

V. CONSULTATION & COORDINATION

V. CONSULTATION AND COORDINATION

A. Process for the Preparation of the 5-Year Program and Environmental Impact Statement

1. Draft Proposed Program and Draft Environmental Impact Statement

Preparation and review of the environmental impact statement (EIS) closely parallels that of the 5-year program decision documents. Comments received on the program decision documents were also reviewed for consideration in the preparation of the EIS.

The preparation process for the draft proposed program and associated EIS began with the publishing of a Notice in the Federal Register (FR), dated August 24, 2005 (70 FR 49669), requesting information from the public, all affected parties, States, local and tribal governments, American Indian and Native Alaskan organizations, Federal Agencies, environmental and wildlife organizations, the oil and gas industry, other interested organizations, and other parties to assist in the preparation of a 5-year OCS oil and gas leasing program for 2007-2012 and applicable EIS. Based on the comments and information received, a draft proposed program was prepared and distributed for review and the basis was formed for the draft EIS (DEIS).

2. Proposed Program and Scoping for the DEIS

On February 10, 2006, a FR Notice (71 FR 7064) was published requesting comments from States, local governments, Native groups, tribes, the oil and gas industry, Federal Agencies, environmental and other interested organizations, and all other interested parties on the draft proposed 5-year OCS oil and gas leasing program for 2007-2012. The notice also informed the public of the intent to prepare an EIS. Comments were solicited during a 60-day comment period ending on April 11, 2006.

Notice of public scoping meetings were published in the Federal Register on March 3, 2006 (71 FR 10990) and on March 15, 2006 (71 FR 13426). These meeting sites included: Anchorage, AK; Barrow, AK; Kaktovik AK; Nuiqsut, AK; Wainwright, AK; Dillingham, AK; King Salmon, AK; Sand Point, AK; Cold Bay, AK; Houston, TX; Harahan, LA; Mobile, AL; Norfolk, VA; and Tallahassee FL. These meetings were held to garner significant issues and public concerns for inclusion in the 5-year EIS.

After consideration of the comments and necessary revisions to the analysis in the program decision document, the Proposed Program Request for Comments and the Notice of Availability for the Draft Environmental Impact Statement were published in the Federal Register on August 25, 2006 (71 FR 50457). The official U.S. Environmental Protection Agency (USEPA) Notice of Availability for the DEIS was published in the FR on September 1, 2006 (71 FR 52068). The proposed program was submitted to Congress, the Governors of the affected States, and the U.S. Attorney General.

B. Distribution of the DEIS

Copies of the DEIS were distributed by the Minerals Management Service (MMS) Headquarters Office and made available on the Internet prior to the official notification in the Federal Register to Federal, State and local agencies, and interested groups and individuals who had been involved in the preparation of the 5-year program and the EIS process, and to coastal libraries.

V. Consultation and Coordination

CONGRESS:

House of Representatives-Committee on Resources
United States Senate-Committee on Energy and Natural Resources

FEDERAL AGENCIES (HEADQUARTER OFFICES):

U.S. Environmental Protection Agency (USEPA)
U.S. Department of Commerce (USDOC)
U.S. Department of Defense (USDOD)
U.S. Department of Energy (USDOE)
U.S. Department of the Interior (USDOI)
U.S. Department of Transportation (USDOT)
U.S. Department of Homeland Security
U.S. Department of State
U.S. Department of Justice
National Aeronautics and Space Administration (NASA)
Marine Mammal Commission (MMC)

USEPA REGIONAL OFFICES:

Region 1, Boston, MA
Region 2, New York, NY
Region 3, Philadelphia, PA
Region 4, Atlanta, GA
Region 6, Dallas, TX
Region 9, San Francisco, CA
Region 10, Seattle, WA

FEDERAL AGENCIES (STATE OFFICES): Copies of the DEIS were also distributed to Federal offices in various States, as shown below:

ALABAMA

Mr. Doug Nester, Readiness Support Center, U.S. Army Corps of Engineers (COE)
Ms. Roberta Arena Swann, Mobile Bay National Estuary Program
Commander, U.S. Coast Guard (USCG), Strike Team
U.S. Fish & Wildlife Service (FWS) Refuge Manager

CALIFORNIA

Mr. James Bybee, Northern Area Coordinator, National Marine Fisheries Service (NMFS)
Mr. David Castanon, COE, Regulatory Branch
Mr. Jim Danza, Naval Air Weapons Station, Point Mugu
Mr. Jim Slawson, NMFS, Habitat Conservation Division
Commander, 11th USCG District, Marine Safety Office/Aids to Navigation
NMFS, Southwest Region

FLORIDA

Mr. Seth Blich, Apalachicola National Estuarine Research Reserve
Chief, Research Group, NMFS, Panama City Laboratory
Chief, NMFS, Recreation Fisheries Development

V. Consultation and Coordination

GEORGIA

Mr. Gregory L. Hogue, USDOJ, Office of Environmental Policy & Compliance

LOUISIANA

Dr. Lloyd F. Baehr, Jr., COE, Eastern Evaluation Section
Commander Phillip Wieczynski, USCG, Marine Environmental Response & Safety Branch
Regional EIS Coordinator, COE, New Orleans District
U.S. Department of Energy, Strategic Petroleum Reserve PMD
FWS Refuge Manager, Cameron Prairie NWR
FWS Refuge Manager, Lacassine & Shell Keys NWR
FWS Refuge Manager, Lacombe, LA

MISSISSIPPI

Dr. Frederick C. Kopfler, Chief Scientist, USEPA Gulf of Mexico Program
Dr. Keith Mullin, National Marine Fisheries Service
U.S. Army Corps of Engineers, Planning Division, Vicksburg, MS
FWS Refuge Manager, Gulf Islands National Wildlife Refuge (NWR)
Superintendent, U.S. National Park Service, Gulf Islands National Seashore

TEXAS

Mr. Frederick T. Werner, Senior Field Biologist, FWS, Houston, TX
District Engineer, U.S. Army Corps of Engineers, Galveston District, (CESWG-PL-R)
Laboratory Director, U.S. Department of Commerce-NOAA/NMFS
Field Supervisor, FWS, Houston, TX
FWS Refuge Manager, Arkansas & Matagorda NWR
FWS Refuge Manager, Laguna Atascosa NWR
FWS Refuge Manager, McFadden & Texas Point NWR
FWS Refuge Manager, San Bernard NWR

STATE AGENCIES: Copies of the DEIS were provided to the governors and clearinghouses of the following States:

GOVERNORS

The Honorable Bob Riley, Governor of Alabama
The Honorable M. Jodi Rell, Governor of Connecticut
The Honorable Ruth Ann Minner, Governor of Delaware
The Honorable Jeb Bush, Governor of Florida
The Honorable Sonny Perdue, Governor of Georgia
The Honorable Kathleen Babineaux Blanco, Governor of Louisiana
The Honorable John E. Baldacci, Governor of Maine
The Honorable John Ehrlich, Governor of Maryland
The Honorable Mitt Romney, Governor of Massachusetts
The Honorable Haley Barbour, Governor of Mississippi
The Honorable John Lynch, Governor of New Hampshire
The Honorable John Corzine, Governor of New Jersey
The Honorable George Pataki, Governor of New York
The Honorable Mike F. Easley, Governor of North Carolina
The Honorable Edward G. Rendell, Governor of Pennsylvania
The Honorable Donald L. Carcieri, Governor of Rhode Island

V. Consultation and Coordination

The Honorable Mark Sanford, Governor of South Carolina
The Honorable Timothy M. Kaine, Governor of Virginia

ALABAMA

Mr. J. Scott Brown, Alabama Department of Environmental Management
Ms. Elizabeth Brown, Alabama Historical Commission
The Honorable James Buskey, Alabama House District 99
The Honorable Jeff Collier, Mayor, City of Dauphin Island
Mr. Tim Gothard, Executive Director, Alabama Wildlife Federation
Mr. Ralph Hellmich, State Oil & Gas Board of Alabama
Mr. Phillip Hinesley, Chief - Coastal Section, Fairhope
The Honorable Samuel L. Jones, Mayor, City of Mobile
Mr. James K. Lyons, Director, Alabama State Docks
Mr. James D. Martin, Commissioner, Alabama Dept. of Conservation & Natural Resources
Mr. Robert M. Mink, Alabama Geological Survey
Mr. Leigh Pegues, Director, Alabama Department of Environmental Management
Mr. Dave Stewart, Policy Director, Office of the Governor, State Capitol
Alabama Historical Commission, State Historical Preservation Office
Chair, Natural Resources Committee, Alabama State Legislature
Chair, Oil and Gas Committee, Alabama State Legislature

ALASKA

Department of Wildlife Management, North Slope Borough (NSB)

CALIFORNIA

Mr. Doug Anthony, Santa Barbara County Dept. of Planning & Development
Mr. Brian Baird, Resources Agency of California
Mr. Richard R. Baker, District Deputy, California Dept. of Conservation
Ms. Melissa Boggs, Office of Oil Spill Prevention and Response
Mr. Robert Carr, San Luis Obispo County Air Pollution Control District
Mr. Steve Curran, California State Lands Commission
Ms. Alison Dettmer, Coastal Program Manager, California Coastal Commission
Mr. Peter Douglas, Executive Director, California Coastal Commission
Mr. Bill Douros, National Marine Sanctuary, Monterey
Mr. James Fore, California Energy Commission, Forecasting & Planning
Dr. Craig Fusaro, Director, Joint Oil/Fisheries Liaison Office
Mr. Bill Guerard, Jr., California Dept. of Conservation Div. of Oil, Gas & Geothermal Resources
Ms. Susan M. Hansch, California Coastal Commission, Energy & Ocean Resources Unit
Mr. Kenneth P. Henderson, California Dept. of Conservation, Division of Oil and Gas
Mr. Bruce H. Hesson, California Department of Conservation
Mr. Eldon Hout, Coastal Program Manager, Dept. of Land Conservation & Development
Mr. Chris Iversen, President, San Luis Obispo Council of Governments
Mr. Robert E. Kallman, Offshore Program Advisor
Mr. Kurt Kupper, Executive Director, ECOSLO
Mr. Bill Lockyer, Attorney General, State of California
Ms. Anne McMahon, c/o Congresswoman, Lois Capps
Ms. Harriet Miller, Mayor of Santa Barbara
Mr. Paul Mount, California State Lands Commission
Mr. John Patton, Santa Barbara County, Department of Planning and Development
Mr. Pete Phillips, Department of Fish & Game

V. Consultation and Coordination

Mr. Michael Powers, Deputy Director, Santa Barbara County Association of Governments
Mr. Dwight E. Sanders, California State Lands Commission
Mr. John Turner, California Department of Fish & Game
Ms. Marina Voskanian, California State Lands Commission
Ms. Sara Wan, California Coastal Commission
Mr. Pete Wallace, Director of Operations, Port of Hueneme

FLORIDA

The Honorable Mike Anderson, Mayor, City of Fort Walton Beach
Ms. Stephanie Bailenson, Director, Dept. of Environment, Coastal and Aquatic Managed Areas
Mr. Charles Bare, District Representative, Pensacola
The Honorable Craig Barker, Mayor, Destin City Council
Mr. Ted Bonanno, Office of Tourism, Trade and Economic Development
Ronald Book, Executive Director, Florida Regional Councils Association
Mr. Donald H. Butler, Director, Gulf County Planning & Building Department
Dr. James C. Cato, Director, Florida Sea Grant College, University of Florida
Mr. Thaddeus Cohen, Secretary, Department of Community Affairs
Ms. Lauren DeGeorge, Mayor, City of Panama City
Mr. Ray Eubanks, Planning Division, Department of Community Affairs
Mr. Dick Fancher, Director, Northwest Department of Environmental Protection District Office
Mr. John Fogg, Mayor, City of Pensacola
Dr. John A. Gifford, Division of Marine Affairs and Policy, RSMAS-University of Miami
Ms. Lynn Griffin, Florida Coastal Management Program
Mr. George Henderson, Department of Environmental Protection, Marine Research Institute
Ms. Laura Kammerer, Department of State, Division of Historic Resources
Dr. Robert E. Lee, City Manager, City of Naples
Mr. Alexander Mack, Florida Energy Office
Ms. Sally B. Mann, Director, Intergovernmental Programs
Ms. Beverly Mays, Planning Supervisor, Okaloosa County Planning
Mr. Keith McCarron, Senior Planner, Apalachee Regional Planning Council
Mr. Gil McRae, Director, Florida Marine Research Institute
Ms. Mollie Palmer, Florida Department of Environmental Protection
Ms. Lorna A. Patrick, FWS, Panama City Field Office
Mr. Richard Post, County Planner, Escambia County
Mr. Frank M. Ryll, Jr., President, Florida Chamber of Commerce
Mr. Dan Savage, Perdido Key Chamber
Dr. Walt Schmidt, Department of Environmental Protection, Bureau of Geology
Ms. Lisa Stone, Department of Transportation, Bureau of Planning
Mr. Edwin L. Smith, Manager, Bay County
Mr. Samuel P. Steffey II, Growth Management Administrator
Mr. Bill Stromquist, President, Perdido Key Chamber of Commerce
Mr. Wayne E. Swingle, GOM Fishery Management Council
Ms. Debby Tucker, Florida Department of Environmental Protection
Mr. Phil Wiczynski, Department of Environmental Protection, Bureau of Emergency Response
Mr. Sherman Wilhelm, Department of Agriculture and Consumer Services
Ms. Kathy Winburn, County Planner, Levy County Planning Department
Paden Woodruff, Department of Environmental Protection, Office of Beaches and Coastal Systems
Florida Governors Office, Office of Environmental Affairs
Escambia County, Neighborhood and Environmental Services Department
Franklin County, Director of Administrative Services

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City of Gulf Breeze, City Manager
Gulf County, Planning and Building Department
Hillsborough County, Environmental Protection Commission
Okaloosa County, County Administrator
Santa Rosa County, Board of County Commissioners
Walton County, Director, Planning and Development

LOUISIANA

Mr. Christopher Andry, Planner, Saint Bernard Planning Commission
Mr. Aarron Broussard, President, Jefferson Parish
The Honorable David Camardelle, Mayor, City of Grand Isle
Mr. Pete Chocheles, Jefferson Parish Port District
The Honorable Joey Durel, President, City of Lafayette
Mr. Ted Falgout, Greater Lafourche Port Commission
Mr. Andy Galliano, Grand Isle Port Commission
Dr. Terry Howey, Administrator, Louisiana Department of Natural Resources
Mr. Rick Kasprzak, Louisiana Artificial Reef Program, Louisiana Department of Wildlife & Fisheries
Mr. Ed Kelly, West Cameron Port Commission
Mr. Randy Lancot, Executive Director, Louisiana Wildlife Federation, Inc.
The Honorable Timothy Matte, Mayor, Morgan City
Mr. Charles McCarty, Chairman, Economic Development and Tourism Office
The Honorable C. Ray Nagin, Mayor, City of New Orleans
Mr. Loulan Pitre, Jr., State Representative
Mr. Roy Pontiff, Executive Director, Port of Iberia
Mr. Roger Richard, Executive Director, Greater Baton Rouge Port Commission
The Honorable Randy Roach, Mayor, City of Lake Charles
Mr. Don Schwab, Parish President, Terrebonne Parish
Mr. Urban Treuil, Plaquemines Parish Port, Harbor and Terminal District
Calcasieu Regulatory Planning Commission
State Historic Preservation Officer, Louisiana Department of Culture/Recreation/Tourism
Secretary, Louisiana Department of Environmental Quality
Secretary, Louisiana Department of Natural Resources
Director, Louisiana Department of Natural Resources, Office of Coastal Management
Secretary, Louisiana Department of Transportation & Development
Secretary, Louisiana Department of Wildlife & Fisheries
Associate Director, Louisiana Geological Survey
Chair, Natural Resources Committee, Louisiana Legislature
Chair, Natural Resources Committee, Louisiana House of Representatives

MISSISSIPPI

The Honorable Matthew J. Avara, Mayor, City of Pascagoula
Mr. J. H. Burdine, Greenville Port Commission
The Honorable Edward Favre, Mayor, City of Bay Saint Louis
Mr. James Palmer, Executive Director, Mississippi Department of Natural Resources
The Honorable Brent Warr, Mayor, City of Gulfport
State Historical Preservation Officer, Mississippi Department of Archives and History
Executive Director, Mississippi Department of Wildlife Conservation
Mississippi Sea Grant Advisory Service, Biloxi
Oil, Gas, and Other Minerals Commission, Mississippi Legislature

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TEXAS

Mr. J. Barto Arnold III, Texas Historical Commission, Texas Antiquities Committee
Mr. Robert W. Spain, Texas Parks & Wildlife Department, Habitat Assessment Branch
Mr. Sidney Wheeler, Texas Natural Resource Conservation Commission
Golden Crescent Regional Planning Commission, Victoria
Senate Natural Resources Committee, Austin
Texas Attorney General, Austin
Texas Commission on Natural Resources, Dallas
Executive Director, Texas Department of Water Resources
Texas A&M University, Department of Wildlife Science
Commissioner, Texas General Land Office
Texas Legislation Council, Capital Station
Chair, Natural Resources Committee, Texas Legislature

VIRGINIA

Commonwealth of Virginia, Department of Environmental Quality

WASHINGTON

Mr. Duane Phinney, Washington Department of Fisheries

LIBRARIES: Copies of the DEIS were provided to the following libraries:

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Montgomery Public Library
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University of Alabama
University of Alabama Libraries, Tuscaloosa
Documents Division Library, University of Southern Alabama

ALASKA

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State of Alaska Dec Library, Juneau
Library Geophysical Institute, Fairbanks
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CALIFORNIA

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Iberville Parish Library, Plaquemines
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West Bank Regional Library, Harvey

MISSISSIPPI

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Hancock County Library System, Bay St. Louis
Harrison County Library, Gulfport
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US Army Crrel (Cold Regions Research & Engineering Lab) Library, Hanover
Darthmouth College Library, Hanover

OHIO

Ohio State University Libraries Monographs Department, Columbus

OREGON

Oregon State Library, Salem
Oregon State University Library/Hatfield Marine Science Center, Newport
Oregon Institute of Marine Biology, Charleston

TEXAS

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Comfort Public Library
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Lamar University, Lamar Station
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Liberty Municipal Library
Orange Public Library
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Reber Memorial Library, Raymondville
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Stephen F. Austin State University, Steen Library, Nacogdoches
Texas Southmost College Library, Brownsville
Texas State Library, Austin
Texas Tech University Library, Lubbock
University of Houston Library
University of Texas at Arlington Library
University of Texas Library, Austin
University of Texas, Arnulfo Oliveria Memorial Library, Brownsville
University of Texas at Dallas Library, Richardson
University of Texas at El Paso Library
University of Texas at San Antonio Library
Victoria Public Library
Amoco Production Company Library, Houston
Fugro Inc. Corporate Library, Houston

VIRGINIA

National Technical Information Service, Springfield
U.S. Geological Survey Library, Reston

WASHINGTON

USEPA Region 10 Library, Seattle
NMFS Marine Mammal Lab Library, Seattle
Seattle Public Library
NMFS NW & Alaska Fisheries Center Library, Seattle
Parametrix Inc. Library, Bellevue

WASHINGTON, DC

USDOI Natural Resources Library
American Petroleum Institute Library

FOREIGN COUNTRIES

University of Alberta, Cameron Library, Edmonton Alberta

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Pacific National Defense, Defense Research Library, Victoria British Columbia
Bibliotheque Institut, Maurice-Lamontagne, Montjoli, Quebec
Mackimmie Library, University of Calgary, Calgary, Alberta
Joint Secretariat, Inuvikon NT Canada
M. McLaren Library, McGill University, Montreal, Quebec
Danish Polar Centre, Copenhagen, Denmark
Scott Polar Research Institute Library, Cambridge, England
University of Oulu Biology Library, Linnanmaa, Finland
University of Oulu Geoscience Library, Yliopisto, Finland
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Lulea University Library, Lulea, Sweden
Swedish Institute of Space Physics Library, Kiruna, Sweden

OTHER AGENCIES, ORGANIZATIONS AND INDIVIDUALS: Copies were also distributed to the following agencies and individuals:

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South Alabama Regional Planning Commission
Apalachee Regional Planning Council
East Central Florida Regional Planning Council
North Central Florida Regional Planning Council
Northeast Florida Regional Planning Council
South Florida Regional Planning Council
Southwest Florida Regional Planning Council
Tampa Bay Regional Planning Council
Treasure Coast Regional Planning Council
West Florida Regional Planning Council
Withlacoochee Florida Regional Planning Council
Regional Planning Commission, New Orleans
Southern Mississippi Planning and Development District
Southeast Texas Regional Planning Commission

OCS POLICY COMMITTEE MEMBERS

Mr. Berry H. Tew, Jr.--State Geologist and Oil & Gas Supervisor, Alabama Geological Survey
Mr. Michael L. Menge--Commissioner, Alaska Department of Natural Resources
Mr. Crawford M. Tuttle--Deputy Secretary for External Affairs, Resources Agency of California
Mr. John H. Talley--Director and State Geologist, Delaware Geological Survey
Ms. Jennifer L. Fitzwater--Director, Office of Legislative and Governmental Affairs, Florida DEP
Mr. Scott A. Angelle--Secretary, Louisiana Department of Natural Resources
Mr. Deerin Babb-Brott--Executive Office of Environmental Affairs, Boston Massachusetts
Mr. William W. Walker--Executive Director, Department of Marine Resources, Biloxi, Mississippi
Mr. Karl W. Muessig—New Jersey Department of Environmental Protection
Mr. Robert H. Boyles, Jr.—South Carolina Department of Natural Resources
Mr. Victor G. Carrillo--Chairman, Railroad Commission of Texas
Mr. Mark S. Davis--Executive Director, Coalition to Restore Coastal Louisiana
Mr. James E. Carlton, III--Land Manager, Conoco Phillips Company
Mr. Bruce Thompson--Government Relations Consultant, Forest Oil Corporation
Ms. Melody B. Meyer--Vice President, Chevron Texaco North America Upstream
Mr. Galen L. Cobb--Vice President, Industry Relations, Halliburton

V. Consultation and Coordination

Mr. George M. Banino--Vice President & Senior Consultant, Earth Tech, Inc.
Mr. George N. Ahmaogak, Sr.--Former Mayor of North Slope Borough
Mr. Ganesier Ramachandran--Councilman, St. Charles Parish
Mr. Paul N. Cicio--Executive Director, Industrial Energy Consumers of America
Ms. Carla C. Sullivan--Senior Policy Advisor, Office of the Under Secretary, NOAA
Mr. Donald R. Schregardus--Deputy Assistant Secretary of the Navy for Environment
Mr. Mitchell T. Baer--Office of Policy and International Affairs, Department of Energy
Mr. Robert W. Smith--Geographer, Oceans Affairs, Department of State
Mr. Thomas H. Gilmour—Assistant Commandant for Marine Safety, Security & Env. Protection
Ms. Anne N. Miller--Director, Office of Federal Activities, USEPA
Acting Assistant Secretary--USDOJ, Land and Minerals Management
Mr. H. Craig Manson--Assistant Secretary, Fish and Wildlife and Parks
Ms. Rejane “Johnnie” M. Burton--Director, Minerals Management Service
Associate Director--Minerals Management Service

NATIONAL ENVIRONMENTAL POLICY ACT CONTACTS:

Director, USDOJ, Office of Environmental Project Review
Chief, FWS Division of Environmental Coordination
Chief, U.S. Geological Survey (USGS) Review Unit
Chief, Environmental Services Staff, Office of Trust Responsibilities, Bureau of Indian Affairs
Deb Rawhouser, Division of Planning & Science Policy, Bureau of Land Management
Chief, NPS Environmental Compliance Division
Director, Office of Environmental Affairs, Bureau of Reclamation
Chief, Permits & Environmental Analysis, Office of Surface Mining, Reclamation & Enforcement
Shawn K. Alam, Ph.D., USDOJ Office of Environmental Policy and Compliance

PRIVATE ORGANIZATIONS/ENVIRONMENTAL GROUPS:

ALABAMA

Mr. Rhett Johnson, Alabama Wildlife Society
Dr. Ernest A. Mancini, University of Alabama
Mr. Jason Totoiu, Staff Attorney, WildLaw
Mr. Joe Trapp, Perdido Watershed Alliance
Ms. Nicole Vickey, Alabama Nature Conservancy
Executive Administrator, Alabama Nature Conservancy
Audubon Society-Mobile Bay
Director, University of South Alabama, Dauphin Island Sea Laboratory

ALASKA

Alaska Marine Conservation Council
Mr. Ray Koonuk, Sr. , President, Point Hope Whaling Captains Association
Mr. Michael R. Link, Vice President, Alaska Operations, LGL Alaska Research Associates, Inc.
Ms. Pamela A. Miller, Northern Alaska Environmental Center
Mr. Gabriel Scott, Field Representative, Cascadia Wildlands Project

CALIFORNIA

Ms. Roma Armbrust, Coastal Issues Director, League of Women Voters
Mr. Brian J. Balcom, Regional Manager, Continental Shelf Associates, Inc.
Mr. John Buttny, Executive Director, Citizens Planning Assoc.
Mr. Richard Charter, Marine Conservation Advocate, Environmental Defense
Mr. Jim Colomy, Ventura County Commercial Fishermen's Association

V. Consultation and Coordination

Environmental Coalition, Ventura, CA
Mr. Robert Fletcher, California Sport Fishing Assoc.
Get Oil Out, Inc. & GOO Education & Legal Fund
Ms. Jean Holmes, Chair, League of Women Voters
Mr. Frank Holmes, Coastal Coordinator, Western States Petroleum Association
Ms. Linda Krop, Chief Council, Environmental Defense Center
League President, League of Women Voters of San Luis Obispo
Mr. Mike McCorkle, Southern California Trawler's Assoc.
Mr. William S. Morris, Sierra Club Marine Committee
Ms. Christine Mulholland Peralta, Chair, ECOSLO Board of Trustees
Mr. Geir Neilsen, Trans-Pacific Seafood
Ms. Suzanne Noble, Western States Petroleum Association
Ms. Donna Panto, LA Commercial Fisherman's Assoc.
Mr. Abel Powell, Get Oil Out, Inc.
Mr. Phil Schenck, Central Coast Hook & Line, Fishermen's Association
Mr. Robert Sollen, Sierra Club
Surfrider Foundation

FLORIDA

Ms. Frances Dunham, Santa Rosa Sound Coalition
Ms. Vivian Faircloth, League of Woman Voters
Mr. Mark Ferrulo, Director, Florida Public Interest Research
Mr. David Guest, Managing Attorney, Earthjustice
Dr. Steve Holland, Florida Defenders of the Environment
Mr. Gary Pelham, AAC/XPP
Mr. Doug Shelby, Executive Director, Florida Petroleum Council
Dr. Enid Sisskin, Gulf Coast Environmental Defense
Sierra Club, Florida Regional Field Office
Ms. Judith Vallee, Executive Director, Save The Manatee Club
Mr. David Ward, President, Citizens Association of Bonita Beach
Bay County Audubon Society, Gulf Coast Environmental Defense
Perdido Key Association
Mr. Glenn Compton, Chairman, Manasota-88
Mr. Ted Forsgren, Florida Conservation Association
Mr. Manley Fuller, III, Florida Wildlife Federation
Ms. Judy Jamison, Gulf and S. Atlantic Fisheries, Development Foundation
Mr. Bob Jones, Executive Director, Southeastern Fisheries Association
Mr. Gary Knight, Director, Florida Natural Areas Inventory
Mr. Charles Lee, Florida Audubon Society, Center for Birds of Prey
Dr. John C. Ogden, Director, Florida Institute of Oceanography
Mr. Charles Patterson, 1000 Friends of Florida
Dr. Richard H. Pierce, Director, Center for Ecotoxicology
Mr. Mark Robson, Director, Florida Fish & Wildlife Conservation Commission
Mr. Jerry Sansom, Executive Director, Organized Fishermen of Florida
Dr. Enid Sisskin, President, Gulf Coast Environmental Defense
Mr. Terry Sullivan, The Nature Conservancy
Mr. Richard Winn, Florida Chapter Sierra Club

GEORGIA

Mr. Steve Kretzman, Greenpeace

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LOUISIANA

Mr. Jeff Angers, Executive Director, Louisiana Gulf Coast Conservation Association
Mr. Bill Berry, Director of Wetlands Management, Louisiana Land & Exploration Company
Mr. Henri Boulet, Executive Director, LA-1 Coalition
Ms. Esther Boykin, Associate Attorney, Sierra Club Legal Defense Fund
Mr. Jude Comeaux, John E. Chance & Associates, Inc.
Ms. Cassandra Cooper-Gates, Environmental & Safety Services, Louisiana Offshore Oil Port, Inc.
Mr. David Duplantier, Chevron USA
Mr. Harold Schoeffler, Sierra Club, Delta Chapter
Mr. Harty C. Van, Jr., Offshore Regulatory Affairs, Amoco Production Company
Dr. Jack Van Lopik, LSU Sea Grant College, Program Center for Wetland Resources
Mr. Darryl Malek-Wiley, Sierra Club
Clean Gulf Associates
Director, Louisiana State University, Center for Wetland Resources, Baton Rouge
Louisiana Wildlife Federation, Inc. , State Office—Louisiana State University
Petroleum Information Corporation, New Orleans, Louisiana
Sierra Club, New Orleans Chapter

MISSISSIPPI

Ms. Susan Griggs, Gulf Coast Research Laboratory
Mr. Roger Jones, Mississippi Nature Conservancy
Gulf States Marine Fisheries Commission, Ocean Springs
Director, Mississippi-Alabama Sea Grant Consortium

TEXAS

Ms. Dede Armentrout, Audubon Society-Austin, Southwest Region
Ms. Chris Bieley, Seacor Marine
Mr. David Braun, Texas Nature Conservancy
Mr. Robby Byers, Executive Director, Coastal Conservation Association
Ms. Lucy Gibbs, Executive Director, Texas Shrimp Association
Mr. John Hamilton, Executive Director, Texas Conservation Foundation
Chief, Resource Management, U.S. National Park Service, Padre Island National Seashore
Dr. Richard Rezak, Texas A&M University, Department of Oceanography
Dr. E. G. Wermund, Director, University of Texas, Bureau of Economic Geology
Sierra Club-Lone Star Chapter, Austin
Director, Texas A&M University, Sea Grant Program
Texas Water Conversation Association, Austin

VIRGINIA

Mr. Richard Wildermann, Mangi Environmental Group, Inc.

OTHER

Mr. Simi Batra, Coastal States Organization, Washington D.C.

PRIVATE CITIZENS: Copies of the DEIS were also distributed to the following private citizens:

Ms. Kelley Harrell, Anchorage, Alaska
Mr. Tom Lohman, Anchorage, Alaska
Ms. Anne Bennett, Pensacola, Florida

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Mr. Jim Muller, Tallahassee, Florida
Mr. Wayne Stubbs, Panama City, Florida
Mr. Aaron Voiles, New Orleans, Louisiana
Mr. Ed Dullgahan, Suffolk, Virginia
Mr. Charles Traub III, Virginia Beach, Virginia

C. Comments Received on the DEIS

The initial comment period on the DEIS closed on November 22, 2006. During this review period, written and oral comments were solicited on the adequacy of the DEIS, and to provide the Secretary of the Interior with additional information to help evaluate the potential environmental effects of the 5-year program.

1. Public Hearings for the DEIS

The September 26, 2006, Federal Register Notice (71 FR 56167) announced 19 public hearings in Alabama, Alaska, Florida, Louisiana, Texas, and Virginia. These were as follows:

September 25, 2006, Unalaska, Alaska
September 26, 2006, Cold Bay, Alaska
September 27, 2006, Nelson Lagoon, Alaska
September 28, 2006, Anchorage, Alaska
September 28, 2006, Sand Point, Alaska
October 9, 2006, Goodnews Bay, Alaska (cancelled due to weather.)
October 10, 2006, Naknek, Alaska
October 11, 2006, Dillingham, Alaska
October 30, 2006, Houston, Texas
October 31, 2006, Harahan, Louisiana
November 1, 2006, Mobile, Alabama
November 8, 2006, Nuiqsut, Alaska
November 10, 2006, Kaktovik, Alaska
November 13, 2006, Wainwright, Alaska (cancelled due to weather.)
November 14, 2006, Norfolk, Virginia
November 14, 2006, Point Lay, Alaska
November 15, 2006, Panama City Beach, Florida
November 15, 2006, Point Hope, Alaska
November 16, 2006, Barrow, Alaska

There were also additional informational meetings held in Alaska and New Jersey. The public hearings and the New Jersey informational meeting had court reporters present, and all comments were captured.

2. Litigation

The MMS published in the November 14, 2006, Federal Register (71 FR 66343) a request for comments on revisions to the 5-Year Leasing Program brought about by the October 24, 2006, USDOJ/MMS and State of Louisiana settlement of the case of *Blanco, et al., v. Burton, et al.* The District Court approved the settlement and dismissed the case. As a result of the settlement

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agreement, the MMS proposed to expand Lease Sale 205 scheduled in the Proposed 5-Year Leasing Program for 2007-2012 and the accompanying DEIS. Comments dealing with this change were accepted until December 29, 2006.

3. Written Comments on the DEIS

In addition to comments provided at the public hearings, MMS received over 9,000 separate communications via the internet and regular mail representing tens of thousands of individual comments on the DEIS. Presented below are more than 500 concerns which capture all substantive comments received. The MMS response is provided for each concern.

D. Responses to Comments

ISSUE 1a: EIS Scope Assumptions Improper

Issue Raised By: State of New Jersey; Sierra Club; Butch Allen of the Alaska Center for the Environment; NOIA; ConocoPhillips; Fairfield Industries; Kathy Martin; Channing Smith; Clean Ocean Action and NY/NJ Baykeeper; Sheree Cox; Alaska Wilderness League; David Sherman; Angela Cox; and others

Concern: The EIS analyses did not take an honest look at potential environmental impacts, but instead the conclusions minimized the impacts.

Response: The MMS believes that the EIS analyses take a hard look at potential impacts from numerous factors including air emissions, oil spills, sea bed disturbances, seismic activities, and others. The analyses presented objective appraisals of the potential environmental affects that could ensue from the leasing program. The potential for large population-level impacts are identified. The information to support the analyses is based on a bibliography containing about 2,100 citations.

Concern: The EIS uses unrealistic assumptions about industry safety operations that downplay the potential environmental impacts.

Response: Assumptions about industry operations referenced in the EIS are based on existing MMS regulations and lease stipulations. The MMS has an active offshore inspection system to verify that operational conditions occurring at offshore facilities are up to stringent operational standards. Assumptions about oil-spill occurrences are based on statistical analyses of historic oil-spill occurrences during the past 50 years. The EIS acknowledges that accidents do occur. We present information about the occurrence of oil spills. We evaluate the risk of collisions between offshore service vessels and marine mammals. We analyze the effects of air emissions from OCS activities on coastal areas, based on extensive data MMS has collected about offshore emissions. Based on this, MMS believes that the EIS uses accurate assumptions about operational conditions in the EIS.

Concern: More Outer Continental Shelf (OCS) Planning Areas should be analyzed in the EIS to provide for flexibility to respond better to world petroleum developments.

Response: The areas included in the EIS cover the areas included in the 2007-2012 program. The National Environmental Policy Act (NEPA) requires the Federal Government to analyze reasonably foreseeable consequences of a proposed action. The MMS does not consider it reasonably foreseeable

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that OCS areas currently under a withdrawal and/or moratorium and/or of no to little interest to industry would be developed during the 2007-2012 time period. Therefore, these planning areas were not analyzed in the EIS. Areas included in the 2007-2012 program that were under withdrawal while the EIS was being completed were included based on requests from Virginia (Mid-Atlantic Planning Area) and Alaska (North Aleutian Planning Area) to include them. No interest in other planning areas was communicated to MMS.

Concern: The EIS should not have included the Mid-Atlantic Planning Area because under the moratorium no money can be spent on preleasing activities until the moratorium has been lifted.

Response: The 5-Year EIS addresses the initial planning stage for developing a new program. The prelease stage begins later in the program prior to a lease sale. The preparation of an EIS for a mid-Atlantic lease sale would not begin until a moratorium had been lifted.

Concern: The State of New Jersey objects to any leasing in the Mid-Atlantic Planning Area. The State supports adopting alternative 4 to drop the Mid-Atlantic from the program because the deferral alternatives in the DEIS (alternatives 5 and 6) do not provide adequate protection against impacts to the State from leasing offshore Virginia.

Governor Corzine opposes oil and gas lease sales in the North and Mid-Atlantic Planning Areas and strongly supports the existing moratoria and Presidential withdrawal on OCS activities. The proposed special interest sale in the Mid-Atlantic Planning Area offshore Virginia is in conflict with this policy and presents serious environmental concerns to the New Jersey Coastal Region.

In addition [offshore New Jersey] it is one of the most economically-productive coastal zones in the nation. In regard to both exploration and production, the Virginia coast is evaluated with regard to potential impacts of a "large oil spill". These could include: 1) effects to marine mammals and sea turtle populations, 2) adverse impacts on coastal habitats, 3) effects on the recreation, tourism, commercial fishing and cruise ship economies, and 4) negative effect on the real estate markets and temporary losses of job and income. A description of the regional physical oceanography is provided, but no detailed modeling is presented on which to evaluate similar impacts on the New Jersey coast. As these physical processes in the ocean do not honor administrative boundaries, activities anywhere in the Mid-Atlantic region could affect the uses and resources of the coastal zone and the marine environment.

Response: An additional alternative 9 has been added to the FEIS that would restrict leasing to beyond 50-miles from the coastline with other possible restrictions to limit leasing to gas-only and/or exploration. Oil spill trajectory modeling is not done in the 5-year EIS because of its broad national programmatic scope. Should a lease sale occur in the mid-Atlantic, the lease-sale EIS will include detailed trajectory modeling along with analyses of the fates and effects of the spilled oil on resources at risk.

