe any necessary regulations to assure "safety, protection of the environment, prevention of waste, and conservation of the natural resources of the outer Continental Shelf, protection of national security interests, and the protection of correlative rights therein."[87]

Very similar language is contained in several versions of the Energy Policy Act of 2003, H.R. 6[88] and S. 2095.[89] Section 321 of both bills contains a measure not found in H.R. 793 that would exclude projects that have been constructed before the date of the bill's enactment or for which a request for proposal has been issued by a public authority from resubmitting "documents previously submitted" or obtaining "reauthorization of actions previously authorized."[90]

A different approach is taken in H.R. 1183,[91] which would amend the Coastal Zone Management Act to provide for the location and permitting of renewable energy facilities in the marine environment.[92] Unlike H.R. 793, this bill would apply solely to the siting of renewable energy facilities, defined in the bill as "a source of energy that is regenerative and is produced without depleting or otherwise diminishing the resource from which such energy is derived. Such term includes, but is not limited to, solar, thermal, and wind energy sources."[93] The bill would establish a federal licensing program, managed under the authority of the Secretary of Commerce, for facilities in federal waters. Among other things, the bill contains provisions requiring environmental, national security, and safety regulation in consultation with other agencies and would require the Secretary of Commerce to identify those waters under federal jurisdiction that have the greatest renewable energy potential.[94]

Conclusion. Interest in developing offshore wind energy resources continues to grow, and projects are already in the initial stages of development. It would seem clear that the United States, vis-a-vis other nations, would have the right to permit offshore development in its territorial sea and on the Outer Continental Shelf, subject to state authority over offshore areas under the Submerged Lands Act. Currently,

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[86] H.R. 793, 108th Cong. § 1(b) (2003) (amending 43 U.S.C. 1337 and adding new subsection (p)).

[87] *Id.*

[88] H.R. 6, 108th Cong., § 321 (2003).

[89] S. 2095, 108th Cong. § 321 (2004).

[90] *Id.* § 321(c).

[91] H.R. 1183, 108th Cong. § 2(b) (2003).

[92] *Id.* § 101.

[93] *Id.* § 3(a) (amending 16 U.S.C. 1453 and adding new subsection (17)).

[94] *Id.* § 202.

there is no federal law that authorizes an agency to transfer property rights or license the use of federal offshore areas for renewable energy purposes. It is also questionable whether the Army Corps of Engineers, which has jurisdiction under the Rivers and Harbors Act and the Outer Continental Shelf Lands Act to permit obstructions to navigability, is authorized to issue permits for offshore wind development under current law. Multiple pieces of legislation have been introduced to respond to these concerns and would create significantly different regulatory regimes. At this time, however, offshore wind energy projects continue to move forward despite legal uncertainty and a lack of comprehensive regulation.

DEPARTMENT OF THE ARMY
U.S. ARMY CORPS OF ENGINEERS
WASHINGTON, D.C. 20314-1000

SEP 3_

REPLY TO
ATTENTION OF:

Operations Division
Regulatory Branch

Honorable Rodney Frelinghuysen
House of Representatives
2442 Rayburn House Office Building
Washington, D.C. 20515-0920

Dear Congressman Frelinghuysen:

This is in response to your letter of June 25, 2003, requesting that the U.S. Army Corps of Engineers prepare a programmatic Environmental Impact Statement (EIS) for offshore wind energy production. Although the exact number of proposed structures is debatable, it does appear that there is a new industry emerging.

As you are aware, our New England District is currently developing the project-specific EIS for the proposal by Cape Wind Associates, LLC off the coast of Massachusetts. Under the Corps authorities in Section 10 of the Rivers and Harbors Act, we can issue a permit for the installation of structures on the Outer Continental Shelf (OCS). As part of our decision process, we do conduct a full public interest review and, in compliance with the National Environmental Policy Act, this will include consideration of the cumulative impacts associated with this application. However, the geographic range of the District's analysis is designed to assess potential alternatives to the Cape Wind proposal and not to assess potential offshore wind energy project locations in a broader, programmatic context.

Please be assured, however, that we are coordinating with our field offices to ascertain the viability of other offshore wind energy proposals and, therefore, the need for a programmatic EIS to provide a more comprehensive analysis. We are also coordinating with the President's Energy Task Force and other federal agencies since some of the issues (e.g., property ownership on the OCS and a national policy on wind energy) are beyond the Corps statutory authorities. I appreciate your interest in the Headquarters Regulatory Program and its applicability to offshore wind energy projects. My staff will keep you apprised of Corps decisions in this regard. If you have any questions regarding the application of national Regulatory Program policy to the Cape Wind project, contact Mr. Kirk Stark of my staff at (202) 761-4664.

Sincerely,

Thomas F. Caver, Jr., P.E.
Deputy Director of Civil Works

United States Department of the Interior

OFFICE OF THE SECRETARY
WASHINGTON, D.C. 20240

JUN 20 2002

Honorable Richard B. Cheney
President of the Senate
Washington, D.C. 20510

Dear Mr. Cheney:

Enclosed is a draft bill to provide authority to the Secretary of the Interior to grant easements or rights-of-way for energy-related projects on the Outer Continental Shelf (OCS). This legislation is being proposed by the Department of the Interior in support of the administration's National Energy Policy initiative to simplify permitting for energy production in an environmentally sound manner. This would be accomplished by establishing a uniform permitting process, coordinated among all of the appropriate Federal agencies, for energy-related project approvals that occur on the OCS.

We recommend that this draft bill be introduced, referred to the appropriate committee for consideration, and enacted.

Generally, mechanisms do not currently exist by which an applicant can obtain approval from the Federal Government to utilize the OCS for non-oil and gas related activities. Similarly, there exists no designated Federal agency that is tasked with the authority to protect the Federal interest in the OCS and to manage such activities to ensure that they are conducted in a safe and environmentally sound manner. Applicants seeking to conduct activities on the OCS that are not specifically oil or gas related have no guidance or clear direction by which to ascertain which Federal agency or agencies must be consulted in order to obtain the necessary permits to further the development of projects on the OCS.

This draft bill has been developed in an effort to remedy the problems noted above by amending the Outer Continental Shelf Lands Act (43 U.S. C. 1331 *et seq.*) to authorize the Secretary of the Interior to grant easements and rights-of-way for energy projects. The legislation would apply to both traditional and non-traditional energy projects, including, but not limited to, renewable energy projects such as wind, wave and solar energy as well as proposed offshore liquified or compressed natural gas facilities. This authority would function in much the same way that the Secretary currently oversees the development of oil and gas activities on the OCS.

The draft bill would also authorize the Secretary to allow energy or non-energy related uses of existing OCS facilities and structures previously constructed for energy purposes such as offshore staging facilities to support deep water oil and gas activities and offshore emergency medical facilities. This authority would allow the Secretary the flexibility to meet the needs of the public to ensure maximum efficient use of existing OCS structures while ensuring that any activities are undertaken in a safe and environmentally sound manner.

The bill is not meant to supersede the existing authority of any other Federal agency with regard to the permitting of such projects and expressly contains a provision to that effect. It also requires the Secretary of the Interior to coordinate with other appropriate agencies in considering the merits of applications for projects on the OCS. A section-by-section analysis of the draft bill is enclosed that describes the various provisions of the legislation in detail.

The Office of Management and Budget has advised us that there is no objection to the submission of this proposal to Congress and that enactment of this proposal would be in accord with the program of the President.

Sincerely,

Rebecca W. Watson

Rebecca W. Watson
Assistant Secretary
Land and Minerals Management

Enclosures

CHAPTER 24:
MANAGING OFFSHORE ENERGY AND OTHER MINERAL RESOURCES

Chapter 6 recommended development of a coordinated offshore management regime that would be comprehensive, transparent, and predictable, bring a fair return to the public, and promote a balance between economic and environmental considerations. The management of nonliving resources in federal waters raises many of the same fundamental policy questions. From the well developed, but politically contentious, outer Continental Shelf oil and gas program to new and emerging offshore uses that lack comprehensive management regimes, much can be learned. But much work also remains in developing a consistent system for unlocking the treasures of the sea while protecting the marine environment and providing affected parties a voice in decisions.

EXERCISING JURISDICTION OVER NONLIVING RESOURCES IN FEDERAL WATERS

In addition to its responsibilities for living marine resources, the federal government also exercises jurisdiction over nonliving resources, energy and other minerals located in the waters and seabed of the more than 1.7 billion acres of the outer Continental Shelf (OCS). Offshore oil and gas development has the most mature and broadest management structure of all such resources. It also has the longest and richest history, characterized by major changes to the underlying law that established the more comprehensive administrative regime, as well as intense political conflict resulting from divisions among stakeholders and tensions inherent in American federalism. The development of other ocean energy resources—some of which are newly emerging technologies—have differing levels of management, but none are currently making any noteworthy contributions to domestic production numbers. Historically, there also have been varying expressions of commercial interest in non-energy minerals in the U.S. exclusive economic zone (EEZ), but only sand and gravel have been used in recent years by coastal states and communities, because of a change which eased access to those resources.