ISSUE 1b: NEPA Analysis Flawed

Issue Raised By: North Slope Borough; Alaska Wilderness League; Alaska Center for the Environment; Center for Biological Diversity; Cora Connor; David Sherman; Sarah Hollenhorst; Angela Cox; Ainslie Gilligan; Robert Stagman; Fred Balmer; Bill Curnow; Art Miller; Jack McCarron; Alaska Center for the Environment; National Oceanic and Atmospheric Administration; and Virginia Department of Environmental Quality

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Concern: The analysis of alternative 5 in the Chukchi Sea does not substantiate its conclusions that the 25 mile coastal deferral will reduce impacts to water quality, marine mammals, subsistence, and oil-spill risk. Furthermore, the analysis makes unrealistic assumptions about the use of gravel islands and ice roads.

Response: The 25-mile coastal deferral eliminates the chance of routine operations, such as platform discharges, seismic, and air emissions, to subsistence resources, migrating marine mammals, and coastal water quality. While the risk of a spill remains the same, the risk of occurrence of a nearshore spill from a production facility is eliminated. A pipeline spill could still occur. The EIS makes general assumptions about the amounts of expected oil and gas activity and how resources will be developed. More detailed exploration and development scenarios are usually developed for a lease-sale EIS. While geologic evidence suggests major hydrocarbon resources are located beyond 25 miles anyway, the EIS did not make this assumption about future activity there because of lack of complete information.

Concern: The definitions of significance thresholds for impacts to subsistence resources reflect a lack of understanding of traditional and nutritional needs.

Response: This comment was incorrectly addressed to the 5-Year EIS. The 5-Year EIS does not use predefined impact significance thresholds in the analysis of impacts to subsistence or any other resource. We think this comment addresses the recent EIS prepared for Sale 202 in the Chukchi Sea.

Concern: The Federal Government should conduct all seismic operations on the OCS, and the acquired data should be public information.

Response: The MMS has no authority to implement this suggestion. Furthermore, the subject is beyond the scope and content of the EIS.

Concern: The MMS should include leasing deferrals in the Beaufort Sea Planning Area to protect subsistence hunting because these deferrals have been clearly defined and formulated in the past. The MMS should also analyze only allowing drilling from shore as an alternative.

Response: The MMS has included an alternative in the Final EIS (FEIS) to defer blocks in the Beaufort Sea to protect the whale harvest. An alternative to evaluate impacts from no occupancy of the leased area does not address location and timing issues that are the concern of the 5-Year Program and EIS. This alternative would apply to the conditions under which leasing would occur in a specific lease sale. These types of alternatives are more appropriately evaluated in a lease-sale EIS, which supports the decision about what conditions to apply to leases that result from the sale.

Concern: The EIS analyses are incomplete and superficial and/or biased toward leasing.

Response: This EIS was prepared to provide the Secretary of the Interior with environmental information to consider when developing a national schedule of OCS oil and gas lease sales for the 2007-2012 time period. The consequences of approving the program will be to schedule one or more lease sales in the areas included in the program. Before a lease sale occurs, an additional EIS will be done in all areas included in the 5 year program. The EIS analyses will focus in greater detail on local conditions in the lease sale area. If exploration and development occur as a result of the lease sale, each ensuing project will undergo additional environmental review and analysis that focuses on a smaller area. In the context of the increasing focus and specificity of NEPA analyses that will occur as

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the 5-year program progresses, MMS believes that the analyses in this EIS are appropriate at this preliminary planning stage of the 2007-2012 program. The EIS establishes an environmental baseline in Chapter III and then analyses the impact factors associated with OCS development according to a reasonable scenario of future activity levels in each planning area included in the program. We believe that the EIS analyses identify and do not understate the potential for impacts.

Comment: The EIS did a good job organizing and presenting relevant information about potential environmental impacts from the 2007-2012 program.

Response: Thank you for your comment.

Concern: The DEIS includes no alternatives for the Gulf of Mexico despite the cultural and ecological uniqueness of the Gulf of Mexico area

Response: The alternatives included in the EIS are related to decisions about the timing and location of OCS oil and gas lease sales in the 2007-2012 program. As a result, the EIS alternatives address timing and location matters, such as excluding a whole or parts of a planning area. During the 50-year history of OCS activity in the Gulf of Mexico, regulations, mitigations, and lease stipulations have been developed to protect environmental resources from potential impacts. The EIS analyses assume that all of these existing measures will be applied in the 2007-2012 program, including the no-surface occupancy of blocks within 15 miles of Baldwin County, Alabama. Other alternatives and mitigations that apply to the conditions under which a lease will be issued and exploration and development activities will occur on that lease are developed at the prelease stage of the 5-year process prior to an actual lease sale.

Concern: The DEIS and Proposed Program do not show a net environmental benefit in the analyses of exclusion alternatives. Furthermore, the positive economic impacts of leasing an entire planning area versus excluding areas were not analyzed in alternative 5.

Response: The 25-mile exclusion offshore Virginia is consistent with the State of Virginia's energy policy specifying a coastal withdrawal area. The Chukchi Sea coastal exclusion is based on long standing concerns about subsistence hunting in the area coastal waters. The EIS analyses did indicate potential environmental benefits from these exclusions including eliminating coastal viewshed visual impacts in Virginia, reducing potential coastal air quality impacts, and reducing conflict with subsistence hunting in the Chukchi Sea. The exclusions eliminate possible seismic disturbances to birds, fish, and mammals in the excluded area. The EIS does not anticipate employment and income impacts from the exclusion based on geologic evidence indicating that the excluded areas are not areas with the greatest resources. This is supported by the EIS assumption that the levels of exploration and development activity are unchanged by the exclusion.

Alternative 8 in the FEIS includes two deferral areas in the Beaufort Sea to avoid whaling conflicts. This alternative was added to the FEIS based on ongoing coordination and outreach with affected States after the DEIS was published. These deferral areas were identified by the Alaska Eskimo Whaling Commission and the subsistence hunting community based on whale strike data. This alternative would largely eliminate potential impacts to subsistence from routine operations in these areas that are known to be important for whale hunting.

Concern: Restricting the planning areas included in the proposal and alternatives was improper in that setting them is in itself a Federal action subject to NEPA. Furthermore, the reasons for excluding

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and including some areas were not adequately explained, and not enough information was provided about purpose and need of the proposed action.

Response: There is no requirement to include all OCS planning areas in the NEPA analysis. Many planning areas located off the east and west coasts and off Alaska and the Eastern Gulf of Mexico Planning Area located off Florida, which have been subject to annual congressional moratoria for over a decade, were withdrawn by the President from leasing consideration until after June 30, 2012. Planning areas currently under a moratorium or withdrawal that are part of the 2007-2012 program were included at the request of the bounding States. In addition to the planning areas removed from leasing, other areas located off Alaska also were excluded from the 2007-2012 program primarily because they have low oil and gas resource value and are of little or no interest to the oil and gas industry at this time. The alternatives analyzed in the EIS are reasonable considering the factors that determined the scope of the proposed action. Finally, the purpose and need are identified in the beginning of Chapter I.

Concern: The EIS should consider impacts to endangered and protected species in the Virginia coastal area. The Seabeach amaranth and Northeastern beach tiger beetle were specifically mentioned.

Response: The two species mentioned in the comment were discussed on page III-226, fourth paragraph, of the DEIS and is also included in the FEIS. Additional NEPA analyses will be done at later stages in the leasing process that will include more detailed analyses of potential impacts in the area. We appreciate receiving the information about these species that was included in the comment.

Concern: Several State parks located close to the shoreline are not included in the analysis of areas of special concern in the EIS nor shown on map

Response: The EIS analyzes only national parks and refuges in areas of special concern. We have included the locations of the State parks listed in the comment on Figure III-49, National Parks, Seashores and Refuges that Border the Mid-Atlantic Planning Area. State and local parks and other areas of special concern would be analyzed in a lease-sale EIS.

Concern: The DEIS does not analyze impacts to terrestrial species in the Mid-Atlantic

Response: The 5-Year EIS analyzes only endangered and threatened terrestrial mammals, except in Alaska where terrestrial mammals are an important subsistence resource. The EIS did not analyze terrestrial mammals in the Mid-Atlantic because we were not aware of endangered or threatened mammal species in the impact area. The EIS did analyze impacts to birds and reptiles (marine turtles) that occur in coastal areas. Additional material has been added to the FEIS in Section IV.B.4.g that assesses impacts to coastal habitats in terms of the effects on terrestrial species that utilize the habitats.

Concern: The DEIS did not consider the potential effects of above- and below-water lighting on marine turtles in the Atlantic. The comment also stated that the potential effects of lighting on fish and marine mammals were poorly known and would need to be studied.

Response: An analysis of artificial lighting on sea turtles from artificial lighting on platforms and structures was included in the DEIS, Section IV.B.4.f. An analysis of the potential impacts from onshore lighting on sea turtles has been added to this section in the FEIS. Additional research on lighting impacts can be done prior to a lease sale through the MMS Environmental Studies Program.

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Concern: The development of this 5-Year Leasing Program presents yet another opportunity for us to reiterate our long-standing concerns. This Proposed 5-Year Leasing Program is not substantially different from the current 5-Year Program, and the supporting Draft EIS is not greatly different from the EIS produced five years ago. We were not happy with the old document, and we are not at all pleased with the new one. We are ready and willing to cooperate with MMS in addressing our concerns and improving the quality of the EIS analysis.

Response: Thank you for your comment. We have added a considerable amount of information to the FIES based on the comments and references we received from the North Slope Borough.

Concern: The Council on Environmental Policy (CEQ) regulations implementing NEPA, at 40 C.F.R. § 1502.14 state with respect to the alternatives section of an EIS that:

“This section is the heart of the environmental impact statement. Based on the information and analysis presented in the sections on the Affected Environment (Sec. 1502.15) and the Environmental Consequences (Sec. 1502.16), it should present the environmental impacts of the proposal and the alternatives in comparative form, thus sharply defining the issues and providing a clear basis for choice among options by the decision maker and the public. In this section agencies shall:

(f) Include appropriate mitigation measures not already included in the proposed action or alternatives.”

Response: The EIS supports a decision that will set a schedule of OCS lease sales in 2007-2012. The decision does not authorize that a sale can occur, nor does it establish all the specific and detailed environmental mitigations and alternatives that will be analyzed and applied at the lease-sale stage. The FEIS includes five alternatives for Alaska that bear on the timing and location decision. These are excluding Cook Inlet and the North Aleutian Basin from the proposed action, and restricting leasing in the North Aleutian Basin, Chukchi Sea, and Beaufort Sea. MMS believes that this mix of alternatives in the FEIS provides the decision maker with a range of options appropriate for this initial stage of the 5-Year Program. Additional alternatives and mitigations can be developed during the presale process when an additional EIS will be prepared. The analyses then will focus on local conditions and issues, and additional data and information could be available on effective alternatives and mitigations to apply to conditions of a lease or to define the area offered for leasing.

Concern: The assumption in the No Action Alternative (8) that OCS oil and gas will be replaced by other hydrocarbon sources is inappropriate.

Response: It is not reasonably foreseeable that a fundamental transformation in the energy sector of the economy would occur during the life of the 2007-2012 program to realize a substantial substitution of nonhydrocarbon energy sources. The MMS believes that the assumption that OCS hydrocarbons will be replaced by non-OCS hydrocarbons during this time period is valid for analysis purposes.

ISSUE 1c: Scoping Comments Ignored

Issue Raised By: Alaska public hearing commenters; LA-1 Coalition; Bollinger Shipyards, many individuals

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Concern: Many commenters on Alaska individuals complained that the DEIS ignores public concerns at the community or village level because it fails to include suggested planning area deferrals and/or mitigations.

Response: The NEPA directs an agency to address all reasonable public concerns that are raised by the scoping process, and MMS strives diligently to do this. This often stated, but general, complaint we think arises from a misconception of the function of this 5-year programmatic environmental assessment. First, the EIS is not a “decisionmaking” document that determines which planning areas, deferrals, or mitigation measures to adopt. These decisions are made by the Secretary of the Interior. The EIS provides the Secretary with information and analysis that supports decisionmaking. Second, management of the OCS takes a tiered approach. The function of the 5-Year Programmatic EIS is to support Secretarial decisionmaking regarding the timing and scope of the leasing program. Area-specific questions such as those relating to deferral and mitigation measures are more properly addressed later, at the sale or project level.

Concern: The LA-1 Coalition and Bollinger Shipyards argue that the DEIS fails to address the multi-EIS problem with respect to the mitigation, by the federal government, of identified impacts, as is required through the NEPA process. They complain that this issue was raised in official comments submitted by MMS during scoping and that MMS did not acknowledge or solve the problem. The growing congestion of LA-1 warrants substantial mitigation measures and advance planning by MMS to fund such measures.

Response: As required by NEPA, the MMS analyzes the impacts to onshore petroleum-related infrastructure as part of analyzing the direct, indirect, and cumulative impacts of the proposed actions (lease sales). Onshore petroleum-related infrastructure is an indirect impact of activities related to the proposed actions. Much of this infrastructure also supports production offshore in State waters, onshore production, and foreign production. The NEPA does not require MMS to then analyze the direct, indirect, and cumulative impacts of individual indirect impacts of proposed actions. However, MMS has and continues to identify some of these further types of impacts in EIS’s, particularly those related to Port Fourchon and LA-1, and identifies those agencies that have the jurisdiction/responsibility to mitigate these impacts. Mitigation of these types of onshore impacts is not within the jurisdiction of the MMS. The MMS further identifies sources of funding for compensatory mitigation including Coastal Impact Assistance Program funds, revenue sharing from the Gulf of Mexico Energy Security Act of 2006, 8(g) revenues, Coastal Wetlands Planning, Protection and Restoration Act funds, the Land and Water Conservation Fund, and the National Historic Preservation Fund.

ISSUE 1d. Not Enough Information to Do Adequate Analysis

Issue Raised By: ConocoPhillips and Virginia Department of Environmental Quality

Concern: The consequences of including 25-mile exclusion areas in Alternative 5 were not adequately analyzed because the lost economic opportunity resulting from the exclusion was not considered. Furthermore, the environmental benefits of these exclusions were not demonstrated in the analyses.

Response: The 25-mile exclusion offshore Virginia is consistent with the State of Virginia’s energy policy specifying a coastal withdrawal area. The Chukchi Sea coastal exclusion is based on long standing concerns about subsistence hunting in the area coastal waters. The EIS analyses did indicate

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potential environmental benefits from these exclusions including eliminating coastal view shed visual impacts in Virginia, reducing potential coastal air quality impacts, and reducing conflict with subsistence hunting in the Chukchi Sea. The exclusions eliminate possible seismic disturbances to birds, fish, and mammals in the excluded area. The EIS does not anticipate employment and income impacts from the exclusion based on geologic evidence, indicating that the excluded areas are not areas with the greatest resources. This is supported by the EIS assumption that the levels of exploration and development activity are unchanged by the exclusion.

Concern: The EIS should include the State of Virginia’s Department of Environmental Quality data on waste facilities.

Response: The level of specificity of the data available in the Virginia’s database can be more appropriately used in a lease-sale EIS that focuses on a much smaller geographic area than the current Programmatic EIS. Also, at this initial stage of the 5-year process, it is difficult to estimate accurately the levels of leasing, exploration, and development activities that will occur, if any, in the mid-Atlantic. As a result, it is difficult to estimate what impacts OCS activity would have on waste facilities in Virginia. Later in the 5-year process, better estimates of activity level would be available based on more information. The MMS appreciates the Virginia Department of Environmental Quality’s effort to bring this information to our attention.

Concern: Additional data need to be collected about the Virginia environment that could be affected by OCS activity before an accurate assessment of impacts can be determined.

Response: Another EIS will be prepared, should a lease sale in the mid-Atlantic be held. This EIS will focus on Virginia and the surrounding areas that could be impacted by activities that result from the lease sale. In support of possible leasing activities, the MMS Environmental Studies Program supports research to establish an environmental baseline. The MMS appreciates the list of research needs included in the comment.

Concern: In light of NMFS Alaska Region comments on the DEIS that, in regards to the Chukchi Sea and North Aleutian Basin, the proposed leasing schedule is “unrealistically ambitious and would not allow for necessary environmental research to support NEPA analysis and MMS’s leasing process,” MMS should include specific information on available baseline ecological data for the Bristol Bay region.

Response: Thank you for your comment; however, we disagree. We believe we have produced a NEPA compliant document to adequately inform decisionmakers and the public of impacts to the environment per CEQ regulations. As discussed elsewhere, this EIS addresses information and analysis needs for program planning.

ISSUE 1e. Federal Consistency Under the Coastal Zone Management Act Not Addressed in the DEIS.

Issue Raised By: U.S. Department of Commerce (USDOC) National Oceanic and Atmospheric Administration (NOAA); Commonwealth of Virginia Department of Environmental Quality; State of Louisiana Department of Natural Resources; West Florida Regional Planning Council; and North Carolina Department of Environmental and Natural Resources, Division of Coastal Management

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Concern: The NOAA stated: “Through the 2006 CZMA rulemaking, MMS informed NOAA that the 5-Year Outer Continental Shelf (OCS) Oil and Gas Leasing Program is a preliminary activity that does not set forth a proposal for action and thus, coastal effects cannot be determined at the 5-Year Program stage. If MMS still determines that coastal effects are not reasonably foreseeable at this preliminary stage, then MMS is not required to submit the 5-Year Program plan to the coastal States for review under the Coastal Zone Management Act (CZMA) federal consistency provision. Accordingly, federal consistency review would be triggered by MMS conducting a particular OCS oil and gas lease sale under the plan.”

Response: The MMS position with regard to Federal consistency remains that the 5-Year Program plan is a preliminary activity within the Agency’s deliberative process, and as such, MMS does not develop consistency determinations at this stage. A proposal for action occurs when MMS conducts a particular OCS oil and gas lease sale—which is when MMS produces the consistency determinations. The following is from NOAA, as published in the Federal Register.

Federal Register / Vol. 71, No. 3 / Thursday, January 5, 2006 / Rules and Regulations
Part III
Department of Commerce
National Oceanic and Atmospheric
Administration
15 CFR Part 930
Coastal Zone Management Act Federal
Consistency Regulations; Final Rule

Not all “planning” or “rulemaking” activities are subject to Federal consistency since such planning or rulemaking may merely be part of the agency’s deliberative process. Likewise, the plan or rulemaking may not propose an action with reasonably foreseeable coastal effects and would, therefore, not be subject to Federal consistency. If, however, an agency’s administrative deliberations result in a plan to take an action, or a rulemaking proposing an action or a directive, then that plan or rulemaking could be subject to federal consistency if coastal effects are reasonably foreseeable. For example, MMS produces a 5-Year Leasing Program “Plan,” pursuant to the Outer Continental Shelf Lands Act (OCSLA). The MMS has informed NOAA that the 5-Year Program Plan is a preliminary activity that does not set forth a proposal for action, and thus, coastal effects cannot be determined at this early stage. Accordingly, MMS’ proposal for action would occur when MMS conducts a particular Outer Continental Shelf (OCS) oil and gas lease sale.

ISSUE 2a. EIS Preparation and Review Process Flawed

Issue Raised By: Alaska Marine Conservation Council; Trustees for Alaska; and Yukon River Drainage Fisheries Association; Earl Kingik; National Ocean Industries Association; Alaska Eskimo Whaling Commission; Louisiana Department of Natural Resources; National Aeronautics and Space Administration; North Slope Borough; Pacific Environment; Dr. Robert Stagmen; Jerry Liboff, commercial fisherman; Louisiana Mid-Continent Oil and Gas Association; Aleutian Pribilof Island Community; Aleutians East Borough; American Petroleum Institute; Bristol Bay Native Corporation; and Alaska Center for the Environment

Concern: The Alaska Marine Conservation Council (AMCC) stated: “With regards to the process of holding public hearings, AMCC believes that the manner in which MMS has gone about scheduling and notifying the public in Alaska of hearings on the DEIS does not comply with Department of

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Interior regulations and guidelines which urge the Department to hold public hearings in a manner which involves and informs members of potentially affected communities. The hearing dates, times, and locations could not be confirmed by MMS until September 20—only five days before the hearing in Unalaska. Furthermore, the actual Federal Register Notice for the hearings was not published until September 26, one day after the Unalaska hearing occurred. The AMCC urges MMS to take measures in the future that allow for more adequate public participation in this process by providing a longer period of notice, especially in communities that could be affected by the proposed leasing activities.”

Response: The USDOJ and MMS take concerns about the 5-Year Oil and Gas Leasing Program very seriously. Due to the sensitivity of the 2007-2012 program and the Department’s wish to address concerns, we had delays in the approval of the official Federal Register Notice for the associated public hearings and did miss the Notice date for the Unalaska official public meeting. The combination of Federal Register delays with our efforts to get many parts of Alaska involved in face to face conversations about the EIS, our very aggressive EIS schedule, and the sheer logistics concerns when traveling across Alaska in winter meant we could not reschedule and had to go with the unofficially noticed dates. We apologize for any inconvenience. The MMS did have an informational meeting in Unalaska on September 11, and as noted above, unofficial notices to the communities as well as the following did precede the official meetings in the North Aleutian Basin:

- Newspaper ads announcing scoping meetings were run in the March 9, 2006, editions of the *Bristol Bay Times* and the *Dutch Harbor Fisherman*.
- Newspaper ads announcing public hearings were run in the September 21, 2006, and October 5, 2006, issues of the *Bristol Bay Times* and the *Dutch Harbor Fisherman*.
- Informational meetings were held in Anchorage on September 6, 2006, in Cold Bay; on September 12, 2006, in Sand Point and Good News Bay; on September 13, 2006, in Dillingham and King Salmon; on September 14, 2006, in Naknek; on September 15, 2006, with the Calista Corporation; on November 2, 2006, with the Aleut Corporation on November 3, 2006; and as mentioned before, in Unalaska on September 11, 2006.
- Public service announcements were sent to radio stations in Dillingham, Naknek, Sand Point, and Unalaska on September 21, 2006. Additional coverage was provided through the Alaska Public Radio Network stations.
- Posters were telefaxed to the Borough Clerk’s office. Additional posters were provided to: City of Dillingham, Bristol Bay Native Association, Bristol Bay Area Health Consortium, Fish and Game Office, School District, and Chambers of Commerce.

Our Alaska locations and dates for public hearings were as follows:

- September 25, 2006, Unalaska
- September 26, 2006, Cold Bay
- September 27, 2006, Nelson Lagoon
- September 28, 2006, Anchorage
- September 28, 2006, Sand Point
- October 9, 2006, Goodnews Bay, Alaska (MMS personnel were unable to fly into Goodnews Bay due to weather, but held the meeting by telephone.)
- October 10, 2006, Naknek
- October 11, 2006, Dillingham
- November 8, 2006, Nuiqsut
- November 10, 2006, Kaktovik
- November 13, 2006, Wainwright
- November 14, 2006, Point Lay

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- November 15, 2006, Point Hope
- November 16, 2006, Barrow

We believe we have adequately informed the public and allowed a reasonable time to comment, as per Council on Environmental Quality (CEQ) regulations.

Concern: A member of the Yukon River Drainage Fisheries Association stated: “And I’d like to echo the concerns mentioned previously, that an EIS of this size and scope is highly inaccessible. It’s far beyond the average fisherman’s ability and time to read, let alone understand.” A participant in the Point Hope public hearing made a similar complaint about its accessibility.

Response: We believe we have produced a National Environmental Policy Act (NEPA) compliant document to adequately inform decisionmakers and the public of impacts to the environment per CEQ regulations.

Concern: A participant at the Nuiqsut Public Hearing complained that environmental studies conducted for the petroleum industry were not being made available to the community.

Response: We believe we have produced a NEPA-compliant document to adequately inform decisionmakers and the public of impacts to the environment, per CEQ regulations.

Concern: “I was disappointed in the public hearing in Point Hope with MMS. We need to ask for 45 day extension for the public to review and make comment. We don't have much time and deadline date is to close on behave of sea mammals and humans that live and survive together in the Chucki [Chukchi] Sea we ask for 45 days extension.”

Response: The DEIS was officially available for general public comment from August 25, 2006, through November 22, 2006. There was an additional period open for comments dealing with the Louisiana court settlement that extended the comment period until December 29, 2006.

Concern: “NOIA supports Alternative 1, the Proposed Action, in the Draft Environmental Impact Statement. This alternative would schedule 21 lease sales. The alternative is fully analyzed in the draft document, demonstrating that all acreage proposed for leasing could be explored and developed in a safe and environmentally sound manner while protecting the environment and local communities.”

Response: We thank you for your comment.

Concern: As stated by the Alaska Eskimo Whaling Commission (AEWC): “The Arctic Subregion sections of the Draft Environmental Impact Statement (DEIS) prepared by MMS for the Outer Continental Shelf Proposed Program, 2007-2012 (the Proposed Program), in significant part, represent extraordinarily poor work that is entirely inadequate as a basis for evaluating the environmental impacts of the Proposed Program in the Arctic.”

“With regard to impacts to the environment and communities of the Arctic Subregion, MMS bases this DEIS, largely, on outdated research, unsupported conclusions, contradictory statements, and undefined terminology. Furthermore, MMS’s purported “analysis” rests on a substantial number of inaccurate or patently false statements.”

“Given the excellent analysis provided in the Programmatic Environmental Assessment (PEA) for 2006 Chukchi Sea seismic operations, which is barely acknowledged by MMS in the present

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document, it is difficult to understand how MMS has arrived at such a poor piece of work only weeks after its issuance of the PEA. Therefore, the AEWCA anticipates substantial revisions to the Arctic Subregion sections of this DEIS before MMS releases the Final EIS.”

Response: We thank you for your input. We believe we have produced a NEPA compliant document to adequately inform decisionmakers and the public of impacts to the environment per CEQ regulations.

Concern: Regarding Lease Sale 201: “Pursuant to the settlement of the State’s lawsuit against MMS with respect to Lease Sale 200, MMS agreed not to conduct any further oil and gas lease sales in the Western or Central Gulf of Mexico until after it has prepared a new EIS covering the next sale in these areas. This EIS must consider the impacts associated with all past federal OCS leasing activity, including those activities under Lease Sale 200. MMS has indicated that, as a result, Central Gulf of Mexico Lease Sale 201, which had been scheduled for March 2007, will be cancelled and the tracts that were to be offered under that sale will be offered as part of the next planned Central Gulf of Mexico Lease Sale (Lease Sale 205) in fall 2007. The State believes that MMS should publish a supplemental DEIS and include the discussion about Lease Sales 201 and 205, rather than—as MMS has done—simply provide a separate notice regarding those lease sales and provide only a limited ability to comment on the DEIS as it relates to them.”

Response: The areas of concern are already covered in the DEIS and FEIS. The MMS maintains that the analysis in the EIS is sufficient.

Concern: “The analysis of impacts for the alternatives in the EIS does not include impacts to NASA, the Department of Defense or other Federal Agencies that have infrastructure, restricted air space, ranges or other activities in the Mid-Atlantic. NASA has provided specific concerns with the proposed program under separate cover as requested by DOI.”

Response: The MMS addresses these issues at a programmatic level at this stage; they are addressed specifically in the appropriate Lease Sale EIS.

Concern: The NSB stated: “MMS is only just beginning to recognize a significant issue surrounding ‘burnout’ of a local public that is increasingly finding itself overwhelmed by the sheer number of meetings and document reviews. Still, however, the agency solicited input during scoping from our already over-burdened public, and now tells those who identified appropriate mitigation measures that those measures will not be considered until a later stage. Residents who are now left feeling that their time was wasted providing input during scoping will be encouraged to participate in another whole public review at the next stage of the leasing process. Before continuing to defer decision making, MMS must consider the potential adverse human health impacts, including stress and depression, that such action may cause, and must identify and analyze appropriate measures to mitigate that continuing impact.”

Response: The MMS seeks community input at every stage of the leasing process. As the commenter notes, the EIS does raise the issue of burnout as a concern, and the Agency attempts to be sensitive to this problem. However, MMS sees itself as legally and morally obligated to provide local residents and stakeholders with opportunities to be involved in the scoping and decisionmaking process. Meetings and reviews are the mechanisms for doing this, and MMS coordinates these meetings to meet the schedules of local communities. The MMS would not insist on visiting a community if conditions indicated that hearings would pose a burden. In such cases, teleconferences and other means have been arranged.

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Concern: “The DEIS is fundamentally flawed for a multitude of reasons. These include:

- a failure to offer a reasonable range of alternatives
- a failure to adequately characterize the status quo
- a failure to adequately analyze the environmental impacts of the action
- a failure to adequately address uncertain and unknown scientific
- a failure to adequately address cumulative impacts
- a failure to adequately convey the level of controversy surrounding this program
- a failure to adequately address and achieve environmental justice
- a failure to adequately mitigate the impacts of the proposed action
- a failure to offer a legitimate public process”

“These failures strike at the heart of the National Environmental Policy Act and cumulatively render the DEIS virtually meaningless. It is clear that MMS is more interested in justifying a decision that has already made instead of taking a ‘hard look’ at responsibly meeting our energy needs without causing irretrievable and irreversible environmental effects and disproportionate impacts to traditional subsistence cultures already facing severe impacts from oil and gas development, climate change, and other industrial threats. Instead, both the public and the decision-maker are offered a mixture of glaring omissions, inconsistent statements, and conclusions that bear no rational relation to the facts.”

Response: We disagree with your analysis and believe we have produced a NEPA compliant document to adequately inform decisionmakers and the public of impacts to the environment, per CEQ regulations.

Concern: “Impacts on these fisheries, marine resources, and wildlife have not been property addressed, and important scientific information has not been adequately included.”

Response: We disagree with your analysis and believe we have produced a NEPA compliant document to adequately inform decisionmakers and the public of impacts to the environment, per CEQ regulations.

Concern: Jerry Liboff, a commercial fisherman, stated “they are maybe intentionally closing the deadline right after the election before any new governor or any new people get to be -- get to make their comments heard. I think that ought to be postponed. Three or six months is not going to make a huge difference in the big scheme of things as to whether this particular lease sale goes through or not, but I think it will at least give deference to the new governor and his staff of people to make their comments heard,”

Response: The existing 5-Year Oil and Gas Leasing Program will end June 30, 2007. It is a national program. All EIS dates and times have been long scheduled to have a new program in place by the time the existing one expires. We believe we have produced a NEPA compliant document to adequately inform decisionmakers and the public of impacts to the environment, per CEQ regulations.

Concern: “We note that the EIS estimates that 75 percent of the activity in the Gulf under the Draft 5-Year Plan will take place in deepwater, a significant distance from the Louisiana shoreline. In this respect, I call your attention to a typo on page IV-24, where there is an incorrect reference to this 75 percent.”

Response: So noted and changed. We thank you for your comment.

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Concern: All relevant exploration and development scenarios and compliance information should be presented in one specific place in the document because many sections of the EIS refer to this information.

Response: We appreciate your suggestion. We share your desire to have relevant information accessible within the large content of the EIS. We will consider this factor in future EIS projects, but we will not be able to reorganize the contents of this FEIS to that degree at this time. We believe we have produced a NEPA-compliant document to adequately inform decisionmakers and the public of impacts to the environment per CEQ regulations.

Concern: “MMS failed to adequately consult with federally designated tribes during the scoping process. MMS notes the locations of its scoping meetings (DEIS at I-3), which did not include the Inupiaq communities of Pt. Lay, Wainwright or Pt. Hope along the Chukchi Sea, Atqasuk which depends on fish that migrate in the Beaufort Sea and subsistence from marine mammal and bird harvests, most villages along Bristol Bay, and villages along Cook Inlet. The PP and DEIS were not widely distributed to community members, most of whom do not have high-speed internet access or high volume printing capability.”

Response: The MMS takes every opportunity to consult with the federally recognized tribes. Government-to-government meetings are often held in conjunction with public meetings scheduled in support of our NEPA process, including scoping meetings and public hearings on EIS’s. Government-to-Government meetings are open for discussion on all OCS activities and are not restricted to discussion of the proposed actions that are the topic of the public meetings.

The following government-to-government and informational meetings were held with Alaska tribes and nongovernmental organizations for the 5-Year EIS (2007-2012):

January 23, 2006	Native Village of Point Hope
January 30, 2006	Native Village of Point Lay
February 2, 2006	Native Village of Barrow
February 2, 2006	Inupiat Community of the Arctic Slope
March 10, 2006	Native Village of Wainwright
March 22, 2006	Qagan Tayagungin Tribe of Sand Point Village Pauloff Harbor Village
September 25, 2006	Qawalangin Tribe of Unalaska
September 28, 2006	Pauloff Harbor Village Qagan Tayagungin Tribe of Sand Point Village
October 9, 2006	Village of Goodnews Bay (via telephone)
November 8, 2006	Native Village of Nuiqsut
November 10, 2006	Native Village of Kaktovik
November 13, 2006	Native Village of Wainwright
November 15, 2006	Native Village of Point Hope

In addition, MMS conducted outreach and information meetings with the following non-governmental organizations:

Bristol Bay Native Association (31 member tribes in Bristol Bay area)
AEWC
Alaska Beluga Whale Commission

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Alaska Walrus Commission
Bristol Bay Native Corporation
Aleut Corporation
Calista Corporation
Arctic Slope Regional Corporation
Shumagin Corporation
Ounalashka Corporation
Native Village of Aleknagik
Native Village of Chignik
Native Village of Chignik Lagoon
Chignik Lake Village
Village of Clarks Point
Curyung Tribal Council
Egegik Village
Ekuk Village Council
Native Village of Ekwok
Igiugig Village Council
Iliamna Village
Ivanof Bay Village
Native Village of Kanatak
King Salmon Tribe
Kokhanok Village
Native Village of Koliganek
Levelock Village
Manokotak Village
Naknek Village
Newhalen Village
New Stuyahok Village
Nondalton Village
Pedro Bay Village
Native Village of Perryville
Native Village of Pilot Point
Portage Creek Village
Native Village of Port Heiden
South Naknek Village
Traditional Village of Togiak
Twin Hills Village
Ugashik Village

Informational meetings were also held with the following tribes prior to the public hearings:

Qawalangin Tribe of Unalaska
Naknek Native Village
King Salmon Tribe
Pauloff Harbor Village
Qagan Tayagungin Tribe of Sand Point Village
Native Village of Goodnews Bay

The MMS accepted comments on the scope of the EIS via postal mail, e-mail, and website. Copies (either in paper and/or CD format) were sent by the Alaska Region to key individuals and entities in

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communities that would have them available for review by the public. These copies were available from:

Alaska Eskimo Whaling Commission--Maggie Ahmaogak (CD)
Mayor, City of Barrow—Mr. Nate Olemaun (CD)
Mayor, City of Kaktovik—Mr. Lon Sonsalla (Paper & CD)
Mayor, City of Nuiqsut—Karl Bower (Paper & CD)
Native Village of Nuiqsut—Mr. Leonard Lampe, Sr., President (CD)
Native Village of Kaktovik—Mr. Isaac Akootchook, President (Paper & CD)
Native Village of Barrow—Mr. Thomas Olemaun, President (Paper & CD)
Inupiat Community of the Arctic Slope—Mr. Arnold Brower, Jr., President (Paper & CD)
Eskimo Walrus Commission, Nome, Alaska (CD)
City of Wainwright--Mr. Joseph Ahmaogak, Mayor (Paper)
City of Point Hope—Mr. George Kingik (Paper)
Village of Wainwright—June Childress, President (Paper & CD)
Native Village of Point Lay (IRA)-- Julius Rexford, President (Paper & CD)
Native Village of Point Hope--Charlie Kinneeveauk, President (Paper & CD)
Arctic Slope Regional Corporation—President/CEO Jacob Adams (CD)
Bristol Bay Native Association—Ralph Anderson, CEO (Paper & CD)
King Salmon Village Council—Ralph Angasan, Sr., President (Paper & CD)
Naknek Village Council--Patrick Patterson, Jr., President (Paper & CD)
Nelson Lagoon Tribal Council—Ray Johnson, President (Paper & CD)
Qagan Tayagungin Tribe of Sand Point Village—Dorothy McCallum, President (Paper & CD)
Pauloff Harbor Village—Paul K. Gundersen, Jr., President (Paper & CD)
Native Village of Perryville Tribal Council—Gerald B. Kosbruk, President (Paper & CD)
Qawalangin Tribe of Unalaska—Margaret Lekanoff, President (CD)
Native Village of South Naknek—Donald F. Nielsen, President (CD)
Traditional Village of Togiak—Moses Kritz, President (Paper & CD)
Unga Tribal Council--John A. Foster, President (Paper & CD)
Native Village of Good News Bay—Evan S. Evan, President (Paper & CD)
Lake and Peninsula Borough—Glen Alsworth, Sr., Mayor (CD)
Bristol Bay Native Corporation (CD)
Aleutians East Borough—Stanley Mack, Mayor (CD)
Bristol Bay Borough—Michael Swain, Sr., Mayor (CD)
City of Cold Bay—John Maxwell, Mayor (CD)
City of Dillingham—Keggie Tubbs, Mayor (CD)
City of Goodnews Bay—Carl Evon, Mayor (Paper & CD)
City of Sand Point—Glen Gardner, Jr., Mayor (CD)
City of Unalaska—Shirley Marquardt, Mayor (CD)

Additional printed copies were available upon request via e-mail or phone call.

Concern: The MMS should recognize the right of Native communities to self determination.

Response: The MMS recognizes all federally recognized tribes and take every opportunity to consult with them.

ISSUE 2b: Analysis and Conclusion Not Valid

Issue Raised By: Alaska Center for the Environment; North Slope Borough; Bristol Bay Native Corporation; Alaska Maritime Conservation Council; and Virginia Department of Environmental Quality; Virginia Marine Resources Commission; and others

Concern: The DEIS did not consider an adequate range of alternatives

Response: The MMS believes that the set of alternatives included in the DEIS were adequate in the context of the decision the EIS supports. Two additional alternatives have been added to the FEIS. The decision at this first stage of the 5-year Program is the schedule of sales for 2007-2012. The alternatives included in the EIS address the timing and location of these lease sales. They include excluding some areas from leasing and modifying the area offered for leasing in other areas. Additional alternatives and mitigations will be considered later in the 5-year process in the EIS to support a specific lease sale.

Concern: Given the diversity in the environment across the Beaufort and Chukchi Seas, the MMS needs to explain why they were combined for analysis purposes.

Response: One reason was because of the uncertainty about assumed development scenarios for the Beaufort and Chukchi Sea Planning Areas. As discussed in the EIS, the Chukchi offers perhaps larger reservoirs, but the Beaufort offers proximity to existing development. In the past, MMS has projected activity levels in these areas that have not been realized. Given the uncertainty about how activity in the Arctic would play out in terms of amounts in the Beaufort Sea versus amounts in the Chukchi Sea, the EIS analyzes activities that occur somewhere in the Arctic area. The analyses consider the activity levels shown in the EIS tables for the Arctic to potentially affect resources located in areas of either the Beaufort or Chukchi Sea.

Another reason was that an ecosystem approach was considered appropriate for the national programmatic scale of this EIS. The individual analyses did consider local conditions and factors, where appropriate. Additional EIS's with more geographic focus will be prepared at later stages of the 5-year process. The MMS realizes that a full implementation of an ecosystem-based approach was not realized in this EIS, but perhaps a step was made in that direction.

Concern: The assumption that the analysis of OCS oil and gas development ends when the raw product reaches a processing facility, such as a refinery, is inappropriate. Oil and gas impacts should be assessed through the entire cycle from exploration, development, refining/processing, and consumption.

Response: The EIS uses reasonably foreseeable assumptions for framing a scenario of expected OCS activities that covers the 40-year life of the 2007-2012 program. The EIS assumes that refinery demand will be met by either an OCS or another source should OCS production be curtailed. Based on this assumption, it is reasonable to analyze the effects of OCS hydrocarbons up to the refinery because the specific impact from an OCS activity can be identified up to that point. These potential impacts would not occur in the absence of an OCS program. The potential impacts of oil and gas in general beyond the processing stage would continue unabated in the absence of an OCS program. While the degree of substitution of nonhydrocarbon sources in the energy supply is a factor, the MMS considers it reasonable to assume that U.S. hydrocarbon demand will not change dramatically during the life of the 2007-2012 program.

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The commenter also noted that the EIS does discuss the contribution of OCS development to meeting national energy demand and the economy. The contributions of the program to the Nation's energy supply are discussed briefly in the introductory parts of the EIS. The topic is not analyzed later in the contents of the document. The impacts of the program on employment and income are analyzed. These impacts can spread beyond the local area where activity is occurring because of the dispersed nature of the offshore workforce and the distributed nature of the manufacturing and support industries. These impacts would also not occur in the absence of an OCS program.

Concern: There is no summary of impacts to fisheries in the Bering Sea area. Since decisionmakers will probably read the summaries of impacts in Chapter II, impacts to fisheries should be included there because of the importance of commercial fisheries to the area.

Response: We have included specific information on commercial fisheries in Chapter II.

Concern: Related to the issue of standards that should apply in measures aimed at mitigation of subsistence impacts are the different "significance thresholds" that MMS uses in its environmental reviews for determining how to describe the expected levels of impacts to different resources and uses. The MMS has decided that an impact to subsistence harvest patterns is only "significant" if "one or more important resources would become unavailable, undesirable for use, or available only in greatly reduced numbers for a period of 1-2 years". The threshold for significant impact to sociocultural systems is "chronic disruption...that occurs for a period of 2-5 years with a tendency toward the displacement of existing social patterns." Use of these standards is insulting and shows a clear lack of understanding of our traditional cultural and nutritional needs. We are willing to work with MMS to establish criteria that more accurately reflect the way we live and the seriousness of impacts that can occur if leasing in our waters continues.

Response: This is a Chukchi Sea EIS issue. The 5-Year EIS does not use significance thresholds.

Concern: The consequences of including 25-mile exclusion areas in alternative 5 were not adequately analyzed because the lost economic opportunity resulting from the exclusion was not considered. Furthermore, the environmental benefits of these exclusions were not demonstrated in the analyses.

Response: The 25-mile deferral offshore Virginia is consistent with the State of Virginia's energy policy specifying a coastal withdrawal area. The Chukchi Sea coastal exclusion is based on long standing concerns about subsistence hunting in coastal waters. The EIS analyses did indicate potential environmental benefits from these exclusions including eliminating coastal view shed visual impacts in Virginia, reducing potential coastal air quality impacts, and reducing conflict with subsistence hunting in the Chukchi Sea. The exclusions eliminate possible seismic disturbances to birds, fish and mammals in the excluded area. The EIS does not anticipate employment and income impacts from the exclusion based on geologic evidence indicating that the excluded areas are not areas with the greatest resources. This is supported by the EIS assumption that the levels of exploration and development activity are unchanged by the exclusion.

Two deferral areas to avoid whaling conflicts in the Beaufort Sea have been included in the FEIS as Alternative 8 based on comments received on the DEIS and on ongoing coordination and outreach with affected states after the DEIS was published. These deferral areas were identified by the Alaska Eskimo Whaling Commission and the subsistence hunting community based on whale strike data. This alternative would largely eliminate potential impacts to subsistence from routine operations in these areas that are known to be important for whale hunting.

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Concern: The Virginia Marine Resources Commission reviewed the DEIS submitted for the OCS Oil and Gas Leasing Program: 2007-2012, and found that the document adequately addresses the activities under the agency's subaqueous land management authority.

Response: We thank you for your comments.

ISSUE 2c: EIS Fails to Include All Relevant Available Information

Issue Raised By: Alaska Center for the Environment; Louisiana Department of Natural Resources; North Slope Borough; and others

Concern: The EIS did not analyze the role of OCS activities in introducing invasive species into an area.

Response: The potential for OCS-related activities and structures to introduce invasive species was discussed in the Issues of Programmatic Concern, Section IV.A. The section included a separate discussion of the Alaskan, Gulf of Mexico and Mid-Atlantic Planning Areas. The MMS believes that this information informs the decisionmaker about this issue. Additional information on the current regulatory framework for invasive species has been added to the FEIS.

Concern: The DEIS did not include recent information about Louisiana coastal changes, particularly after Hurricanes Katrina and Rita had such large impacts to the Gulf of Mexico coast in 2005.

Response: The DEIS was nearly complete when the first information about Hurricane Katrina's environmental impacts was being published. The MMS updated the DEIS with the available information immediately prior to its publication. Since the DEIS was published, more information has become available from investigations that started immediately after the storms. The FEIS has been updated with the more recent information.

Concern: The EIS analyses are not accurate because the most recent information wasn't used.

Response: We have received information for newer references in some of the comments. These included citations for recent information on biological resources and environmental conditions in the Arctic. These references have been evaluated and incorporated into the document where appropriate. The MMS appreciates receiving this information.

Concern: The EIS analyses use too many citations to earlier NEPA documents rather than referencing original scientific publications.

Response: Where appropriate, the EIS incorporates information from some recent NEPA documents covering the same or similar issues and areas. Incorporation by reference is an acceptable practice in NEPA. The majority of the references in the EIS, however, cite information from scientific studies and reports. These are listed in the EIS reference list, which includes about 2,100 citations.

Concern: The Final Program and EIS must utilize "significance thresholds" that are grounded in the needs and experiences of the people who will potentially be impacted.

Response: This is a Chukchi Sea EIS issue. The 5-Year EIS does not use significance thresholds.

ISSUE 2d: The Oil-Spill Estimates, Modeling, or Impact Analyses are Deficient

Issue Raised By: Alaska Center for the Environment; Bering Sea Fishermen’s Association; Alaska Department of Natural Resources; Alaska Eskimo Whaling Commission; Alaska Maritime Conservation Council; The Aleut Corporation: Aleutian/Pribilof Islands Association, Inc.; Aleutians East Borough; American Petroleum Institute; City of Cold Bay; City of King Cove; Commonwealth of Virginia, Department of Environmental Quality; NOAA; North Carolina Department of Administration; North Slope Borough; Oceana; Shell Exploration and Production; Sierra Club; State of New Jersey; State of North Carolina; Anchorage, Kaktovik; Nuiqsut; Dillingham; Barrow; Platinum and Good News Bay; Point Hope; Norfolk public hearing testimony; Point Lay and Unalaska public hearings; and numerous individuals

Concern: Numerous comments were received requesting that offshore operations must use the best available oil spill prevention and response technologies to prevent oil spills from adversely impacting coastal habitat and to rapidly respond to oil spills. Staging of state-of-the-art mechanical oil-spill response equipment should be near areas of potential spills.

Response: The MMS requires use of best available and safest technologies (BAST). Our regulations at 30 Code of Federal Regulations [CFR] 250.107 (2) (c) state that: You must use the BAST whenever practical on all exploration, development, and production operations. In general, we consider your compliance with MMS regulations to be the use of the BAST. The BAST is defined under 30 CFR 250.105: “Best available and safest technology (BAST) means the best available and safest technologies that the Director determines to be economically feasible wherever failure of equipment would have a significant effect on safety, health, or the environment.” Examples of technologies that are used in existing structures include blow out preventer and subsurface valves to shut-in or close up the well during emergencies.

Companies are required to prepare an oil spill response plan. Under our rules at 30 CFR 254.23, an oil spill response plan must include: your methods to identify and prioritize the beaches, waterfowl, other marine and shoreline resources, and areas of special economic and environmental importance; and your methods to protect beaches, waterfowl, other marine and shoreline resources, and areas of special economic or environmental importance. It is common for response plans to use geographic response strategies to comply with these provisions. For existing facilities, the MMS conducts inspections as well as announced and unannounced spill response drills to verify that plans are followed and response is effective.

Concern: Numerous comments emphasized the limited capability of current technology to effectively respond to and clean up oil spills in seasonal ice conditions and in the harsh arctic environment generally. The poor results of oil-spill drills in the Arctic were noted.

Response: Decisions about the size, timing, and location of leasing in the 5-Year Program take many factors into account, including the risk of oil-spill occurrence, the potential environmental impacts should spills occur, and the capability to clean up oil spills in all areas being considered for leasing. A detailed discussion about oil-spill response capabilities was given in Appendix C of the Outer Continental Shelf Oil & Gas Leasing Program: 2002-2007 Final Environmental Impact Statement (MMS, 2002c). The Appendix discusses a variety of methods for tracking and cleaning up an oil spill and concludes that in-situ burning is the preferred method. While in-situ burning, like any response method, is not 100 percent effective in all situations, if properly used, it is more effective than mechanical cleanup. Air emissions from in-situ burning are a concern, and studies of the fallout found

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that effects extend out to about 500 ms. Workers involved in the cleanup are required to wear respirators to protect them from the smoke.

Oil spill response trials in 1999 and 2000 established realistic operating limitations for the barge-based response tactic. These operability limits were lower than initially thought, but the system would have recovered oil had it been present. The tactic, as devised, is labor intensive and requires constant monitoring but did work as described but at a lower level of efficiency. This was one tactic available to the oil industry in responding to a release. Since those trials, industry has re-evaluated and modified their response tactics to utilize smaller more maneuverable systems that can better use the ice's natural containment attributes to recover oil. These tactics are routinely used in Cook Inlet, another ice infested environment, to respond to spills during their long broken-ice season.

Concern: The NSB and AEWG commented that the Borough's Scientific Advisory Board reviewed the MMS oil-spill models and expressed concern that the oil-spill estimates were point estimates without any associated confidence estimates. The MMS continues to only provide point estimates and does not provide adequate information about their uncertainty in the current oil-spill estimates.

Response: The estimates used in this programmatic EIS represent a reasonable hypothetical case based on the resource evaluation estimates and historical statistics about oil spills. Modeling was not used for this programmatic-level document. The MMS recognizes that the estimates are uncertain, but due to the methodology used in the calculation, confidence estimates cannot be calculated. The NSB's Scientific Advisory Board review was incorporated in the calculations for the Beaufort Lease Sales 196 and 202. In addition, the MMS funded a study by Eschenbach and Harper (2006) which made further recommendations for the improvement of the oil-spill modeling and will be incorporated in future lease-sale documents. The MMS continues to work at improving the inputs and assumptions used for oil-spill models.

Concern: Testifiers at public hearings in Point Lay and Unalaska, Alaska, expressed concern about liability should an oil spill occur.

Response: Under the Oil Pollution Act of 1990, the owner or operator of a facility from which oil is discharged (also known as the responsible Party) is liable for the costs associated with the containment or cleanup of the spill and any damages resulting from the spill. The first priority is to ensure that responsible parties pay to clean up their own oil releases. However, when the responsible party is unknown or refuses to pay, funds from the Oil Spill Liability Trust Fund can be used to cover removal costs or damages resulting from discharges of oil.

The primary source of revenue for the fund was a five-cents per barrel fee on imported and domestic oil. Collection of this fee ceased on December 31, 1994 due to a "sunset" provision in the law. Other revenue sources for the fund include interest on the fund, cost recovery from the parties responsible for the spill, and any fines or civil penalties collected. The Fund is administered by the U.S. Coast Guard's National Pollution Funds Center. The Fund can provide up to \$1 billion for any one oil pollution incident, including up to \$500 million for the initiation of natural resource damage assessments and claims in connection with any single incident. The main uses of Fund expenditures are: State access for removal actions; payments to Federal, state, and Indian tribe trustees to carry out natural resource damage assessments and restorations; payment of claims for uncompensated removal costs and damages; and research and development and other specific appropriations.

Concern: The Alaska Center for the Environment and the Bering Sea Fishermen's Association commented that "MMS often avoids a direct discussion of impacts that would result from a large oil

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spill by saying that the effects would simply be "greater" or "longer term" than those that would result from small spills. See, e.g., DEIS at IV-108. MMS should describe the impacts from a large spill specifically, rather than comparatively to small spills."

Response: The evaluation that larger spills would result in greater or longer term effects is correct. The 5-Year Programmatic EIS is a national-level document that puts into perspective the implications of the size, timing, and location of proposed lease sales for a 5-year period. Subsequent documents are prepared for individual lease sales that incorporate more specific information for the local region.

Concern: The Alaska Center for the Environment and the Bering Sea Fishermen's Association commented that "MMS is also inconsistent in describing the effects of oil spilled on ice and snow. MMS recognizes that "a hydrocarbon plume in the water column underneath the ice could persist with concentrations that exceed ambient standards and background levels." DEIS at IV-107. "Oil would not be easily dispersed, and weathering could be slower than in the open sea. . . and much slower than in warmer climates. . . If the spill were to occur on ice, oil would be trapped and remain unchanged until breakup occurred." Id. MMS notes that cleanup would be hindered by several factors. However, MMS also states that "oil spilled on ice or snow in winter would likely be easily cleaned up with little oil remaining." DEIS at IV-192.

Response: The text has been revised to reflect that there would be difficulties in cleaning up oil under ice, not on ice.

Concern: The American Petroleum Institute commented that "The analysis of fates and effects related to oil spills needs greater support. The DEIS describes weathering processes as being 'much slower than in warmer climates' (IV-107) but the actual citation shows the duration of oil weathering in temperatures that range from 12° to 28 °C. No data or discussions are provided to assess how this reduced rate of oil weathering would be expected to behave in temperatures around 0 °C. Additional information is needed to show the likely degradation processes, especially in planning areas such as the Chukchi and Beaufort, which are described as being under sea ice for most of the year."

Response: The text has been revised to incorporate more accurate references and discussions.

Concern: The NSB commented that "Pg. IV-107, paragraph 4/5: These paragraphs focus on the impact on water quality and basically say that a large spill in cold, ice-covered waters is a problem. Unfortunately, the potential disastrous impacts of a spill occurring in winter, under full sea ice conditions have been understated. What happens in spring when this ice breaks up and moves? Oil not cleaned up could affect a MUCH larger area than the initial spill. Again, the impact upon subsistence communities is not mentioned at all."

Response: The Alaska Clean Seas technical manual (<http://www.alaskacleanseas.org/>) discusses methods for cleaning up oil under ice, which has been successfully demonstrated in lakes. If the oil is not cleaned up prior to the ice breaking up, then it would be cleaned up with the spring melt. It is true that there is the potential for oil to spread further under the ice, if it is not immediately cleaned up. The impact to subsistence communities is discussed in other sections of the EIS, not in the water quality section referenced.

Concern: The Commonwealth of Virginia, Department of Environmental Quality expressed a concern that OCS leaseholders be required to have contractual arrangements with companies that have aerial tracking capabilities. The Department of Environmental Quality also raised concern that there is no guarantee that the least environmentally damaging alternative would be used.

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Response: The MMS takes very seriously the ability of companies to respond to an oil spill. We have extensive experience in the Gulf of Mexico with ensuring that oil-spill response preparation is the best possible. As part of the process, companies are required to have contracts with spill response experts to ensure that any spill is quickly and effectively addressed. The requirements are outlined in Notice to Lessees 2006-G22, which can be found on the MMS website (<http://www.mms.gov/ntls/>). This requires that all arrangements are in place prior to a spill response and includes the use of all appropriate equipment to respond effectively. The MMS, along with the USCG and NOAA, have studied the different types of oil-spill response and the potential negative impacts from the methodology. These concerns are taken into account when responding to a specific spill.

Concern: The Commonwealth of Virginia, Department of Environmental Quality recommends that spill information in the document be expressed in gallons and area of potential affect (acres).

Response: For consistency, MMS always refers to oil in terms of barrels, based on how it is reported to us from oil companies. Using consistent units helps keep the discussion in perspective. For the 5-Year EIS, the proposed action is the size, timing, and location of lease sales; therefore, the analysis is relatively broad and generic. Detailed calculations about an area that could be oiled are speculative at best because of many factors.

Concern: The State of New Jersey expressed concern that physical processes in the ocean do not honor administrative boundaries and that there is no detailed modeling presented that would indicate the potential risk to the New Jersey coast from activities in the mid-Atlantic. North Carolina expressed a similar concern about modeling and the likelihood and effects of a spill. In addition, North Carolina expressed concern that the evaluation of oil spills is too generalized.

Response: The MMS always conducts detailed oil spill modeling for lease-sale-specific documents. For the Programmatic EIS, however, oil spills are only discussed in a very general way because the document is limited to evaluating lease sales for the size, timing, and location on a national level.

Concern: Throughout the DEIS, the MMS cites previous NEPA documents that summarized scientific studies rather than citing the original scientific studies themselves. It is next to impossible to sort out any findings of the original scientific document from conclusions previously reached by an MMS or other reviewer in many instances throughout the DEIS. It is standard practice that the original reference should be reviewed and cited instead of referencing summaries made by others of the original material. If the public and decisionmakers are going to make the best decisions about MMS's proposed plans under the 5-Year Program, the original references must be included so alternative interpretations of the original data can be postulated and considered.

Response: Where appropriate, the EIS incorporates information from other recent NEPA documents covering the same or similar issues and areas. Incorporation by reference is acceptable practice in NEPA. The majority of the references in the EIS, however, cite information from scientific studies and reports. These are listed in the FEIS Reference list that includes about 2,100 entries.

Concern: The Final Program and EIS must cite current research, offer adequate support for all conclusions, eliminate all contradictory statements, and clearly and consistently define all terminology.

Response: Several comments included citations for more current information on biological resources and geologic conditions in the Arctic. These references have been evaluated and incorporated into the

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document where appropriate. The MMS appreciates receiving this information. It should be kept in mind that the FEIS Reference list includes about 2,100 entries, most of which are recent.

Concern: Page III-69, paragraph 3: Again, with respect to strudel scour here, the most recent reference cited by the DEIS is MMS's own 2003 Beaufort Sea Multiple-Sale EIS. It would seem that other references should be available and that the studies cited in that document should be referenced directly.

Response: Several comments included citations for more current information on biological resources and geologic conditions in the Arctic. These references have been evaluated and incorporated into the document where appropriate. The MMS appreciates receiving this information. It should be kept in mind that the FEIS Reference list includes about 2,100 entries, most of which are recent.

Concern: Page III- 93, paragraph 6: The final sentence needs a citation.

Response: The text has been revised and updated with a recent citation.

Concern: Page IV-118, Operations of Offshore and Onshore Facilities, paragraph 2: The first sentence of this paragraph does not include enough information. Operating onshore and offshore facilities will produce sound above and beyond that caused by "drilling, production activities". A considerable amount of barging and helicopter traffic will be required. These types of activities certainly will produce sounds that odontocetes can sense. Thus, the statement in the first sentence is not valid and needs to be revised.

The penultimate sentence in this paragraph is misleading. First, the MMS NEPA document is not an appropriate citation. Rather the original science report/article should be cited. Second, bowheads were essentially excluded from a zone of 20 km around active seismic. This is different than being deflected from their migratory path by 20 km. There are no data that are available showing how far bowheads deflect from their migratory path once disturbed by active seismic. Ultimately whales may be deflected a much greater distance or they may return to their migratory route once they are no longer being exposed to seismic sounds. The last sentence in this paragraph should cite the scientific report instead of an earlier MMS NEPA document.

Response: The MMS considers drilling and production activities to also include transportation sources and other related activities. However, the paragraph was adjusted to be more explicit as to the types of sources introducing noise into the environment. The MMS also revised the paragraph to reflect: (1) types of noise that can be sensed by odontocetes; (2) inclusion of citations to the source reference versus a prior NEPA document; and (3) clearer explanation of what is known regarding the deflection of bowheads from drilling sources

Concern: We appreciate the challenge of developing an EIS of this scope. We are disappointed, however, that the document is not better in some key ways. There is good, relevant, current scientific information available that does not seem to have caught the attention of or have been used by DEIS section authors. In many cases, the references cited are 10-20 years old. As MMS has failed to use the best available data in this DEIS, the credibility of the analyses and conclusions is undermined.

Response: Several comments included citations for more current information on biological resources and geologic conditions in the Arctic. These references have been evaluated and incorporated into the

document where appropriate. The MMS appreciates receiving this information. It should be kept in mind that the EIS includes about 2,100 references, most of which are recent.

ISSUE 2e: Economic Modeling and Analysis of Economic Impacts Was Deficient

Issue Raised By: State of Louisiana, Department of Natural Resources; ConocoPhillips; Center for Biological Diversity; and North Slope Borough

Concern: ConocoPhillips and the State of Louisiana argued that the EIS should address the socioeconomic effects of the 2007-2012 program on people living in all 50 States, including the effects of producing energy in some offshore areas and of not producing energy from many other areas.

Response: There is no requirement to include all OCS planning areas in the proposed 5-Year Program that we subject to NEPA analysis. The NEPA analysis is intended to support informed decisionmaking concerning future OCS lease sales. In fact, eight whole planning areas located off the east and west coasts and off Alaska and much of the eastern Gulf of Mexico, which have been subject to annual congressional moratoria for approximately two decades, were withdrawn by the President from leasing consideration until after June 30, 2012. Additionally, the moratorium for the eastern Gulf was extended to 2022 under the Gulf of Mexico Energy Security Act of 2006. Other planning areas located off Alaska were excluded from the 2007-2012 program primarily because they have low oil and gas resource value and are of little or no interest to the oil and gas industry at this time. The “Purpose and Need for the Proposed Action” (Section I.A) explains the reasons for limiting the areas under consideration for leasing. Only those areas that might reasonably be included in the 5-Year Program are subject to this NEPA analysis. Concerns about national-level benefits of the program are addressed in other decision-related documents.

Concern: The Center for Biological Diversity claimed that the DEIS failed to disclose or address the economic cost of the Program’s greenhouse gas emissions.

Response: The “Scope of the EIS” (Section I.B) explains the basis for analyzing topics in the 5-Year EIS. Issues concerning global warming do not fall within the scope of the EIS since they relate to questions of national and international energy use, which are fundamentally driven by consumer demand and not by decisionmaking related to the 2007-2012 program. The effects of global warming are considered as part of the baseline and in the analysis of the cumulative effects of the 2007-2012 program.

Concern: The NSB notes that projections of effects are dependent on estimates of oil and gas production. The Borough asserts that, because long-term oil prices are likely to remain high, the EIS significantly underestimates the level of industry activity that will occur in Alaskan arctic waters.

Response: Historically, oil prices have been unstable and unpredictable. Also, the decisions of oil companies are influenced by other factors as well as price, such as their proven reserves or the status of ongoing projects. Because of such uncertainties, the MMS has based the 5-year analysis on a wide range of possible oil prices and industry scenarios. We think that the level of industry activity is likely to fall well within this range and that this approach is appropriate for a national-level, programmatic assessment. Future MMS lease-sale and multisale environmental assessments will provide projections the level of detail appropriate for sale and multisale analyses.

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Concern: Pages IV-26 and IV-27, Oil-spill assumptions, large oil spills: The MMS uses spill rates based on historical accidents to estimate the mean number of spills assumed to occur. This approach is not satisfactory for the Arctic Subregion. As we have recently seen, the current infrastructure is getting older. BP experienced a large oil spill and prolonged shut-down because of corrosion in older pipelines. As the oil field infrastructure in northern Alaska continues to age, it is an entirely reasonable assumption that oil spills will increase. The MMS must take into account the aging infrastructure in its assessment of oil spills.

This section references Table IV-4. This information must also be presented in the text of this chapter. The MMS estimates that 2 large spills and 110 small spills will occur because of the proposed action in the 5-year program.

The MMS makes an assumption that spills from tankers carrying oil from the Beaufort and Chukchi Sea would occur outside of the planning area. Unfortunately the location of those spills is not included in Table IV-4. It is not possible to fully evaluate the impacts from MMS actions under this 5-year program if not all the impacts are included in the EIS.

Finally, the North Slope Borough's independent Science Advisory Committee conducted a review of MMS' oil spill probabilities in 2003 (NSB SAC-OR-130) and found several deficiencies in the spill estimate models. However, one of the most significant findings was that the oil spill estimates lacked confidence intervals. The review states on p. 3 of the Executive Summary:

The greatest concern of the SAC was related to statistical confidence intervals calculated for spill rate estimates. Variability is a very important part of any estimation task, because it shows how reliable the estimate is. The SAC strongly recommends that all inputs in calculations be accompanied by an indication of their variability.

This report was sent to MMS 3 years ago, and MMS is still not providing confidence intervals for their spill estimates. The oil-spill estimates need to be corrected in the Final EIS.

Response: Decisions about the size, timing, and location of leasing in the 5-Year Program take many factors into account, including the risk of oil-spill occurrence, the potential environmental impacts should spills occur, and the capability to clean up oil spills in all areas being considered for leasing. The oil spill estimates used in the 5-Year Programmatic EIS were determined based on historical information and did not involve detailed modeling or analysis in their development. The MMS believes that the values expressed capture the potential range of occurrence of oil spills and therefore, for this high level analysis, are adequate. Detailed modeling of potential oil spills is conducted at the lease sale level. The estimates used in this Programmatic EIS represent a reasonable hypothetical case based on the resource evaluation estimates. The MMS recognizes that the estimates are uncertain, but due to the methodology used in the calculation, confidence estimates cannot be calculated.

Concern: Page IV-409, Accidental Releases: The first paragraph provides information on oil spills throughout the country. Because environmental conditions are so different in Alaska, an analysis of onshore and offshore oil spills in Alaska is needed.

Response: The use of spill statistics for all of North America is appropriate for this document. Since all analyses focus on the proposed action, which is leasing offshore areas for oil and gas activities, the oil-spill analyses discuss statistics related directly to these activities.

ISSUE 2f: Scenarios Flawed

Issue Raised By: North Slope Borough, Louisiana Department of Natural Resources, Virginia Department of Environmental Quality; James Madison Institute; Shell Oil

Concern: The comment opposed all deferrals within planning areas since all areas on the OCS can be explored and developed in a safe and environmentally sound manner.

Response: Several deferral alternatives are included in the EIS based on input received during scoping, public meetings, DEIS comments, and ongoing coordination and outreach with affected States.

Concern: The DEIS Arctic cumulative scenario did not include the potential for a major coal project developing in the Arctic.

Response: The Arctic Regional Corporation signed an exploration and development agreement with Billiton Energy Coals to conduct a 5-year coal exploration program on corporation lands in northwestern Alaska in July 2006. This was the same time that the DEIS was published, and MMS was not aware of this agreement as the DEIS was being written. We have added information about this project in the FEIS cumulative scenario discussion. Thank you for informing us about this topic.

Concern: The cumulative scenario did not include enough information about Canadian oil and gas activities in the Beaufort Sea.

Response: The FEIS has additional information about Canadian Arctic oil and gas activity in the cumulative scenario discussion. Thank you for your suggestion.

Concern: Development scenarios in Alaska underestimate the level of activity that is likely to occur. With increasing oil prices, improved drilling technology, increased demand and other factors, the levels of activity in Alaska estimated in the EIS are too small.

Response: The exploration and development scenarios presented in the EIS are based on all the factors mentioned in the comment as well as an analysis of the best available geological information that bears on hydrocarbon resource potential. In the past, the MMS has consistently overestimated the activity levels that would occur from a lease sale or a series of lease sales on the Alaska OCS. For example, the EIS for the 2002-2007 Leasing Program estimated that as many as 12 platforms would be installed in the Beaufort Sea: 8 in the Chukchi, 2 in Hope Basin, 6 in Cook Inlet, and 1 in Norton Basin. In addition, as much as 5.5 billion barrels of oil were to be produced. None of this has happened, with the 2002-2007 Program about to expire this summer. In the 1997-2002 EIS, the MMS estimated that as many as 17 platforms and as much as another 5.5 billion barrels of oil would be produced on the Alaska OCS. None of this happened either. The MMS believes that the exploration and development scenario in the EIS is a reasonable estimate for the 2007-2012 program.

Concern: Page IV-24, Exploration and Development Assumptions, Alaska Region: The assumptions for the Beaufort and Chukchi Seas are not reasonable. In particular, Table IV-2 suggests that no gas development will result in the Arctic Subregion as a result of the 5-Year Program. Oil and gas companies have expressed to the North Slope Borough that they are very interested in natural gas potential in the Chukchi Sea and have even suggested that a liquid natural gas plant (LNG) could be developed along the Chukchi Sea coast. It is unlikely that a LNG plant would be developed in the

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next 5 years, but it is very foreseeable that the leases occurring under the 5-Year Program could result in natural gas development in the future. Natural gas must be included in the scenarios for the Arctic Subregion. Also, it seems contrary to all apparent trends in industry interest, oil prices, and advances in extended reach and other technologies that MMS would actually predict “smaller amounts of activity on the Alaskan OCS as a result of this 5-year program”.

Response: The exploration and development scenarios presented in the EIS are based on all the factors mentioned in the comment as well as an analysis of the best available geological information that bears on hydrocarbon resource potential. In the past, MMS has consistently overestimated the activity levels that would occur from a lease sale or series of lease sales on the Alaska OCS. For example, the EIS for the 2002-2007 Leasing Program estimated that as many as 12 platforms would be installed in the Beaufort Sea, 8 in the Chukchi, 2 in Hope Basin, 6 in Cook Inlet, and 1 in Norton Basin. In addition, as much as 5.5 billion barrels of oil was assumed to be produced on the Alaskan OCS. None of this has happened with the 2002-2007 Program about to expire this summer. In the 1997-2002 EIS, the MMS estimated that as many as 17 platforms and as much as another 5.5 billion barrels of oil would be produced on the Alaska OCS. None of this happened either. The MMS believes that the exploration and development scenario in this EIS is a reasonable estimate of what could happen during the 2007-2012 program.

The assumption about an onshore LNG facility in North Aleutian Basin is based on industry information. The MMS assumes that in the Chukchi Sea offshore gas production will be reinjected into the formation to enhance oil recovery. The gas will be left in the formation until a gas transmission system is developed to transport the product. The development of a gas transmission infrastructure is unlikely to be completed during the life of the 2007-2012 program.

Concern: The MMS should indicate in the EIS how reliable past predictions of lease-sale impacts have been. Also, there are several inconsistencies in the exploration and development scenario tables.

Response: The MMS is continually evaluating the effectiveness of regulations and mitigations to protect resources. When an environmental issue arises that the OCS program could be contributing to, MMS typically studies the issue with the aim of determining the OCS contribution and creating mitigations to lessen the impact. For example, MMS has been studying and monitoring conditions at the Flower Garden Banks through its Environmental Studies Program. The EIS uses the results from these kinds of past and ongoing investigations and studies in the impact analyses.

The typographical errors pointed out in the comment have been corrected in the FEIS.

Concern: The Proposed Program area in the mid-Atlantic does not match the proposed action areas shown in the DEIS.

Response: Chapter II of the FEIS includes a description of a “preferred alternative” consistent with NEPA regulations Section 1502.14. The preferred alternative is a combination of the proposed action (alternative 1) and several deferral alternatives analyzed in the FEIS. As such, it differs from the proposed action. Some of these deferrals were included in the Proposed Program, published in the Federal Register in August, 2006. All subarea deferrals identified and analyzed as alternatives in this FEIS could be part of the “preferred alternative”. If this approach is adopted, all these deferral areas would be removed from any further consideration for leasing during this 2007-2012 program.

Concern: The energy potential of the OCS is large and should be made accessible to exploration and development.

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Response: Thank you for your comment.

Concern: The DEIS does not address the impacts of OCS vessel traffic in the Arctic. The dramatic increase in vessel traffic will result in dramatic increases in vessel activity and considerable impacts from increased sounds.

Response: The DEIS exploration and development scenario for the Arctic (Table IV-4) assumes only 1 to 3 vessel trips per week for the entire Arctic area including both the Chukchi and Beaufort Sea Planning Areas. Furthermore, mitigations and regulations would likely be developed to minimize impacts of this small amount of traffic on subsistence and other resources in the area. We believe that our assessment of potential impacts of vessel traffic is sound.

ISSUE 3a. Analysis of No Action Alternative

Issue Raised By: Alaska Wilderness League; Alaska Center for the Environment; Judith Hinch; Cora Conner; Marjorie Hawley; Pat Cooper; Sierra Club; Cascadia Wildlands Project; Louisiana Department of Natural Resources; Shell; The James Madison Institute; and Forum Industry Partners in Environmental Progress

Concern: Rather than oil and gas development, MMS should pursue alternative energy sources.

Response: In August 2005 the Energy Policy Act amended the Outer Continental Shelf Lands Act providing authority to the USDOJ for the development of OCS wind, wave, current, solar, etc. The MMS was given the responsibility to develop this alternative energy program. Currently, MMS is developing regulations and preparing a programmatic EIS. See <http://www.mms.gov/offshore/RenewableEnergy/RenewableEnergyMain.htm> for more information, as well as the discussion on alternative energy in Section IV.K (No Action Alternative). While this program will help the United States diversify our energy portfolio it will not replace the need for oil and gas.

Concern: The No Action Alternative is incomplete.

Response: The function of the No Action Alternative is to address the most likely result of not pursuing the proposed action or other alternatives that the Federal Government could adopt for the 5-Year Program. The theory and the methodology are explained in the greater detail in *Energy Alternatives and the Environment 2007-2012* (King, 2006 draft).

ISSUE 3b: Develop Additional Mitigation Measures

Issue Raised By: Alaska Eskimo Whaling Commission; Aleutians East Borough; National Aeronautics and Space Administration; National Oceanic and Atmospheric Administration; North Slope Borough; Clean Ocean Action; several individuals; Shell Exploration and Production; and Barrow, Anchorage, Dillingham, and Houston public hearing testimony

Concern: The EIS did not include new mitigation measures, but indicated that these measures would be developed during the lease-sale-specific NEPA documents. By not including mitigation at this stage of the process, there are no guarantees that mitigations would be included in the future. In

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addition, mitigation measures are included in discussions of impacts. Similarly, stipulations should be included.

Response: The Programmatic EIS supports the decision about the size, timing, and location of lease sales for the next 5 years. The EIS takes a broad overview and identifies mitigation measures that have been developed in the past at the lease-sale level. The level of detail is not incorporated in this document because it has made most sense to develop these stipulations at the lease-sale stage. By so doing, there has been more of an opportunity to evaluate the specific effects of the proposed action on the environments and communities affected, and also more time to work with the various affected stakeholders to determine which stipulations best protect various resource values. The MMS has found this approach to be effective for program implementation.

All MMS sale proposals prescribe environmental controls on lease operators. Lease stipulations, OCS regulations, and other measures provide the regulatory basis for implementing environmental protection on leases. The MMS has broad permitting and monitoring authority to ensure safe operations and environmental protection. The MMS also monitors operations after drilling has begun and periodically inspects facilities.

Concern: Will mitigation measures concerning military warning areas be included in the mid-Atlantic discussion as it is in the Gulf of Mexico? Also, will mitigation measures be included off Florida for the military warning area?

Response: The MMS has worked closely with the USDOD in the Gulf of Mexico to establish a lease stipulation with regards to military warning areas. The stipulation has requirements that assist in coordination between offshore oil and gas activities and military training activities, and has proven successful. The stipulation was established at the lease-sale level. The MMS will continue to use this process for all future lease sales including any in the mid-Atlantic area.

Concern: The Aleutians East Borough requested that funding be made available to them in order to participate effectively in the NEPA process, including travel and consultancies.

Response: The MMS does not give funds to the public in order to assist in participation in the NEPA process.

Concern: The NOAA requested that bonding be required in the Alaska Arctic to ensure restoration of habitat after completion of operations.

Response: Currently, MMS requires bonding for oil-spill cleanup operations and for removal of structures, including removal of all debris from the seafloor.

Concern: MMS' decision to put off development of mitigation measures until the lease sale stage violates the National Environmental Policy Act (NEPA). The DEIS states:

“None of the mitigation measures identified during scoping is analyzed in this EIS because these will be more appropriately determined at the lease-sale stage rather than at the programmatic level. Additional mitigations will be considered at the lease sale stage when more detailed and geographically focused analysis will be done to consider restrictions on leasing development activities. The EIS impact analyses, however, do assume implementation of mitigation measures required by statute or

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regulation as well as sale-specific mitigation (stipulations) commonly adopted in past sales (Appendix C. Assumed Mitigation Measures).” [DEIS, p I-3]

Response: The initial planning stage of the 5-Year Program is too early in the 5- year process to evaluate particular mitigation measures. Most mitigation measures are designed for particular geographic areas or for specific proposed activities and they are developed at the lease-sale stage or at the time MMS reviews plans submitted by operators. The wording and contents of some measures used previously may change through time with the development of technology or agreements with affected State governments, agencies with expertise, and industry.