MANAGING OFFSHORE OIL AND GAS RESOURCES

As noted in Chapter 2, from its beginning, the federal offshore oil and gas program faced controversy over ownership issues, as states unsuccessfully sued the federal government over control of offshore waters. Once that issue was settled legislatively, there was a short but relatively stress-free period. Conflict, however, soon emerged over issues of management, environmental risks, and the costs and benefits of energy exploration and production on the OCS that continues to this day. Proponents point to the program's contributions to the nation's energy supplies and economy, significant improvements in its safety and environmental record, and noteworthy technological achievements. Opponents argue that offshore oil activities harm coastal communities economically and the marine environment unacceptably. The ongoing debate is carried out in the halls of Congress, federal agencies, state and local governments, trade associations, and nongovernmental organizations. OCS oil and gas development is a classic example of the politics of multiple-use resource

Specifically, Ocean.US, NOAA, and MMS should work with the oil and gas industry to:

- *employ industry resources, such as pipelines, platforms, and vessels as part of the IOOS.*
- *incorporate nonproprietary data into IOOS informational products and larger environmental databases, while protecting the security of proprietary data and meeting other safety, environmental, and economic concerns.*

ASSESSING THE POTENTIAL OF OFFSHORE METHANE HYDRATES

Conventional oil and gas are not the only fossil-based fuel sources located beneath ocean floors. Methane hydrates are solid, ice-like structures composed of water and natural gas. They occur naturally in areas of the world where methane and water can combine at appropriate conditions of temperature and pressure, such as in thick sediment of deep-ocean basins, at water depths greater than 1,650 feet.

The estimated amount of natural gas in the gas hydrate accumulations of the world greatly exceeds the volume of all known conventional gas resources.[20] A 1995 U.S. Geological Survey (USGS) estimate of both marine and Arctic hydrate resources revealed the immense energy potential of hydrates in the United States.[21] These deposits have been identified in Alaska, the east and west coasts of the United States, and in the Gulf of Mexico. USGS estimated that the methane hydrates in U.S. waters hold a mean value of 320,000 trillion cubic feet of natural gas, although subsequent refinements of the data have suggested that the estimate is a slightly more conservative 200,000 trillion cubic feet.[22] Even this more conservative estimate is enough to supply all of the nation's energy needs for more than 2,000 years at current rates of use.[23]

However, there is still no known practical and safe way to develop the gas and it is clear that much more information is needed to determine whether significant technical obstacles can be overcome to enable methane hydrates to become a commercially viable and environmentally acceptable source of energy.

In the United States, federal research concerning methane hydrates has been underway since 1982, was intensified in 1997-98, and received further emphasis with the passage of the Methane Hydrate Research and Development Act in 2000. That Act established an interagency coordination mechanism that includes the U.S. Departments of Energy, Commerce, Defense, and the Interior, and the National Science Foundation, and directed the National Research Council to conduct a study on the status of research and development work on methane hydrates. This study is scheduled for release in September 2004.

Recommendation 24 4. The National Ocean Council (NOC), working with the U.S. Department of Energy and other appropriate entities, should review the status of gas hydrates research and development to determine whether methane hydrates can contribute significantly to meeting the nation's long-term energy needs. If such contribution looks promising, the NOC should recommend an appropriate level of investment in methane hydrates research and development, and determine whether a comprehensive management regime for industry access to hydrate resource deposits is needed.

DEVELOPING OFFSHORE RENEWABLE ENERGY RESOURCES

Environmental, economic, and security concerns have heightened interest among many policy makers and the public in renewable sources of energy. Although offshore areas currently contribute little to the nation's supply of renewable energy, the potential is significant and could include wind turbines, mechanical devices driven by waves, tides, or currents, and ocean thermal energy conversion, which uses the temperature difference between warm surface and cold, deep-ocean waters to generate electricity.

Offshore Wind Energy Development

While the offshore wind power industry is still in its infancy in the United States, it is being stimulated by improved technology and federal tax credits that have made it more attractive commercially. Additionally, developers are looking increasingly to the lead of European countries such as Denmark, the United Kingdom, and Germany, where growing numbers of offshore projects are being licensed.

In fact, the United States already has a wind energy management program applicable on some federal lands onshore. This comprehensive program is carried out by DOI's Bureau of Land Management under broad authority provided by the Federal Land Policy and Management Act.

Conversely, there is no comprehensive and coordinated federal regime in place to regulate offshore wind energy development or to convey property rights to use the public space of the OCS for this purpose. In the absence of a specific regime, the U.S. Army Corps of Engineers (USACE) is the lead federal agency responsible for reviewing and granting a permit for this activity. Its authority, however, is based on Section 10 of the Rivers and Harbors Act, which, although it has a public interest requirement, primarily regulates obstructions to navigation, including approval of any device attached to the seafloor.

In reviewing a proposed project under Section 10, the USACE is required by the National Environmental Policy Act to consult other federal agencies. Depending on the circumstances, these agencies and authorities may include:

- The U.S. Coast Guard, which regulates navigation under several federal statutes.
- The Federal Aviation Administration, which regulates objects that may affect navigable airspace pursuant to the Federal Aviation Act.
- The U.S. Environmental Protection Agency, which may conduct a review for potential environmental impacts of a project pursuant to the Clean Water Act and Clean Air Act.
- The National Marine Fisheries Service (NMFS), which may review projects for potential impacts to fishery resources pursuant to the Magnuson-Stevens Fishery Conservation and Management Act. In addition, NMFS' review includes assessing potential impacts to endangered or threatened species under the Endangered Species Act or the Marine Mammal Protection Act.
- The U.S. Fish and Wildlife Service, which may review projects for potential impacts to endangered species or marine mammals under its jurisdiction pursuant to the Endangered Species Act or the Marine Mammal Protection Act.
- In addition, depending on its location, a wind energy project or at least the Section 10 permit may be subject to review by one or more state coastal management programs in accordance with the CZMA federal consistency provisions.

The Section 10 review process stands in stark contrast both to the well established DOI regulatory program for onshore wind energy and, in the marine setting, to the robust regulatory program for offshore oil and gas that has developed under the OCSLA. Using the Section 10 process as the primary regulatory vehicle for offshore wind energy development is inadequate for a number of reasons. First and foremost, it cannot grant leases or exclusive rights to use and occupy space on the OCS. It is not based on a comprehensive and coordinated planning process for determining when, where, and how this activity should take place. It also lacks the ability to assess a reasonable resource rent for the public space occupied or a fee or royalty for the energy generated. In other words, it lacks the management comprehensiveness that is needed to take into account a broad range of issues, including other ocean uses in the proposed area and the consideration of a coherent policy and process to guide offshore energy development.

Box 24.3 A Mighty Wind Blows in Cape Cod

The first proposal for offshore wind energy development in the United States is testing the ability of the federal system to manage this emerging industry. The proposal calls for use of approximately 23 square miles of Nantucket Sound, some 5.5 nautical miles off the coast of Cape Cod, Massachusetts. It would consist of 130 wind turbines, each of which would be sunk into the ocean floor and reach up to 420 feet above the ocean surface. The project would generate an annual average of approximately 160 megawatts of electrical power.[24]

This project has divided local citizens, elected officials, environmentalists, business interests, and other stakeholders. Supporters cite the project's potential to reduce pollution, global warming, and reliance on foreign oil, while opponents warn of bird deaths, harm to tourism, interference with commercial and sports fishing, and obstructed views.

Despite the controversy, the project is proceeding through the review process contained in Section 10 of the Rivers and Harbors Act. In the meantime, proposals for offshore wind development projects up and down the East Coast are proliferating.

Wave Energy Conversion—Current and Tidal

Various technologies have been proposed to use wave or tidal energy, usually to produce electricity. The wave energy technologies for offshore use include floating or pitching devices placed on the surface of the water that convert the horizontal or vertical movement of the wave into mechanical energy that is used to drive a turbine. Currently, the offshore wave, tidal, and current energy industry is in its infancy. Only a small proportion of the technologies have been tested and evaluated.[25] Nonetheless, some projects are moving forward in the United States, including one to install electricity-producing wave-energy buoys more than 3 nautical miles offshore Washington State, in the Olympic Coast National Marine Sanctuary. Internationally, there is considerable interest in wave, tidal, and current energy, but the projects are almost all in the research and development stage.

The Federal Energy Regulatory Commission (FERC) asserts jurisdiction, under the Federal Power Act (FPA), over private, municipal, and state (not federal) hydropower projects seaward to 12 nautical miles. FERC has formally asserted jurisdiction over the Washington State project, and is likely to assert jurisdiction over all forms of wave, tidal, or current energy projects whose output is electricity, from the shoreline out to 12 nautical miles offshore, on the basis that they are "hydropower" projects under the FPA.

Although in issuing a license for a wave, current, or tidal project, FERC is directed by the FPA to equally consider environmental and energy concerns, it is not an agency with a broad ocean management mission. As with wind energy, several other federal laws may apply to ocean wave projects. For example, NEPA, the federal consistency provision of the CZMA, the National Historic Preservation Act, and the Fish and Wildlife Coordination Act may apply, as may the consultation provisions of the Endangered Species Act and the Marine Mammal Protection Act. But there is no comprehensive law that makes clear which of these individual laws may be applicable, nor is there any indication that overall coordination is a goal, thus leaving implementation to mixed federal authorities.

Ocean Thermal Energy Conversion

The surface waters of the world's tropical oceans store immense quantities of solar energy. Ocean thermal energy conversion (OTEC) technology could provide an economically efficient way to tap this resource to produce electric power and other products. The U.S. government spent over $200 million dollars in OTEC research and development from the 1970s to the early 1990s that produced useful technical information but did not result in a commercially viable technology.[26]

Early optimism about the potential of OTEC led to the enactment of the Ocean Thermal Energy Conversion Act in 1980, and the creation of a coordinated framework and licensing regime for managing that activity if and when economic considerations permitted. NOAA issued regulations to implement the Act, but because of investor risk for this capital-intensive technology and relatively low fossil fuel prices, no license applications were ever received and NOAA subsequently rescinded the regulations in 1996. Thus, the United States currently has no administrative regulatory structure to license commercial OTEC operations.