Concern: The Aleutians East Borough would like to work collaboratively with MMS to improve the North Aleutian Basin sections of the EIS. Even if it did not violate NEPA, seeing the lack of appropriate mitigation associated with previous OCS lease sales has made Borough residents wary of deferring consideration of protective measures until the lease-sale stage. It is also not acceptable to the Borough, therefore, to defer establishing mitigation measures to the lease-sale stage, or to merely “assume” that mitigation measures may apply in the future. Where potential impacts have been identified, consideration of mitigation measures is warranted at the programmatic stage. The NEPA process requires it.

Response: The EIS assumes that all existing OCS mitigations to protect environmental resources will be applied in the 2007-2012 Program. Furthermore, the EIS assumes these existing mitigations will be applied in comparable situations in other areas without a history of OCS development should lease sales occur there. Since the decision that the 5-Year EIS supports is the establishment of a schedule of lease sales for 2007-2012, the MMS believes it is appropriate to establish additional mitigations and lease stipulations later in the 5-year process during the prelease stage prior to the occurrence of a lease sale. At that time, recommendations for additional mitigation will directly support the decision of what conditions to impose on OCS activities to provide adequate environmental protection. Also at that time, more data relevant to mitigations may be available from the completion of ongoing research as well as from new MMS Environmental Studies Program efforts.

Concern: The MMS should establish a subsistence committee comprised of industry and subsistence users with sufficient authority to ensure that OCS exploration and development activities do not infringe on or endanger subsistence needs of the region’s residents.

Response: This 5-year programmatic EIS does not analyze specific mitigation measures for each planning area. Should a lease sale be planned for the North Aleutian area, the MMS will develop a sales-level EIS that does address the mitigation of effects to subsistence. As in the past, MMS is committed to encouraging industry and local subsistence users to work together to mitigate possible effect.

Concern: The EIS should include two mitigation measures addressing local hire and training and a Good Neighbor Policy that should read:

Local Hire and Training: OCS Operators will be required to submit a local hire and training program prior to any exploration, production or permitting activity, which provides a description of the operator’s plans for partnering with local communities to recruit and hire local residents, local contractors, and local businesses and a training program to prepare local residents to be qualified for oil and gas jobs for exploration and development activities within their region.

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Good Neighbor Policy: All OCS Operators, operating off the Aleutian East Borough coastline, should be required to adopt a Good Neighbor Policy that is appropriate for this region. AEB's Good Neighbor Policy requires OCS Operators to work with the AEB to provide cost effective fuel, power, transportation, medical services, emergency and other services to the local communities. AEB's Good Neighbor Policy also requires OCS Operators to provide a compensation system to minimize disruptions to subsistence activities and provides resources to relocate subsistence hunters and fishermen to alternate areas or provide temporary supplies if a spill affects the taking of subsistence resources.

Response: The OCS leasing program benefits the entire Nation. Decades of operations have shown that the program benefits best when it serves well the communities in which it operates. Where the Agency has the statutory authority, it acts to support local benefits. For example, it participates in the CIAP program that provides funding to affected States and communities, and it ensures that operators in Alaska participate in programs designed to sensitize them to local cultures.

Where the Agency lacks regulatory authority, it encourages the industry to operate in coordination with local groups. For example, it has encouraged the industry on the North Slope to participate with the AWEC to avoid noise disruptions during the whaling season. The MMS also encourages such behavior through its completeness reviews of exploration plans. For example, in its completeness letter on Shell's Exploration Plan, it included the request that the plan "outline their intentions concerning recruiting and using local subsistence observes in monitoring efforts."

The MMS believes that the OCS industry should be a good neighbor to its host communities and has developed a stipulation regarding a good neighbor policy that is part of current leasing policy. The MMS recognizes that the current language may be inappropriate for all Alaska regions, for example, the North Aleutian Basin area. However, the content of a good neighbor policy is best addressed at the lease-sale stage and is best developed through interactions of the interested parties. Also, while this document cannot commit the Secretary of Interior to any action, current policy is to require OCS operators to submit a local hire and training plan.

ISSUE 3c: Evaluate Additional Alternatives

Issue Raised By: Louisiana Department of Natural Resources; Alaska Center for the Environment; Bering Sea Fishermen's Association; Sheree Cox; Alaska Eskimo Whaling Commission; Alaska Maritime Conservation Council, National Oceanic and Atmospheric Administration; Center for Regulatory Effectiveness; Virginia Department of Environmental Quality; and Channing Smith, as a member of the Sierra Club

Concern: The EIS should put forth alternatives to area wide leasing in the Gulf of Mexico.

Response: The decision supported by this EIS is setting a national schedule of lease sales. The alternatives included in the DEIS and the FEIS bear on timing and location factors pertinent to this decision. Alternatives that address leasing schemes are more appropriately done at the prelease stage

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when a lease sale EIS is prepared. At that time, the decision supported by the EIS will be to determine the conditions, such as a leasing scheme, under which a lease sale or series of sales will occur. For example, the MMS has included alternative leasing discussions in its current Gulf of Mexico Multisale EIS.

Concern: The DEIS fails to provide a reasonable range of alternatives in Alaska, including an option for no leasing in Alaska

Response: The EIS supports a decision that will set a schedule of OCS lease sales in 2007-2012. The decision does not authorize that a sale can occur, nor does it establish all the specific and detailed environmental mitigations and alternatives that will be analyzed and applied at the lease-sale stage. The FEIS includes five alternatives for Alaska that bear on the timing and location decision. These include eliminating Cook Inlet, eliminating North Aleutian Basin, and restricting leasing in North Aleutian Basin, Chukchi Sea, and Beaufort Sea. The MMS believes that this mix of alternatives in the FEIS provides the decisionmaker with a range of options appropriate for this initial stage of the 5-Year Program. Additional alternatives and mitigations can be developed during the presale process when an additional EIS will be prepared. The analyses then will focus on local conditions and issues, and additional data and information could be available on effective alternatives and mitigations to apply to conditions of a lease or to define the area offered for leasing.

An alternative to eliminate leasing on the Alaskan OCS would be contradictory to the request of the State of Alaska to include Alaskan planning areas in the 2007-2012 Program.

Concern: Several comments supported the DEIS Alaska deferral alternatives based on the importance of subsistence economy in the Chukchi and the low hydrocarbon resource potential of the North Aleutian Basin. Another comment stated that the deferral did not go far enough to protect the rich resources of Bristol Bay.

Response: Alternative 7 reduces the area available for leasing in the North Aleutian Basin considerably.

Concern: Because new uses of the seabed are being proposed by MMS and other Federal Agencies, the Federal Government should develop a comprehensive ocean development regime to provide a framework for managing ocean development and activities.

Response: The MMS agrees that increasing uses of the ocean for various economic and recreational purposes combined with evolving technologies that allow commercial development of nontraditional ocean resource is a situation that would benefit from the development of a more comprehensive ocean management approach at the Federal level.

Concern: Because MMS has authority over methane hydrate extraction on the OCS, the DEIS should evaluate environmental impacts of methane hydrate extraction on the OCS.

Response: The MMS does not consider it reasonably foreseeable that commercial methane hydrate development will be underway during the period of interest in the EIS. While active research continues on methane hydrates, estimates suggest that possible commercial production of methane hydrates is at least 20 to 25 years away. At this incipient stage of developing methane hydrate as an energy source, there is not enough known about commercial extraction technology, distribution and occurrences of commercial hydrate deposits, rules, mitigations, and regulations that will need to be developed to manage development, and the interactions between hydrate extraction and the

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surrounding environment to support a meaningful analysis of hydrate extraction. The EIS does include discussions of methane hydrates as geologic hazards and as potential future energy resources.

Concern: More deferral alternatives should be added to the Alaskan Arctic to protect caribou, birds, and whaling areas.

Response: The FEIS includes two deferral alternatives for the Alaskan Arctic OCS; one in the Chukchi Sea and the other in the Beaufort Sea. Additional mitigations could be applied later during the prelease process when a lease-sale EIS is prepared. At that time, the analysis will focus on a smaller area in more detail than this national programmatic EIS, and on mitigations that would be applied to exploration and development activity. Also at that time, additional information could be available from studies or planning projects to develop additional mitigations.

Concern: Because oil and gas seismic surveys have not in the past harmed marine mammals when surveys used traditional mitigation measures, there is no need to impose the additional safety requirements that have been suggested. Existing seismic mitigation includes a 500-meter safety radius that has been effective at mitigating impacts

Response: Thank you for your comment

Concern: The alternatives in the DEIS are in conflict with Virginia's energy policy that stipulates that leasing must be gas-only and at least 50 miles from shore. . The Sierra Club also commented that gas-only leasing was a sham because if oil were found it would be developed.

Response: The FEIS includes an alternative for a 50 mile deferral along the Virginia coast with the possibility of gas-only and exploration-only leasing. It is not currently within MMS's authority to limit leasing to gas only. Implementation of such an alternative would require congressional modification of the OCS Lands Act. At the current time, we cannot predict the details of how gas-only leasing would be implemented with respect to possible oil discoveries that could occur. For analysis purposes, however, the EIS assumes that such a sale would occur and that only gas would be produced.

Concern: The MMS should not open any new areas in the Eastern Gulf of Mexico.

Response: The 2007-2012 program does not include leasing in the Eastern Gulf of Mexico, as it is currently legally defined. Some confusion about this was created by the passage of the Gulf of Mexico Energy Security Act, which was signed by President Bush in December 2006. The sale (224) will include 134 lease blocks located more than 125 miles from the Florida coast. Because this sale will occur as a result of a congressional mandate, and not through the USDOJ 5-Year plan development process, the action was not included in the 5-Year EIS or Program. The MMS Gulf of Mexico Region will prepare a supplemental EIS to the EIS completed in 2001 for the "Sale 181 Area" to support this action.

Concern: Technology exists today to drill the distances required to access OCS resources from onshore locations. This option is currently being pursued by BP to develop the Liberty reservoir in the Beaufort Sea OCS. Technology improvements over time will continue to extend the ability to access hydrocarbons from onshore. The effect of imposing a mitigation measure requiring that arctic OCS resources be developed only from onshore locations merits analysis as an alternative in the FEIS.

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Response: The MMS has included an alternative in the FEIS to defer blocks in the Beaufort Sea to protect the whale harvest. An alternative to evaluate impacts from no occupancy of the leased area does not address location and timing issues that are concerns of the 5-Year Program and EIS. This alternative would apply to the conditions under which leasing would occur in a specific lease sale. These types of alternatives are more appropriately evaluated in a lease-sale EIS, which supports the decision about what conditions to apply to leases that result from the sale.

Concern: The area encompassing the Barrow spring lead system and the eastern Beaufort Sea have long been recognized by MMS as critical subsistence use areas and areas of heightened biological sensitivity. It therefore makes sense to exclude these areas now.

Response: The MMS continues to acknowledge the importance of the spring lead system for the protection of bowhead whales and subsistence harvesting of this species. Within the FEIS, Alternative 8 excludes: (1) 26 whole or partial blocks located at the western border of the planning area (Barrow Subsistence Whaling Deferral) and (2) 28 whole or partial blocks located offshore Kaktovik (Kaktovik Subsistence Whaling Deferral).

ISSUE 3d: Additional Studies

Issue Raised By: Alaska Center for the Environment; Alaska Maritime Conservation Council; Alaska Oil and Gas Association; Alaska Oil and Gas Association; Aleutians East Borough; Bering Sea Fishermen's Association; Bristol Bay Native Corporation; City of King Cove; Louisiana Department of Natural Resources; Lon Sonsalla, Mayor, City of Kaktovik; Aleut Corporation; Margo Pellegino; Commonwealth of Virginia, Department of Environmental Quality; Virginia Department of Conservation and Recreation; North Slope Borough; numerous individuals; Shell Exploration and Production; and Barrow, Houston, Mobile, and New Orleans public hearing testimony.

Concern: The Alaska Center for the Environment; AMCC; Alaska Oil and Gas Association; Commonwealth of Virginia, Department of Environmental Quality; and others raised concerns about the need for baseline studies before leasing in frontier areas such as the North Aleutian Basin, the Chukchi Sea and the Atlantic Coast. The Bristol Bay Native Corporation requested "that MMS, in concert with industry and the local communities, initiate and fund a series of studies of the Southwest Region of Alaska. We want these studies to evaluate both the positive and negative effects of exploration and production activities. These studies will furnish information essential in crafting mitigation measures that provide adequate protection without overly restricting necessary industry operations." Suggestions for studies included a basic understanding of the Alaskan environment; fisheries resources; unique biological communities; and marine mammals, sea turtles, and marine/coastal birds within the Virginia planning zone.

Response: The MMS has an active Environmental Studies Program to address the information needs of the Agency. For frontier areas, existing knowledge about the areas will first be collected through workshops and literature searches. The MMS has already conducted two workshops, one to collect information about the Chukchi Sea in early November 2006 and the other to collect information about the North Aleutian Basin in late November 2006. These workshops will be used to identify data gaps and prioritize the studies for funding consideration.

Concern: The commenters requested that MMS increase funding to support the studies program and collection of sufficient information.

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Response: The MMS Environmental Studies Program is funded through the USDOJ appropriations bill. While MMS may make a request for additional funding, Congress determines the level of funding approved.

Concern: The Louisiana Department of Natural Resources requested “that relevant and sufficient data must be developed and analyzed before conducting any future leasing in the Gulf of Mexico.” The Commonwealth of Virginia, Department of Environmental Quality suggested that research into the impacts of lighting on marine species be investigated and the information incorporated into the final EIS.

Response: The MMS is not required under 40 CFR 1502.22 to collect new information prior to the release of a final EIS but rather to rely on existing information. For Virginia, where the area has not been recently investigated, new information will be gathered for any area specific documents prepared at the lease sale stage of the process.

Concern: The NSB commented that “Pg. III-93, Paragraph 5: It is speculative to state that the marine environment is not being directly affected by human activity, as detailed studies have not been conducted and data is not available to support such a statement. Instead, if MMS is going to make speculative statements, they should also provide a measure of the uncertainty about their statements. Also, the term “stressor” is used inappropriately. It is not clear that water can be stressed.”

Response: The statements are based on the evaluation by the State of Alaska, Department of Environmental Conservation (ADEC) biannual report on water quality in Alaska. The text has been revised to reflect the most recent water quality report that was released in December 2006. This report concludes that 99.9 percent of Alaska water bodies are unimpaired based on direct monitoring and professional judgment.

Concern: Due to the legal status of gull-billed tern, bald eagle, peregrine falcon, piping plover, Wilson's plover, and loggerhead sea turtle, the Virginia Department of Conservation and Recreation recommends coordination with the Virginia Department of Game and Inland Fisheries (DGIF), and the FWS to ensure compliance with protected species legislation.

Several State and federally listed whales and marine mammals are located in the project vicinity. Due to the legal status of these species, the Virginia Department of Conservation and Recreation recommends coordination with the NMFS to ensure compliance with protected species legislation.

Response: During the preparation of lease sale documents, such as multisale EIS's, the MMS always coordinates with the appropriate Federal Agency through Endangered Species Act (ESA) Section 7 consultations as well as essential fish habitat (EFH) consultations.

ISSUE 3e: Revenue Sharing

Issue Raised By: The State of Alaska; State of Louisiana, Department of Natural Resources; public hearings in Alaska, Texas, Louisiana, Alabama, and Florida; multiple companies and industry organizations; and numerous individuals.

Concern: A multitude of commenters stated that the Administration and Congress should quickly approve OCS revenue sharing with affected states and local communities to help mitigate the potential impact from development.

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Response: As discussed in “The Scope of the EIS” (Section I.B.2), the issue of revenue sharing with States and communities is not a material factor in the determination of the size, timing, and location of lease sales within this 5-year schedule and is, therefore, beyond the analytical scope of this EIS. However, recently, after the public comment period on this EIS had closed, Congress passed and the President signed the Gulf of Mexico Energy Security Act of 2006 (GOMESA) which will provide future revenue sharing to the states of Louisiana and Texas, the two coastal States that host the majority of OCS-related activities.

The funds will be substantial. For example, according to a January 9, 2007, press release from Representative Bobby Jindal, it was estimated Louisiana would receive around \$200 million over the first 10 years and from \$650 million to \$1 billion a year beginning in 2017 through implementation of the GOMESA. Representative Jindal goes on to say this amount will increase due to the royalty rate for deepwater leases increasing from 12.5 percent to 16.7 percent, which will increase royalty payments for all leases in the Gulf of Mexico by \$4.5 billion over 20 years.

Even before this law, Congress established mechanisms for providing funds to impacted States. For example, Section 384 of the Energy Policy Act of 2005 established the Coastal Impact Assistance Program (CIAP) that authorizes funds to be distributed to OCS oil and gas producing States to mitigate the impacts of OCS oil and gas activities. Under the CIAP, the Secretary of the Interior is authorized to distribute to producing States and coastal political subdivisions \$250 million for each of the fiscal years 2007 through 2010. This money will be shared among Alabama, Alaska, California, Louisiana, Mississippi, and Texas and shall be used for one or more of the following purposes:

- projects and activities for the conservation, protection, or restoration of coastal areas, including wetlands;
- mitigation of damage to fish, wildlife, or natural resources;
- planning assistance and the administrative costs of complying with this section;
- implementation of a federally-approved marine, coastal, or comprehensive conservation management plan; and
- mitigation of the impact of OCS activities through funding of onshore infrastructure projects and public service needs.

ISSUE 4a: Terrestrial Wildlife

Issue Raised By: Virginia Department of Environmental Quality; Center for Biological Diversity; Aleutians East Borough; North Slope Borough; and Aleutian Pribilof Island Association; and others

Concern: The EIS does not adequately describe the terrestrial species of the mid-Atlantic likely to be affected and the potential impacts on these species.

Response: Terrestrial mammal impacts in the mid-Atlantic area were not identified as major concerns in the scoping process for this EIS. This might be because of limited expected impacts on land. Landfall of the one pipeline is anticipated in the Hampton Roads area. Onshore facilities would be located at existing industrial sites in the Norfolk area. During the lease-sale stage, there would be an opportunity to reevaluate possible impacts to terrestrial species.

Concern: The Center took issue with a statement that global warming would not affect terrestrial mammals distributions directly.

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Response: The statement has been removed from the Final EIS (FEIS).

Concern: The EIS needs more and better information on important subsistence species, including musk ox, caribou, and moose.

Response: We have updated and added to the information on the musk ox, caribou, and moose.

Concern: There is a need to site onshore facilities in such a way as to avoid terrestrial wildlife impacts.

Response: Onshore transportation and utility corridors and petroleum-related infrastructure may be substantial, particularly if offshore petroleum discoveries are made and are produced. These might include such facilities as docks, terminal facilities, housing facilities, new or enlarged utilities, roads, and utility corridors. They might also include pipeline landfalls, a pipeline corridor, and access to the pipeline corridor. Since MMS does not have the authority to regulate onshore construction or operations, it cannot determine the siting of such facilities as docks, roads, utility or pipeline corridors or terminal facilities. Depending on land ownership, these siting decisions are regulated by the state (through zoning, permitting and rulemaking), by communities (through zoning), and by regional and Native village corporations (through permitting and lease stipulations). Activities that may affect coasts, barrier islands, reefs and lagoons, and fish bearing water bodies are also protected under important Federal law.

ISSUE 4b: Marine Mammals

Issue Raised By: Kaarle Strailey; MMS public hearing in Norfolk, Virginia; Aleutians East Borough; Center for Biological Diversity; Alaska Center for Environment; Debra Brinker; Alaska Beluga Whale Commission; American Petroleum Institute; North Slope Borough; Alaska Eskimo Whaling Commission; Shell; National Oceanic and Atmospheric Administration; Bering Sea Fishermen's Association; Alaska Maritime Conservation Council; Aleutian Pribilof Island Association; Clean Ocean Action; Conoco Phillips Alaska Inc.; MMS public hearings in Anchorage, Barrow, Point Hope, and Good News Bay, Alaska; Jon Berg; Virginia Department of Environmental Quality; North Carolina State agencies; and Alaska Department of Natural Resources;

Concern: Several commenters felt that the level of information, analysis, and mitigation provided within the DEIS was inadequate, especially as it relates to the marine mammals and/or endangered species along and off the Alaska coast (i.e., bowhead whale, North Pacific right whale, walrus, seals, Steller sea lions, and polar bear) and the effects of noise disturbance on these animals.

General Response #1: The MMS uses a tiered process under NEPA which takes large, complex, long-term projects and analyzes them in a series of incremental steps to address broad issues first and then considers more detailed, location-specific issues in subsequent stages. Therefore, the intent of this EIS is to only provide broad information and analyses that will serve as the starting point for more detailed environmental reviews at the region-, site-, project- or activity-specific stages. Therefore, MMS feels the level of information provided in this EIS is appropriate for this programmatic, broad-level analysis. More detailed, site-specific NEPA analyses will occur at the lease sale and/or through activity specific documents (i.e., seismic analyses). It is at these stages that MMS will be able to provide the amount of detail sufficient to adequately address the issue(s) noted in the comment above.

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Concern: Missing from the Arctic Alaska analysis are gray whales, belugas, killer whales, and harbor porpoise. These populations must be identified so that decisionmakers and the public can adequately assess the potential impacts from MMS actions.

Response: The MMS agrees that these populations needed to be added to the analyses and included in the FEIS. The MMS completely agrees these stocks should have been included in the DEIS and had intended on doing so. A full description and analysis of potential effects on these stocks are included in the FEIS.

Concern: The section on Bering Sea Subregion nonthreatened and nonendangered marine mammals states that belugas in Bristol Bay are concentrated primarily in Kvichak Bay. This is inaccurate. They regularly use Nushagak Bay in large numbers. Recent satellite tagging data are available for this region from the Alaska Department of Fish and Game (ADF&G), Arctic Marine Mammal Program. Previous MMS-funded studies have also clearly documented major use of Nushagak Bay by belugas.

Response: The MMS has incorporated this information into the FEIS.

Concern: The DEIS does not adequately discuss impacts to marine mammals from oil and gas activity. The MMS relies on stale science and/or irrelevant or inapplicable science. The MMS is specifically precluded from using stale science that is sufficiently old to have questionable applicability to the current situation. If there is reason to believe that knowledge about the distribution and abundance of a species is old, then the MMS should conduct new studies.

Response: At the broad level of analysis provided in this 5-Year EIS, the literature cited provides the information needed for this level of the analysis. Most of the descriptions also include information from the most recent stock assessment reports published by the NMFS. As MMS develops more detailed, location-specific NEPA documents under its tiered approach, there will be a more comprehensive review and inclusion of scientific and other literature relevant to the analysis.

Concern: The MMS ignores a very significant and highly regarded body of research on the importance of Bering Sea nutrients to the annual feeding cycle of the arctic bowhead whale stock. This omission joins with a complete lack of discussion by MMS of the presumed advection of the Bering Sea nutrients into the Chukchi Sea, which could make feeding in both the Bering and Chukchi Seas critical to these whales. Similarly, MMS fails to mention the absence in the literature of a much-needed body of research on the use of the Chukchi Sea by marine mammals generally.

General Response #2: The MMS uses a tiered process under NEPA which takes large, complex, long-term projects and analyzes them in a series of incremental steps to address broad issues first and to then consider more detailed, location-specific issues in subsequent stages. Therefore, the intent of this EIS is to only provide broad information and analyses that will serve as the starting point for more detailed environmental reviews at the region-, site-, project- or activity-specific stages. Therefore, MMS feels the level of information provided in this EIS is appropriate for this programmatic, broad-level analysis. More detailed, site-specific NEPA analyses will occur at the lease sale and/or through activity specific documents (i.e., seismic analyses). It is at these stages that MMS will be able to provide the amount of detail sufficient to adequately address the issue(s) noted in the comment above. In addition, it is at these levels that MMS will consult with the FWS and/or NMFS under Section 7(a)(2) of the ESA to ensure that activities do not jeopardize the continued existence of listed species or adversely modify their critical habitat (if designated). The MMS will also advise any lessees or operators of any MMS-approved activities to contact the FWS and/or NMFS for appropriate

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authorizations under the ESA and/or Marine Mammal Protection Act (MMPA) for any activities that have the potential to affect marine mammals.

Concern: The MMS fails to make any reference to its own data indicating potentially significant long-term impacts to migratory bowhead whales and seals from industrial operations at Prudhoe Bay.

Response: See General Response #2 above.

Concern: At the outset, we note the very strange decision by MMS not to acknowledge, in this DEIS, the almost lack of current research on the occurrence and behavior of marine mammals in the Chukchi Sea. That this omission is intentional is made obvious by MMS's own very detailed and thorough account of data gaps and research needs with respect to the Chukchi, as published by MMS in the PEA only weeks before the updated DEIS was made available to the public.

Response: The MMS still stands fully behind the analysis provided in the cited 2006 Programmatic Environmental Assessment of Arctic OCS Seismic Surveys (MMS, 2006b) and has incorporated this document by reference into this FEIS. This level of detail on the issue has also been provided in MMS's Lease Sale 193 DEIS for the Chukchi and is being included in the draft programmatic EIS that NMFS and MMS are currently developing for offshore seismic surveys in the Arctic. See also, General Response #1 on page V-55.

Concern: The remaining members of the North Pacific right whale species utilize the waters of the southeast Bering Sea as their primary summer feeding grounds. In July 2006, the NMFS designated critical habitat in the Gulf of Alaska and southeast Bering Sea for the whales. The map of the right whale critical habitat that MMS has included in the DEIS is not accurate according to the designation made by NMFS. The MMS should correct this mistake in the FEIS. More than half of the right whale critical habitat in the southeast Bering Sea overlaps with the proposed lease-sale area. The potential for conflict between offshore oil and gas operations and right whale feeding activities is extremely high. The FEIS should analyze potential impacts to this species in light of the proposed lease-sale area overlapping the whale's only known summertime feeding grounds. Furthermore, because this species is present in the Chukchi Sea area, an analysis of direct, indirect, and cumulative effects in its entire range should be conducted.

Response: At the time of printing of the DEIS, the NMFS had not yet finalized its critical habitat designation for North Pacific right whales. The MMS plans on updating the map to reflect the final designation of this habitat.

See General Response #2 on page V-56.

The MMS is unaware of any information that suggests that Northern Right whales occupy the Chukchi Sea. This is supported by Figure 1 in the NMFS final rule on right whale critical habitat that shows the population's range to be between 40°0'0"N. and 60°0'0"N.

Concern: There is a significant lack of information as to the abundance, distribution, foraging and breeding patterns, and other critical species data regarding seals in all Alaska regions in the 2007-2012 program. The importance of this information is blatantly underestimated in the DEIS. Seals are wholly dependent upon ice. The MMS has chosen to make unsubstantiated assumptions on impacts in the 5-Year DEIS, waiting instead to attempt to come up with this data at a later date for monitoring purposes. However, this is an inadequate approach for a professional assessment. The DEIS should

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state more clearly how little is known about ice seal distribution, abundance, and general ecology and address potential effects of global warming on this species.

Response: See General Response #1 on page V-55.

Concern: The DEIS overstates the current understanding of walrus distribution and abundance, and fails to mention the changing ice dynamics of the Bering Sea and Chukchi Sea in relation to walrus. Walrus will be impacted from reductions in the extent and thickness of sea ice in Arctic and subarctic waters and critical feeding areas that are located in the Chukchi Sea. The DEIS should note that one of the largest Pacific walrus haulouts in Alaska occurs at Cape Seniavin, where up to several thousand gather between April and September. In addition, the Round Island walrus sanctuary is just north of the North Aleutian Basin lease area.

Response: See General Response # 1 on page V-54.

Comment: The DEIS does not discuss the effects of changing ice on sea otters. The southwest Alaska stock of the northern sea otter is a candidate species under the ESA, and this species inhabits the lease sale area.

Response: See General Response #2 on page V-56.

Concern: Page III, paragraph 3, line 4: Although the population appears to be generally resident to the Gulf of Mexico, recent satellite tagging shows that some whales leave the Gulf of Mexico and range up the Atlantic seaboard as far as North Carolina. Other tagged whales ranged from the Mississippi Delta, southwest across the Gulf of Mexico, and into the Yucatan area. It is also speculated, based on the general lack of large males, that the males roam outside the Gulf of Mexico and occasionally enter the Gulf to breed.

Response: The MMS agrees that there is some recent information that suggests that some sperm whales may range outside of the Gulf of Mexico. However, the population is still considered resident to the Gulf. Additional analyses undertaken by MMS under its tiered approach to NEPA analyses (i.e., lease-sale or activity-specific EIS') will provide a greater discussion of known information on sperm whale presence and distribution within and adjacent to the Gulf.

Concern: Page III-103, paragraph 3, line 3: The International Whaling Commission (IWC) sets the quota numbers. Then, NOAA Fisheries and the AEWC agree to the annual take numbers. See the most recent rules published in the Federal Register (71 FR 29:7539) on February 13, 2006.

Response: The MMS agrees with that the quota is set by the IWC, and then actual take numbers are agreed upon by NMFS and the AEWC, with input during the public process. However, this more specific information is not needed for statements made in this section of the EIS.

Concern: Page III-104, paragraph 3, line 1: Polar bears are quite numerous in Hudson Bay, Canada, which is not considered part of the "arctic ice cap."

Response: MMS will adjust this sentence to reflect this information.

Concern: III-106/3/10: Although some North Pacific right whales have been sighted in this area, there was not conclusive scientific evidence to discern this area as "critical habitat."

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Response: The MMS feels that the information contained here is accurate. It simply states where recent evidence has shown a concentration of these animals and that this suggests the area to be important for them. In addition, this is part of the critical habitat area for North Pacific right whales that the NMFS revised on July 6, 2006 (see 71 FR 38277).

Concern: The DEIS at page III-105 states that the southern Beaufort Sea polar bear population estimate is 2,272 individuals and that this stock is assumed to be within optimum sustainable population levels. This is outdated and incorrect. The most recent population estimate for the southern Beaufort polar bear population is 1,526 animals (95% CI = 1,211; 1,841) (Regehr et al., 2006). Moreover, a dramatic decline in cub survival has recently been documented in this population, from a mean of .61 cubs per female to .25 cubs per female observed in the autumn (Regehr et al., 2006:13). Parallel declines in body condition have been observed, with declines in skull size for both cubs of the year and adult males, as well as a significant decline in body weight for adult males (Regehr et al. 2006:13). These are precisely the types of impacts observed prior to a major, ongoing population decline in the Western Hudson Bay population, and must ultimately have population-level effects in the southern Beaufort population as well (Regehr et al., 2006:13-14). Scientists have recommended conservative management of this polar bear population due to the profound declines in sea area and extent that are predicted (Regehr et al., 2006:14).

Response: The population estimate of 2,272 individuals was cited from the most recent stock assessment reports from the FWS. Since issuance of the DEIS, the FWS has issued a proposed rule to list the polar bear as threatened under the ESA. The MMS has updated the polar bear description to include more recent information on polar bear status, life history traits, and abundance in the FEIS.

Concern: The DEIS at pages III-104 to III-106 contains similarly outdated information for other arctic species. For example, the discussion of Pacific walrus (DEIS at III-104) makes no mention of the observed and projected impacts of global warming on the population. A recent paper published in the peer-reviewed journal *Aquatic Mammals* documented several such impacts relevant to the proposed authorization (Cooper et al., 2006). Specifically while on a research cruise in portions of the Chukchi and Beaufort seas overlapping in areas proposed for leasing in the 2007-2012 program, scientists observed walrus calves separated from their mothers in deep waters.

Response: The issue and potential effects from global climate change are discussed in Section IV, on page IV-3 of the DEIS and also in the FEIS as it is a programmatic concern across many resource areas. See also General Response #1 on page V-55.

Concern: The DEIS at page III-115 contains outdated and misleading information relating to the Cook Inlet beluga whale. The Cook Inlet beluga whale is listed as depleted under the MMPA. The population has not recovered from overharvest and is now being considered by NMFS for ESA listing (71 FR 14836). As such, this critically endangered stock needs to be discussed separately from other populations of beluga that are also affected by the Program.

Response: A description of the Cook Inlet stock of beluga whales is already included separately in Section III.B.6.c(1) (South Alaska Subregion, Threatened and Endangered Marine Mammals and Species of Concern) as it is listed as a "species of concern" under the ESA.

Concern: Page III-209 and throughout - Given the current listing of the species, it is more appropriate to refer to right whales occurring in the Atlantic as "Northern" right whales rather than "North Atlantic" right whales.

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Response: Since the time of this comment, the NMFS has published a final rule to list North Pacific right whales as a separate endangered population under the ESA (see 71 FR 77694). In the summary of this proposed rule, NMFS calls the two populations the North Pacific right whale and the North Atlantic right whale. Assuming this is now the most current information, the MMS will keep the populations in this EIS as North Atlantic right whales and North Pacific right whales.

Concern: Page III-209: The most recent information on manatee sightings indicate that at least one manatee traveled as far north as Massachusetts.

Response: The MMS has changed this sentence to reflect this information.

Concern: The MMS is violating the MMPA. The DEIS documents the significant adverse impacts of the Program on various marine mammals (DEIS at IV-40, IV-114, IV-260). While the DEIS mention some of the impacts of the Program on marine mammals, in no way is this analysis adequate for purposes of NEPA and OCSLA. The Program would authorize activities that cause the “take” of marine mammals. Nevertheless, neither the DEIS nor the Program provide any explanation of how that take will be authorized. Given the current MMS Program and all associated leasing, exploration, and development activities in the Gulf of Mexico that are being carried out without any MMPA take authorization, we do not see how the Program can be approved without also violating the MMPA.

Absent an EIS that accurately discloses and analyzes the impacts of the Program on marine mammals, and MMS imposing meaningful mitigation measures, we do not see how the requirements of the MMPA can be complied with at this or any other stage in the leasing and development process.

Response: The MMS disagrees that it is violating the MMPA. The 5-Year Oil and Gas Leasing Program EIS is a document meant to provide the Secretary of the Interior with the information needed to make decisions on which areas of the OCS may be put up for lease sale. Once a decision is made on offering an area for lease, a separate more detailed environmental analysis under NEPA will take place to assess potential impacts to marine mammals and other resources within the proposed action area. For nonlease activities, such as approvals for seismic surveying, the MMS also conducts a site-specific NEPA analysis to assess potential effects. Again, the FWS and NMFS are asked to provide review and input on these analyses, including sections dealing with mitigation and monitoring. The MMS has worked with these agencies over the years to develop baseline mitigation and monitoring measures addressing specific OCS oil/gas activities. These are incorporated into MMS permits and authorizations. If an activity has a potential to take marine mammals, the MMS also advises OCS operators to contact the FWS and/or NMFS to determine if authorization is needed under the MMPA for their activities. (Under the MMPA, authorization requests are coordinated directly between an applicant and the FWS and/or NMFS.) All of these efforts help ensure that OCS oil/gas activities meet the intent of the MMPA.

Concern: The MMS must revise the DEIS to show that the 5-Year Program complies with the standard Congress set forth in the MMPA. There should be no unmitigable adverse impact to the availability of subsistence resources.

Response: See response given above regarding the Center of Biological Diversity comment.

Concern: A number of commentors disagreed with statements in the DEIS where MMS asserted that formal consultation under the ESA was not required at the 5-Year EIS level and would instead occur at region-, site-, and/or project-specific levels.

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Response: See General Response #1 on page V-55.

Concern: While the EIS considers the 5-year planning phase of the leasing program, NOAA agrees that future actions related to specific lease sales, for example, may affect listed species or their critical habitat, thereby warranting ESA consultation. As such, NMFS requests that following completion of the planning phase, MMS coordinate with NMFS on future steps in the leasing program and continue working with NMFS to collect data and analyze impacts to listed species or critical habitat.

Response: The MMS agrees and traditionally follows this approach of close coordination with the various Federal resource Agencies.

Concern: Page C-5, Information to the Lessee: The following information should be made available to each applicant/lessee in all of the regions of this program and modified specifically according to habitats and species for each of the regions (for example considerations of bowhead whale populations in Alaska and right whale populations in the Atlantic): (1) During the lease sale phase (e.g., presale process), MMS should provide a specific description of the area including listed species, critical habitat, and other important environmental factors; and (2) As the Federal Action Agency, MMS should thoroughly inform applicants of any environmental issues that may be involved with the potential lease sale of an area, including federally-listed species, critical habitat; whale and vessel strike interactions; seismic and marine mammal interactions; and those that will involve ESA consultations, MMPA authorizations, and EFH consultations.

Response: The MMS agrees and already incorporates these recommendations as part of its standard operating procedures.

Concern: The AMCC believes that the potential for conflict between offshore oil and gas operations and right whale feeding activities is extremely high. The FEIS should analyze the potential impacts to this species in light of the proposed lease-sale area overlapping the whale's only known summertime feeding grounds.

Response: See General Response #1 on page V-55.

Concern: The transportation scenario identified in the FEIS for Lease Sale 92, which has recently been confirmed by Shell as remaining to be the preferred transportation route, indicates that a pipeline would be placed through Herendeen Bay near Port Moller, would run onshore through the Alaska Peninsula, and would link to a liquefied natural gas (LNG) terminal near Balboa Bay. Tankers would ship oil and gas from the terminal on the southern side of the Alaska Peninsula to the market. This transportation scenario would have pipelines leading from right whale critical habitat, going through Steller's eider critical habitat, and next to walrus haulouts and tanker routes through Steller sea lion critical habitat on the southside of the Peninsula (see maps). (Maps were included in the AMCC original comment letter.) Mitigation measures could not fully compensate for the full range and intensity of impacts that these endangered species would incur from OCS operations.

With regards to the North Pacific right whale, the FEIS should incorporate information from an independent scientific study commissioned by the World Conservation Union on the impacts of the Sakhalin oil and gas project on the gray whale, due to the similarity of circumstances for the species and potential impacts from offshore oil and gas operations. The DEIS also fails to properly assess the potential impacts to marine mammals from seismic surveys. It states that noise from seismic surveys would primarily affect marine mammals "in the vicinity of the survey vessel, although animals within a few kilometers of the seismic operations may be affected" (IV-124). A number of studies, along

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with accounts from Inupiat subsistence hunters, suggest that whales avoid expansive areas where seismic surveys are being conducted. Humpback, gray, and bowhead whales have been show to exhibit behavioral changes and to avoid areas where seismic shooting is occurring between 19 and 34 kilometers (km) away from the source (National Research Council [NRC], 2003a; McCauley et al., 2000). The DEIS should reference scientific studies and indigenous/local knowledge which demonstrate the potential for seismic surveys to have far-ranging impacts on marine mammals and should revise the findings of the DEIS based on this more precautionary data (More detailed information on the impacts of seismic surveys is referenced in AMCC's CFI comments).

Response: See General Response #2 on page V-56.

Concern: The region provides designated critical habitat for 3 federally listed species: the North Pacific right whale, the Steller sea lion, and the Steller's eider. Important habitat for the federally listed northern sea otter also occurs within the Lease Sale 92 area, although critical habitat has not been designated at this time. The DEIS finds that routine operations occurring near important habitat for the Steller sea lion and the Pacific walrus could result in long-term and population-level effects. However, the DEIS suggests that the protected nature of many of the important habitat areas will limit potential negative effects on these species. As shown in the map below [map included in original comment letter], some of these important habitat areas overlap and occur directly adjacent to the Lease Sale 92 area. As such, many of these important habitat areas would not be protected from OCS activities. Steller sea lion designated critical habitat foraging areas overlap a significant portion of the Lease Sale 92 area, as does a 20 nautical avoidance zone around a haulout and rookery. Walrus haulouts also occur close to the lease sale area.

Response: See General Response #2 on page V-56.

Concern: All onshore and offshore facilities and OCS-support vessel and aircraft routes must be carefully sited to avoid marine mammal and other fish and wildlife and essential habitat impacts.

Response: For all MMS-regulated activities that may potentially affect marine mammals, the MMS works closely with the Federal resource agencies directly mandated with the protection of marine mammals. This includes the FWS for polar bears, walrus, sea otters, manatees and dugongs and the NMFS for cetaceans, seals and sea lions. This coordination helps identify measures that limit the potential for impacts to occur. For marine mammal species listed under the ESA, the MMS also consults with these agencies under Section 7(a)(2) of the ESA to ensure that MMS-approved activities do not jeopardize the continued existence of a species or destroy or adversely modify critical habitat. Additionally, MMS advises offshore oil and gas operators to contact the FWS or NMFS to determine if authorization is needed under the Marine Mammal Protection Act. These authorizations, if granted, require that takings are: (1) of small numbers; (2) have no more than a "negligible impact" on affected marine mammal species; and (3) not have an "unmitigable adverse impact" on subsistence harvests of these species. All of these efforts include an analysis of the potential impacts from vessels and aircraft. Any mitigation measures identified to lessen the potential for vessel and aircraft impacts are then incorporated into MMS permits/authorizations, ESA consultations, and/or under MMPA authorizations issued by the FWS and/or NMFS.

Concern: Overall, the regional sections on marine mammals effectively summarize what species are present, their seasonality, and their relative population levels. This kind of information is valuable to have in an EIS so that proper evaluations can be made. However, in too many places the DEIS speculates with respect to potential effects from offshore exploration and production activities on marine mammals without adequate scientific reference or support. Often such speculative comments

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are followed by summary analytical discussion that concludes that a particular effect either has not happened or is highly unlikely to happen due to particular circumstances or due to customary mitigation measures. In many cases, the DEIS makes reference to many of the same sources that have been cited in documents of this nature for the past 15-25 years. This would suggest that either no new research has been done, newer information has not been found, or that the speculative impact may never have occurred. Wherever possible, the DEIS should avoid speculation about potential effects and should describe effects with reference to documented incidents or scientific or technical reports.

Response: Where appropriate in the EIS, MMS has drawn conclusions based on available information and generally accepted biological principles regarding the potential for effects to resource areas. The MMS has characterized the information base throughout the document so as to reflect where more information is available and where information is lacking. In addition, given the tiered NEPA approach that MMS is undertaking, a more thorough description of known and unknown site- or activity-specific information will occur at subsequent NEPA analyses stages.

Concern: Page IV-40, paragraph 4, line 4: The Bryde's whale is mentioned numerous times for the Gulf of Mexico. Only in one or two places does the DEIS mention that the entire population size is estimated at 40 individuals for the Gulf of Mexico, making it a rare species for the area, and presenting a low probability of encounter.

Response: Wursig et al., 2000, (The Marine Mammals of the Gulf of Mexico) provides the following definitions:

- **Extralimital:** An extralimital species is known on the basis of only a few records that probably resulted from unusual wanderings of animals into the region.
- **Rare:** A rare species is one that is present in such small numbers throughout the region that it is seldom seen. Although not threatened with extinction, a rare species may become endangered if conditions in its environment change.
- **Uncommon:** An uncommon species may or may not be widely distributed throughout the region but does not occur in large numbers. Uncommon species are not necessarily rare or endangered.

The MMS considers Bryde's to be uncommon in the Gulf of Mexico, not rare. Sightings of Bryde's whales during MMS' and NMFS' marine mammal surveys in the Gulf of Mexico have typically been very localized in the eastern Gulf and a sighting can be expected with surveys occurring fairly regularly (C. Roden, pers. comm).

Concern: Page IV-40, paragraph 5, line 1: A good summary statement about mysticetes in the Gulf of Mexico. What is missing from this DEIS is any good summary of the findings of several years of the Sperm Whale Seismic Survey Program. It has show a considerable co-existence between the sperm whales and the offshore oil and gas industry. It should be summarized and documented in this DEIS.

Response: See General Response #1 on page V-55.

Concern: Page IV-41, paragraph 1, line 1: The repetitious list of "possible" effects on marine mammals is often misleading. Here it states the same list (1) hearing loss, discomfort, and injury; (2) masking of important sound signals; (3) behavioral responses such as fright, avoidance, and changes in physical or vocal behavior. Immediately following this same list is the important statement that "... there have been no documented instances of deaths, physical injuries, or physiological effects on marine mammals from seismic surveys (MMS, 2004b)." It should be pointed out that this lack of

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observed effects covers several decades and represents many millions of miles of seismic surveying. Speculated effects, such as “masking,” have never been documented to occur. Some speculation is that the pulsed nature of seismic signals is such that background communications would probably not be disrupted.

Response: The sentence characterizes the list of potential effects as possibilities based on information garnered from several studies and seems appropriate for the discussion in this section. Also See General Response #1 on page V-55.

Concern: Page IV-41, paragraph 5, line 1: The NRC 2005 (cited earlier in these comments) report on biologically significant effects should be referenced. It concludes that there are no known population-level effects due to sound. They also conclude that effects at the individual level are not biologically significant on the population level. The exception to this would be in the case of a critically endangered species where there may only be a few hundred individuals still existing.

Response: The NRC report (2005:3-4) states that “An action or activity becomes biologically significant to an individual animal when it affects the ability of an animal to grow, survive, and reproduce. Those are the effects on individuals that can have population-level consequences and affect the viability of the species.” Although there are no documented or known population-level effects due to sound, the report does acknowledge the potential for this to occur. The MMS agrees with these NRC statements in that we acknowledge there have been no known instances of injury, mortality, or population-level effects on marine mammals from seismic exposure but that the potential for these types of impacts may exist without appropriate mitigation measures. The MMS-approved seismic surveys include mitigation measures designed to reduce the potential for effects to occur.

Concern: Page IV-44, paragraph 1, line 3: The DEIS uses this same thread of logic in numerous sections throughout the report. They state, “Marine mammals could be affected directly through exposure to operational discharges or ingestion of contaminated prey, or indirectly as a result of discharge impacts on prey species.” Based on over two decades of offshore studies on the fate and effects of operational discharges, these conditions do not occur. The zone of benthic impact around a platform is usually less than 200 m. Trace contaminants, other than insoluble barium, are also at low levels, and restricted to the 200-m radius. Studies have been conducted on the uptake of contaminants into benthic organisms, and find little to no bioaccumulation. Likewise, fish in the upper water column have been studied, and there is no significant bioaccumulation of operational analyses in their tissues. Water column sampling throughout the Gulf of Mexico has shown that there is generally no measurable increase in contaminants in the water column. There is no solid data to support that marine mammals could uptake and be affected from contaminants related to the operations. The DEIS, after putting in the usual “potential effects”, then goes onto to qualify it by saying that “. . . it is unlikely that marine mammals would be directly exposed to operational discharges at concentrations sufficient to result in direct lethal or sublethal effects.”

Response: The MMS believes the paragraph referenced in the comment above correctly summarizes the issue. There is a potential for impacts to occur to marine mammals from operational discharges. However, the paragraph continues by providing a line of reasoning for why MMS believes these impacts to be unlikely.

Concern: Page IV-46, line 3: Since special mitigation measures have been established for the explosive removal of platforms, only 2-3 turtles have been observed to have been possibly injured, and to our knowledge, no marine mammals have been injured. This is after over 1,000 platforms have been removed. The success of these mitigation measures should be included in this document.

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Response: The paragraph is updated to state there are no known injuries to marine mammals from the explosive removals following the MMS mitigation measures. The section is also updated to reflect the ongoing efforts to cover platform removals Gulfwide under the MMPA and ESA.

Concern: Page IV-45, paragraph 1, line 5: Repeated mention is made of the increased potential of ship collisions with marine mammals relative to the offshore oil and gas industry. What are the actual numbers? A table should be presented which shows the actual industry vessel strikes per year. It would be helpful if this were put in the context of the number of industry vessel miles run per year. This would result in a good risk or probability estimate.

Response: See General Response #1 on page V-55.

Concern: Page IV-114, paragraph 3, line 1: Gray whales should be included in discussions.

Response: Gray whales are referenced on page IV-114, paragraph 3, line 2.

Concern: Page IV-117, paragraph 1, line 1: The small area affected by the trenching of a pipeline into the bottom is insignificant in terms of benthic community disruption when compared to the long, wide furrows made in the bottom by gray whales as they bulldoze the seafloor in search of amphipods and mollusks. This extensive disturbance of the seafloor by the gray whales as they feed is well documented. A pipeline corridor would be a narrow, one-time disturbance that would recover over a short period of time. The removal of food habitat for gray whales and walrus would be *de minimis*.

Response: The discussion in this paragraph focuses on the potential effects from the removal of benthic habitat from marine mammal foraging areas and not a comparison to how much seafloor habitat is disrupted from gray whale feeding versus pipeline trenching.

Concern: Page IV-121, line 2: The statement that "Prolonged exposure to freshly spilled oil could kill some whales (including bowheads), . . ." is pure conjecture and should not be in the document. It is qualified by saying that the numbers would be small due to the low chance of such contact. The example of there being oil in a lead where a bowhead couldn't escape isn't practical. When was the last time a bowhead was "trapped" in a lead?

Response: This paragraph correctly acknowledges the potential for impacts of this nature but qualifies the probability of such an impact as low.

Concern: Page IV-121, paragraph 1, line 1: This paragraph repeats the same speculations from Geraci et al. for the past 15-20 years. Have there been any observations since that time that have verified or nullified some of their speculations? If so, they should be included and quoted. If these effects have not been seen, then they should say so.

Response: The sentence notes that these types of impacts may occur, so the potential for such impacts is qualified appropriately.

Concern: Page IV-122, paragraph 1, line 4: Be specific about what kind of commercial "coagulants" are actually available, permitted, and stockpiled for use in Alaskan waters. If MMS can't be specific, then remove coagulants from this list.

Response: The MMS believes the statement is appropriate as written.

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Concern: Page IV-123, line 3: This is a key statement and should be highlighted in a summary section or executive summary so that it's not overlooked. It should be pointed out that the energy is directed downward, not laterally.

Response: The statement is already listed in the conclusion of the Arctic Alaska impact assessment.

Concern: Page IV-125, paragraph 5: This is consistent with the observation that sperm whales are seen throughout the continental slope deepwater drilling operations in the Gulf of Mexico.

Response: No changes needed.

Concern: Page IV-131, paragraph 4, line 5: Quote for summary section: "There have been no documented instances of deaths, physical injuries, or physiological effects on marine mammals from seismic surveys (MMS, 2004b)."

Response: The quote is appropriately placed in this section since it deals with potential impacts from offshore exploration.

Concern: Page IV-261, paragraph 4, line 3: This is counter to many years of observations and studies. There have been no indications of ". . . large impact-producing potential." There is "potential", then there are several decades of operational observations and studies that do not support the speculation.

Response: The MMS believes the statement is appropriate as written.

Concern: Page IV-264, paragraph 4, line 5: This is a 1983 reference to an NRC report (23 years ago). Numerous studies on the fate and effects of drilling fluids have been conducted since that NRC review. We now know that there is very little bioaccumulation in benthic species, and probably no bioaccumulation to water column species (dose and exposure to low and short), and that there is no impact to "prey species." This is a perpetuation of an older reference, and it should not be used this way, unless including the updated qualifiers.

Response: The MMS believes the statement is appropriate as written.

Concern: Page IV-264, paragraph 6, line 1: There is no evidence that would support the hypothesis that ". . . contaminants present in permitted discharges may biomagnify or bioaccumulate in the food chain, resulting in a higher exposure than might be incurred through direct contact." The MMS studies have shown very little bioaccumulation in benthic species. A 3- year study on bioaccumulation of produced water analytes to platform resident fish and mollusks also showed that there was no significant bioaccumulation. The DEIS should provide specific reference to support the speculation. If not, it should be dropped, or the additional comments provided here should be added.

Response: The MMS believes the statement is appropriate as written. It describes the potential for impacts only.

Concern: Page IV-265, paragraph 2, line 7: Same comment regarding mud and cuttings releasing toxic chemicals to the water. Either document or drop.

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Response: The MMS believes the statement is appropriate as written. It describes the potential for impacts only.

Concern: Page IV-267, paragraph 5, line 1: Document where this has happened. Even in the case of *Exxon Valdez*, the water column showed limited contamination, and the plankton and fish showed very little uptake.

Response: The MMS believes the statement is appropriate as written. It describes the potential for impacts only.

Concern: Page IV-355, paragraph 2, line 8: Due to the high activity in the Gulf of Mexico, the MMS should have good records on the actual oil industry vessel/marine mammal strikes. This information should be provided in this report to support the speculation. The operations have been going on for decades and there are presently over 4,000 structures offshore.

Response: See General Response #1 on page V-55.

Concern: Page IV-357, paragraph 2, line 4: This is a good example of the inappropriate use of speculation. "Marine mammals in the Gulf of Mexico may also be potentially affected by exposure to oil from naturally occurring seeps . . ." The fact is, natural seepage has been occurring in areas throughout the Gulf of Mexico for millennia. Whales have also occupied the Gulf of Mexico for millennia. All this before man was even present. If there was an effect from the oil, wouldn't we have observed it, or studied it by now? The primary aggregation area for sperm whales in the Gulf of Mexico is along the Louisiana continental slope. This is the same region where MacDonald et al. observed their relatively high volumes of crude oil natural seepage! ! !

Response: The MMS believes the statement is appropriate as written. It describes the potential for impacts only.

Concern: Page IV-461, paragraph 4, line 1: This paragraph is an understatement. In fact, hundreds of thousands (some estimates > 300,000) of marine mammals die annually as a result of commercial fishing, primarily in nets (entanglement or as by-catch). See Read et al., 2003.

Response: The MMS believes the paragraph reflects that commercial fisheries are known to kill or seriously injure marine mammals.

Concern: Page IV-462, paragraph 3, line 1: A table should be given (with references) that shows the various sources of sound (noise) in the oceans, and quantitates each to support this claim. To be included are natural noises such as rain, ice movement, biota, earthquakes, and volcanoes.

Response: See General Response #1 on page V-55.

Concern: Page IV-463, paragraph 3, line 16: This statement doesn't make sense. The oil and gas development would always be highly regulated, thus the potential for impact on marine mammal populations, including the right whale, would be adequately addressed by mitigation measures.

Response: The MMS believes this paragraph is appropriate as written. The statement speaks to the cumulative effects from OCS and non-OCS activities. It also notes that there would be diminishing effects to marine mammal populations if these activities (in total) were unabated. This is why MMS gives careful consideration (and coordinates with the various Federal resource Agencies) to mitigation

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and monitoring measures that are meant to reduce the potential for impacts from oil/gas activities and, thus, reduce the potential for overall greater, more cumulative effects.

Concern: There are several other endangered marine mammals and sea turtles that migrate up and down the east coast annually, requiring them to pass through the program area twice a year. The DEIS underplays the significance of fatal collisions on the population of endangered species. The loss of individuals from a population that is so decimated as to be federally listed as endangered must be given substantially greater protection considering the elevated risk of extinction. In addition to increased risk of collision, endangered marine mammals and sea turtles will also be subjected to increased marine debris resulting from the “discharge or disposal of solid debris into offshore waters from OCS structures and vessels”, as stated in the DEIS, impacts related to the “ingestion of or entanglement with discarded waste could lead to intestinal blocking, reduced mobility, and other lethal and sublethal effects.”

Response: See General Response #2 on page V-56.

Concern: Page IV-265: The last sentence of the Conclusion (“With appropriate mitigation and monitoring, no changes in distribution, population size, patterns of migration, or behaviors of marine mammals are expected”) does not appear to be supported by the text. The MMS should describe the expected mitigation/monitoring measures that would help minimize impacts on marine mammals.

Response: See General Response #2 on page V-56.

Concern: Page IV-124: This section should discuss the occurrence of significant numbers of endangered Pacific right whales in the southeastern Bering Sea since 1996. These remarkable sightings indicate a large portion of the remaining right whales regularly occupy these waters for seasonal feeding and perhaps other life history requirements. The MMS should provide an analysis of potential impacts of seismic activity on North Pacific right whale, and summarize research on seismic effects on bowhead whales in the Alaskan Beaufort Sea. The MMS should also consider the growing body of literature describing the distribution and behavior of right whales in the southeastern Bering Sea.

Response: The MMS agrees and has updated the text in the Conclusion section of the FEIS to reflect the particular consideration given to assessing impacts to North Pacific right whales. All MMS future NEPA documents (i.e., lease sales, seismic activity, etc.) for proposed activities occurring in the North Pacific right whale range will be developed with input from Federal resource Agencies and other stakeholders so as to carefully assess the potential for risks and the effectiveness of proposed mitigation and monitoring measures. In addition, these activities will require consultation under Section 7(a)(2) of the ESA to ensure that OCS activities do not result in jeopardizing the continued existence of this species or result in adversely modifying its critical habitat.

Concern: Alternative 2 would provide some degree of impact reduction for the endangered bowhead whale, as this population migrates through the nearshore lead system of the sea ice during its spring migration into the Beaufort Sea. The spring lead system is one of the most sensitive environments for these whales.

Response: The comment is noted.

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Concern: Pages IV-68: The mitigation measures for explosive removal of offshore structures are out of date. A new programmatic biological opinion was issued on August 28, 2006, that contains newly implemented mitigation measures for these activities.

Response: This has been included in the FEIS.

Concern: In the discussion on the Chukchi Sea, the MMS asserts that “the geographic scale of any potential noise effect is probably relatively small compared to the total habitat used by whales in the Chukchi and Beaufort Seas.” (DEIS, p. IV-116.) Here MMS cites to itself in the Environmental Assessment (EA) for Lease Sale 195. The EA, however, contains no support for the proposition of noise effects. In fact, there are no data to support this conclusion, and the information that is available from the seismic source sound verification tests in the Chukchi Sea during the summer of 2006 indicates that seismic pulses travel great distances (80 to 100 km at the 120 decibel [dB] isopleth) in these arctic waters.

Response: This EIS does incorporate by reference the 2006 Programmatic Environmental Assessment of Arctic OCS Seismic Surveys (MMS, 2006b). This PEA provides a thorough analysis of many of the issues noted in the comment above. The MMS has included the conclusions regarding the effects of seismic on marine mammals from the 2006 PEA into this section of the 5-Year FEIS.

Concern: Page IV-122, paragraph 1: Typo: polar bear (not poplar bear).

Response: The text has been changed accordingly.

Concern: In many places in this DEIS, the authors employ the word "noise" when the word "sound" should be used. A high frequency sound might be noise to a dolphin, but have no effect on a baleen whale (who hears primarily in the low-frequency range). Recent reports prepared for the Marine Mammal Commission by the Federal Advisory Committee on acoustic impacts went to considerable lengths to characterize the proper use of the terms. What might be "noise" to one animal or species, may either not be heard, or simply be another sound occurring in the marine environment to another individual.

Response: The MMS agrees that the word “sound” would be more appropriate to use. However, it is too costly and time consuming to replace all the “noise” words with “sound” at this point in the process, and MMS feels the main issues of the analysis are still discernable regardless of which word is used.

Concern: Page III-207, paragraph 2, line 2: The shipping noise would first have to enter the deep sound channel (--below 1000') in order for the low frequencies to be transported great distances.

Response: The MMS believes the statement is appropriate as written.

Concern: Page III-209, paragraph 1, line 1: We question that odontocetes have been confirmed to respond to seismic pulses at 100 km. Provide specific citation to support this claim.

Response: The MMS believes the statement is appropriate as written. Citations are provided within the text.

Concern: Page III-209, paragraph 2, line 1: Virtually no discussion is given in this DEIS on the beaked whale controversy. It is the only species where there seems to be a good correlation between

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animal effects and sound sources. Although still to be determined, either physical effects, or behavioral responses, have lead small numbers of beaked whales to strand following close proximity to naval mid-frequency sonar sounds. The DEIS needs to acknowledge these recent findings.

Response: See General Response #1 on page V-55.

Concern: The DEIS acknowledges that the impacts to whales and other animals from seismic activities is uncertain. The NEPA requires agencies to ensure the “professional integrity, including scientific integrity, of the discussions and analyses in environmental impact statements” (40 CFR 1502.24). Where information is critical to a decision, agencies are required to obtain the information, unless the cost of obtaining it would be exorbitant (40 CFR 1502.22).

The DEIS consistently notes that marine mammals are sensitive to sound and are likely to be impacted by seismic activities. However, the DEIS provides only minimal detail regarding the level at which various species may be impacted, and relies on the PEA for further information. This minimal information is insufficient to provide a basis for determining the level of impact to these animals, and for crafting effective mitigation measures to minimize harm. The problem is exacerbated because the DEIS provides little information specifying the types of seismic activities likely to occur in any of the areas (although it notes that airgun arrays are the most frequent form of seismic activity), and the noise level associated with those activities.

The DEIS also notes, however, that “[i]t has not been possible to predict the type or magnitude of responses to [seismic] surveys (and other oil and gas activities) nor to evaluate the potential effects on populations” (DEIS at IV-115 (discussing impacts to marine mammals in the Arctic Subregion); DEIS at IV-123 (discussing impacts to marine mammals in the Bering Sea subregion); and DEIS at IV-132 (discussing impacts to marine mammals in the South Alaska Subregion)). Much of MMS's analysis of the impacts to marine mammals and the effectiveness of any mitigation measures depends on the sensitivity of the impacted species to certain levels of sound, and the zone in which that level of noise is audible. At the recent 2006 NOAA Ocean Open Water Seismic Meeting, the industry acknowledged that sound models used in 2006 drastically underestimated the extent of sound fields. Inaccurate sound modeling increases the chances that marine mammals will be banned from seismic activities. If information regarding these crucial factors is inaccurate or uncertain, the entire analysis is flawed.

Scientific studies show that whales and fish are extremely sensitive to seismic activities, and that the impacts of those activities may be more severe than anticipated by MMS. See the NRDC et al. comments on the draft PEA at 2-8, 27-31 (giving a detailed discussion of the impacts of seismic activities on various species). The sparse information in the DEIS indicates that MMS anticipates fish, whales, and marine mammals are likely to be impacted at some level by seismic activities. It does not clearly indicate at what level those injuries are likely to occur or establish noise thresholds and the basis for adopting those thresholds. This meager analysis fails to characterize the full effect of seismic surveys and ignores compelling evidence of the severity of those impacts. See, e.g., NRDC et al. comments on draft PEA at 28-29 (discussing literature related to whale strandings). The MMS has also ignored a significant body of indigenous ecological knowledge, or traditional knowledge on the effects of noise disturbance on marine mammal and other issues. For example, belugas are known to be very sensitive to noise. See H.P. Huntington and N.I. Mymrin, editors, *Traditional Ecological Knowledge of Beluga Whales: An Indigenous Knowledge Pilot Project in the Chukchi and Northern Bering Seas*, Final Report September 1996, Inuit Circumpolar Conference. This study notes the importance of complying with ethical principles for conduct of research, including those adopted by the Interagency Arctic Research Policy Committee.

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Finally, the DEIS fails to specifically address the number of mammals likely to be impacted from seismic activities. See, e.g., DEIS at IV-115. The MMPA includes a “moratorium” on the taking of marine mammals (16 U.S.C. § 1371(a)). The term “take” includes “harass” which, in turn, means “any act of pursuit, torment, or annoyance” which may injure or disturb a marine mammal or marine mammal stock, including by disrupting behavioral patterns such as migration (16 U.S.C. § 1362(13),(18)). The MMPA permits the authorization of incidental harassment of marine mammals, but only for “small numbers of marine mammals of a species or population stock,” and only if such harassment “will have a negligible impact on such species or stock” (16 U.S.C. § 1371(a)(5)(D)(i); 50 CFR 216.107(b)).

Particularly in the cumulative context, impacts from seismic activity could be broad in their effect, such that more than small numbers of the species would alter their behavior patterns or be otherwise harassed. The MMS must anticipate the number of marine mammals likely to be impacted to ensure compliance with the MMPA.

Response: This EIS does incorporate by reference the 2006 PEA, which provides a thorough analysis of many of the issues noted in the comment above. Also See General Response #2 on page V-56.

Concern: The DEIS inappropriately relies on the PEA. The noise thresholds adopted in that document did not reflect sound science, and cannot be expected to prevent damage to whales, fish, and other animals. See NRDC et al. comments on the PEA at 27-31; see also the PEA at 230 (adopting 180/190 dB isopleths exclusion zone). Seismic surveys can result in serious injuries to marine life; consequently, appropriate efforts must be specified to eliminate the likelihood of those impacts. NRDC et al. suggested a number of mitigation measures, including increasing the size of the safety zone, excluding testing within 35 miles of bowhead whales' historical migration corridors, geographic exclusion areas, reducing source levels, horizontal propagation, mitigation research, avoiding redundant surveys, and other measures. See NRDC et al. comments on the draft PEA at 19-26. The MMS must specifically consider mitigation measures in the EIS for the 5-year plan, and these measures should be among the measures considered. Mitigation measures must be developed even more cautiously for the 5-year plan, as the impacts will be ongoing for several years, rather than limited to a single summer.

Response: This EIS does incorporate by reference the 2006 PEA. This PEA provides a thorough analysis of many of the issues noted in the comment above. The MMS disagrees that this document was not based on the best available and sound science. The NMFS and MMS are also currently developing a draft programmatic EIS for seismic survey activities in the offshore Arctic environment. This will include the information contained in the PEA as well as any new science available since publication of that document.

Concern: In general, the section on Acoustic Impact on Marine Mammals fails to recognize the weight of evidence in the literature showing seismic activity has not affected the health or reproductive fitness of marine mammal populations. While numerous subjects remain for additional scientific research on marine mammal populations, the studies to date are very consistent in their conclusions on this topic. The DEIS should note there is no evidence from over 50 years of offshore exploration to suggest that routine seismic surveys may result in population-level impacts for any marine mammal species, and that there have been no documented deaths, physical injuries, or physiological effects on marine mammals from seismic surveys.

Response: The MMS believes this assessment in the EIS is appropriate as written. While MMS agrees that there have been no documented instances of injury, mortality or population-level effects to

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marine mammals from seismic activity, the potential for this to occur may still exist. This is partly because most of the studies to date have not directly assessed or measured for these types of impacts and this type of study would be difficult to design. Statements that support no population level impacts are generally based on more anecdotal observations and a continued determination that a decline in a population means that seismic activities are not having an effect. While this may be true, statements have to be qualified to put the issue into the right context, and MMS believes the EIS does this appropriately.

Concern: Page IV-124, paragraph, 2, line 10: Speculation! There are no data to support the hypothesis that seismic sounds might mask communications between sperm whales.

Response: The statements in the EIS qualify that there is a possibility that seismic noise may mask sperm whale communications. The MMS feels the statements are appropriate as written.

Concern: MMS's Proposed Program repeatedly takes the unsupported statement that although overall impacts to marine mammals are expected to be limited, significant impacts to stocks could occur if activities result in the separation of cow and calf pairs. This statement is repeated in the DEIS, again without support. In point of fact, there is no evidence in the scientific literature regarding bowhead or other baleen whales, that indicates seismic exploration and related activities have ever caused the separation of cow-calf pairs or resulted in a cow abandoning its calf. To the contrary, all of the scientific evidence shows that seismic and other anthropogenic activities, including the most extreme activity, commercial whaling, have not caused the separation or abandonment of cow-calf pairs. The cow-calf maternal bond in bowhead and other species of whales is among the strongest found in nature.

The unyielding strength of this mother-offspring bond is supported by field observations reported by renowned marine mammal researchers and accounts by commercial whalers. Years of field observations of bowhead whales have never shown seismic I operations to cause cow-calves to separate or abandon each other (Reeves et al., 1984; Richardson et al., 1986, 1987; Koski and Johnson, 1987; Richardson, 1999). Moreover, the scientists responsible for these studies as well as unpublished observations and studies (John Richardson, LGL, pers. commun. with Jay Brueggeman on October 12, 2006; Bill Koski, LGL, pers. commun. with Jay Brueggeman on October 12, 2006; Bernd Wursig, Texas A&M, pers. commun. with Jay Brueggeman on November 8, 2006) who have collectively logged thousands of hours of observations of bowhead whales, have all confirmed that they have never observed a single instance of seismic operations or other oil and gas activities in the Alaska Arctic Ocean causing a cow to separate from or abandon its calf. Similar findings have been reported for other marine mammals exposed to man-caused activities, where NMFS scientist Phillip Clapham, NMFS, pers. commun., with Jay Brueggeman on November 7, 2006) has not observed or found any cases of humpback whale cows separating or abandoning calves because of an anthropogenic activity. Consistent with these observations of the cow-calf bond, Wartzok et al. (1989) reported two observations of bowhead cows and calves separated by a few hundred meters quickly rejoined each other when a ship approached them. Commercial whalers often capitalized on this cow-calf relationship to kill whales. Tonnessen and Johnson (1982) reported that whalers hunting right whales would first harpoon the calf, and as the mother refused to abandon her young, she became easy prey for the harpooner. Scammon (1968) noted that whalers commonly hunted the lagoons off Mexico for gray whales, where a cow with a young calf made it easy to harpoon the parent because in trying to escape, the calf would tire, rendering the inseparable cow vulnerable to kill.

The strength of this bowhead cow-calf bond to persist throughout the history of seismic and other oil and gas operations in the Beaufort Sea is demonstrated by the rate of increase in the western arctic

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bowhead whale population. The population has increased from a few thousand whales in the 1970s to an estimated 10,545 animals in 2001 (George et al. 2004a; Zeh and Punt 2004; Angliss and Outlaw, 2005). The population has been increasing at an annual rate of 3.4-3.5% or over 350 calves per year, which if extrapolated to 2006 would currently put the population size over 12,000 animals (adjusted for the aboriginal harvest) or well within the 10,400-23,000 whales estimated in the population prior to commercial whaling (Brandon and Wade, 2004; Angliss and Outlaw, 2005; Woodby and Botkin, 1993). These results clearly show that the population is growing and reproductively healthy (George et al. 2004a; George et al. 2004b), and the calf survival rates are high, which collectively confirm that the cow-calf bond has not been disrupted or altered by seismic or other oil and gas operations.

Response: See General Response #1 on page V-55.

The DEIS does incorporate by reference the 2006 PEA. In addition, the NMFS and MMS are currently developing a draft programmatic EIS for seismic surveys in the Arctic that includes and updates information from the PEA. This draft PEIS will include an assessment of impacts to mother/calf pairs.

Concern: There is also no evidence that seismic exploration has ever resulted in detectable reductions of any marine mammal stock or species population. This fact is strongly supportive of the adoption of an oil and gas leasing plan by MMS that allows for seismic activity throughout the Chukchi Sea OCS.

Conoco Phillips Alaska Inc. is aware of no evidence in the scientific literature of seismic operations causing mortality, injury, or decline in any marine mammal population. The NMFS has prepared stock assessment reports annually since 1995 for 65 species of marine mammals in the North Pacific Ocean, Alaskan Arctic Ocean, Eastern North Pacific Ocean, Gulf of Mexico, and Eastern Tropical Pacific Ocean (Hawaii), which address mortality as well as other population characteristics for determining each species status (See <http://www.nmfs.noaa.gov/pr/sars/species.htm>). Over this 15-year period (2005 is most recent reporting period), there have been active seismic activities in the Gulf of Mexico, the western North Atlantic Ocean, the eastern North Pacific Ocean, and the sub-Arctic and Arctic Ocean off Alaska and adjoining Canada. Yet, for this same span of years, there have been no reported deaths or injuries of marine mammals, or declines of their populations, from seismic operations.

Deaths, injuries, and population declines of marine mammals documented in the status reports have been associated with fisheries interactions and harvest, ship strikes, chemical pollution, debris, sonar, and commercial and aboriginal harvest of marine mammals.

Response: The MMS believes this assessment in the EIS is appropriate as written. While the MMS agrees that there have been no documented instances of injury, mortality or population-level effects to marine mammals from seismic activities, the potential for this to occur may still exist. This is partly because most of the studies to date have not directly assessed or measured for these types of impacts and this type of study would be difficult to design. Statements that support no population level impacts are generally based on more anecdotal observations and a continued determination that a decline in a population means that seismic activities are not having an effect. While this may be true, statements have to be qualified to put the issue into the right context, and MMS believes the EIS does this appropriately.

Concern: The DEIS includes a statement that bowhead whales have rarely been observed within 20 km of active seismic operations. See DEIS at IV-116. However, this statement is contradicted by the available scientific literature. Bowheads have been observed near operating seismic ships (Reeves, et

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al. 1984; Richardson et al 1986, 1987; Brueggeman et al. 1990) and near controlled tests with single airguns and airgun arrays (Richardson et al. 1986; Ljungblad et al. 1988). Bowheads exposed to pulses from vessels more than 7.5-8 km away rarely show avoidance (Reeves, et al. 1984; Richardson et al 1986, 1987; Koski and Johnson 1987). Summering bowheads showed normal activities 3-5 km from active seismic operations (Richardson et al 1986). These studies clearly demonstrate that bowheads commonly occur well within 20 km of active seismic operations. More recently, a study reported by Richardson (1999) concluded that migrating bowheads avoid active seismic operations by at least 20 km. However, the interpretation of the data is questionable based on the sample size and absence of corroborating behavioral observations recorded during the study as discussed below. Sample sizes were small or problematic in the 3-year study Richardson used to draw his conclusions. The data were analyzed for 1996, 1997, and 1998 to assess response of bowheads to seismic sounds. Sample sizes were 26 bowheads observed during no-seismic and 11 during seismic in 1996, 115 during no-seismic and 6 during seismic in 1997, and 59 during no-seismic and 65 during seismic in 1998. The sample sizes for 1996 and 1997 were clearly too small to draw any conclusions about seismic effects. The sample sizes were adequate in 1998 for analysis, but too few animals were recorded in the 0-10 km and 10-20 km distance intervals for no-seismic (3, 4 whales) to compare with seismic (0, 2) operations for analysis, suggesting that the absence of more similar numbers of whales to those in more distant categories may have been due to other factors than seismic operations. Furthermore, the mere presence of two bowheads in the 10-20 km interval during seismic operations indicates that not only were some whales relatively close, but their distribution was apparently unaffected by the operations.

Distances of all whales from the operations were highly variable over a wide range of distances, including those in the higher distance categories for no-seismic and seismic periods. The variability of these observations suggests that the observed distribution more likely was caused by natural events such as location, movement, and abundance of prey resources and not necessarily seismic operations. An even distribution of whales relative to distance would be expected for no seismic unless this relationship was affected by natural environmental conditions or normal bowhead behavioral activities. It is noteworthy that seismic operations have been shown to cause behavioral responses of bowheads at or above the 160 dB, which corresponds to distances of 3-8 km from a seismic vessel, beyond which (i.e., 10-20 km) behavior would be expected to be normal (Richardson et al. 1986).

In addition, bowhead whale behavior observed during the study does not support Richardson's conclusions. Responses of bowheads to a disturbance are expressed by changes in normal behavior, such as changes in headings, swim speed, and resting. However, behavioral changes were not seen in the bowheads observed by Richardson (1999) during the no-seismic versus seismic operations. In fact, Richardson states that (1) there was no significant difference in bowhead headings between seismic and no-seismic periods, (2) proportions of various behaviors observed during seismic periods were similar to those during no-seismic periods, and (3) there was no significant difference in the swimming speeds of bowheads during seismic and no-seismic periods. These analyses provide no evidence of the seismic operations affecting bowhead, and suggest the bowheads were behaving normally, which would be expected since they were beyond the 160-dB level.

As a consequence, the small sample sizes and lack of corroboration of the behavioral data argue against Richardson's conclusions. Clearly, other factors may have been responsible for the distribution of bowheads relative to seismic operations. A key consideration that was not measured was the distribution of prey resources at the time of the observations. Bowhead distribution could have been associated with feeding or other environmental factors, which is indicative of the observed normal behavior and uneven distribution of bowheads during the seismic and no-seismic periods. More years of data than essentially the 1 year used in Richardson's analysis are necessary to draw any conclusions about bowhead responses during no-seismic and seismic operations at the distances reported by

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Richardson (1999). In addition, future studies should include measurements of prey distribution and abundance to assess bowhead distribution relative to distance from active seismic operations.

Response: See General Response #1 on page V-55.