Comprehensive Management for Offshore Renewable Energy

Offshore renewable technologies will continue to be studied as a means of reducing U.S. reliance on potentially unstable supplies of foreign oil, diversifying the nation's energy mix, and providing more environmentally benign sources of energy. Similar to offshore aquaculture described in Chapter 22, the offshore renewable processes described in this section present obvious examples of the shortcomings in federal authority when it comes to regulating specific new and emerging offshore activities. As long as federal agencies are forced to bootstrap their authorities to address these activities, the nation runs the risk of unresolved conflicts, unnecessary delays, and uncertain procedures. What is urgently needed is for the National Ocean Council to develop a comprehensive offshore management regime (as recommended in Chapter 6) that considers all offshore uses within a larger planning context. A coherent and predictable federal management process for offshore renewable resources that weighs the benefits to the nation's energy future against the potential adverse effects on other ocean users, marine life, and the ocean's natural processes, should be fully integrated into the broader management regime.

Recommendation 24 5. Congress, with input from the National Ocean Council, should enact legislation providing for the comprehensive management of offshore renewable energy development as part of a coordinated offshore management regime.

Specifically, this legislation should:

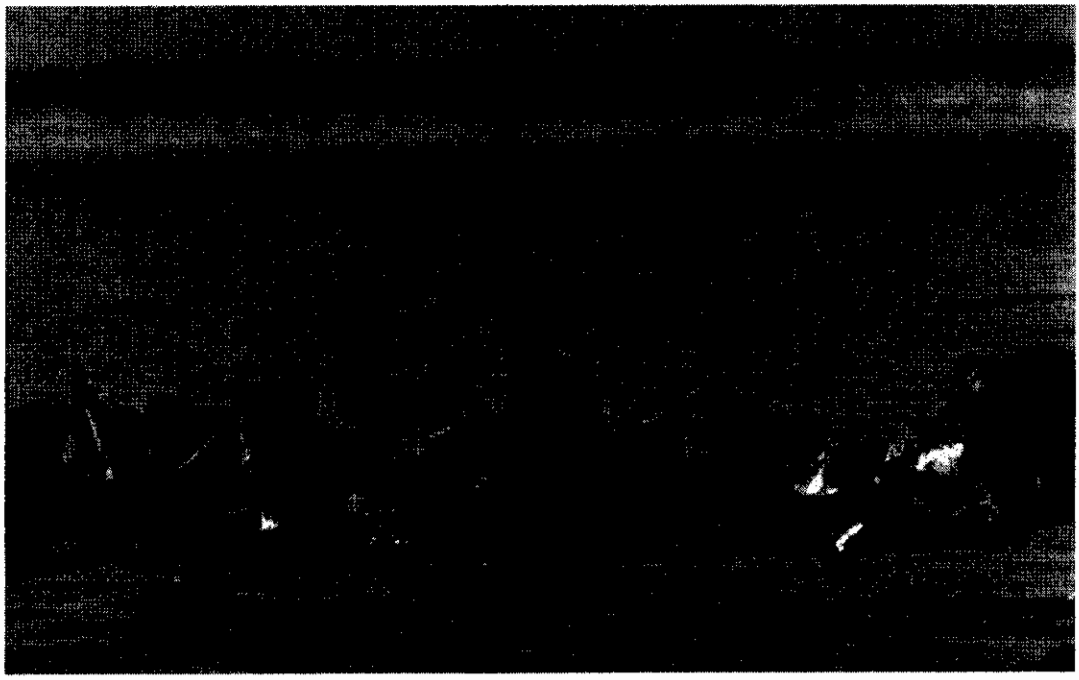
- *be based on the premise that the oceans are a public resource.*
- *streamline the process for licensing, leasing, and permitting renewable energy facilities in U.S. waters.*
- *subsume existing statutes, such as the Ocean Thermal Energy Conversion Act.*
- *ensure that the public receives a fair return from the use of the resource and that development rights are allocated through an open, transparent process that considers state, local, and public concerns.*

MANAGING OTHER MARINE MINERALS

The ocean floor within the U.S. EEZ contains vast quantities of valuable minerals other than oil and gas, but the economics of recovering them, especially in areas far offshore, are not welcoming. These resources include more than 2 trillion cubic meters of sand and gravel reserves on the Atlantic shelf of the OCS alone, enormous phosphate deposits off the East Coast from North Carolina to northern Florida, titanium-rich heavy mineral sands from New Jersey to Florida, manganese nodules from South Carolina to Georgia, high-grade calcium carbonate sands off Florida, gold and platinum deposits off Alaska, polymetallic sulfides off Oregon, barite resources off southern California, and quantities of cobalt and platinum off Hawaii. It is likely that substantial amounts of other valuable minerals will be identified in the future as exploration proceeds. Access to these minerals for commercial recovery, including offshore sand and gravel for use as construction aggregate, is through the competitive leasing process of the OCSLA.

In 1994, Congress authorized coastal communities to use sand and gravel from the OCS for public works projects without going through the statute's bidding process. Since then, MMS has used this authority to allow federal, state, and local agencies to mine OCS sand to protect shorelines, nourish beaches, and restore wetlands. Between 1995 and 2004, MMS provided over 20 million cubic yards of OCS sand for 14 coastal

REVIEW OF STATE AND FEDERAL MARINE PROTECTION OF THE ECOLOGICAL RESOURCES OF NANTUCKET SOUND



CENTER FOR COASTAL STUDIES

JANUARY 28, 2003

REVIEW OF STATE AND FEDERAL MARINE PROTECTION OF THE ECOLOGICAL RESOURCES OF NANTUCKET SOUND

CENTER FOR COASTAL STUDIES
115 BRADFORD STREET
P.O. BOX 1036
PROVINCETOWN, MASSACHUSETTS 02657

JANUARY 28, 2003

COVER: SOCIALIZING GRAY SEALS (*HALICHOERUS GRYPUS*) ON A CAPE COD BEACH
PHOTO – OWEN NICHOLS, CCS © 2002

i. Executive Summary

On October 22, 2002, the Center for Coastal Studies (CCS) was contacted by U.S. Representative William Delahunt (MA-10th District) to provide a review of the existing literature pertaining to the biological resources and environmental protection of the waters of Nantucket Sound. In response to this request, CCS has prepared the following document, detailing the biological significance of the species contained therein, as well as a review of pertinent existing and proposed state and federal protection of these waters. The purpose of this review is to gather existing facts regarding the biodiversity and ecological significance of the region and to highlight areas where additional study may be necessary.

Nantucket Sound contains significant ecological, commercial and recreational resources that have been at the heart of several past nominations for enhanced environmental protection and conservation policies within the region. The biological diversity and unique habitat areas of Nantucket Sound led the Commonwealth of Massachusetts to nominate the area for National Marine Sanctuary status in a 1980. The resources of Nantucket Sound were again deemed worthy of consideration for National Marine Sanctuary status by the resource evaluation committee appointed by the National Marine Sanctuary Program in 1983. These resources are equally significant today. Nantucket Sound is a recognized habitat for many state and federally protected species, including roseate terns, piping plovers, leatherback sea turtles, loggerhead sea turtles, Kemp's Ridley sea turtles, and grey seals.

Our review uncovered several localized studies and species-specific biological surveys throughout published literature, unpublished reports and on-going data collection. While of intrinsic value, these studies have not addressed management mechanisms for integrating and coordinating environmental management for resident or migratory species that rely on the Sound. As a result, much of the available information considers only pieces of an ecological whole, resulting in fragmented understanding of dynamic ecosystem processes and species interactions.

Current management focuses upon ecologically arbitrary divisions of a contiguous coastal resource resulting from overlapping state and federal jurisdiction of these waters. Past state and federal nominations to protect these waters as a national marine sanctuary suggest the inherent ecological, commercial, and recreational values of Nantucket Sound. CCS recommends a multi-disciplinary taskforce study of the Nantucket Sound biogeographical region to assess the existing habitat, species utilizations, and commercial and recreational values of the area in order to facilitate consistent environmental management and conservation of protected marine resources. The existing data collected by state, federal, and private agencies will greatly facilitate such a study by providing a base for designing a broad study of the entire system. Development of comprehensive ecosystem management begins with thorough, scientific evaluation of the resources and processes of the entire system designed to support a unified environmental policy for the continued use, study and protection of this valuable coastal resource.

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1.0 Introduction

The Center for Coastal Studies (CCS) is a non-profit research, education and conservation organization with over 25 years of service on a variety of coastal and marine issues. On October 22, 2002, CCS received a written request from U.S. Representative William Delahunt to provide a review of the existing literature pertaining to the biological resources and environmental protection of the waters of Nantucket Sound. Of particular interest in this regard were past attempts to gain marine sanctuary status for the waters of Nantucket Sound, as well as an overview of present ecological significance of the region.

The initial efforts to classify the waters of Nantucket Sound as a marine sanctuary were undertaken by the state Legislature with the passage in 1970 of the Massachusetts Ocean Sanctuaries Act. This legislative action authorized the creation of five ocean sanctuaries, with Nantucket Sound explicitly included within the Cape and Islands Ocean Sanctuary. Subsequent jurisdictional disputes culminated with federal jurisdiction over the central waters of Nantucket Sound, and a "hole-in-the-doughnut" scenario of unprotected federal waters nearly completely surrounded by protected state waters. To resolve the dilemma of dual management, the Commonwealth in 1980 advanced a proposal to designate Nantucket Sound as a National Marine Sanctuary. In 1983, Nantucket Sound was placed on the Site Evaluation List for National Marine Sanctuary status by a resource evaluation committee appointed by the National Marine Sanctuary Program. To date, however, Nantucket Sound remains a multi-jurisdictional region, with state jurisdiction over the state ocean sanctuary waters and federal jurisdiction over the central, "hole-in-the-doughnut" portion of the Sound.

CCS has completed a preliminary review of available literature pertaining to the marine resources of Nantucket Sound. This review serves to document published and unpublished data regarding marine and coastal resources of the area, and to

highlight areas where further and/or more intensive studies may be needed to fully evaluate the current status of this system. In preparing this review, it has become apparent that the jurisdictional boundaries that regulate management and research activities are incompatible with a holistic, ecosystem-based approach to managing the resources within and relying upon the dynamic and non-fragmented ecosystem of the Nantucket Sound region.

The Commonwealth has demonstrated a will to protect and conserve the resources of Nantucket Sound since its initial attempt to classify those waters as an ocean sanctuary. In 1980, the Commonwealth presented a compelling argument for federal recognition of those resources by nominating Nantucket Sound for National Marine Sanctuary status. The National Marine Sanctuary Program's site selection committee acknowledged and confirmed the Commonwealth's interest in protecting Nantucket Sound in its 1983 Final Report.

The Nantucket Sound region is unquestionably a healthy and productive ecosystem. However, the complexities of the jurisdictional arrangement have needlessly complicated scientists' and managers' ability to fully assess the ecological significance of the region and many of its marine species. Therefore, CCS concurs with the Commonwealth's 1980 recommendation that Nantucket Sound be managed as a single ecological unit so as to ensure that the entire region receive the level of environmental protection afforded to those portions of the Sound within the Cape and Islands Ocean Sanctuary.

2.0 Geography of Nantucket Sound

Nantucket Sound includes 163 square nautical miles of water and seabed between Cape Cod, Vineyard Sound, the islands of Martha's Vineyard and Nantucket extending seaward beyond Monomoy and Nantucket Islands. An approximate latitudinal boundary spans from 41° 12' N to 41° 40' N, while the longitudinal boundary spans approximately from 69° 55' W to 70° 36' W.

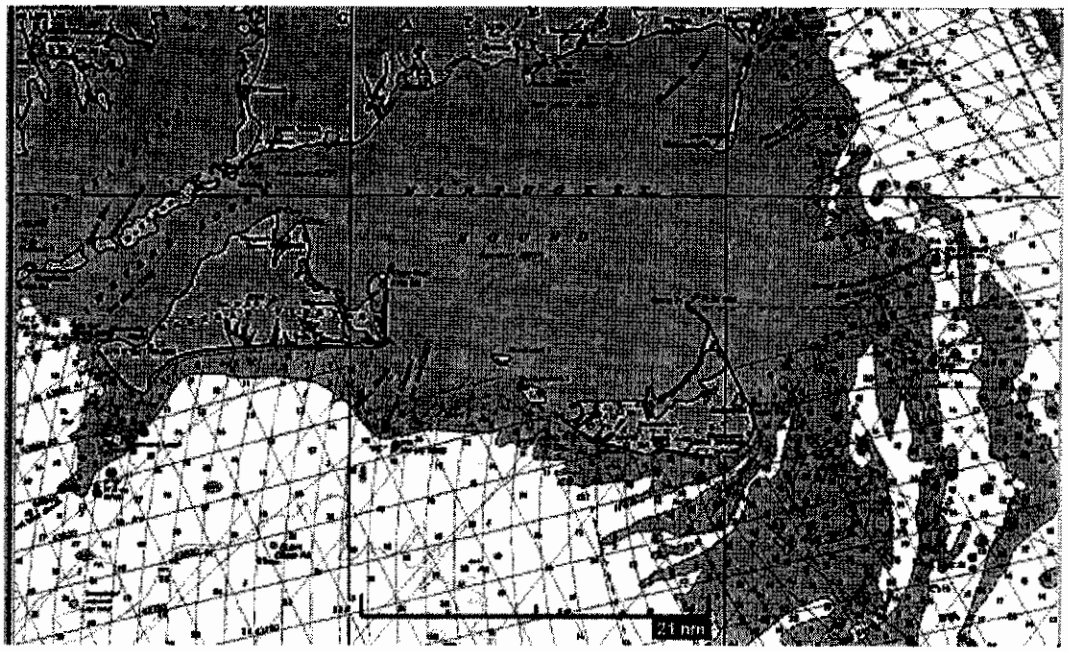

Figure 1 -- Nantucket Sound (from NOAA Chart 13200)

Nantucket Sound borders shallow shoal waters of the Atlantic Shelf to the east, deeper Atlantic Shelf waters to the south, Vineyard Sound to the west and Cape Cod to the North. The submerged land within 3 miles from mean low water is within the boundaries of the Cape and Islands Ocean Sanctuary. Waquoit Bay National Estuarine Research Reserve (NERR) borders Nantucket Sound on the northern shore. Monomoy National Wildlife Refuge comprises the northeastern terrestrial boundary of the Sound.

Nantucket Sound is situated at a confluence of the cold Labrador currents and the warm Gulf Stream. This creates a unique coastal habitat representing the southern range for Northern Atlantic species and the northern range for Mid-Atlantic species. The transitional ecology of the region is consistent with both the biogeographic location and the transitional geology of the glacially deposited sediments that form Nantucket Sound. Nantucket Sound is characterized by an extreme richness of biological diversity, containing habitats that range from open sea to salt marshes. The complex networks of habitat utilization and species competition within the Sound remains an area for significant scientific research.

The largest of the many shoals within Nantucket Sound is Horseshoe Shoal. Horseshoe Shoal covers approximately 35 square miles with depths averaging between 13 and 40 feet. The major navigational channel in Nantucket Sound is Main Channel, adjacent to the southern edge of Horseshoe Shoal. Nantucket Sound is subject to changes in the physical dynamics of its many shoals, with fluctuations caused by regional climatological and oceanographic phenomena.

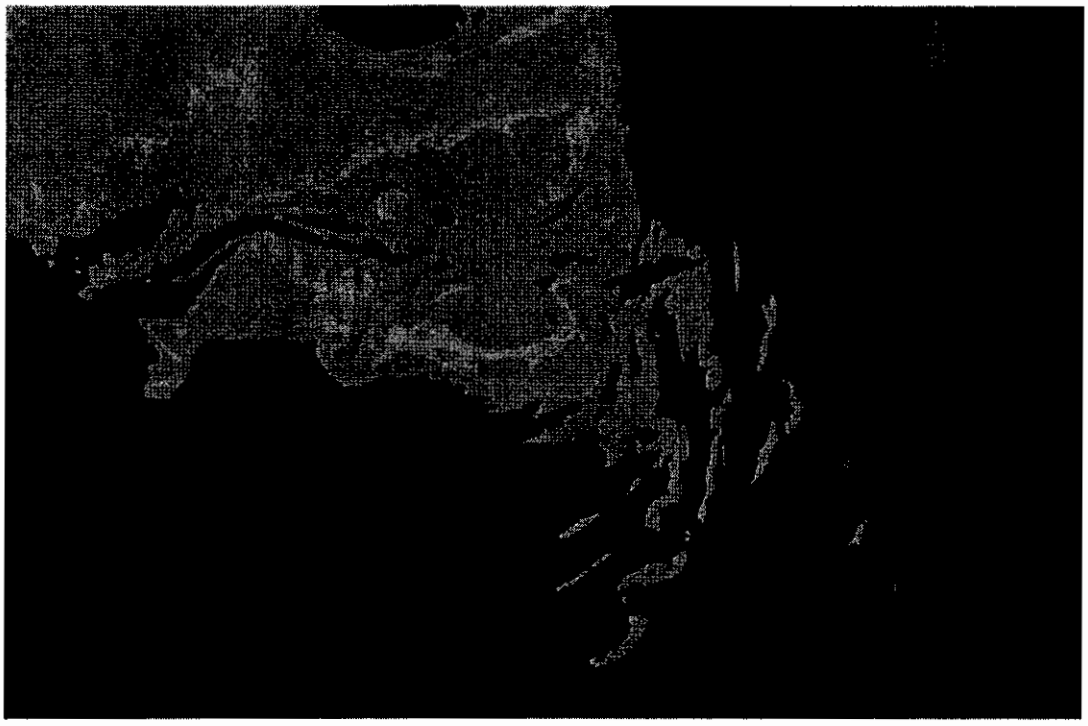

Figure 2 -- Bathymetry of Nantucket Sound and Nantucket Shoals

3.0 Overview of State and Federal Marine Protected Areas

3.1 Massachusetts Oceans Sanctuaries

The Massachusetts Oceans Sanctuary Act (M.G.L. c. 132A, §§ 13-16, 18) attempts to *protect the ecology or the appearance of the ocean, the seabed and subsoil from any exploitation, development or activity that would seriously alter or endanger those resources* (M.G.L. c. 132A, §§ 12A, 321 CMR Section 5.00). This statute does not regulate fisheries or living resource extraction, but does regulate non-renewable resource development, discharging, marine construction,

and shoreline alteration. Proposal for construction, development, or alteration of these waters are regulated through the Massachusetts Department of Environmental Management and Massachusetts Office of Coastal Zone Management. These sanctuaries extend three (3) miles from the state's coast. However, in the case of the Cape Cod Bay Ocean Sanctuary this limit was extended to envelop the entirety of the Bay.

3.2 National Marine Sanctuary System

The National Marine Sanctuary system was established to *identify, manage, and conserve areas of the marine environment that are nationally significant due to conservation, recreational, ecological, historical, scientific, educational, cultural, archaeological or aesthetic qualities* (National Marine Sanctuaries Act, 16 USC Section 1431). The regulations for National Marine Sanctuaries are sanctuary-specific and intended to provide selected areas comprehensive protection of the marine resources contained therein. The National Marine Sanctuary Program is administered by the National Ocean Service of the National Oceanic and Atmospheric Administration (NOAA).