Concern: Seismic exploration requires the generation of loud, low-frequency sound in the water column. Consideration should be given to the impacts of prelease and postlease seismic surveys on protected species (species protected under the ESA and the MMPA), and/or on sanctuary or marine monument resources. Additionally, NOAA recommends contributions to increases in ambient sound levels and cumulative impacts resulting from all major sources of sound be provided (e.g., pile driving, vessel operation, platform noise, drilling, and construction).

Response: See General Response #2 on page V-56.

Concern: The Use of Seismic Technology in or Near Marine Mammals, Endangered Species, or Sensitive Areas of the Marine Environment: Because a key data set in evaluating the oil and gas potential of g site is seismic reflection profiles, many of which have been collected through the years, NOAA assumes that this technology will be used in the implementation of this plan. Seismic exploration requires the generation of loud, low-frequency sound in the water column. Recent concerns on the impact of these operations on marine life, and marine mammals in particular, have led to greatly restricted permits for seismic exploration. The need to limit seismic testing places increased importance on more effectively using existing seismic reflection data which is scattered among NOAA, USGS, and various academic institutions. This information should be compiled, archived, and made more easily accessible.

The NOAA is concerned about the use of seismic technology associated with oil and gas exploration on the OCS in or near sensitive areas of the marine environment such as national marine sanctuaries or where marine mammals and/or other endangered species may be located. NOAA requests that, where appropriate, MMS consult with NOAA to identify ways to reduce potential adverse impacts to these areas and resources from the use of seismic technology. These consultations are important both to address any potential conflict between proposed seismic surveys and existing prohibitions against oil or gas exploration by any person (including Federal Agencies) that apply in most national marine sanctuaries, and to minimize or eliminate adverse impacts on sanctuary or marine mammal resources or qualities, when conducting an inventory and assessment within or near the boundaries of any national marine sanctuary or near marine mammals.

Response: See General Response #2 on page V-56.

Concern: Page IV-124, paragraph 5: Although the NMFS in its Incidental Harassment Authorizations specifies safety radii for seals be based on a 190 dB re 1 μ PA (rms) criterion for broadband received level, we know of no evidence that greater sound levels cause damage to seal hearing. We suggest the MMS remove this statement.

Response: The MMS will adjust this statement to show that the 190 dB level is what NMFS has set as the level where there is a potential for injury to seals.

Concern: Page IV-130, paragraph 3: The MMS concludes that “spills in these locations have the potential for affecting the greatest number of individuals and could result in population-level impacts to some species, especially those listed under the ESA.” The DEIS does not develop a nexus between spills and population-level impacts. This impact should be better substantiated or revised to not predict

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population-level impacts. If population-level impacts are predicted, this could raise the impact to a level of significance. Since the production from Bristol Bay is expected to be natural gas and condensate, no significant shoreline impacts should be predicted.

Response: The MMS believes these statements are appropriate as written. The discussion provides a summary of the potential for impacts to occur. A more detailed, site-specific NEPA analysis will then occur with any subsequent lease sales or activity-specific documents in the Bristol Bay area.

Concern: Page IV-136, paragraph 1, Conclusion: The planning area referenced should be Cook Inlet rather than the North Aleutian Planning Area.

Response: The MMS will adjust accordingly.

Concern: The analysis of impacts to polar bears is inadequate. The MMS ignores important aspects of the significant impacts to polar bears from OCS oil and gas activities. The MMS anticipates that “much” construction of offshore facilities will take place during the winter (DEIS at IV-138). In discussing the potential impacts to marine mammals from construction of offshore facilities, the MMS concludes that “winter construction of offshore platforms would be expected to affect relatively few animals,” because several species of marine mammals would not be present in the Arctic during the winter (DEIS at IV-117). The MMS overlooks the fact that polar bears are present in offshore areas throughout the winter months. Furthermore, the MMS ignores the fact that pregnant female polar bears often den on shifting sea ice. These bears may drift near offshore operations and construction activities and may abandon the den and young cubs as a result of the disturbance caused by such activities.

Likewise, in analyzing the potential impacts of construction of onshore facilities and pipelines, the MMS overlooks an important aspect of polar bears' seasonal distribution. The DEIS notes that foraging bears or females in maternity dens will likely leave or avoid areas surrounding onshore construction, but concludes that this will “only affect a small number” of polar bears and have no population-level effects. The DEIS fails, however, to acknowledge that during the fall freezeup period hundreds of polar bears have been observed along the coast, creating the potential for onshore activities to impact substantial numbers of bears. (See, e.g., FWS Environmental Assessment: Final Rule to Authorize the Incidental Take of Small Numbers of Polar Bear (*Ursus maritimus*) and Pacific Walrus (*Obodenus rosmarus divergens*) During Oil and Gas Activities in the Beaufort Sea and Adjacent Coastal Alaska, at 54).

In addition, MMS improperly relies on vaguely identified mitigation measures to support its conclusion that activities under the 5 year plan will not significantly affect polar bear populations. The MMS observes that noise generated from exploration activities, oil and gas operations and OCS-related vessels and helicopters may disturb individual polar bears, but concludes that if “properly mitigated, such effects would likely be short- term and not result in population-level effects” (DEIS at IV-122). The DEIS does not describe how disturbances attributable to industrial noise might be “properly mitigated.” The MMS similarly depends on “existing permit requirements, regulatory stipulations, and MMS guidelines” to “generally limit the likelihood of marine mammals being affected by these operations” (DEIS at IV-122). The MMS fails, however, to elucidate what these guidelines, stipulations and permits actually require of oil and gas operations, or how they will effectively avoid, minimize, rectify, or reduce impacts to polar bears and other marine mammals. This lack of specificity precludes informed decisionmaking and public participation in violation of the NEPA.

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Finally, as mentioned above, MMS impermissibly avoids analyzing the cumulative impacts to polar bears from climate change. The MMS reasons that “[i]t is not possible at this time to identify the likelihood, direction, or magnitude of any changes in the environment of Alaskan waters due to changes in the climate, or how climate change could impact marine mammals in these waters” (DEIS at IV-412), and therefore declines to further discuss cumulative impacts to polar bears in the context of a warming climate. This truncated rationale for MMS’s failure to substantively discuss impacts to polar bears in the context of a warming Arctic environment ignores the best available science concerning the changes to Arctic sea ice induced by global warming and the resultant impacts to polar bears.

In response to a petition filed by the Center for Biological Diversity, the FWS has made a finding that listing of polar bears under the ESA “may be warranted” (70 FR 6745). Sea ice provides polar bears’ primary habitat, which bears utilize for hunting, feeding, and breeding. (Stirling and Derocher, 1993). During the past 25 years, perennial sea-ice extent has declined by more than 9 percent per decade. (Cosimo, 2005, at 52). The past 2 years have seen unprecedented 6 percent declines in the extent of winter sea ice. See NASA, “Arctic Sea Ice Hitting Major Lows in Wintertime” (Sept. 13, 2006) at http://www.nasa.gov/vision/earth/environment/seaice_meltdown.html (last visited Nov. 7, 2006). The extent of summer sea-ice in the Beaufort and Chukchi Seas has diminished substantially during the past 25 years. (ACIA, 2004a, at 25). The duration of annual sea ice has likewise diminished, as the period of sea-ice melting has increased by an average of 13.1 days per decade in the Arctic. (Cosimo, 2005).

Researchers have documented several impacts to polar bears as a result of these changes to the Arctic environment. The earlier breakup of sea ice has shortened the duration of sea-ice feeding by polar bears in Hudson Bay, causing them to abandon sea ice for terrestrial habitat with reduced fat reserves, and resulting in declining rates of reproduction and subadult survival. (Derocher et al., 2004; Stirling et al., 1999). Similarly, researchers have recently documented declining survival rates for cubs of the year, reduced size of cubs of the year and adult males, and a shrinking population in the southern Beaufort Sea polar bear population as a result of changes to sea ice. (Eric Regher, Steven Amstrup, and Ian Stirling, Polar Bear Population Status in the Southern Beaufort Sea, (USGS, Nov. 2006) available at <http://pubs.usgs.gov/of72006/1337/>.) These documented impacts represent the best available science regarding the impacts of global climate change on polar bears. The DEIS should state clearly that much information on polar bear abundance, distribution, and ecology is outdated or unavailable particularly in light of changing ice dynamics. In addition, the DEIS should note the recent population decline in the Beaufort population.

The adverse effects of global warming on polar bear populations are already manifest. The MMS can no longer avoid analysis of these effects by way of platitudes invoking uncertainty. Pursuant to NEPA, the MMS must discuss and analyze the possibility that OCS oil and gas activities will further exacerbate these well-documented, adverse effects suffered by polar bears as a result of global warming.

In order to ensure that the 5-year plan will not inhibit polar bears' ability to attain and maintain optimum populations in violation of the MMPA, the MMS must adequately evaluate the impacts. In order to foster informed decisionmaking and public participation as required by NEPA, the MMS must thoroughly discuss these impacts to polar bears and must prescribe specific, effective mitigation measures that avoid or minimize adverse impacts.

Response: See General Response #2 on page V-56.

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Concern: The MMS cannot reasonably dispute that the proposed program affects ESA-listed species. Numerous listed species inhabit the waters and adjacent terrestrial habitat subject to the Program. The DEIS acknowledges as much. For each region proposed for leasing under the Program, the DEIS includes a short description of the ESA-listed species. In the Gulf of Mexico, the DEIS lists seven ESA-listed marine mammals—northern right whale, blue whale, fin whale, sei whale, humpback whale, sperm whale, and West Indian manatee (DEIS at III-17); eight birds (DEIS III-23); two fish—Gulf sturgeon and smalltooth sawfish (DEIS III-29), and five species of sea turtle—green, hawksbill, Kemp’s ridley, leatherback and loggerhead. Additionally, and not addressed in the DEIS, two listed species of coral—elkhorn and staghorn—occur in the Gulf. See 71 FR. 26852 (May 9, 2006)—Final Rule listing elkhorn and staghorn corals as threatened; see also Precht and Aronson (2004)(scientific article describing recently discovered elkhorn coral colonies in the northern Gulf of Mexico). The Atlantic program area contains essentially the same suite of listed species likely to be affected by the Program (DEIS III-209, 214, 218, 221).

Similarly, the Alaska program area is home to numerous ESA-listed species. These include nine marine mammals—North Pacific right whale, fin whale, sei whale, humpback whale, bowhead whale, blue whale, sperm whale, Steller sea lion, and southwest Alaska population of sea otter (DEIS at III-102) and three birds—spectacled and Steller’s eiders and short-tailed albatross (DEIS III-118). Additionally, the Cook Inlet distinct population segments of the beluga whale, the polar bear, and the Kittlitz’s murrelet have all been petitioned for listing and are likely to be listed during the implementation of the 2007-2012 Program.

For each of these species, the DEIS describes how the Program will likely affect them (see, e.g., DEIS at IV-40, 48, 57, 64, 114, 136, 260, 269, 273, 281). We do not see how, given the specific admission of effects by the MMS in the DEIS, the MMS can lawfully avoid its consultation requirements. (Moreover, the Summary contained in the DEIS discusses the Program’s likely impacts on listed species and states that “[t]hreatened and endangered species, for example, are given special attention.” It seems like the Summary was written by someone at MMS who had not yet received the directive from above to simply skip ESA compliance.

Response: See General Response #2 on page V-56.

Concern: First, the level of activity MMS is planning to permit up here will overwhelm us. This is too much activity going on at one time. There is no way to mitigate for multiple seismic operations, except to shut them down until the bowhead hunt is over. And there is no way at all to mitigate for multiple drilling operations with icebreakers. Do you have a plan for this, and where is this plan?

Response: The EIS does incorporate by reference the 2006 PEA of Arctic OCS Seismic Surveys. This PEA provides a thorough analysis of many of the issues noted in the comment above. The NMFS and MMS are also currently preparing a EIS on seismic operations in the offshore Arctic environment. This document will provide the most thorough and up to date information on the issue. The MMS also has multiple lease-sale NEPA documents being prepared that look at issues, including drilling. All of these documents contain a cumulative section that assesses impacts of the proposed actions in addition to activities currently occurring that may affect various resources.

Concern: Some of the specifics, Western Geophysical and British Petroleum (BP) did studies on the effects of seismic on bowheads whales. And all of that information is not in this EIS. Also BP has done a tremendous job of monitoring impacts from North Star production island and the noise that they're producing and deflecting bowhead whales. That information isn't in this drafts EIS.

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Response: The EIS does incorporate by reference the 2006 PEA of Arctic OCS Seismic Surveys. See General Response #2 on page V-56.

Concern: Although MMS states that these impacts will not create adverse population-level effects, there are no clear data to support these statements. Much of the supporting documentation for such conclusions is based on experiences from the Gulf Coast and Alaskan regions. The DGIF understands that there has been little research regarding fish and wildlife movements and utilization of offshore waters beyond the continental shelf in the mid-Atlantic region.

Response: The MMS agrees that more is known regarding impacts in Alaska and the Gulf of Mexico than the mid-Atlantic region. However, where appropriate, MMS has drawn inferences from these areas that apply to the mid-Atlantic region (i.e., hearing sensitivity of similar marine mammal species). See also General Response #2 on page V-56.

Concern: The MMS's use of inapplicable research results is an underestimate of impacts to bowhead whales. For example, MMS states that "Modeling efforts have indicated that only up to 2 percent of the Beaufort Seas bowhead whale population would be affected by a large oil spill" (DEIS at IV-120). However, the modeling analysis (NMFS, 2001b) was limited in scope, given that it applied only to the current application at Liberty. The proposed leasing areas extend into areas not modeled and are sufficiently large enough to make the NMFS modeling analysis inappropriate for application or extension to the current leasing program. The MMS should use relevant and current modeling analyses to estimate bowhead whale population effects.

The Agency's use of the NMFS report (NMFS, 2001b) and failure to incorporate industry science seriously undermines their argument that "a significant change in seasonal distribution of the bowhead whale is unlikely" (DEIS at IV-123). The MMS states that the OCS activities conducted in the Beaufort Sea as a result of Federal lease sales since 1979 have not apparently had adverse effects on the bowhead whale population. Yet, the level of activity since this time period is in no way similar to that which is proposed. The NMFS study is wholly incapable of providing substantiation to the MMS projection of little to no impact. In fact recent studies by industry demonstrate the opposite. Studies performed by BP on the Northstar production island have found statistically significant deviation in bowhead migration (Richardson, 2006).

The MMS claims that "[p]rolonged exposure to freshly spilled oil could kill some whales (including bowheads), but the numbers would be small due to a low chance of such contact." (DEIS at IV-121). However, MMS provides no documentation, research, or analysis to substantiate this assertion. Rather, MMS provides a secondary claim that seems to disprove the previous statement by stating, "[t]his would most likely occur if oil spilled into a lead that bowhead whales could not escape" (DEIS at IV-121). If the spill occurred during a major migration period, in a major lead, and sufficient ice coverage prevented the whales to move to another lead, then one must conclude that there would be a higher "chance of [oil] contact" and that more than a "small" number of whales could be affected.

The MMS also fails to incorporate relevant research, resulting further underestimation of bowhead whale impacts. For example, the MMS states, "Under less extreme exposures (lower concentrations or shorter durations), oil does not appear to readily adhere to or be absorbed through cetacean skin, which, due to a thick fat layer, may provide a barrier to the uptake of oil-related aromatic hydrocarbons through the body surfaces" (DEIS at IV- 120). However, a 1994 NRC science review found bowhead whales to have "dozens to hundreds of roughened areas . . . of skin surface. . . . The great increase in exposed surface (microrelief) of these roughened areas increases the area to which oil can adhere. . . . it is likely that oil contact would be harmful" (NRC, 1994 at 102). In addition, the

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bowhead whale eye area is another area that oil can penetrate bowhead or other whale skin. "The conjunctival sac associated with the eye is . . . extensive. . . . Thus a large surface exists for an irritant (such as spilled oil) to contact sensitive visual structures" (NRC, 1994 at 102). Given the above potential sources for oil adherence to skin and ability to contaminate past the dermal wall, the bowhead may be impacted to a greater degree than estimated by the MMS.

Response: See General Response #1 on page V-55.

Concern: The DEIS discussion of oil-spill-site occurrence is contradictory in general and, in the case of the fin, humpback, and killer whale, allows the MMS to underestimate the impact on these whales from oil contamination or spills. For example, MMS states "Since fin and humpback whales remain relatively far offshore from OCS activities, there is low probability that these endangered species would be affected by an oil spill" (DEIS at IV-121). This statement contradicts MMS arguments that OCS activity would occur in "deep waters" elsewhere in the DEIS.

Response: The MMS feels the statements are appropriate as written.

Concern: Oil and gas spills from production or transportation facilities: The DEIS recognizes the potential for 1 large tanker spill and 12 smaller spills as a result of production and transport in the program area. These spills are projected to occur with uniform frequency over the life of the leasing program. This would suggest that organisms would be subjected to repeated exposure over the life of the project. The EIS must consider the cumulative effects of multiple exposures to organisms as a result of numerous spills. Repeated exposure to contaminants could result in more serious effects at the individual and population level.

Response: See General Response #1 on page V-55.

Concern: Most cetaceans have shown few, if any, effects from exposure to spilled oil; however, northern fur seals are extremely sensitive to spilled oil. The FEIS should expand sections related to the risk of spilled oil (e.g., those related to facility failure and associated vessel support). An updated marine biological assessment should be completed that incorporates recent northern fur seal foraging, migratory, and population data. In addition, oil-spill modeling and risk assessments should be updated with more recent physical oceanography and marine mammal telemetry data to determine the nature, extent, and potential for effects.

Response: See General Response #2 on page -56. These various analyses will provide the framework for adequately assessing the potential for impacts to Northern fur seals once additional information is known about specific activities and locations of oil/gas operations.

Concern: In considering the impacts of a proposed action, an agency must consider the cumulative impacts of the action (40 CFR 1502.1; 40 CFR 1508.7). Cumulative impacts result "from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions," and "can result from individually minor but collectively significant actions taking place over a period of time" 40 CFR 1508.7).

The cumulative impacts analysis notes only that "Potential impacts (primarily short-term behavioral disturbance) to marine mammals could occur in all the planning areas included in the 2007-2012 Program" (DEIS at IV-410). There is no analysis of whether there may be additional seismic activities after those 5 years, or whether the impact of ongoing seismic activity over a period of years is likely to have a more permanent effect on the behavior of marine mammals. Shell has recently indicated that it

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is looking into the possibility of doing seismic surveys in the winter as well as the summer (see Alan Bailey, Shell Plans 4 Beaufort Wells In '07, *Petroleum News*, Oct. 29, 2006). The addition of winter seismic activities could also result in more severe impacts to marine mammals. For example, migration patterns of whales could be impacted as seismic activities continue in important habitat areas. See DEIS at page IV-413 (noting that impacts are greater with repeated disturbance).

Likewise, the analysis of cumulative impacts of seismic activity to fish resources and essential fish habitat is inadequate. It predicts that effects of seismic activity will be "highly localized and seasonal in nature (DEIS at IV-421). It does not discuss whether ongoing seismic activities will have more drastic effects on fish populations, particularly given the significant mortality rates of fish eggs and larvae associated with seismic activities. The analysis provided simply repeats the analysis in the rest of the DEIS, but does not extrapolate to determine the effects of the ongoing action.

Response: See General Response #1 on page V-55.

Concern: To comply with NEPA, the DEIS must include a discussion of mitigation measures (40 CFR 1502.14(f)). Although it relies on mitigation measures to predict that there will be no long-lasting or population-level impacts to marine mammals as a result of seismic activity, it does not specify what those mitigation measures will require. For example, see DEIS at page IV-122 ("When properly mitigated, such effects would likely be short-term and not result in population-level effects."). The mitigation measures listed in Appendix C do not specifically address seismic impacts. It is impossible to assess the efficacy of any potential mitigation measures without specific information regarding those measures. Furthermore, MMS should specify the minimum required mitigation measures now rather than waiting for some later date to impose those conditions.

Response: The mitigation measures included in this EIS are broad in scope. More specific, detailed mitigation will be identified and analyzed at subsequent NEPA analyses at the lease sale or activity-specific stages. See also General Response #1 on page V-55.

Concern: Chukchi Sea Deferred Blocks (within 25 miles of shore): This deferral is important to beluga conservation and to protecting subsistence hunting for belugas in the region. Research conducted by the Alaska Beluga Whale Committee and others clearly documents the importance of Kasegaluk Lagoon to the eastern Chukchi Sea beluga population, and to the subsistence hunters of both Point Lay and Wainwright. Thousands of belugas arrive in the waters offshore of Kasegaluk Lagoon in June each year and remain in the area for approximately 4-6 weeks. They are widespread in nearshore waters along the entire extent of Kasegaluk Lagoon, but are especially known to congregate near the mouths of passes into the lagoon. Minimum population estimates indicate that at least 3,000 belugas may concentrate near the passes of Kasegaluk Lagoon in June and July. Satellite tagging data suggest that this estimate is extremely conservative and that far greater numbers are likely present. During the period when belugas use Kasegaluk Lagoon, the annual molt (when old skin is replaced by new) takes place. The gravel substrates present along the Kasegaluk Lagoon coast are important as rubbing substrate during the molt.

Belugas are sensitive to noise from human activities. Traditionally, village residents are required to stay away from the shoreline and maintain silence near the shoreline as the time for beluga hunting approaches, so as not to deflect the belugas away. Hunters in Kotzebue Sound, to the south of Kasegaluk Lagoon, have observed that belugas avoid areas of high boat traffic, noise from the shore, or frequent overflights by aircraft.

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The waters in and adjacent to Kasegaluk Lagoon are important to other marine mammals as well. Spits and sandbars near the passes of Kasegaluk Lagoon are important hauling areas for spotted seals during June-September. More than 2,000 spotted seals may be hauled out at once on the sandbars near Utukok and Akoliakatat passes. Tagging data suggest that as many as 20,000 spotted seals may use this area. These seals are extremely sensitive to noise and disturbance. Aircraft overflights at 2,500-3,000 feet cause seals to go into the water, and approaching boats scare seals into the water long before they are visible.

Response: The comment is noted.

Concern: The marine mammal impact analysis in the DEIS concludes that careful consideration to the siting of onshore and offshore industrial operations is required to reduce mammal impacts, including mammals protected under the ESA and the MMPA. While, we expect these issues would be thoroughly addressed in the ESA Section 7 consultation, there is no corresponding mitigation measure to ensure this protection will actually become a lease requirement. Exploration and development must not adversely impact populations of marine mammals including the Steller's sea lion, northern sea otter, harbor seal or Steller's eider and other species listed under the MMPA or ESA that, in turn, would cause increased restrictions on marine resource harvesting in State waters.

Response: See General Response #2 on page V-56. All of these analyses/authorizations in total will identify needed mitigation and monitoring measures to ensure the potential for impact is minimized.

Concern: Page IV-262, paragraph 2, line 1: The entire subject of mitigation factors is not adequately treated in this DEIS. There should be an entire appendix section that summarizes, by region, the mitigation measures employed, the observance of effects or no effects, and also the notices to lessees and biological stipulations that are in place. It is important for the general reader of this EIS to understand that a significant number of measures are already in place. Same comment for page IV-263, paragraph 1, line 1.

Response: See General Response #2 on page V-56.

Concern: The NOAA recommends that MMS include additional information in the FEIS related to mitigation and monitoring measures for impacts on protected species and habitat.

Response: See General Response #2 on page V-56.

Concern: The bowhead whale is the most studied of any of the marine wildlife utilizing the proposed Chukchi/Beaufort Sea areas. Yet, significant information is absent from the DEIS. Most significant is the lack of knowledge about where bowheads calve. Information suggests that they calve in the Chukchi Sea region, and the proposed program, therefore, has the potential to cause population-level effects on the bowhead. The MMS should conduct current studies on the calving area of the Bowhead in order to provide a professional assessment of impacts to the population.

Response: See General Response #1 on page V-55.

Concern: The Virginia Department of Game and Inland Fisheries (DGIF) continues to recommend that further research be performed to determine what impacts upon wildlife species may result from offshore oil and gas exploration and development. The Mid-Atlantic coastal region is a globally significant area for migration of birds, sea turtles, and marine mammals. The Eastern Shore, in particular, provides breeding grounds and stopover points for Federal- and State-listed sea turtles and

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shorebirds. Therefore, it is important to understand how the construction and operation of facilities related to oil and gas exploration, development, and production may impact these species and the resources upon which they depend.

The DGIF also recommends that, prior to lease sales and exploration, studies be performed to determine the current species assemblage within the proposed Mid-Atlantic leasing blocks (particularly threatened and/or endangered species) and use of these areas by wildlife, both resident and migratory. Collection of pre-construction/exploration data will provide a baseline upon which the exploration, development, and operational impacts can be evaluated. These studies may also provide insight on the most effective way to mitigate for impacts.

DGIF also recommends that research into effects of lighting on vessels and stationary platforms upon marine species movement and migration be conducted and addressed in the final EIS.

The Department of Conservation and Recreation also recommends that extensive research be conducted on potential impacts to marine mammals, sea turtles, and marine/coastal birds within the Virginia planning zone. Information on species distribution and abundance relative to the proposed lease sites is needed.

Response: The MMS acknowledges that there will be a need for studies should MMS lease in a new area. However, until final decisions are made on whether leasing will or will not occur in the Mid-Atlantic Planning Area, it is difficult to anticipate what studies will be needed. However, MMS will take the guidance provided by the Virginia Department of Environmental Quality into consideration.

Concern: This DEIS is deficient in several ways. In many instances, MMS appears to ignore or fails to include the most recent scientific studies on impacts from oil and gas activities to the biological resources of the Chukchi and Beaufort Seas. Many of the omitted studies were even funded by MMS. Failures to cite relevant studies concerning impacts from seismic operations (Richardson, 1999) and the Northstar production island (Richardson, 2006) on bowhead whales are perhaps the most egregious examples of this deficiency. This is peculiar given that in its recent PEA of Arctic OCS Seismic Surveys, the MMS did such a good job summarizing impacts to bowhead whales from seismic operations.

Response: This DEIS does incorporate by reference the 2006 PEA of Arctic OCS Seismic Surveys, including its discussions on the effects of seismic and recent studies. See also General Response #2 on page V-56.

Concern: With respect to noise, there has been some success mitigating the effects of open-water seismic operations primarily through the development and use of conflict avoidance agreements executed directly between the AEWG and seismic operators. These agreements have, for the most part, dealt with a single Beaufort Sea operation occurring in a single season, and have been relied upon by the NMFS as a mechanism for achieving compliance with the MMPA requirement that any “take” of marine mammals not result in any “unmitigable adverse impact to subsistence”. The Conflict Avoidance Agreements are less effective mitigation tools in seasons when multiple operations occur, as was the case this year. The MMS acknowledged in the Sale 202 EA that “the magnitude of four concurrent seismic shoots would test the ability of oil operators and whalers to coordinate their efforts to prevent disruptions of the hunt” (EA, page 37). It seems likely that the potential for multiple single-season seismic operations in both the Beaufort and Chukchi Seas will increase. The DEIS fails to address this growing risk to critical subsistence harvests. It is essential that MMS and NMFS better

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align and coordinate their efforts to mitigate the effects of increasing offshore industrial noise on our subsistence harvests and species.

The current version of Beaufort Sea Sale Stipulation 5, Conflict Avoidance Mechanisms to Protect Subsistence Whaling and Other Subsistence-Harvesting Activities, states in part that “[e]xploration and development and production operations shall be conducted in a manner that prevents unreasonable conflicts between the oil and gas industry and subsistence activities (including, but not limited to, bowhead whale subsistence hunting).” The MMS must replace the inadequate “unreasonable conflicts” standard of Stipulation 5 governing impacts to subsistence, with the MMPA standard of “no unmitigable adverse impacts.” It is not only desirable that MMS adopt this standard with respect to both the Beaufort and Chukchi Sea Planning Areas now, in the 5-Year Program planning phase, it is essential.

Response: See General Response #1 on page V-55. In addition, this EIS does incorporate by reference the 2006 Programmatic Environmental Assessment of Arctic OCS Seismic Surveys. NMFS and MMS are also currently developing a draft programmatic EIS on seismic surveys in the Arctic. This analysis will provide the level of detail specific to the Arctic necessary to appropriately mitigate for the occurrence of multiple surveys. In addition, MMS will continue to advise any lessees or operators of any MMS-approved activities to contact the FWS and/or NMFS for appropriate authorizations under the MMPA for any activities that have the potential to affect marine mammals. This helps ensure that the requirements under the MMPA (i.e., negligible impact and no unmitigable adverse impact to subsistence) will be met. The Conflict Avoidance Agreement also provides a mechanism for determining ways to reduce potential impacts to subsistence harvesting activities.

Concern: A number of commenters disagreed with statements in the DEIS where MMS asserted that formal consultation under the ESA was not required at the 5-year EIS level and would instead occur at region-, site-, and/or project-specific levels.

Response: Following a tiered approach under NEPA, the intent of this EIS is to only provide broad information and analyses that will serve as the starting point for more detailed environmental reviews at the region-, site-, project- or activity-specific stages. With the subsequent NEPA analyses (i.e., lease sale, activity specific), MMS consults with the FWS and NMFS under Section 7(a)(2) of the ESA. (This also includes an assessment of the cumulative impacts to listed species.) It is at this stage where the information is of enough detail that a thorough and effective analysis can be done.

Concern: Missing from the Arctic Alaska analysis are gray whales, belugas, killer whales, and harbor porpoise. These populations must be identified so that decisionmakers and the public can adequately assess the potential impacts from MMS’ actions.

Response: The MMS agrees, and a full description and analysis of potential effects on these stocks is included in the FEIS.

Concern: Page II-6: Nowhere in the discussion of oil-spill impacts to marine mammals is there a discussion of the potential for large numbers of polar bears to be impacted at marine mammal carcass aggregations.

Response: The MMS agrees and will adjust this section accordingly.

Concern: Page III-103, Section III.B.6.a(1), paragraph 1: This paragraph does not adequately portray the distribution of bowhead whales in the Arctic Subregion. The paragraph implies that the population

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of bowheads all migrate from wintering areas in the Bering Sea to summering areas in the eastern Beaufort Sea. We now know that some whales remain in the Chukchi Sea and western Beaufort Sea throughout the summer. The presence of bowheads in the summer in areas that are of interest to the oil and gas industry must be acknowledged and considered when evaluating impacts from industrial activities in the Chukchi Sea, especially. The MMS has received public comments at previous public hearings about the summer presence of bowheads in the Arctic Subregion.

Response: The MMS agrees and will adjust this section accordingly.

Concern: Page III-103, Section III.B.6.a(1), paragraph 2: In the middle of this paragraph, MMS acknowledges that detailed feeding studies have not been conducted in the Bering Sea. This is true, but there is considerable scientific investigation about bowheads feeding in the Bering Sea. The MMS has referenced these studies in previous EIS's. They should do so here too. We have a great deal of inference that the Bering Sea is an important feeding area for bowheads based on stable isotope analysis of baleen. The MMS must also acknowledge that there are few data on the importance of the Chukchi Sea as a feeding area for bowheads. This type of uncertainty must be acknowledged so that the public and the decisionmakers can appropriately evaluate potential impacts from oil and gas leasing and operations.

Response: The MMS will adjust this statement broadly to indicate what is known and unknown regarding bowhead whale feeding areas. However, the intent of this EIS is to only provide broad information and analyses that will serve as the starting point for more detailed environmental reviews at the region-, site-, project- or activity-specific stages. The latter NEPA analyses will then provide a greater discussion of bowhead whale presence and life history traits in the affected areas.

Concern: Page III-103, Section III.B.6.a(1), paragraph 4, first sentence: The MMS has funded many studies about bowhead whales. The DEIS does not specify that these studies are mostly centered in the Beaufort Sea. There are few studies, and the ones that exist are outdated, about bowheads in the Chukchi and Bering Seas. This is an important data gap to consider because the 5-Year Program includes several lease sales in the Chukchi Sea.

In the third sentence of this paragraph, it is implied that population or trend data are annually collected by MMS, industry, and subsistence hunters. This is true. Observations are made of marine mammals in the Beaufort Sea, but these sightings do not result in population estimates or trend counts. The words "locate and count" should be changed to "observe."

Response: Changed accordingly.

Concern: Pg. IV-114, Marine Mammals, Arctic Subregion, 2nd paragraph: The last sentence needs to acknowledge the uncertainties about bowhead distribution, occurrence, and abundance in the Chukchi Sea during the summer and autumn. There are few data, (and those that exist are outdated (~1990)), on the occurrence and abundance of bowheads in the Chukchi Sea during the summer. Thus, the last sentence in the second paragraph is not supported by recent data.

Response: MMS agrees and will adjust the sentence accordingly.

Concern: Page IV-114, Section IV.B.3.b(1), paragraph 4: In their recent PEA, the MMS did a superb job of evaluating the potential impacts from seismic on bowhead whales and developing mitigation measures to reduce impacts from seismic exploration. The sections from the PEA should be brought

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forward and included in the 5-Year Program DEIS so that readers can more fully understand the potential impacts from MMS's planned activities on the endangered bowhead whale.

Response: This EIS does incorporate by reference this PEA (2006 Programmatic Environmental Assessment of Arctic OCS Seismic Surveys), including its discussions on the effects of seismic and recent studies.

Concern: Page IV-115, Section IVB.3.b(1): The most recent studies on effects to bowheads from seismic exploration in the Beaufort Sea have not been included in this section. Richardson (1999; and chapters therein) provides the most recent data on effects from seismic. These data and analyses need to be included in the FEIS.

This section does not address the potential effects of seismic on the food resources of marine mammals. The MMS needs to discuss impacts to zooplankton, invertebrates, and fishes, especially with relation to impacts on marine mammals.

Response: This EIS does incorporate by reference the 2006 PEA, including its discussions on the effects of seismic, recent studies and discussion of impacts on prey. See also General Response #1 on page V-55.

Concern: Page IV-115, Section IVB.3.b(1), paragraph 1: The first several sentences in this section are misleading. There is a considerable and growing body of evidence that shows that marine mammals are affected by seismic exploration. The words in the DEIS "may have physical or behavioral effects" are not true. Seismic exploration does and will affect marine mammals in the Beaufort and Chukchi Seas.

The fourth sentence states, ". . . it has not been possible to predict the type or magnitude of responses to such surveys (and other oil and gas activities)...". This sentence is not true. The NMFS issues Incidental Harassment Authorizations (IHA's). As part of the IHA requirements, oil and gas companies must estimate how many marine mammals are disturbed by the permitted activity. Thus, the magnitude of impacts is estimated. With previous seismic exploration in the Beaufort Sea, Miller et al. (1999, in Richardson, 1999) showed the bowheads essentially avoided a 20-km zone around active seismic exploration. They also estimated how many whales were disturbed by the seismic activity. Further, BP has been evaluating the impacts to bowhead whales from noise associated with the Northstar production island. They have been able to measure deflections of whales (Richardson, 2006) and are currently evaluating changes to calling behaviors. These types of data and analyses must be incorporated into the FEIS.

The penultimate sentence in this paragraph states, "there is no evidence to suggest routine surveys may result in population level effects for any of the affected marine mammal species." While this sentence is true, it is misleading. There are no data available to assess whether there have or have not been any population-level effects from routine surveys. No data exist to evaluate population-level effects. This sentence must be clarified to provide a balanced and fair view.

The last sentence in this paragraph states, "there have been no documented instances of deaths, physical injuries, or physiological effects on marine mammals from seismic surveys." This statement is misleading and may not be entirely true. Documenting death, physical injury, or physiological effects from seismic surveys would be extremely difficult. If MMS is going to make these types of statements they must provide the references for the studies that have investigated deaths, physical injuries, or physiological effects on marine mammals. It is not appropriate to cite a previous EA.

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Further, there is a difference between no documented instances of injury and a few studies that have attempted to document any injuries. This distinction must be acknowledged in the DEIS. Because of the loud level of noise from seismic exploration, it is entirely reasonable to expect that there have been injuries and possibly death from seismic exploration. Additionally, a National Science Foundation (NSF) research vessel conducting seismic surveys off the tip of Baja California was implicated in the deaths of several beaked whales (contact Doug DeMaster, NMFS, for further information). This led to the NSF ceasing all seismic cruises of all of their research vessels for almost a year until IHA's were obtained. To fairly assess impacts, MMS must use scientific integrity in describing what impacts have been investigated and how robust those studies have been. It is neither fair nor scientifically appropriate to make statements about how there have been no documented effects when effects have not been adequately investigated. If indeed there are studies investigating physical injury or death to marine mammals, these studies must be cited.

Response: This EIS does incorporate by reference the 2006 Programmatic Environmental Assessment of Arctic OCS Seismic Surveys. This PEA provides a thorough analysis of many of the issues noted in the comment above. The MMS has included the conclusions regarding the effects of seismic on marine mammals from the 2006 PEA into this section of the 5-Year FEIS.

Concern: Page IV-115, Section IVB.3.b(1), paragraph 2: The first sentence is misleading. It states "noise from airguns . . . could disturb nearby marine mammals that may be foraging . . ." From previous work in the Beaufort Sea (Richardson, 1999), it is known that migrating bowheads will begin deflecting more than 20 km from an active seismic vessel. Twenty kilometers should not be considered "nearby". Also, it is not clear why foraging was the only behavior that was highlighted. Whales would be expected to be disturbed when migrating, resting, calving, mating or engaging in some other behavior. The second sentence in the paragraph goes on to state, "disturbances would be largely limited to the immediate area of the survey vessel, although animals within a few kilometers of the seismic operations may be affected". It is not clear why MMS is avoiding the most recent and best data on impacts from seismic exploration to bowhead whales in the Beaufort Sea. Miller et al. (1999; in Richardson, 1999) clearly showed that bowheads are essentially excluded from a 20-km zone around active seismic exploration and are affected at considerably farther distances.

The final two sentences in this paragraph are not supported by any data. The MMS speculates as to what marine mammals would do after they were disturbed or deflected by seismic operations. There are no data documenting the fate of marine mammals that have been harassed by seismic. The MMS must refrain from making statements such as the final two sentences in the paragraph unless they have studies documenting the fate of marine mammals. If they have data, they must provide the references for those studies.