3.2.1 Nomination Criteria and History

National Marine Sanctuaries can be designated in two ways: administratively, through the actions of the Secretary of Commerce; and legislatively, through an act of Congress. Prior to September 7, 1982 any person could recommend a site for consideration. Subsequent to 1982, NOAA's National Marine Sanctuaries Program contracted with Chelsea International Corporation of Washington D.C. to prepare a Site Evaluation List from which future marine sanctuaries might be chosen. From the Site Evaluation List, active candidates for sanctuary designation are chosen for their conservation, ecological, recreational or aesthetic values. Sanctuary designation requires the Secretary of Commerce to publish a notice of intent in the *Federal Register* informing the public of NOAA's intention to consider an area for sanctuary designation. A draft environmental impact statement on the proposed designation, the draft management plan, and draft regulations are prepared. This draft environmental impact statement (DEIS) must

include a resource assessment report and maps which depict the boundaries of the area.

During the review period the proposal goes before the House Committee on Resources and the Senate Committee on Commerce, Science and Transportation. Finally, the Secretary must publish a notice to designate a national marine sanctuary in the *Federal Register* and include final regulations. Another 45-days of Congressional review must elapse before a sanctuary is designated.

Sanctuaries are managed according to site-specific management plans prepared by the National Oceanic and Atmospheric Administration's (NOAA), with multiple opportunities for public comments. The philosophy behind National Marine Sanctuary management is what NOAA calls an "*ecosystem approach to marine environmental protection.*" While sanctuary management plans are site-specific, sanctuary regulations generally prohibit discharging materials into the protected area, alteration of the seabed, disturbance of cultural resources, and oil, gas and mineral production (with a grandfather clause for preexisting operations).

4.0 Marine Protection in Nantucket Sound

Nantucket Sound is a multi-jurisdictional biogeographical region. The Commonwealth of Massachusetts is responsible for management of the waters and sea floor of the Cape and Islands Ocean Sanctuary, including all submerged lands within 3 miles of the low water line (Appendix A, Table 1). Meanwhile, the federal government has jurisdiction over all waters and sea floor more than 3 miles from the Massachusetts coastline (Appendix A, Table 2). Because the portions of the Cape and Islands surrounding the Sound are some 25-30 nautical miles apart in some areas, the 3-mile envelope of the state-protected sanctuary excludes a significant portion of the interior of the Sound. The result is that this one, contiguous ecosystem is owned and managed by two distinct entities without a formal, unified management strategy.

There have been both state and federal efforts to integrate management of Nantucket Sound under various marine protected area designations. While the issue of jurisdictional boundaries in Nantucket Sound is essentially a political issue, management of the marine resources of the Sound is best achieved through an ecosystem-based approach to managing the biogeographical region. The fact that both the Commonwealth of Massachusetts and the U.S. government have proposed Nantucket Sound for National Marine Sanctuary status (described in Section 4.2, below) suggests that there is a general consensus regarding the level of ecological richness and environmental integrity of the Nantucket Sound region.

4.1 Cape and Islands Ocean Sanctuary

When Massachusetts passed the Ocean Sanctuaries Act (M.G.L. c. 132A, §§ 13-16, 18), in 1970, this action authorized the creation and maintenance of five (5) Ocean Sanctuaries. The Ocean Sanctuaries are managed by the Massachusetts Executive Office of Environmental Affairs (EOEA), with management activities carried out by several other state agencies, including 1) the Department of Environmental Management, 2) the Division of Marine Fisheries, 3) the Department of Environmental Protection, 4) the Office of Coastal Zone Management.

The Massachusetts Ocean Sanctuaries Act obliges the Department of Environmental Management (DEM) to protect the sanctuaries from any development or activity that would damage the ecology or aesthetics of the area. Specifically prohibited within Massachusetts Ocean Sanctuaries are the construction of physical structures on the seabed, the building of offshore or floating power plants, the drilling through or removal of mineral resources, gases or oils. Also banned are dumping of wastes and incineration of private or commercial wastes by any ship moored or floating within a sanctuary.

The Cape and Islands Ocean Sanctuary is defined in M.G.L c. 132A §§ 13:

> The Cape and Islands Ocean Sanctuary is bounded and described as follows: Beginning at a point on the mean low-water line at the southernmost point of Monomoy Point; thence due south to a point in the Atlantic Ocean three miles due south (180 Degrees True) of the mean low-water line at the southernmost point of Monomoy Point; thence due east (90 Degrees True) to the Exterior Line

of the Boundary of the Commonwealth as established on the aforementioned Marine Boundary Map; thence in a generally southerly and then westerly direction along said Exterior Line to the point of intersection with the extension of the lateral boundary of Rhode Island and Massachusetts; thence northerly along said lateral boundary to the mean low-water line near Quicksand Point; thence following the mean low-water line around Buzzards Bay, the Cape Cod Canal to the Bourne-Sandwich town boundary, and the southern portion of Cape Cod to the point of intersection in Pleasant Bay with the western boundary of the Cape Cod National Seashore; thence southerly along said boundary; thence by the shortest distance to the mean low-water line of Monomoy Island; thence to the point beginning by following the mean low-water line of the western side of Monomoy Island; and meaning and intending to include the area seaward of the mean low-water lines of Nantucket, Martha's Vineyard, Elizabeth and other islands; and *meaning and intending to include the following bodies of water:* ***Nantucket Sound***, Vineyard Sound, Buzzards Bay, the Cape Cod Canal, Pleasant Bay, and portions of the Atlantic Ocean. [emphasis added]

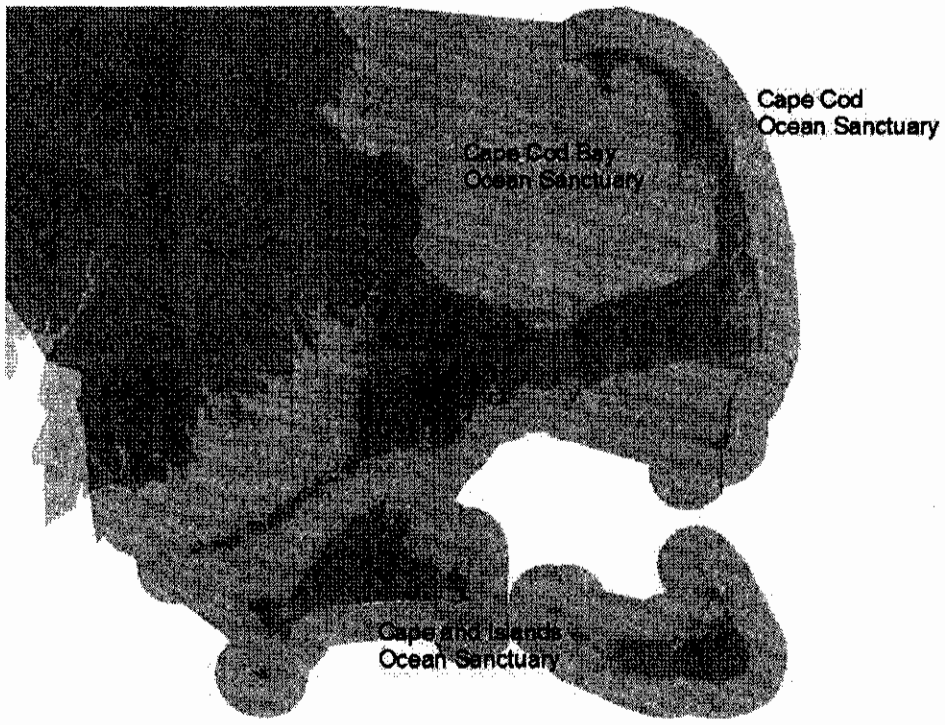

Figure 3 – Massachusetts Ocean Sanctuaries

The Massachusetts Legislature made clear its intention to include the entirety of Nantucket Sound in the Cape and Islands Ocean Sanctuary. Later nominations for

National Marine Sanctuary status for Nantucket Sound (see Section 4.2), demonstrate that the Commonwealth has had a long-standing interest in promoting an integrated system for managing the Sounds resources. In fact, a major rationale for the Commonwealth's 1980 nomination was to gain equal protection for the both state and federal waters, as well as to combine management authority in a unique and relatively holistic way.

4.2.1 National Marine Sanctuary Nominations for Nantucket Sound

4.2.2 1980 Nomination

In 1980, the Massachusetts Secretary of Environmental Affairs and the Attorney General nominated Nantucket Sound for National Marine Sanctuary status pursuant to Title III of the Marine Protection, Research and Sanctuaries Act of 1972 (16 U.S.C. 32 §§1431-1445, also known as the National Marine Sanctuaries Act). The National Marine Sanctuaries Act authorizes the Secretary of Commerce to designate and manage areas of the marine environment with special national significance due to their conservation, recreational, ecological, historical, scientific, cultural, archeological, educational, or aesthetic qualities. The primary objective of this law is to protect marine resources, such as unique habitats. The Act also directs the Secretary to facilitate all public and private uses of Sanctuary resources that are compatible with the primary objective of resource protection.

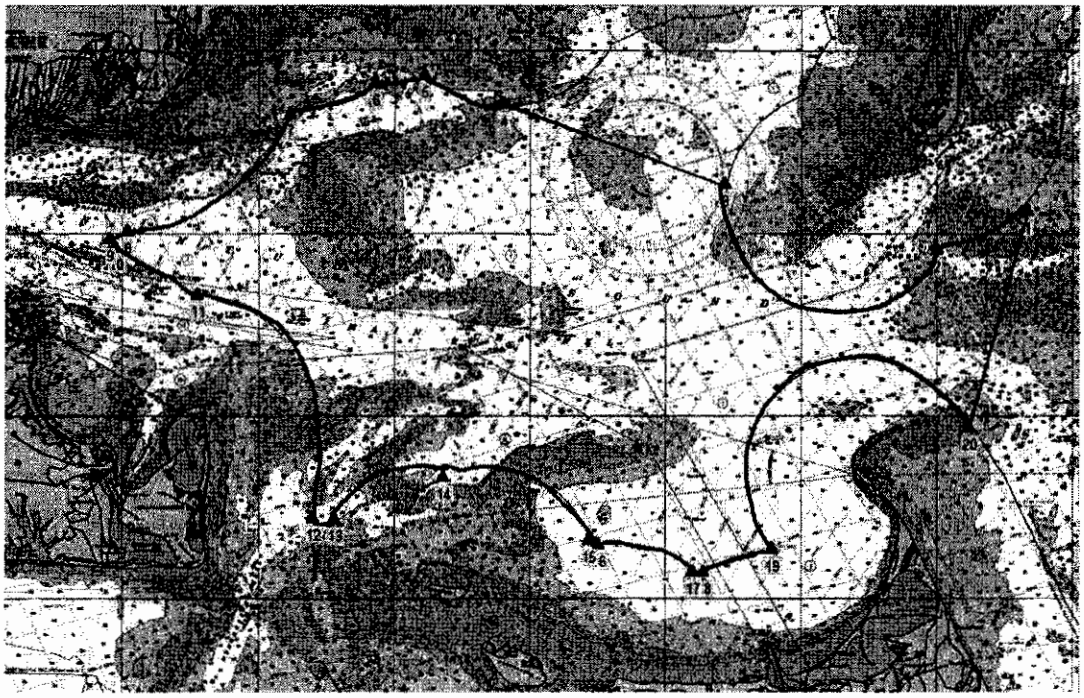

Figure 4 -- Proposed Boundary for Nantucket Sound National Marine Sanctuary in 1980 Nomination

The 1980 Nantucket Sound nomination was an attempt by the Commonwealth to secure protection for the portion of the Sound not within the Cape and Islands Ocean Sanctuary. This comprehensive nomination compiled available documentation demonstrating a host of ecologically and economically significant marine resources within this area, including finfish, shellfish, marine mammals, reptiles, birds, and rare and endangered marine plants. The 1980 nomination pointed to the need for additional research into the presence of cultural resources, fisheries, sea birds and marine mammals within Nantucket Sound. The central waters of Nantucket Sound were nominated "for their value as a habitat area, species area, unique area and a recreational and aesthetic area." (EOEA 1980 Nomination p. 5)

The Commonwealth's 1980 nomination pointed to the significant amount of conservation and recreation areas in the region of Nantucket Sound. The large extent of protected land and wetlands surrounding Nantucket Sound likely serves as habitat for the rich variety of species using the Sound. The Commonwealth's

nomination also advocated protection of the important educational, historic and cultural values of the numerous shipwrecks scattered throughout the Sound.

Under the 1980 nomination, NOAA would have ultimate responsibility for the overall management of the proposed Sanctuary, while EOEA would be responsible for daily on-site management operations. The 1980 nomination was designed at increasing the level of integrative management, by improving the federal consistency with the Massachusetts Ocean Sanctuaries Act. According to the Commonwealth's nomination:

> *The absence of marine sanctuary protection for the federal waters in the center of the Sound would negate efforts by the Commonwealth of Massachusetts to insure the environmental protection of the marine resources of this important water body through its Ocean Sanctuaries Program. Nantucket Sound must have a coordinated management regime... if the ecological, recreational, historic and aesthetic resources of the Sound are to be adequately protected.*

This nomination specified a holistic approach for management of the Sound, but implementation may have been complex due to the overlapping responsibilities under the proposed management arrangement. It is not clear whether this complexity affected its consideration by NOAA. No action was taken with respect to this nomination because NOAA did not have a program plan for the sanctuary system in place until 1983. As a result, the nomination was neither administratively accepted nor declined – in fact we found no record that the nomination had been formally acknowledged by the program until its mention in the later 1983 nomination, described below.

4.2.3 1983 Nomination

On August 4, 1983, Nantucket Sound, and a larger region including Nantucket Shoals and Oceanographer Canyon, were selected for the Site Evaluation List published in the *Federal Register* (Vol. 48, No. 151). Three other sites from the North Atlantic region were placed on the Site Evaluation list along with the proposed Nantucket Sound site. Of these sites, Stellwagen Bank was selected for sanctuary designation.

According to the National Marine Sanctuary Site Evaluations Recommendation and Final Reports (Chelsea International Corporation 1983):

> *The North Atlantic region contains two distinct biogeographic regimes...These two regimes meet in the area south of Cape Cod, and the transition area itself is as important as the two major regimes.*

Nantucket Sound is clearly a unique transitional area supporting significant biological productivity and diversity. In reviewing the Nantucket Sound proposal, the resource evaluation committee recognized the obstacles inherent in managing multi-jurisdictional areas and the need to incorporate ecosystem boundaries into less pliable management boundaries. The large "swath" included in the several Nantucket Sound proposals was considered a general "study area boundary" owing to the lack of ecosystem-focused research in the region.

Despite a clear representation of the ecological, economic, and aesthetic values contained in Nantucket Sound, the area was not selected for inclusion in the marine sanctuary program. Several governmental and private agencies commented on behalf of Nantucket Sound, citing the ecological significance of the area. Such agencies include the Massachusetts Marine Fisheries Commission, the Cape Cod Museum of Natural History, the Massachusetts Division of Fisheries and Wildlife, and the Humane Society of the United States, among others.

5.0 Review of Jurisdictional History of Nantucket Sound

As a component of the 1980 nomination, the Commonwealth of Massachusetts referenced case law that might aid in the conclusion that the Sound was of particular ecological significance, linked to the ecological continuity between state and federally owned portions of these waters. Under statute (43 U.S.C. 29 §§1301, 1311) and case law (*United States v. Maine*, 423 U.S. 1 (1975)), states have jurisdiction over all submerged lands within the 3-geographical mile zone, and the U.S. has title to the seabed more than 3-miles from shore. This is the

jurisdictional delineation that is currently recognized in Nantucket Sound. This jurisdiction is in no way reflective of larger ecosystem boundaries, which are the increasing focus of integrated coastal zone management regimes.

The present multi-jurisdictional status of Nantucket Sound is a result of the federal effort to quiet title to the seabed along the Atlantic coast (*United States v. Maine et al.*, 475 U.S. 89 (1986)). Several states took exception to sections of the 1986 Special Master's Report on delimitation of the jurisdictional boundaries. One such exception was made by Massachusetts regarding the status of Nantucket Sound (*Massachusetts Boundary Case*, 475 U.S. 89, 94 n.9). The Commonwealth's argument has its roots in the American interpretation of English common law. Under common law, "county waters" were defined by an ambiguous line-of-sight test, which was presumed to have been met for purposes of the proceeding. The Commonwealth's case rested on the position that "ancient title" was conferred to the succeeding local jurisdiction by the English Crown in the Treaty of Paris, which ended the Revolutionary War. Furthermore, the Commonwealth argued that the United Nations' Convention of the Territorial Seas and Contiguous Zone ("Convention" 15 U.S.T. 1607, T.I.A.S. No. 5639 (1958)), provides for "historic bays." The U.S. argued that the United Nations report entitled "Juridicial Regime of Historic Waters, Including Historic Bays (U.N. Doc. A/CN.4/143 (1962)) presented a 3-part definition of a historic bay including: 1) exercise of authority over the area, 2) with continuity of authority, and 3) acquiescence of foreign nations - the maritime equivalent of title acquired by adverse possession - which was not met by the Commonwealth with respect to Nantucket Sound. The term "ancient title" is not defined in the Convention, but according the U.N. report "to base the title on occupation is to base it on a clear and original title which is fortified by long usage."

The Report of the Special Master in the *Massachusetts Boundary Case* concluded that Nantucket Sound had an historic role in the development the colonial economy of Nantucket and Martha's Vineyard. However, the United States Supreme Court ruled that "the Commonwealth did not effectively "occupy" Nantucket Sound so as to obtain "clear original title" and fortify that title "by long

usage" before the seas were recognized to be free. The Supreme Court wrote that "Unless we are to believe that the self-interested endeavors of every seafaring community suffice to establish 'ancient title' to the waters containing the fisheries and resources it exploits, without regard to the continuity of usage or international acquiescence necessary to establish 'historic title', solely because exploitation pre-dated the freedom of the seas, then the Commonwealth's claim cannot be recognized."

The Nantucket Sound jurisdictional boundaries delineated by the U.S. Supreme Court (475 U.S. 89, 94) have produced an "enclave" of federally owned waters partially surrounded by state waters. No distance between mainland and/or the fringe islands exceeds 10 geographical miles. At the widest reach, between Monomoy and Great Point, the eastern entrance to Nantucket sound is 9.2 miles. Given the 3-mile state boundary, enclosing the embayment would require a straight line only 3.2 miles long. The western entrance to Nantucket Sound leads directly from Vineyard Sound, which, as mentioned, is within state jurisdiction. Beyond Vineyard Sound are either state waters (Buzzards Bay) or high seas, such that Nantucket Sound communicates vessels from high seas through state waters to high seas. Nantucket Sound meets the definition of inland waters as set forth by the U.S. in 1930.