Response: This EIS does incorporate by reference the 2006 Programmatic Environmental Assessment of Arctic OCS Seismic Surveys. This PEA provides a thorough analysis of many of the issues noted in the comment above. The MMS has included the conclusions regarding the effects of seismic on marine mammals from the 2006 PEA into this section of the 5-Year FEIS.

Concern: Page IV-115, Section IVB.3.b(1), paragraph 3: The first sentence is another example of where MMS is citing a previous NEPA document. The NEPA documents are not primary scientific documents. References for the primary scientific studies must be given instead of NEPA documents. The last two sentences of this paragraph are not supported by data. Belugas are incredibly sensitive to anthropogenic sounds, and thus, they very likely will move away from seismic operations. Regardless, MMS must acknowledge uncertainties in data, such as with belugas. There are few data on beluga responses to seismic. The MMS further speculates that disturbances would be temporary and not be

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expected to result in long-term impacts to individuals or populations. Again, there are no data on this issue, and speculating that individuals or populations of belugas and killer whales will have no long-term impacts is unfounded.

Response: This EIS does incorporate by reference the 2006 Programmatic Environmental Assessment of Arctic OCS Seismic Surveys. This PEA provides a thorough analysis of many of the issues noted in the comment above. The MMS has included the conclusions regarding the effects of seismic on marine mammals from the 2006 PEA into this section of the 5-Year FEIS.

Concern: Page IV-116, paragraph 1: The first two sentences on this page are misleading and contradictory to statements made on page IV-115. On page IV-115, MMS states there have been no documented deaths or injuries to marine mammals from seismic surveys. Yet in these two sentences, MMS states that it would be expected that marine mammals would suffer hearing loss. In the second sentence, MMS states that whales may be impacted by routine seismic surveys. In fact, we know that seismic surveys will affect bowheads. The MMS must acknowledge that effects do occur. The end of this second sentence is not factual. Less than maximal exposure to seismic sounds will have more than a masking effect on bowheads. Recent studies have shown this (Miller et al., 1999 in Richardson, 1999). The MMS must provide the most current information in their EIS's.

Response: This EIS does incorporate by reference the 2006 Programmatic Environmental Assessment of Arctic OCS Seismic Surveys. This PEA provides a thorough analysis of many of the issues noted in the comment above. The MMS has included the conclusions regarding the effects of seismic on marine mammals from the 2006 PEA into this section of the 5-Year FEIS.

Concern: Page IV-116, paragraph 3: The second sentence is misleading. This sentence refers to the clearing of an exposure zone around seismic operations before the start up of operations. The reason for clearing the zones is to reduce potential physical injuries and not to reduce behavioral responses. If MMS is going to state that ramp-ups and clearing of exposure zones reduces behavior response, they must provide data.

The fourth sentence must be modified. It states that “avoidance reactions of whales . . . would normally prevent exposure to . . . injurious noise pulses.” Previous studies in Canada have shown that feeding bowheads are less sensitive to seismic sounds than migrating whales. Thus, bowheads could be exposed to injurious noise pulses during feeding.

The fifth sentence is not supported by data. “The geographic scale of any potential noise effect is probably relatively small compared to the total habitat used by whales in the Beaufort and Chukchi seas.” Given that bowheads are highly sensitive to low levels of industrial sounds, the high likelihood that there will be multiple industrial operations in the Beaufort and Chukchi Seas, and the lack of knowledge about bowhead use of the Chukchi Sea, it is likely that the potential noise effect could actually be large.

Response: This EIS does incorporate by reference the 2006 Programmatic Environmental Assessment of Arctic OCS Seismic Surveys. This PEA provides a thorough analysis of many of the issues noted in the comment above. The MMS has included the conclusions regarding the effects of seismic on marine mammals from the 2006 PEA into this section of the 5-Year FEIS.

Concern: Page IV-116, paragraph 4: Contrary to the first sentence, polar bears are very sensitive to sounds. Typically bears will be attracted to industrial sounds or activities. Care must be taken when making statements such as the first sentence. The third sentence in this paragraph discusses females in

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dens. It is unclear why this is included in this portion of the DEIS. Previously, MMS states that industry will conduct seismic operations during the open-water season, at a time when female bears are not in dens. Also, no mention is made of the potential for increasing numbers of bears being observed swimming far offshore in search of retreating pack ice to be caused to alter their courses or otherwise expend more energy upon exposure to seismic noise. With polar bears increasingly being more stressed by the effects of arctic warming, and being observed in larger numbers far offshore, a foreseeable potential result would be more bear drownings.

Response: The first sentence has been adjusted to reflect that little is known about polar bear hearing. Otherwise, this EIS does incorporate by reference the 2006 Programmatic Environmental Assessment of Arctic OCS Seismic Surveys. This PEA provides the most current and thorough MMS analysis of many of the issues noted in the comment above. The MMS has also revised the 5-Year EIS to include the conclusions regarding the effects of seismic on marine mammals from the 2006 PEA.

Concern: Page IV-116, paragraph 5: The first sentence is misleading. It should state that 610 tons of drilling muds will be discharged for each well. Given that MMS expects there to be up to 30 wells, that makes a total of up to 18,300 tons of drilling muds to be discharged into the Beaufort and Chukchi Seas. With this amount of drilling muds to be discharged, there likely will be effects on marine mammals.

Response: the estimated 610 tons is per well. The MMS will adjust this statement to reflect the potential total amount of drilling muds for the 30 wells.

Concern: Page IV-116, paragraph 6: This paragraph must provide the excellent assessment conducted by MMS for the Programmatic Environmental Assessment (PEA). Just referencing the document does not do justice to the PEA nor to the reader of this DEIS. The information contained in the PEA should be brought forward to this DEIS so decision makers and the public can adequately assess impacts from MMS's proposed actions.

Response: This EIS does incorporate by reference the 2006 Programmatic Environmental Assessment of Arctic OCS Seismic Surveys. See also General Response #1 on page V-55.

Concern: Pages IV-116 and IV-117, Construction of Offshore Platforms and Pipelines: The last sentence on page IV-116 that carries over to the first sentence on page IV-117 should also include migration as one of the behaviors that could be disturbed by construction activities (Richardson, 2006).

Response: The MMS agrees and will adjust accordingly.

Concern: Page IV-117, paragraph 2: The second full sentence should provide the appropriate scientific document and not the previous MMS NEPA documents. The fourth sentence states "some individuals [bowheads] may habituate to dredging and other construction activities." There are no data to suggest this would occur. Additionally, there is some information that would suggest that bowheads would not habituate to industrial sounds. To habituate, whales would need to be exposed to sounds on a regular basis. Bowheads would primarily be exposed to industrial sounds only once or twice a year, making habituation unlikely.

Response: The MMS feels the statements are appropriate as written.

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Concern: Page IV-117, Construction of Onshore Processing Facilities and Pipelines, paragraph 2: The MMS states that onshore construction activities would not be expected to impact most marine mammals. This statement is not true. Onshore construction activities will require the transport of equipment and materials. This will likely occur by barge. Barges produce a great deal of sound and do impact marine mammals, as has been documented at Northstar Island (Richardson, 2006). The MMS must describe and evaluate the transport of equipment and materials to onshore locations through barging.

Response: This issue is discussed under the Vessel and Aircraft Impact Assessment on page IV-119.

Concern: Page IV-117, Construction of Onshore Processing Facilities and Pipelines, paragraph 3: There are additional species that would be affected by onshore construction. These include belugas, gray whales, and various seals. Belugas return to the same nearshore locations year after year. Onshore development in these locations would likely disrupt beluga use of those same areas, possibly causing abandonment of the area, a population-level effect. Evaluating the possibility of disrupting belugas in these summer concentration areas must be acknowledged and evaluated. Further, there are spotted seal haulout locations along the coasts of the Chukchi and Beaufort Seas. Thousands of seals use these haulout locations. Onshore development of facilities could easily result in population-level effects to marine mammal species.

Response: The MMS will adjust this section accordingly.

Concern: Page IV-118, Operations of Offshore and Onshore Facilities, paragraph 3: The first sentence is not based on data. As mentioned previously, it is very unlikely that bowheads will ever acclimate to industrial sounds because they are only exposed to them once or twice a year. Neither assertion has been tested scientifically. Further, there are no data on the duration of industrial effects on bowheads. In the second sentence of this paragraph, MMS claims there would be no long-term effects for individual whales or the population because they would leave the area and travel to “other appropriate habitat.” This statement is also not based on data. For one thing, we know little about bowhead distribution or habitat use (or the availability of habitat) in the Chukchi Sea. In the Beaufort Sea, we know more about bowhead distribution and habitat use but even here we do not know enough to determine whether there is “other appropriate habitat” if bowheads are deflected. If whales are deflected away from feeding, predator avoidance, or calving areas, there could very easily be long-term effects to individuals or to the population because these special habitats are mostly unknown in some cases and ephemeral in others.

The MMS has not presented the results of their Bowhead Whale Aerial Survey Program (BWASP) in this section of the DEIS. Recent analyses have shown that few bowheads are observed north of Prudhoe Bay, where industrial activity has occurred for the longest time and which is the hub of industrial activity on the North Slope. It is unclear why there are few bowheads seen north of Prudhoe Bay, but onshore and offshore industrial activity may cause whales to deflect around or pass through the area more quickly or with more stealth. The MMS must consider these data that they themselves have collected in their analysis of environmental consequences. It is unclear why they have avoided presenting or addressing their own results.

The last sentence of this third paragraph does not take into account the use of nearshore habitats by belugas for molting, calving, and feeding nor the haulouts of spotted seals along the coasts of the Chukchi and Beaufort Seas.

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Response: The MMS agrees with comments in the first and third paragraphs above and will adjust these sections accordingly. However, MMS believes a full discussion here of the BWASP survey and results is too detailed for the broad-level analysis in this EIS. This level of detail would be included in environmental reviews at the region-, site-, project- or activity-specific stages (i.e., lease sales).

Concern: Page IV-118, Operational Discharges and Wastes, paragraph 3: The last two sentences state that because the discharge or disposal of solid debris is not permitted, thus it will not be expected to impact marine mammals. This reasoning is unconscionable. Oil spills are also not permitted but they happen. The MMS must assess the potential impacts from all permitted activities and consider all impacts.

Response: The MMS' regulations do prohibit the discharge or disposal of solid debris. In addition, operators are required to label such items so that if debris were found in the water or onshore, it could be traced back to a specific operator.

Concern: Pg. IV-119, Vessel and Aircraft Traffic, paragraph 1: The first sentence states that vessel traffic "could contribute to ambient noise and potential disturbance to marine mammals." This is not true. First, ambient sound should be considered to be the amount of sound that occurs naturally. Second, vessel traffic, both on the water and in the air, will contribute to the amount of sound in the water or air column. Based on results from Northstar monitoring, we also know that vessel traffic will deflect bowheads (Richardson, 2006). Also, MMS does not consider the contribution of aerial and vessel surveys that will be required for marine mammal monitoring. Whether by boat or plane, the noise from monitoring activities will also contribute to the amount of anthropogenic sound and disturbance to marine mammals.

Response: The MMS believes this section is appropriate, as written.

Concern: Page IV-119, Vessel and Aircraft Traffic, paragraph 2: This paragraph is misleading at best. All the references are to previous MMS NEPA documents. None of the original scientific papers has been referenced. Thus, it is impossible assess the veracity of the claims made in this paragraph. The paragraph needs to be rewritten to include the appropriate references so that a fair assessment can be made of MMS's interpretation of the data. The final sentence in this paragraph is not based on adequate data. The duration of disturbance or behavioral responses to a noise source is not known.

Response: The intent of this EIS is to only provide broad information and analyses that will serve as the starting point for more detailed environmental reviews at the region-, site-, project- or activity-specific stages. References to other MMS environmental analyses are appropriately incorporated by reference so that the reader can choose to find more information on the issue. Therefore, MMS feels the level of information provided in this EIS is appropriate for this programmatic, broad-level analysis.

Concern: Page IV-119, Vessel and Aircraft Traffic, paragraph 3: Mid-paragraph, the MMS states that whales may resume normal behaviors after being disturbed by the passage of a vessel. Are there references for studies that have addressed this, especially for bowheads? If not, the statement should be stricken or rewritten with emphasis on the uncertainty (i.e., no data are available to assess bowheads' response to passing vessels) about this.

Response: Again, the intent of this EIS is to only provide broad information and analyses that will serve as the starting point for more detailed environmental reviews at the region-, site-, project- or activity-specific stages. Also, the paragraph does provide for a range of reactions from marine

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mammals to vessel and aircraft presence. Therefore, MMS feels the level of information provided in this EIS is appropriate for this programmatic, broad-level analysis.

Concern: Page IV-120, paragraph 2: The season and timing of oil spills (not just environmental conditions at time of spill) need to be added to the list of factors that may determine the magnitude and severity of potential spill impacts to marine mammals.

Response: The text has been changed accordingly.

Concern: Page IV-120, paragraph 3: This list of effects needs to be expanded. It should include potential effects from chronic ingestion of oil (e.g., reproductive effects), as well as effects upon the prey base of the marine mammals in the region.

Response: The MMS believes the analysis contained in this section is appropriate as written.

Concern: Page IV-120, paragraph 4: Modeling attempts to predict oil-spill exposure are notoriously insufficient. The estimate that only 2 percent of the population may be affected by a large spill seems extremely low, especially considering prey base effects and the fact that the time of the year is so critical to the equation. The MMS needs to state this conclusion was reached.

Response: The MMS added text to clarify that the modeling estimates may be exceeded should a large oil spill occur in critical migratory paths or feeding areas.

Concern: Page IV-120, paragraph 5: Adult seals also depend upon their fur for insulation, although not to the extent of neonate seals. Adults most certainly would also be affected by having their fur coated with oil.

Response: The MMS will adjust this statement accordingly.

Concern: Page IV-121, paragraph 3: This paragraph mentions a possible localized reduction in prey species, but does not go on to speculate about the effect it may have on species that depend upon these prey species for survival. This is an indirect effect of oil spills and must be addressed by MMS.

Also, no mention is made in the section of the potential for large numbers of bears to be impacted by an oil spill while in a large aggregation feeding on an oiled marine mammal carcass.

Response: See General Response #1 on page V-55. Also, the next paragraph discusses how effects would be greater than expected if a spill were to occur during times animals aggregated.

Concern: Page IV-122, paragraph 1: There is a typographical error: polar bear (not poplar bear).

Response: The text has been changed accordingly.

Concern: Page IV – 122: The reference to “the chemicals used during a spill response are toxic” in paragraph 1 should be revised to read “the chemicals used during a spill response are relatively non-toxic, and are considered . . .”

Response: The MMS believes the text is appropriate as written and is adequately characterized to reflect that the chemicals used in spill responses are still considered to have less of a potential for adverse effects than the oil itself.

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Concern: Page IV-122, Conclusion, 1st paragraph: The first sentence is not true. Many previous studies and data show that marine mammals will be affected by routine operations associated with the MMS's proposed actions through the 5-Year Program. The third sentence is misleading. There are no data available to assess the duration or extent of industrial activities. Additionally, none of the mitigation measures that have been implemented have ever been assessed. We do not know whether the mitigation measures are effective at reducing or avoiding impacts to individuals or populations.

In the third paragraph, the first sentence does not accurately portray the data that are available on impacts to bowhead whales. Bowheads have been excluded from a 20-km zone around seismic vessels. It is not clear whether they travel even greater distances to avoid industrial activities. There are no data to suggest that bowheads would be only "temporarily" displaced from an oil-spill area. The statement would seem to conflict with the account described earlier (page III-65) of whale avoidance of Eilson Lagoon for 4 years following a 1944 release of oil by a military vessel. Here again, as with the MMS use of significance thresholds that do not reflect the needs of the affected human population, a displacement of 4 years in the context of an activity as culturally and nutritionally important as the bowhead hunt should not be minimized by being characterized as "temporary".

Response: The MMS will adjust these statements accordingly. Further discussion of impacts to subsistence activities are discussed in the Sociocultural section.

Concern: Page IV-123, paragraph 1, first full sentence: It states, "... a significant change in seasonal distribution of the bowhead whale is unlikely." This statement is not based on data. Industrial activities in the Arctic Subregion have been limited since the early 1990's. The MMS is proposing a much greater amount of activity in the Beaufort and Chukchi Seas through the proposed 5-year program than has been seen in many years. It is not clear how whales will respond to multiple seismic operations, various drilling operations, and numerous support activities in the Beaufort and Chukchi Seas. More data and information are needed before a conclusion can be drawn that there will be no significant change in the distribution of bowheads due to MMS's proposed activities.

Paragraph 1, last sentence: the lack of bowhead whale mortality during this period should not be cited as a proof of lack of adverse effects of OCS activity. It is very rare that a bowhead whale is found dead anywhere and this is a function of the size of the area they populate and the low human population. The MMS's statement is not sufficient as proof of no adverse effects. Data or analyses are needed.

Paragraph 2: Adults will be affected by oil-soiling of fur (in addition to neonates) in both polar bears and seals. Also, with the extremely limited data available on the current status of most of the pinniped populations in the region, it is inappropriate to assume that no population level effects will occur from two potential large oil spills. The last sentence of this paragraph is absurd. If there are two large oil spills in the Arctic Subregion during the 40-year life of the 2007-2012 leasing activities, there very well could be population-level effects to bowheads, belugas, and other marine mammals that occur in the Chukchi and Beaufort Seas, as well as significant cultural and health effects to the people who hunt there. That level of potential risk to our subsistence users is not acceptable.

Response: The MMS will adjust these statements accordingly.

Concern: Page IV-323, Section IV.F.2.a, Chukchi Sea: The first paragraph is a bit confusing. Having a buffer zone along the Chukchi Sea coast is appropriate, but it is not clear how the buffer will reduce impacts to water quality from exploration, construction, and discharges. The areas of resource

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development are outside the buffer zone. Further, gravel islands and ice roads in the Chukchi Sea are unrealistic under any scenario or alternative. The Chukchi Sea is too deep and the ice too unstable and constantly moving to allow ice roads. In the third paragraph, a similar statement about reduction of impacts to marine mammals is confusing. It is not clear how impacts to marine mammals will be reduced with the 25-mile buffer. These paragraphs need further clarification as to how the buffer will reduce impacts.

Response: The MMS believes this section is appropriate, as written.

Concern: Page IV-323, Section IV.F.2.a: The fourth paragraph states that mitigation measures are in place, but there is no reference to where the reader of the DEIS can find these mitigation measures. It is impossible to evaluate the statements made in this paragraph without knowing the details of the mitigation. Presumably, the seasonal drilling restrictions are during the spring migration. If this is the case, it is unlikely that industry will be trying to drill wells during the spring in the Chukchi Sea because of moving ice and incredibly challenging environmental conditions. The assertion that seasonal drilling restrictions offer protection to bowheads is hollow. Additionally, to assert that the same mitigation would protect fin and humpback whales is false. These animals occur in the Chukchi Sea during the open-water period, exactly when drilling would be occurring.

Response: See General Response #2 on page V-56.

Concern: Page IV-324, Section IV.F.2.a, second complete paragraph: Clarification is needed on how impacts from oil spills will be reduced under this alternative. It is not clear that there will be any reduction in impacts to water quality or subsistence. Having an 25-mile buffer will not reduce the amount of oil and gas activity in the Chukchi Sea, thus the impacts will not be reduced substantially. The MMS must clarify how the reduction in impacts will occur.

Response: The MMS believes that the 25-mile buffer would reduce the potential for impacts. However, it should be characterized as more a reduction for impacts within the 25-mile buffer (i.e., more reduction in coastal impacts than offshore). The statements is changed accordingly.

Concern: Page IV-409, Section IV.J.3.c, Marine Mammals: This section, and others in the cumulative case, provides few specifics, so it is impossible to adequately evaluate the impacts in the cumulative case. The first sentence under Routine Activities says that marine mammals and their habitats “could be affected by a variety of exploration, development and production facilities” in the Beaufort and Chukchi Seas Planning Areas. “Could” should be changed to “will be” or “would” as there is ample evidence (e.g. Miller et al., 1999 in Richardson, 1999; Richardson, 2006) to show that bowheads and other marine mammals are impacted by industrial activity.

Response: The MMS believes the statements are appropriate as written. Again, the intent of this EIS is to only provide broad information and analyses that will serve as the starting point for more detailed environmental reviews at the region-, site-, project- or activity-specific stages. Therefore, MMS feels the level of information provided in the EIS is appropriate for this programmatic, broad-level analysis.

Concern: Page IV-410, Seismic Surveys and Exploration: The first sentence states that impacts from seismic will be short-term behavioral disturbances. There are no data available for understanding the duration of impacts from seismic on bowhead whales or other marine mammals. Also, there are no data about whether physical damage occurs, such as hearing damage, to marine mammals from seismic. Further, the last sentence of this section is not supported by any data. We do not know whether impacts from seismic operations result in population-level impacts. The analysis of seismic

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surveys also does not include seismic surveys that would be conducted in State waters of the Beaufort Sea or surveys conducted in the Canadian Beaufort Sea. Thus, the analysis of impacts from seismic surveys, in the cumulative case, is inadequate.

Response: The MMS has changed this paragraph accordingly.

Concern: Page IV-410, Construction and Operation of Offshore Facilities: The conclusion that no long term, population-level effects would be expected from construction and operation of offshore facilities in the cumulative case is not warranted nor supported by data. Bowhead whales are very sensitive to sound. If there were 5 to 15 platforms in the Beaufort and Chukchi Seas and several seismic operations in Alaska and Canada, it is very easy to envision that cumulative impacts could be significant. Bowheads could be deflected around each operation they encounter as they migrate west through the Beaufort Sea. Being deflected could result in the loss of feeding opportunities or increased energy expenditure to avoid industrial operations. Loss of feeding opportunities or increased energy expenditures easily could lead to population-level effects. The MMS should base their conclusions on analysis of data and provide a detailed accounting of those analyses.

Response: The MMS still needs to review this section and determine what response is needed.

Concern: Page IV-410, Construction and Operation of Onshore Facilities: As mentioned previously, impacts from onshore or nearshore facilities has the potential to affect belugas in concentration areas or spotted seals in traditionally used haulouts. These types of effects must be acknowledged and evaluated.

Response: The MMS will adjust this section accordingly.

Concern: Page IV-412, Commercial and subsistence Fishing and Harvesting: The MMS fails to include studies on ship strikes and entanglement in fishing gear of bowhead whales in their analysis. George et al. (1994) found that approximately 1 percent of landed whales had evidence of collisions with ships. Philo et al. (1992) presented information on five bowheads that had rope scars or were entangled in ropes most likely from crab pots. An assessment of these impacts to bowheads, cumulatively with OCS impacts, is needed.

Response: The MMS agrees and added language to this section to reflect what is known about bowhead whales and injury/mortality from commercial fishing. Discussions on potential for ship strikes is discussed in the various sections addressing vessel and aircraft impacts to bowhead whales and other marine mammals.

Concern: Page IV-413, Conclusion: The conclusion that “the overall contribution of the cumulative impacts to marine mammals from new and future OCS leasing during the life of the 2007-2012 Leasing Program, with the implementation of appropriate mitigation and monitoring measures, is not expected to contribute to population-level impacts on marine mammals” is not supported by data or the analysis presented by MMS. Many of the cumulative impacts were not identified or assessed, such as oil and gas activities in the Canadian Beaufort Sea and other impacts (see, above). Further, there are many data gaps and unknowns in the Beaufort and Chukchi seas related to marine mammals. Because of these unknowns, it is not possible to develop appropriate mitigation measures or assess the effectiveness of existing mitigation measures. Additionally, the oil and gas industry refuses to fly manned aircraft in locations offshore because of safety concerns. So monitoring impacts to marine mammals in many areas of Arctic Subregion, especially the Chukchi Sea, is not possible. Suitable replacement monitoring techniques have not yet been developed. So implementation of suitable

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monitoring measures is not possible at this time. Thus, because there are many data gaps, many human activities were not considered in the cumulative assessment, there is limited ability to adequately develop mitigation measures, and there is limited ability to adequately monitor impacts from proposed OCS activities, the conclusion is flawed and not warranted.

The MMS has not presented result of their BWASP in this cumulative effects section. Recent analyses have shown that few bowheads are observed north of Prudhoe Bay, where industrial activity has occurred for the longest time and is the major hub of activity on the North Slope. It is unclear why there are few bowheads seen north of Prudhoe Bay, but industrial activity may cause whales to deflect or pass through the area more quickly or with more stealth. The MMS must consider these data that they collected in their analysis of cumulative effects. It is unclear why they have avoided addressing their own results.

Response: The MMS has adjusted the section accordingly in response to the first paragraph in the comment above. However, a detailed description of the BWASP program and results is not appropriate for the broad-level analysis intended in this EIS. The discussion will occur within any subsequent site- and project-specific analyses.

Concern: In the absence of the outright halt to leasing that we feel is appropriate, there has evolved a system of area deferrals and lease stipulations that provides only inadequate protection for subsistence uses, subsistence resources, and the arctic marine environment. The small Barrow-area and eastern Beaufort Sea deferral areas have added only a measure of protection for subsistence users in those areas. We remain deeply frustrated that leasing continues here while being prohibited in most Federal OCS waters. We remain frustrated that we must devote considerable time and energy to fighting for deferral areas with every lease sale, and that the areas that have been deferred from Beaufort Sea sales have encompassed only the bowhead whale harvest sites of two communities and not the full extent of areas critical to the subsistence whaling success of all three affected communities.

Response: The FEIS includes five alternatives for Alaska that bear on the timing and location decisions: excluding Cook Inlet and the North Aleutian Basin from the proposed action, and restricting leasing in the North Aleutian Basin, Chukchi Sea, and Beaufort Sea. Further analysis and consideration of leasing alterations will be done prior to holding a lease sale. A lease-sale EIS typically includes several alternatives that could address issues mentioned in the comment.

Concern: A 1995 workshop in Leesburg, Virginia, of government and industry scientists as well as decision-makers was convened to generate consensus recommendations on how best to interpret and apply chemical countermeasure product toxicity and effectiveness data in the decisionmaking process. The participants concluded that:

- For planning purposes, it is unlikely that exposure concentrations of 10 ppm dispersed oil, and 2 to 4 hour duration, will be exceeded in open marine waters at depths below the top 10 meters of the water column (SEA, 1995).
- The available acute toxicological data support the conclusions that, at water column concentrations at or below 10 ppm, exposures to dispersed oil for 2 to 4 hour durations are not expected to cause adverse ecological effects (SEA, 1995).

In paragraph 5, in addition to the mitigations and protections stated, the EIS should also include the requirement of the National Marine Fisheries Service for a Marine Mammal Monitoring and Mitigation Plan and the requirement of the Alaska Eskimo Whaling Commission to have a Conflict Avoidance Agreement (CAA).

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Response: The MMS believes the statements are appropriate as written. The MMS is aware of the meeting and report referenced above. In addition, numerous areas within the assessment of potential impacts on marine mammals note that compliance with the MMPA and ESA is warranted for any activities that are likely to take marine mammals. In discussions for Arctic Alaska, this includes a reference to MMPA authorization requirements and the CAA's developed in order to meet the MMPA requirements of "no unmitigable adverse impact on subsistence resources."

ISSUE 4c: Marine and Coastal Birds

Issue Raised By: North Slope Borough; Pacific Seabird Group; Virginia Department of Environmental Quality; Alaska Center for Environment, and others; North Carolina Wildlife Resources Commission; Alaska Maritime Conservation Council; National Oceanic and Atmospheric Administration; Center for Biological Diversity; Alaska Department of Natural Resources; Aleutians East Borough; Bering Sea Fishermen's Association; and Arctic, Chukchi, and Barrow public hearings

Concern: Entire populations of eiders pass through the Chukchi and Beaufort Seas. Their narrow migration routes (both space and time) make them very vulnerable.

Response: We agree that when populations are concentrated in space and time they are more vulnerable. Identification of vulnerable populations can be made at the lease-sale stage, and stipulations can be developed to provide additional protections.

Concern: The discussion on risks to birds from offshore structures and elevated pipelines onshore needs to be revised.

Response: Studies do indicate that birds are more likely to collide with structures during low visibility and/or at night (Kruse, 1996; Manville, 2000; Russell, 2005.) This seems to indicate that they are more likely to be able to avoid collisions when visibility is good. We do agree that birds can be attracted to structures for use as perches. We have clarified this section and also the discussion on potential impacts from elevated pipelines.

Concern: The coverage for bird species not listed under the ESA is inadequate. Better coverage of FWS Species of Concern, State-listed species, and other bird species in the "Affected Environment" (Chapter III) and other sections is needed.

Response: We have included some additional information about selected species that are classified of particular concern by the FWS and others. More detailed information would generally be included at the lease-sale stage when we can concentrate on one specific geographic area.

Concern: There is a need to update, improve, and expand the descriptions of the marine and coastal bird resources of Alaska.

Response: The FEIS incorporates many of the suggestions for augmenting the Alaskan section on marine and coastal birds. Other information is incorporated by reference. Additional, more detailed information on the environment and potential impacts on birds would be included in the environmental documentation at the lease-sale stage.

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Concern: The “Cumulative Impacts” (Chapter IV.J) misses some important stresses on seabird populations, including changes in currents and sea ice due to global warming and depletion of prey by fisheries.

Response: In the cumulative impacts section for marine and coastal birds, MMS does cite commercial fishing operations, subsistence or other harvests, and climate change as other factors that could affect marine and coastal birds.

Concern: The most glaring and consistent problem is the failure throughout the EIS to recognize that seabirds occupy Alaska’s marine waters at all times of the year, at high densities in productive areas.

Response: The EIS recognizes that, although the highest densities of birds in coastal waters occur in the spring, seabirds are present in high concentrations through the year.

Concern: The EIS indicated that much of the Bering Sea is ice-covered, limiting seabird concentrations to specific areas. In fact much of the southeastern Bering Sea and Bristol Bay is ice-free and a major overwintering area for seabirds and ducks. And the ice-covered areas are shrinking, a fact that should be acknowledged.

Response: We recognize that birds use these ice-free areas in the southeastern Bering Sea and Bristol Bay for overwintering. We further concur that ice cover is declining and is likely to continue to do so. It could conceivably spread out the risk to bird populations from an oil-spill event if there are greater ice-free areas and bird populations became more spread out. The concentrations of bird populations and how they would correlate with the proposed project would need to be more fully addressed during environmental review for a lease sale.

Concern: In evaluations of oil-spill risks, the EIS stated that “significant adverse effect could occur” only if oil entered a waterfowl staging area, ignoring the high concentrations of seabirds, often in deeper waters offshore.

Response: We have clarified the language so that effects to other birds are not excluded.

Concern: The Cumulative Case discussion includes the statement that “Tens of thousands of seabirds sometimes die from starvation or disease or by drowning in fishing nets.” This is a broad, offhand remark that doesn’t mean much unless it specified species, population sizes, frequency, location and supporting references.

Response: This statement was made in the context that there can be multiple factors adversely affecting bird populations. The EIS goes on to say that oil-spill mortality must be considered as additive to these other factors.

Concern: Oils spills could have a major impact on the birds of the Atlantic. Seabird species could be exposed to deepwater spills. Foraging birds could contaminate their nests—a single drop of oil on seabird eggs will halt chick development. Therefore, a single spill could destroy the year’s breeding potential.

Response: In the unlikely event of a major spill, it is possible that the spill could have population-effects on certain bird species. At particular risk would be species with low reproductive capacity that spend most of their time on the water’s surface. Mitigation measure can be developed at the lease-sale stage to decrease risks to populations.

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Concern: The impacts from lighting of vessels and platforms on birds should be addressed.

Response: Lighting is mentioned in the discussion of “Environmental Impacts of Alternative 1—Proposed Action.” Because of the low level of oil and gas activity projected for the Atlantic area, artificial lighting is not expected to measurably impact bird populations.

Concern: The MMS fails to adequately evaluate the potential adverse impacts that activities occurring under the Propose Program will have on declining populations of threatened spectacled and Steller's eiders.

The MMS ignores and arbitrarily downplays potential impacts to Steller's eiders from activities under the 5-year plan. The MMS has indicated that Steller's eiders make "considerable" use of coastal marine waters between Wainwright and Dease Inlet as brooding grounds and staging grounds for post-breeding migration (Chukchi Biological Evaluation, 21). This area overlaps the portion of the Beaufort Sea that is slated for future lease sales under the proposed program. Thus, there is potential for exploration, development and production activities to occur within this area and to disturb Steller's eiders or result in an oil spill that substantially impacts the population.

Additionally, vessel helicopter traffic from Barrow or Wainwright will likely traverse this area of "considerable" use by Steller's eiders and disturb, displace, or even collide with eiders. The MMS acknowledges the propriety of evaluating potential impacts to Steller's eiders in these coastal waters (see DEIS at IV-143: ("there is some evidence to suggest use of Peard Bay by postbreeding Steller's eiders"). The MMS does not, however, provide any substantive discussion of the potential for OCS oil and gas activities to impact seasonally-concentrated Steller's eiders along the coast between Wainwright and Dease Inlet. Pursuant to NEPA, MMS must fully discuss the potential impacts of disturbances to this seasonal concentration of threatened Steller's eiders in order to foster informed decisionmaking and public participation. The MMS's failure to analyze these impacts in a biological evaluation or similar document violates the ESA.

In addition, MMS downplays potential impacts to Steller's eiders that winter in designated critical habitat on the northern coast of the Alaskan Peninsula, within the North Aleutian Basin Planning Area. The MMS identifies Izembek Lagoon as being “among the most important molting areas” for Steller's eiders (DEIS at IV-146). Yet, MMS ignores potential impacts to Steller's eiders which molt in Izembek Lagoon, located immediately south of the planned sale area in the North Aleutian Basin Planning Area and including designated critical habitat for threatened Steller's eiders. The nearest airport to much of the planned sale area is in Cold Bay, about 5 miles south of Izembek Lagoon. Helicopters traveling to offshore oil and gas facilities or exploration vessels within the North Aleutian Basin will likely fly out of Cold Bay, and travel directly above Izernbek Lagoon. The impacts of such flights must be evaluated pursuant to the NEPA and ESA.

Steller's eiders exhibit strong fidelity to molting sites and wintering habitat (Chukchi Biological Evaluation at 18). The MMS has previously determined that “Steller's eiders are vulnerable to perturbations within their winter or molting habitats. If they are disturbed from a preferred wintering area, the area the eiders are displaced to may be of lesser quality due to decreased protection from wind, cold, wave action or provide less opportunity for obtaining high energy prey. . . . If displaced from primary molting areas, eiders may experience decreased survivorship” (Id.). The MMS, without referring to any factual support for its new position, now arrives at the opposite conclusion: “Disturbed [overwintering] birds would move to other suitable habitat that occur throughout the planning area and would not be expected to be adversely affected” (DEIS at IV-146). This arbitrary about-face does not

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constitute a “full and fair” discussion of environmental impacts and does nothing to prevent adverse effects to threatened Steller's eiders. These deficiencies in MMS's analysis prevent informed public participation and decisionmaking in violation of NEPA. In addition, the deficiencies may improperly lead MMS to authorize activities that may impede the recovery of the threatened Steller's eider population and adversely modify its designated critical habitat.

Response: See General Response #1 on page V-55.

Concern: Spectacled eiders congregate to molt in large flocks along coastal areas during late summer. Ledyard Bay in the Point Lay area, directly in-shore from the proposed Chukchi Sea lease sale, has been designated a “critical habitat area” by the FWS for the protection of the threatened spectacled eider. “Most of the Arctic Coastal Plain breeding population of spectacled eiders likely molts on the 14,000 sq. kilometers (5,400 sq. mi.) Ledyard Bay Critical Habitat Area” (FWS, 50 CFR Part 1765(8):6114-6131). As the eider are found 12-30 miles offshore, exploration disturbances and a potential spill in the nearby proposed leasing area pose a real threat to this threatened species.

Response: See General Response #1 on page V-55.

Concern: The cumulative impacts analysis neglects specifically to discuss potential impacts to eiders at all. Rather, it addresses all marine and coastal birds in general terms. The MMS observes that new onshore facilities may increase the abundance of predator species, which “could result in population-level effects,” to marine birds (DEIS at IV-414). Because the FWS identifies predation as a potential cause of decline for both populations, MMS should address this issue specifically with respect to the eiders (Chukchi Biological Evaluation at 19, 30). To the extent that MMS does indirectly address the possibility of increased predation affecting threatened eider populations, it fails to impose mitigation measures that would avoid, minimize, or rectify these effects.

The MMS notes that cumulative effects causing direct mortality, reduced reproductive success and habitat loss could generally prevent the recovery of species with declining populations (DEIS at IV-417). Because the threatened populations of both spectacled eiders and Steller's eiders are presently declining, MMS should specifically address whether the cumulative impacts may impede recovery of these threatened populations (Chukchi Biological Evaluation at 20, 28).

In addition, the cumulative impacts section neglects to specifically discuss the potential impacts to threatened spectacled eider and Steller's eider populations from the opening of nearly all of the northern portion of the National Petroleum Reserve-Alaska (Reserve) to oil and gas development. A biological assessment prepared in connection with the 2005 Final Amended Integrated Activity Plan for the Northeast Reserve concluded that the amended plan “may affect and is likely to adversely affect the listed spectacled and Steller's eiders” in their nesting grounds and nearshore coastal areas. See Bureau of Land Management, Northeast National Petroleum Reserve-Alaska, Final Amended IAP/EIS (January 2005) at D-45; see also Bureau of Land Management, Northwest National Petroleum Reserve-Alaska, Final IAP/EIS, Appendix 10, § V.G. (finding that the plan “may have an affect on threatened spectacled and Steller's eiders”). The potential impacts of OCS oil and gas activities must be evaluated in the context of expansive industrial intrusion throughout eiders' nesting habitat in the Reserve. The NEPA and the ESA require MMS to evaluate how these threatened eider populations will respond to additional disturbance in coastal areas and nearshore waters, given existing and probable future disturbance throughout their nesting habitat and the potential for these synergistic impacts to jeopardize the populations' recovery.