6.0 Marine Resources of Nantucket Sound

Nantucket Sound possesses significant marine habitat for a diversity of ecologically and economically important species. Directly adjacent to the deeper waters of the Great South Channel, the Sound has particular significance for several federally-protected species including the gray seal (*Halichoerus grypus*), roseate tern (*Sterna dougallii*), piping plovers (*Charadrius melodus*), leatherback sea turtle (*Dermochelys coricea*), Atlantic Ridley sea turtle (*Lepidochelys kempi*) and a variety of commercially and recreationally valuable fisheries. Despite this, there has been insufficient scientific study of the area to assess the status of these habitats or the living marine resources of the Sound. The following sections

highlight the dominant, economically significant, or conspicuous species presently inhabiting the region.

6.1.1 Marine Mammals

The waters of Nantucket Sound provide habitat potential for several species of seals and porpoises, including the gray seal, harbor seal, and harbor porpoise. Once hunted to the edge of extinction within the Gulf of Maine, harbor and gray seal populations are once again on the rise within this region. These waters are of particularly significant to gray seals which have a well-documented and growing breeding colony in Nantucket Sound, representing the southern-most breeding colony in the world, and the only known breeding colony in the United States. The breeding population at Muskeget Island rose from a maximum of 13 in the 1970's to over 1,500 in the 1990's. This rise can be attributed to increasing environmental awareness and their protection under the Marine Mammal Protection Act.

The gray seal is listed as "special concern" species on the Massachusetts List of Endangered, Threatened and Special Concern Species (321 CMR 10.60). While the species is not endangered globally, other North Atlantic grey seal populations are listed under the World Conservation Union (IUCN) Red List. The status of the gray seal population and the level of human-caused mortality and serious injury in U.S. waters is unknown, but populations are believed to be increasing.

Figure 6 -- Gray seal (*Halichoerus grypus*) spotted in the Sound. (CCS © 2002)

The Western North Atlantic gray seal population is divided into two non-interbreeding communities, with 93% of the southern community located within Nantucket Sound. This division of breeding communities renders the Nantucket Sound habitat essential to the sustenance of this population. Additionally, this dichotomy provides a fertile area of study into intra-species genetics and population studies significant to this and other marine and terrestrial mammal species. With respect to the genetic uniqueness of this population, the gray seals' dependence on the waters of Nantucket Sound strongly support protection of these and adjacent waters employing an ecosystem approach to management.

In contrast to the literature pertaining to gray seals, our review of the limited number of scientific surveys of the Sound has revealed a scarcity of cetacean sightings within this specific body of water. These limited findings may be explained in part by the shallow depth of the region, but may also be linked to the minimal, if any, systemic observation of the area. As an example, CCS has frequently observed cetaceans within equally shallow water in and around

Provincetown, Massachusetts, as species may follow food sources migrating from more suitable deepwater habitats. Similarly, waters directly adjacent to Nantucket Sound have been shown to be of particular significance to a host of marine mammals, linked to major migratory routes for several species. While the predominantly shallow waters of the Sound may limit the direct habitat potential for charismatic marine mammal species, the shoal waters are of keystone significance to essential food species that drive the larger marine ecosystem.

To better assess the significance of the region, CCS is coordinating efforts to perform an aerial survey of Nantucket Sound and adjacent waters to specifically address the lack of quantitative study. Specifically, Endangered North Atlantic right whales (*Eubalaena glacialis*) are known to congregate seasonally in the Great South Channel and Cape Cod Bay, and have been reported in Vineyard Sound, Buzzards Bay and Cape Cod Canal. In fact, there have been three (3) sightings of right whales in Nantucket Sound since 1959. Adjacent to a significant migratory passage for a diversity of whale species, sightings of humpbacks, pilot whales, and finback whales have also been reported within the Sound. Had regular surveys been conducted historically in the Sound, the potential exists for more definitive evidence of cetacean utilization of this habitat.

6.2 Avian Species

The Nantucket Sound eco-region contains pristine estuaries, extensive shoals and long stretches of undeveloped coastline. Vast numbers of seabirds and waterfowl congregate to utilize near-shore shoals to feed and rest, especially during the winter season. The region includes parts of the largest winter habitat for waterfowl on the east coast of the United States. The Monomoy National Wildlife Refuge exemplifies the diversity and productivity of the Nantucket Sound region's avian habitat. Protected waters, shoals, tidal flats, salt marshes, dunes and beaches combine to create one of the most significant bird habitats in New England. The extensive conservation acreage adjacent to Nantucket Sound allows many terrestrial species to utilize distinct habitat niches in the region. The abundance and diversity of avian species within the Nantucket Sound eco-region

warrant considerable future research before spatial and temporal scales of utilization are comprehensively understood.

Located within the Atlantic Flyway, Nantucket Sound possesses great habitat significance for a host of avian species, providing breeding, nesting resting and foraging habitat. As detailed in available documentation on Nantucket Sound, common eiders (*Somateria mollissima*), black scoters (*Melavitta nigra*) and surf scoters (*M. perspicillata*) congregate in the fall and winter within the shoal waters in the hundreds of thousands, while various species of terns are abundant in the coastal zone including the common tern (*Sterna hirundo*), least tern, (*S. albifrons*), roseate tern (*S. dougallii*) and arctic tern (*S. paradisaea*). The roseate tern is classified as an endangered species. The coast of Nantucket Sound is breeding habitat for the piping plover (*Charadrius melodus*), a threatened species.

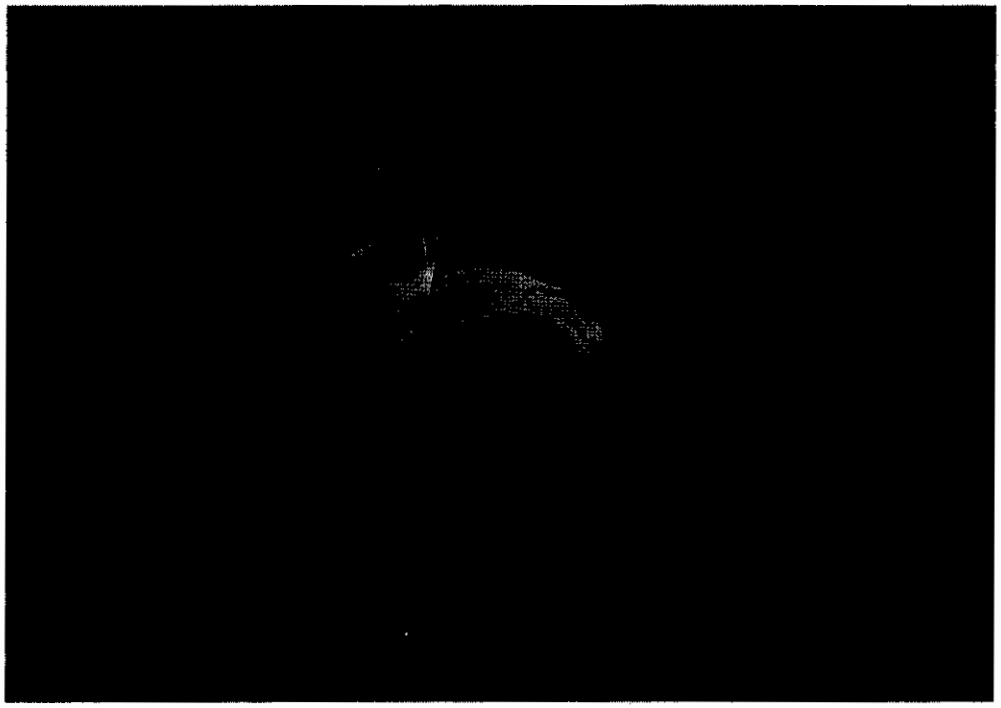

Figure 6 – Common Eiders (*Somateria mollissima*) socializing. (CCS © 2002)

While a variety of public and private organizations frequently observe avian species within this region, no formal survey of species diversity, habitat utilization, or breeding success has been reported for Nantucket Sound.

Assessment of actual habitat value and ecosystem services provided by this region will be an important facet of evaluating the ecological significance of the Sound.

6.3.1 Fisheries

Of particular significance within Nantucket Sound is the economic and recreational value of finfisheries and shellfisheries. Massachusetts Division of Marine Fisheries trawl surveys conducted over the last 25 years revealed approximately 80 species of finfish and shellfish within the Sound. While these data are valuable, the survey provides only a descriptive evaluation of the status of the system, suggesting that further scientific analysis should be completed. Much of the fisheries diversity has been maintained in Nantucket Sound; however, trawl survey data has not been fully analyzed by CCS scientists for trends in species abundance and ecological significance. Regardless of the present diversity, the exceptional waters of the Sound remain a significant habitat for spawning and nursery grounds for a host of economically significant species. In fact, these waters have been classified Class SA (Coastal and Marine Classes) under the 314 CMR 4.00 Massachusetts Surface Water Quality Standards. This designation represents the highest standard for coastal marine waters, cited for the protection and propagation of fish, shellfish and other marine life.

Nantucket Sound is the most significant horseshoe crab (*Limulus polyphemus*) habitat in the state, and among the most undisturbed spawning habitat remaining on the east coast. Juvenile and adult horseshoe crabs burrow in sandy shoals and muddy seabed, with adults migrating to beaches to spawn. Horseshoe crab spawning events are thought to be critically important to the avian species using the Atlantic Flyway during migration. Horseshoe crab eggs are a major food resource for birds, and reductions in breeding success by horseshoe crabs are thought to play a role in reductions in migratory shorebird populations. The link between horseshoe crab spawning success and avian populations has been documented in other estuaries, but this dynamic remains to be investigated in Nantucket Sound.

From the literature reviewed, it is clear to CCS that Nantucket Sound possesses significant habitat for a diversity of commercially and recreationally important fish, marine mammal and avian species. As compelling as these data are, it is equally clear that further study should be completed to provide a timely and accurate representation of the present coastal and marine resources of the Sound. Furthermore, future study should consider individual species counts within a larger, ecosystem concept. The purely descriptive reports of the past should be replaced by estimates of diversity, species interactions, sustainability, and ecosystem health or stability to more accurately portray the present and future of this ecosystem – towards developing suitable management strategies.

7.0 Summary

Presently, Nantucket Sound is managed by several different state and federal agencies, as described above. The result of these ecologically arbitrary divisions of a contiguous marine ecosystem is that managers are unable to gain a comprehensive understanding of the spatial and temporal ecosystem dynamics and marine resources. Individual private and governmental agencies focus upon isolated components of a complex and diverse ecosystem. Increasingly, ecologists, environmental managers, and regulatory agencies have recognized the value of ecosystem-scale strategies for the protection of natural resources. Fragmented management polygons have been shown to lead to increased edge effects, compartmentalization of species and/or habitats, and discrepancies in policies and management arrangements. Within a marine environment, fragmentation can hinder comprehensive assessment of marine resources and evaluation of recreational uses or anthropogenic impacts on the biogeographical region.

7.1 Future Scientific Assessment

Our review of existing literature demonstrates that ecosystem-scale studies with directed management strategies are limited to date. Finite studies of portions of

the resource or studies directed at one species or group of species results in a fragmented understanding of the system as a whole and only speculative estimates of ecosystem processes. While all reports suggest the region is relatively healthy, ecologically rich, and economically valuable, CCS concludes that a comprehensive study of the system as an ecological unit is required to confirm and understand these findings on an ecosystem-scale before broad management decisions can be made. Given this approach, subsequent management strategies should be designed for one contiguous ecological unit, rather than for finite management polygons. This peer-reviewed assessment protocol must be developed both to establish a baseline and to serve as a template for future, ongoing study of these waters. Establishing these protocols would insure that informed management strategies be developed, and their efficacy fully evaluated, to promote continued sustainable use of this important ecosystem.

A comprehensive ecological assessment of the Nantucket Sound biogeographical area would require a multi-disciplinary research team to develop a system-wide understanding of 1) physical oceanographic and geological processes 2) marine and benthic community structure and ecology 3) fisheries 4) marine mammal and reptile habitat and 5) avian habitat. Each of these broad research areas contains crucial skill sets from which to use the existing literature, rapid assessment surveys and other research tools to develop an understanding of the marine environment. A reasonably comprehensive ecological assessment of Nantucket Sound, as discussed above, could be achieved within roughly one year. Such an assessment would naturally include an ecosystem mapping component.

While existing literature addresses many of the physical and geologic processes in Nantucket Sound, a comprehensive review of the region should focus on patterns of marine habitat available within the dynamic shoal environments. Submerged aquatic vegetation, including eel grass (*Vallisneria spiralis*), provides essential habitat for juvenile fish and shellfish, and a benthic survey of Nantucket Sound should be part of a comprehensive ecosystem study. Fisheries have been regularly surveyed in Nantucket Sound such that this area of research should be relatively rich in data. Analysis in this area should specifically address ecological

implications of shellfish and finfish dynamics. There is significant on-going marine mammal research in the Nantucket Sound region, and this information should clearly be included in a comprehensive study. As noted, the Nantucket Sound region has exceptional habitat for an abundant mix of avian species, however, there is insufficient data on community patterns, habitat pressures, and population dynamics affecting this region.

7.2 Recommendations and Conclusions

Within Nantucket Sound and adjacent waters, the development of an ecosystem-scale, scientifically based management strategy requires a formal and integrated examination of the existing and projected marine resources, ecosystem services, anthropogenic uses, and impacts. Having been managed in a fragmented manner has led to a sparse and disjointed understanding of the resources within these waters, further supporting the need for a unified management strategy.

Based on the results of a preliminary investigation, CCS supports the notion of state and federal coordination to manage these waters, using one, mutually acceptable management strategy that promotes the exchange of data between management groups. While the most direct means of achieving an ecosystem approach to management would be for the entirety of the Sound to be managed by one entity, such an agreement may be difficult to establish. The 1980 nomination by EOEA and the Attorney General of Nantucket Sound as a marine sanctuary outlined a novel, holistic approach to provide a united management regime for the Sound. However, the specific mechanics of implementation and maintenance under joint jurisdiction may have required further review. The proposed management and ultimate responsibility of the resulting sanctuary would reside with two separate entities, not meeting today's standards for national marine sanctuary and potentially complicating management processes. Regardless of its merits or shortcomings, no action was taken with respect to this nomination because NOAA did not have a program plan for the sanctuary system in place until 1983.

The fact that the state Legislature, the Executive Office of Environmental Affairs, the state Attorney General, and the National Marine Sanctuary resource evaluation committee have found that Nantucket Sound warrants increased environmental protection, possibly including sanctuary status, demonstrates a general consensus regarding the ecological, economic, recreational and aesthetic importance of that region. CCS found no evidence to support the position that the ecological significance of the Nantucket Sound region has been diminished since those proposals were made. Nantucket Sound remains a pristine and tremendously productive ecosystem worthy of environmental conservation and protection.

Despite past nominations' failure to gain national marine sanctuary status, experience shows that such a cooperative management arrangement may be achieved, as evidenced by the Channel Island National Marine Sanctuary in California and the Hawaiian Islands Humpback Whale National Marine Sanctuary. By defining bio-regions, these sanctuaries established management polygons based on scientific determination of contiguous marine ecosystems or functional habitat units that best served to protect, study and manage waters on an ecosystem-scale. This type of determination is very much aligned with NOAA's fundamental management philosophy for the sanctuary program that pledges "*an ecosystem approach to marine environmental protection.*" Given the new paradigm of broad-based, ecosystem-scale management in science and environment policy, CCS recommends that future management of the marine and coastal resources of Nantucket Sound begin with comprehensive ecological study. Once such a study is completed, a more thorough and effective management strategy can be developed to guide appropriate management and policy decisions for this important coastal resource.

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Appendix A *Table 1*: Massachusetts Laws and Regulations

Resource/Issue	Applicable Legislation	Regulations	Agencies
Areas of Critical Environmental Concern	MGL c. 21A §2(7); St. 1974, c. 806 s. 40(e)	301 CMR 12.00	DEM
Coastal Development or Use	MGL c. 91; MGL c. 6A § 2-7 MGL c. 21A, s. 4A	310 CMR 9.00	DEP
		301 CMR 20.00-24.00	CZM
Dredging and Filling	MGL c. 21 § 26-35	310 CMR 9.00	DEP
Emergency Response/ Spill Reporting	MGL c. 21E (State Superfund Law)	310 CMR 40.0000 (Mass. Contingency Plan)	DEP
Endangered Species (Natural Heritage Program)	MGL c. 131 s. 23	321 CMR 10.00	DFW
Environmental Notification Forms/Impact Reports	MGL c. 30 §61-62H (Mass. Environmental Policy Act [MEPA])	301 CMR 11.00	EOEC
Historic Preservation	MGL c. 9 §26-27C	950 CMR 71.00	MHC
Marine Fisheries	MGL c. 130	322 CMR 1.00-12.00	DFW
Ocean Sanctuaries Act	M.G.L. c. 132A, §§ 13-16, 18	302 CMR 3.00	DEM
Scenic/ Recreational Rivers Orders	MGL c. 21A, s. 2(28)	302 CMR 3.00	DEM
Water Pollution Control	MGL c. 21 § 26-53 (Mass. Clean Waters Act)	257CMR 2.00 310 CMR 41.00 314 CMR 1.00 - 15.00 314 CMR 4.00 314 CMR 9.00	DEP
Waterways Licensing	MGL c. 91 (Public Waterfront Act)	310 CMR 9.00	DEP
Wetlands	MGL c. 131 s. 40 (Wetlands Protection Act)	310 CMR 10.00	DEP CCC

Key: CCC= Cape Cod Commission; CZM= Office of Coastal Zone Management; DEM= Dept. of Environmental Management; DEP= Dept. of Environmental Protection; DFW=Dept. of Fish and Wildlife and Environmental Law Enforcement; MHC= Mass. Historical Commission

Appendix A *Table 2*: Applicable Federal Laws

Resource/Issue	Applicable Legislation	Agencies
Atlantic Coastal Fisheries Cooperative Management Act	16 U.S.C. §§ 5101-5108	NOAA Atlantic States Marine Fisheries Commission
Coastal Zone Management Act	16 U.S.C. §§ 1451-1465	NOAA NERR CZM
Endangered Species Act	16 U.S.C. §§ 1531-1544	NOAA EOEA
Estuarine Areas Act	16 U.S.C. §§ 1221-1226	NOAA
Federal Water Pollution Control Act (Clean Water Act)	33 U.S.C. §§ 1251-1387	EPA
Magnuson-Stevens Fishery Conservation and Management Act	16 U.S.C. 1801-1882	NOAA
Marine Mammal Protection Act	16 U.S.C. §§ 1361-1421h	NOAA
Marine Protection, Research, and Sanctuaries Act (Marine Sanctuaries Act)	16 U.S.C. §§ 1431-1445a	NOAA
Migratory Bird Conservation Act	16 U.S.C. §§ 715-715r	Migratory Bird Conservation Commission
National Environmental Policy Act (NEPA)	42 U.S.C. §§ 4321-4347	Council on Environmental Quality Office of Environmental Quality
National Wildlife Refuge System Administration Act	16 U.S.C. §§ 668dd-668ee	FWS
Outer Continental Shelf Lands Act	43 U.S.C. §§ 1331-1356	DOI CZM

Key: CZM=Massachusetts CZM; DOI= Dept. of Interior; EPA= Environmental Protection Agency; FWS= U.S. Fish and Wildlife Service; NERR= National Estuarine Research Reserve; NOAA= National Oceanic and Atmospheric Administration