Response: See General Response #1 on page V-55.

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Concern: Page IV-319, Section IV.D.2, paragraph 4: "While large numbers of Kittlitz's murrelets, a candidate for listing under the Endangered Species Act, occur in Cook Inlet, they nest on cliffs and other areas that would not be expected to come in contact with spilled oil," Kittlitz's Murrelets do not nest on cliffs; anyway, since they feed at sea, their nesting habitat is irrelevant to their risk of oil exposure.

Response: The MMS will adjust this statement accordingly.

Concern: Due to the legal status of gull-billed tern, bald eagle, peregrine falcon, piping plover, Wilson's plover, and loggerhead sea turtle, the Department of Conservation and Recreation recommends coordination with the DGIF and the FWS to ensure compliance with protected species legislation.

Several State and federally listed whales and marine mammals are located in the project vicinity. Due to the legal status of these species, the Department of Conservation and Recreation recommends coordination with the NMFS to ensure compliance with protected species legislation.

Response: Should a lease be scheduled in the Mid-Atlantic Planning Area, the MMS will consult with both the FWS and NMFS under the ESA as well as coordinate with the wildlife agencies of any affected States.

Concern: Page III-118, Section III.B.7.a(1), Spectacled Eider: The first paragraph about spectacled Eiders refers to critical habitat listed in wintering areas. Unfortunately, the DEIS has misidentified the appropriate designated critical habitat. Figure III-37 correctly shows the habitat that was designated in the Arctic Subregion, but this habitat is not used by eiders as a wintering area. The habitat in Ledyard Bay (Fig. III-37) is an important staging, foraging, and molting area. The EIS also needs to acknowledge the uncertainty of the knowledge about the degree and extent of the use by spectacled eiders of the Arctic Subregion. Without this information, MMS and the public have difficulty in evaluating the potential impacts to this threatened species.

Response: The MMS will adjust this statement accordingly.

Concern: Page III-119, Section III.B.7.a(1), Steller's Eider: There are more current references than given in this sections. Ritchie et al. (2005) is the most current reference and provides some information on Steller's eiders breeding in northwest Alaska since 1999. Additionally, the entire listed population of Steller's eiders migrates through the Chukchi Sea in the Arctic Subregion. This is important to note given that an oil spill, potentially even a small one, could impact the listed population of Steller's eiders. It should also be noted that how Steller's Eiders use the Arctic Subregion is very uncertain. Without this information, MMS and the public have difficulty in evaluating the potential impacts to this threatened population.

Response: The MMS believes the references included in this section are appropriate and many are as recent as 2005. The MMS has added a statement regarding the Steller's eiders migration through the Chukchi and added language regarding the scientific uncertainty on Steller's eiders use of the area.

Concern: Page III-119, paragraph 1, first complete sentence: It should be noted in the EIS that the estimate of 6,841 Spectacled eiders is a minimum estimate. Larned's surveys do not include a visibility correction factor to account for eiders that are inadvertently missed.

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Further, the reference of Larned et al. 2005 is not the most current. The reference relates to the surveys conducted in 2004. A report from the 2005 surveys has been completed (Larned, Stehn and Platte, 2005b). This should be the reference used. Also, it would be worthwhile to note that over the past 7 years, the population has exhibited a nonsignificant increase.

Response: The MMS will adjust this section accordingly.

Concern: Page III-120, Major species Groups not Covered by the ESA: This section is inadequate because it does not highlight species that are of concern. There are at least several species that the FWS and other groups are concerned about because of small or declining populations. These include loons, king and common eiders, black brant, and various shorebird species. The yellow-billed loon has also been proposed for listing under the ESA. All of these species need to be identified as potentially being impacted by MMS' actions.

Response: Given it has been proposed for listing, the MMS added a description of the yellow-billed loon to the ESA bird section. The MMS also noted the other species of concern within the section covering major bird groups not covered under the ESA. More detail and analysis will be provided on issues for these bird species at the region-, site- or project-specific analysis (i.e., NEPA document for lease sale).

Concern: Page III-120, Section III.B.7.a(2) Seasonal Cycle and Abundance, Spring Migration: This paragraph fails to mention that the entire populations of eiders passing through the Chukchi and Beaufort Seas are confined in time and space. In the spring, eiders migrate along the lead in the ice covering the oceans. In the summer and autumn, the eiders' return migration is along the Beaufort Sea coast and then south and west through the Chukchi Sea. Both of these migration corridors are very restricted, making eiders very vulnerable to oil spills during migration.

Response: The MMS will adjust this statement accordingly.

Concern: Page III-123, Section III.B.7.a(2) Seasonal Cycle and Abundance, Abundance, paragraph 2: The MMS states there is a “. . . stable or nonsignificant increasing trend in . . .” yellow-billed Loons. The MMS should also mention that the FWS is considering a petition to list yellow-billed loons under the ESA. These birds are a BLM Sensitive Species and FWS Species of Special Concern.

Response: The MMS will adjust this statement accordingly.

Concern: Page III-19, Section III.B.7.a(1), Spectacled Eider: The second complete sentence needs to be modified. Spectacled eiders do use marine habitats during spring migration, however, the depth of that knowledge is limited. Few Spectacled Eiders have been seen in Barrow during spring migration (Suydam et al., 2000) suggesting that many fly across land between the Chukchi and Beaufort Seas just south of Barrow. It is likely that eiders use marine habitats in spring in both the Chukchi and Beaufort Seas. Johnson and Herter (1989) state that the dates of arrival at breeding areas are dictated in part by availability of leads and openings in Bering and Chukchi Sea ice.

Response: The MMS will adjust this statement accordingly.

Concern: Page IV-143, Effects to ESA-listed Species in the Arctic Subregion: paragraph 2: The second sentence is not based on data. The MMS states that an oil spill in the spring lead would not likely contact Spectacled eiders because they use overland routes from the Chukchi Sea. No one knows the migration routes of Spectacled Eiders from the Chukchi Sea to nesting areas. It is surmised

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that the routes are overland because few Spectacled Eiders are seen at Barrow during spring migration (Suydam et al., 2000). If they migrate overland, they likely leave the Chukchi Sea between Icy Cape and Barrow, well within the leasing area. Thus, if oil were spilled in the lead system of the Chukchi Sea, it is very possible that the entire population of North Slope Spectacled Eiders could be oiled in a single event.

Response: The MMS will adjust this statement accordingly.

Concern: Page IV-143, Effects to ESA-listed Species in the Arctic Subregion: paragraph 3: This paragraph states that Steller's eiders are unlikely to be exposed to oil during nesting or postnesting, since most birds move to Russia. This statement is not based on data. Some of the birds that were fitted with satellite transmitters flew to Russia. None of these birds were nesters because the surgery to implant the transmitter caused them to abandon attempts at nesting. There are no data on the movements of Steller's eiders postnesting. There are however, numerous observations of Steller's eiders using the Chukchi and Beaufort Sea coasts after nesting. It is very likely that Steller's eiders would be oiled in the event of a spill. The loss of any Steller's eiders would jeopardize the listed population because it is so small.

Response: The MMS will adjust this statement accordingly.

Concern: The MMS should provide an explanation why the number of breeding Steller's Eiders can vary substantially from year to year (second paragraph, penultimate sentence) given how unusual this type of breeding system is among waterfowl. Quakenbush and Suydam (1999) and Quakenbush et al. (2004) suggested that the number of successful Steller's Eiders' nests at Barrow was related to the abundance of lemmings, which varies greatly from year to year. Lemmings are an alternative prey for common nest predators of eiders. Steller's Eiders may only nest when the chances of nesting success are increased, such as when predation may be low.

Response: The MMS will adjust this statement accordingly.

Concern: Comments on MMS's "Proposed Program, Outer Continental Shelf, Oil and Gas Leasing Program, 2007-2012, August 2006, North Slope Borough", page 22, Marine and Coastal Birds: The MMS fails to mention potential impacts caused during exploration. Seismic vessels could easily disturb threatened Spectacled eiders in their designated critical habitat in the Chukchi Sea. Exploratory drilling could also affect marine and coastal birds in a variety of ways.

Response: MMS will adjust this statement accordingly.

Concern: Comments on MMS's "Proposed Program, Outer Continental Shelf, Oil and Gas Leasing Program, 2007-2012, August 2006, North Slope Borough", page 96, Other Areas of Concern: The MMS fails to mention critical habitat that has been designated for Spectacled eiders in the Chukchi Planning Area.

Response: The MMS will adjust this statement accordingly.

Concern: The transportation scenario identified in the Final EIS for Lease Sale 92, which has recently been confirmed by Shell as remaining to be the preferred transportation route, indicates that a pipeline would be placed through Herendeen Bay near Port Moller, would run onshore through the Alaska Peninsula, and would link to a LNG terminal near Balboa Bay. Tankers would ship oil and gas from the terminal on the southern side of the Alaska Peninsula to the market. This transportation scenario

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would have pipelines leading from right whale critical habitat, going through Steller's eider critical habitat and next to walrus haulouts and tanker routes through Steller sea lion critical habitat on the southside of the Peninsula (see maps). Mitigation measures could not fully compensate for the full range and intensity of impacts that these endangered species would incur from OCS operations.

Response: See General Response #2 on page V-56.

Concern: The region provides designated critical habitat for three federally listed species: the North Pacific right whale, the Steller sea lion, and the Steller's eider. Important habitat for the federally listed northern sea otter also occurs within the Lease Sale 92 area, although critical habitat has not been designated at this time. The DEIS finds that routine operations occurring near important habitat for the Steller sea lion and the Pacific walrus could result in long-term and population-level effects. However, the DEIS suggests that the protected nature of many of the important habitat areas will limit potential negative effects on these species. As shown in the map below [provided with AMCC comment letter], some of these important habitat areas overlap and occur directly adjacent to the Lease Sale 92 area. As such, many of these important habitat areas would not be protected from OCS activities. Steller sea lion designated critical habitat foraging areas overlaps a significant portion of the Lease Sale 92 area, as does a 20 nautical mile avoidance zone around a haulout and rookery. Walrus haulouts also occur close to the lease sale area.

Response: See General Response #2 on page V-56.

Concern: The Use of Seismic Technology in or Near Marine Mammals, Endangered Species or Sensitive Areas of the Marine Environment: Because a key data set in evaluating the oil and gas potential of g site is seismic reflection profiles, many of which have been collected through the years, NOAA assumes that this technology will be used in the implementation of this plan. Seismic exploration requires the generation of loud, low-frequency sound in the water column. Recent concerns on the impact of these operations on marine life, and marine mammals in particular, have led to greatly restricted permits for seismic exploration. The need to limit seismic testing places increased importance on more effectively using existing seismic reflection data which is scattered among NOAA, USGS, and various academic institutions. This information should be compiled, archived and made more easily accessible.

The NOAA is concerned about the use of seismic technology associated with oil and gas exploration on the outer continental shelf in or near sensitive areas of the marine environment, such as national marine sanctuaries or where marine mammals and/or other endangered species may be located. The NOAA requests that, where appropriate, MMS consult with NOAA to identify ways to reduce potential adverse impacts to these areas and resources from the use of seismic technology. These consultations are important both to address any potential conflict between proposed seismic surveys and existing prohibitions against oil or gas exploration by any person (including Federal Agencies) that apply in most national marine sanctuaries, and to minimize or eliminate adverse impacts on sanctuary or marine mammal resources or qualities, when conducting an inventory and assessment within or near the boundaries of any national marine sanctuary or near marine mammals.

Response: See General Response #2 on page V-56.

Concern: The MMS cannot reasonably dispute that the proposed program affects ESA-listed species. Numerous listed species inhabit the waters and adjacent terrestrial habitat subject to the Program. The DEIS acknowledges as much. For each region proposed for leasing under the Program, the DEIS includes a short description of the ESA-listed species. In the Gulf of Mexico, seven ESA-listed

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marine mammals (northern right whale, blue whale, fin whale, sei whale, humpback whale, sperm whale, and West Indian manatee)(DEIS at III-17), eight birds (DEIS III-23), two fish (Gulf sturgeon and smalltooth sawfish) (DEIS III-29), and five species of sea turtle (green, hawksbill, Kemp's ridley, leatherback and loggerhead). Additionally, and not addressed in the DEIS, two listed species of coral, elkhorn and staghorn, occur in the Gulf. See 71 FR 26852 (May 9, 2006), (final rule listing elkhorn and staghorn corals as threatened); see also Precht and Aronson (2004) (scientific article describing recently discovered elkhorn coral colonies in the northern Gulf of Mexico). The Atlantic program area contains essentially the same suite of listed species likely to be affected by the Program (DEIS III-209, 214, 218, and 221).

Similarly, the Alaska program area is home to numerous ESA-listed species. These include nine marine mammals (North Pacific right whale, fin whale, sei whale, humpback whale, bowhead whale, blue whale, sperm whale, Steller sea lion, and southwest Alaska population of sea otter)(DEIS at III-102) and three birds (Spectacled and Steller's eiders and short-tailed albatross)(DEIS III-118). Additionally, the Cook Inlet distinct population segments of beluga whales, the polar bear, and the Kittlitz's murrelet have all been petitioned for listing and are likely to be listed during the implementation of the 2007-2012 program.

For each of these species, the DEIS describes how the program will likely affect them (e.g., DEIS at IV-40, 48, 57, 64, 114, 136, 260, 269, 273, and 281). We do not see how, given the specific admission of effects by MMS in the DEIS that MMS can lawfully avoid its consultation requirements. (Moreover, the Summary contained in the DEIS discusses the Program's likely impacts on listed species and states that "[t]hreatened and endangered species, for example, are given special attention." It seems like the Summary was written by someone at MMS who had not yet received the directive from above to simply skip ESA compliance.

Response: See General Response #2 on page V-56.

Concern: The marine mammal impact analysis of the DEIS concludes that careful consideration to the siting of onshore and offshore industrial operations is required to reduce mammal impacts, including mammals protected under the ESA and MMPA. While, we expect these issues would be thoroughly addressed in the ESA Section 7 consultation, there is no corresponding mitigation measure to ensure this protection will actually become a lease requirement. Exploration and development must not adversely impact populations of marine mammals including the Steller's sea lion, northern sea otter, harbor seal or Steller's eider and other species listed under the MMPA and ESA that, in turn, would cause increased restrictions on marine resource harvesting in State waters.

Response: See General Response #2 on page V-56. All of these analyses/authorizations in total will identify needed mitigation and monitoring measures to ensure the potential for impacts is minimized.

Concern: The NOAA recommends that MMS include additional information in the FEIS related to Mitigation and monitoring measures for impacts on protected species and habitat.

Response: See General Response #2 on page V-56.

Concern: The DGIF continues to recommend that further research be performed to determine What impacts upon wildlife species may result from offshore oil and gas exploration and development. The mid-Atlantic coastal region is a globally significant area for migration of birds, sea turtles, and marine mammals. The Eastern Shore, in particular, provides breeding grounds and stopover points for Federal- and State-listed sea turtles and shorebirds. Therefore, it is important to understand how the

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construction and operation of facilities related to oil and gas exploration, development, and production may impact these species and the resources upon which they depend.

The DGIF also recommends that, prior to lease sales and exploration, studies be performed to determine the current species assemblage within the proposed mid-Atlantic leasing blocks (particularly threatened and/or endangered species) and use of these areas by wildlife, both resident and migratory. Collection of preconstruction/exploration data will provide a baseline upon which the exploration, development, and operational impacts can be evaluated. These studies may also provide insight on the most effective way to mitigate for impacts.

The DGIF also recommends that research into effects of lighting on vessels and stationary platforms upon marine species movement and migration be conducted and addressed in the final EIS.

The Department of Conservation and Recreation also recommends that extensive research be conducted on potential impacts to marine mammals, sea turtles, and marine/coastal birds within the Virginia planning zone. Information on species distribution and abundance relative to the proposed lease sites is needed.

Response: The MMS acknowledges that there will be a need for studies should MMS lease in a new area. However, until final decisions are made on whether leasing will or will not occur in the Mid-Atlantic Planning Area, it is difficult to anticipate what studies will be needed. However, MMS will take the guidance provided by the Virginia Department of Environmental Quality into consideration.

Concern: A number of commenters disagreed with statements in the DEIS where MMS asserted that formal consultation under the ESA was not required at the 5-Year EIS level and would instead occur at region-, site-, and/or project-specific levels.

Response: See General Response #1 on page V-55.

Concern: Page IV-324, first complete paragraph: This paragraph is nonsensical. Because of the depth of the Chukchi Sea and moving ice, gravel islands and ice roads are extremely unlikely to be built anyway. Thus, the alternative with a 25-mile buffer will not offer additional protections to marine or coastal birds.

Response: The MMS believes the statements are appropriate as written. In comparing the alternatives analyzed in the EIS, it is useful to indicate where activities that would take place (and possibly cause adverse effects) in one alternative do not occur in another alternative. Overall, a 25-mile buffer would move the majority of activities away from nearshore and coastal areas and thus afford additional protection to marine and coastal birds.

ISSUE 4d: Fish and Essential Fish Habitat

Issue Raised By: North Slope Borough; National Oceanic and Atmospheric Administration; Alaska Eskimo Whaling Commission; Alaska Maritime Conservation Council; and Virginia Department of Environmental Quality

Concern: The discussion of seismic effects on fish in the Arctic listing of species did not make much sense. Please clarify.

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Response: The species listed are ones of commercial, subsistence and/or recreational value that could be perceived as being at risk of having migration patterns when source vessels operate within 30 miles of the coast. We have clarified the text in the FEIS by being more inclusive of the fish that are “most likely to be affected.” This phrase does not imply a large or significant impact; even small, short-term impediments to movement are included.

Concern: Should include information about essential fish habitat (EFH) and possible impacts on it. The descriptions of EFH need to be updated for the Gulf of Mexico and Alaskan regions.

Response: We agree and have included information about EFH for the areas proposed for leasing. The FEIS reflects the recent amendments to EFH for the Gulf of Mexico and Alaska. The MMS will consult with NMFS at the lease-sale stage on how to limit impacts to fish and their habitats.

Concern: Salmon are becoming more common in the Chukchi Sea, and this trend is likely to continue. This should be mentioned.

Response: We agree and have included this in the document.

Concern: The NSB questioned the river system affinities of certain fish species listed in the DEIS.

Response: We researched the issue and clarified the statement as to which fish species are associated with the Mackenzie River system.

Concern: The statement that pelagic fish will avoid surface oil needs a reference.

Response: We have included the reference (Patin, 1999; Baker et al., 1991; Maki et al., 1995).

Concern: The EIS needs to more fully address the impacts on fish and other wildlife of both small, chronic oil contamination by both small and larger oil spills.

Response: Accidental events resulting from oil and gas development have the potential to impact fish and their habitats. The MMS will participate in EFH consultations with NMFS at the lease sale level to identify risks and develop mitigation approaches. Assuming compliance with special permit requirements, impacts to EFH will be avoided for routine operations. Large spills that reach coastal streams and intertidal areas used for spawning could have persistent impacts and require remediation. We continue to review the scientific literature in evaluating potential sublethal effects on the marine biological community.

Concern: The uniqueness of the Arctic cisco life history might make it particularly susceptible to an oil spill.

Response: We agree that its life history could make it more susceptible. We do state in the conclusion of the EIS that if a large spill were to occur, when many individuals of a given species are concentrated at a particular time of year, that that species might take longer to recover. At the lease-sale stage, we would more thoroughly evaluate the risks to this species and any potential mitigation approaches.

Concern: The impacts of lighting to marine fish were not addressed.

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Response: The MMS addresses the impacts of lights on fish in the Environmental Impacts of Alternative 1 section (Chapter IV.B.4.e). The effects of lights on fish are identified as an impact associated both with exploration and operation of offshore rigs. A more detailed analysis of impacts could be expected at the lease-sale stage.

Concern: The EIS should better describe how Habitat Areas of Particular Concern (HAPC's) fit into the assessment and consider moving them to "Areas of Special Concern."

Response: We have clarified how HAPC's are used. We have decided not to separate that discussion from the fish and EFH information. "Areas of Special Concern" focus on lands where the Federal Government has a particular stewardship responsibility (i.e., national parks, marine sanctuaries, etc.).

Concern: The statement that "mortality to oil [to fish] is seldom observed in nature" needs to be clarified.

Response: We have clarified it to say "adult fish". As we state in the EIS fish eggs, larvae and juveniles are the most sensitive and most susceptible to direct mortality.

ISSUES 4e and 4f: Impacts on Water Quality, Impacts on Disposal, Behavior, and Effects of Production Wastes

Issue Raised By: Alaska Department of Natural Resources; Aleutians East Borough; City of Cold Bay; City of King Cove; North Slope Borough; Shell Exploration and Production; Alaska Maritime Conservation Council; American Petroleum Institute; U.S. Environmental Protection Agency; National Oceanic and Atmospheric Administration; Alaska Eskimo Whaling Commission; Louisiana Department of Environmental Quality; Virginia Department of Environmental Quality; Cascadia Wildlands Project; and Clean Ocean Action

Concern: The Alaska Department of Natural Resources (ADNR), AEB, City of Cold Bay, and City of King Cove requested that the oil and gas industry use the best available pollution control technology to control discharges into the marine environment

Response: All exploration and production facilities are required under the Clean Water Act (CWA) to operate under a National Pollutant Discharge Elimination System (NPDES) permit, either general or site specific. The conditions of the permit are determined using the established effluent limitation guidelines found in 40 CFR Part 435. These effluent limitations are developed assuming that the best available technology will be used.

Concern: The ADNR, AEB, and NSB requested that zero discharge be required of all facilities operating off the coast of Alaska.

Response: Discharges are regulated by the USEPA under the CWA through an NPDES permit. No discharges will be allowed without an NPDES permit. The USEPA issues general NPDES permits for each OCS lease sale planning area and can issue site specific permits for specific facilities. They recently issued a general permit for the Arctic (Beaufort and Chukchi Seas OCS Planning Areas). The MMS would expect a similar general NPDES permit to be issued for the North Aleutian Basin Planning Area. The USEPA requires that best available control technology be used. Discharge requirements are based on the general effluent limitation guidelines (40 CFR Part 435) which are discussed in the EIS.

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Zero discharges may be possible from development and production operations, provided there are formations capable of receiving the discharge volumes; the technology is available to grind drill cuttings and dispose of the cuttings, spent drilling fluids, produced water and other wastes through subsurface injection into a disposal well. A disposal well can be drilled on site to support subsurface injection as development activities proceed. Onsite subsurface disposal during development operations is a common practice and, for example, is used for the Northstar Development Project in the Beaufort Sea. The MMS would expect this approach to be used in other areas. This approach is not practicable for exploratory drilling operations. There is no disposal well drilled in advance of an exploration well, and the drilling fluids and cuttings cannot be injected into the source well.

In the EIS, zero discharge is assumed in the scenario for production wastes (drilling and produced water). Zero discharge from produced waters is an appropriate assumption for the EIS scenario. The MMS would expect produced waters to either be injected into a disposal well and/or injected into the reservoir for pressure maintenance. However, the USEPA is responsible for determining whether discharges are permitted or not.

The MMS would expect the USEPA to issue a general NPDES permit to allow onsite discharge of muds, cuttings and other wastes from exploratory drilling in the North Aleutian Basin. Exploratory drilling wastes are smaller volume than development drilling wastes and do not involve produced waters. A general permit issued with the Lease Sale would not cover discharges from development—which in effect is a zero discharge for produced waters, unless an individual NPDES permit was issued. An individual NPDES permit would be subject to additional public review.

Concern: Shell Exploration and Production suggested that the DEIS should not assume platform discharges (i.e., drill cuttings, spent mud, and domestic waste and produced water) would be transported offsite or disposed of in disposal wells. There are a number of problems with this assumption including negative environmental consequences. In the Gulf of Mexico, platform discharges are authorized under a USEPA and NPDES permit. The NEPA EA's and EIS's produced by the MMS and USEPA have concluded that there are no significant impacts associated with platform discharges and have concluded that platform discharge is the preferred NEPA alternative. Additionally, the USEPA National Effluent Limitations Guidelines and New Source Performance Standards for the Oil and Gas Extraction Point Source Category, Offshore Subcategory (58 FR 41, March 4, 1993) concluded that platform discharges should be authorized under the CWA. The USEPA general NPDES permit for the Beaufort Sea currently allows drilling discharges from exploratory operations.

Response: In the EIS, zero discharge is assumed in the scenario for production wastes (drilling and produced water). Zero discharge from produced waters is an appropriate assumption for the EIS scenario. The MMS would expect produced waters to either be injected into a disposal well and/or injected into the reservoir for pressure maintenance. Onsite subsurface disposal during development operations is a common practice and, for example, is used for the Northstar development project in the Beaufort Sea. However, the USEPA is responsible for determining whether discharges are permitted or not based on ocean discharge criteria. The MMS expects that subsurface disposal will be feasible and is an appropriate assumption for the scenarios.

Concern: The ADNR and AEB expressed concern that water temperature pollution from discharges may impact biological resources.

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Response: Formation water that is produced along with oil or gas is originally at the temperature of the surrounding formation. At the surface, the formation water is first processed through an oil/water separator prior to being discharged overboard. During this process, it is expected that the temperature of the water would be lowered to something closer to the ambient temperatures at the surface. A brief literature search revealed one source where water temperatures for produced water are reported. These temperatures ranged from 20 to 80 degrees Fahrenheit. This could be a concern in the cold waters of the Arctic. The MMS will include discussions of this potential impact in future lease sale analyses.

Concern: The ADNR commented that “The DEIS water quality impact analysis concludes that water pollution impacts will be temporary and insignificant, but allows for the option of discharging industrial pollutants including muds, cuttings, and produced water into the water. The DEIS states: Where muds cuttings and produced water would be discharged directly at the drill sites, nearby water quality would be adversely affected. However, materials entering the water would be quickly diluted and dispersed and thus would not result in long-term impacts on local water quality.” The ADNR continues by recommending that zero discharge be required.

Response: The USEPA issued a new general permit for the Arctic which allows for the discharge of muds and cuttings from exploratory wells. For the EIS scenario, it is assumed that muds, cuttings, and produced water from production and development activities will be disposed of in wells on the Alaska OCS. This approach is not practicable for exploratory drilling operations. There is no disposal well drilled in advance of an exploration well and the drilling fluids and cuttings can not be injected into the source well. Ultimately, USEPA will make the determination about zero discharge during production. The text of the EIS has been revised for clarity.

Concern: The AMCC comments that “In the DEIS, MMS suggests that drilling muds and cuttings produced during development would be reinjected and that no drilling wastes would be disposed of directly into the ocean during development (II-28). However, in the 1985 Final EIS for Lease Sale 92, MMS did not assume reinjection and estimated ocean disposal for thousands of tons of muds, cuttings, and produced waters. If complete reinjection will be required for the North Aleutian Basin, MMS should detail why this would be the case and how this can be accomplished. If there is any chance that ocean disposal of drilling wastes would be allowed, MMS should analyze these potential impacts in the EIS.”

Response: The MMS believes that the assumption of reinjection for production wastes is reasonable and, therefore, has based all analyses on this assumption.

Concern: The AMCC comments that page II-4 states that “most major production facilities would reinject all muds, cuttings, and production waters.” There is concern that “major” may not apply to facilities in the North Aleutian Basin.

Response: The MMS believes that the assumption of reinjection for production wastes applies to all facilities as indicated in Table IV-2. The text has been revised to reflect this assumption.

Concern: The American Petroleum Institute noted that “Scientific references should be included to support the conclusions found in the section on water quality impacts from oil spills. Scientific information on water quality impacts derived from the Exxon Valdez tanker spill should be discussed in this section, in a similar fashion to what was presented for marine and coastal birds (Section IV.B.3.d) and other sections.”

Response: The text has been revised to discuss the experience from the Exxon Valdez oil spill.

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Concern: The USEPA recommends that the discussions clarify that for OCS exploration activities, drilling fluids (drilling muds and cuttings), domestic wastewater, and other discharges may be covered under NPDES individual or general permits.

Response: The text has been revised to include this clarification.

Concern: The NOAA commented that “The FEIS should consider the effects of NPDES-permitted or nonregulated discharges on the hypoxic zone in the Gulf of Mexico. Special consideration should be given to organic discharges from platforms or vessels.”

Response: The effects of hypoxia are discussed in Section IV.B.2.b(2).

Concern: The NSB and AEWG commented that “Pg. III-94, Paragraph 3: MMS must expand upon its reasoning for why there are increased levels of trace elements. The Final EIS must address where these elements are picked up, and whether there are high levels in sediments in the Chukchi Sea. This paragraph does not provide much usable information and seems incomplete and inadequate.”

Response: The paragraph has been revised and updated with more recent and relevant information.

Concern: The AEWG commented that “Pg. III- 93, Paragraph 5: MMS states that the marine environment is not being directly affected by human activity. It is difficult to accept this statement given the many studies that say otherwise. Instead, if MMS is going to make speculative statements, they must also provide a measure of the uncertainty about their statements. One question that must be addressed is whether the speculation or conclusion is based on science.”

Response: The section has been revised to incorporate the recent report by the ADEC.

Concern: The AEWG commented that “Pg. III- 93, Last paragraph: There should be citations listed for the statements in this paragraph.”

Response: The text has been revised and updated with a recent citation.

Concern: The NSB and AEWG commented that “Pg. III-94, Paragraph 5: A citation should be added for the statement: “Background hydrocarbon levels in the Beaufort Sea waters appear to be biogenic and on the order of 1 ppb or less.”

Response: A citation has been added to the statement.

Concern: The NSB and AEWG commented that “Pg. III-93 and 94, Arctic Subregion: General comments on this section: It is possible to chemically distinguish manmade/produced from natural hydrocarbon “signatures”. This is not made clear in this section. This ability to distinguish natural from anthropogenic hydrocarbon pollution is very relevant and should be included.”

Response: The discussion of hydrocarbon compounds in sediments has been revised to reflect that anthropogenic signatures can be distinguished through fingerprinting.

Concern: The NSB and AEWG commented that “Pg. IV-405, Water Quality: The penultimate sentence is misleading. For the Chukchi Sea, MMS’s actions in the 5-year program will add to the overall adverse cumulative impact to water quality in a substantial way, not an incremental way (also

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see comment immediately below). Currently there is relatively little human activity in the Chukchi Sea. The actions associated with the 5-year program will overwhelm the other human activities.”

Response: The MMS does not agree with the commenter. The text reads “Activities of the proposed action would, therefore, incrementally add to the overall adverse impacts to water quality.” This section discusses all reasonably foreseeable impacts to the Chukchi Sea, which includes climate change and other industrial activities. The proposed action will lead to some activities, which will be cumulative with all other impacting factors. We believe the use of incremental indicates the additive nature of these activities and does not suggest magnitude.

Concern: The NSB commented that “Pg. IV-409, Accidental releases: The 1st paragraph provides information on oil spills throughout the country. Because environmental conditions are so different in Alaska, an analysis of onshore and offshore oil spills in Alaska is needed.”

Response: The 5-Year Programmatic EIS is a national-level document that puts into perspective the implications of the size, timing, and location of proposed lease sales for a 5- year period. Subsequent documents are prepared for individual lease sales that incorporate more specific information for the local region.

Concern: The NSB commented that “The 2nd paragraph states, “...the incremental increase in water quality impacts from these spills is difficult to predict because water quality impacts would depend on the location of the spills,” MMS goes from saying that impacts would be difficult to predict, to saying the impacts would be “local and temporary” and “negligible to small”. How can MMS assert that water quality impacts will be “difficult to predict” and then justify a conclusion that impacts will be “negligible to small”. This analysis is faulty and needs to be changed or better supported by data and a well-reasoned analysis.”

Response: The text has been revised to include supportive data.

Concern: The AEWG commented that “Pg. IV-406, 1st complete paragraph: The 1st sentence indicates how the 5-year program will substantially increase the amount of impacts in the Arctic Subregion and not just incrementally as stated on pg. IV-405. MMS suggests there will be 67% increase in oil spills. [MMS’s math seems peculiar here. There are two major spills due to the proposed action and three in the cumulative case. If oil spills increase from one to three because of the proposed action, then there is actually a 300% increase and not a 67% increase.] The MMS also indicates a 100% increase for “other activities”. These types of increases in human activity related to OCS activities are certainly not incremental. MMS should show how the values of 67% and 100% were derived. Specifically MMS needs to show what numbers were used in making their calculations?”

Response: The referenced paragraph states “OCS activities under the proposed action represent an increase of up to 67 percent over most of the ongoing and future activities that would be expected to occur within the region for the period of the proposed action.” This statement says nothing about oil spills and is calculated based on the scenario information given in Table IV-2. Since there are no activities on the OCS currently, this section should read 100 percent, and has been corrected.

Concern: The AEWG commented that “the middle sentence in this paragraph, beginning, “However, the cumulative impacts would still be local and temporary” is not supported by a reasonable analysis. MMS predicts that 3 large and 165 small oil spills will occur under the cumulative case (not counting spills outside the planning areas that are related to the planning area). This number of spills

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in the cumulative case will certainly not be local, because most people, wildlife and fishes move widely through the region, nor temporary because oil industry and agencies have not show they can clean up an oil spill in waters of the Arctic. Further, impacts from MMS's actions cannot be considered to be local when they do not even consider potential oil spills associated with transporting oil from the planning area to refineries."

Response: The level of activity described in the scenario is estimated for a 40-year period that would include the span of activities associated with oil and gas extraction, from exploration to decommissioning. The cumulative section analyzes the impacts of the proposed action as an addition to impacts from activities not related to the action. An individual oil spill will occur from a point source and spread based on the conditions during the time of the spill and the time for responders to clean up the spill. Impacts will be local to the site where the spill occurred, and assuming a rapid response, will be limited to a single location. Transporting of the oil is considered in Section IV.J.3.b(3) of the cumulative case analysis.

Concern: The AEW commented that "Pg. IV-406, Cumulative Impacts of Non-OCS Activities: Again, MMS has not considered oil and gas activities in the Beaufort Sea of Canada, or the Chukchi Sea of Russia, or impacts from Red Dog Mine or coal development at Deadfall Syncline." And "Pg. IV-408, Nonenergy related minerals: MMS must also consider the development of a coal mine adjacent to the Chukchi Sea as mentioned previously." And "Pg. IV-408, State and Canadian oil and gas activities: MMS finally mentions oil and gas activities in the Beaufort Sea of Canada. Unfortunately, virtually no information is provided on how much activity is taking place in Canada. If no information is presented, how can decisions be made about cumulative impacts or about the conclusion that "incremental increase in adverse impacts of the proposed action would be expected to be small...?"

Response: The 5-year Programmatic EIS is focused on the decisions about the size, timing, and location of leasing and, therefore, takes a broad look at potential impacts. Lease-sale-specific documents take a more detailed and timely look at the effects of cumulative impacts. The mentioned activities are referred to in a broad sense such as extracting nonenergy minerals, Canadian oil and gas activities, and other general activities.

Concern: The AEW commented that "Pg. IV-406 and 407, Domestic transport . . . : MMS fails to analyze the impacts of their actions on the Arctic subregion. Vessel traffic in the Beaufort and Chukchi seas will dramatically increase because of MMS actions in the 5-year program. Vessel traffic associated with the 5-year program would make up a substantial portion of the vessel traffic in the Beaufort and Chukchi seas and will produce considerable adverse impacts from the increased sounds that are introduced in the water. The conclusion that there would be "little incremental increase in adverse impacts" is not warranted. Further, MMS fails to consider the potential for the development of international shipping through the Arctic Subregion."

Response: The text has been revised to indicate that the vessel traffic would be an increase above non-OCS traffic.

Concern: The NSB and AEW commented that "Pg. IV-409, Conclusions: It is not clear how MMS can say that there will only be an incremental increase of impacts and that the proposed impacts will be negligible and small based on the information they have presented. A better justification is needed for their conclusions."

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The AEWG also commented that “Pg. IV-409, Accidental releases: The 1st paragraph provides information on oil spills throughout the country. Because environmental conditions are so different in Alaska, an analysis of onshore and offshore oil spills in Alaska is needed. The 2nd paragraph states, “. . . the incremental increase in water quality impacts from these spills is difficult to predict because water quality impacts would depend on the location of the spills, . . .”. First, “increase” should instead be “decrease”. Second, MMS goes from saying that impacts would be difficult to predict, to saying the impacts would be “local and temporary” and “negligible to small”. How can MMS assert that water quality impacts will be “difficult to predict” and then justify a conclusion that impacts will be “negligible to small”. This analysis is faulty and needs to be changed or better supported with data and a well thought out analysis.”

Response: The MMS does not agree with the commenters. The proposed action will lead to some activities, which will be cumulative with all other impacting factors. We believe the use of incremental indicates the additive nature of these activities and does not suggest magnitude. The 5-Year Programmatic EIS is a national-level document that puts into perspective the implications of the size, timing, and location of proposed lease sales for a 5-year period. Subsequent documents are prepared for individual lease sales that incorporate more specific information for the local region.

Concern: Shell Exploration and Production commented that: “IV-491. In paragraph 1, the discussion of adverse impact to water quality should include that any platform discharges must meet USEPA water quality criteria.”

Response: The discussions about meeting water quality criteria are included in Sections IV.B.2.b and IV.B.3.b.

Concern: The Louisiana Department of Environmental Quality commented that: “If your project results in a discharge to waters of the state, submittal of a Louisiana Pollutant Discharge Elimination System (LPDES) application may be necessary. If the project results in a discharge of wastewater to an existing wastewater treatment system, that wastewater treatment system may need to modify their LPDES permit before accepting the additional wastewater. LDEQ has stormwater general permits for construction areas equal to or greater than one acre.”

Response: The proposed action relates to the size, timing, and location of lease sales in Federal offshore waters and does not refer to a specific project. The comment will be addressed at a lease-sale specific document when a consistency determination is necessary.

Concern: The Virginia Department of Environmental Quality, requested that the document include an environmental investigation on and near the property to identify any solid or hazardous waste sites or issues.

Response: The purpose of the 5-Year Programmatic EIS is to support the decisionmakers in determining the size, timing, and location of lease sale areas and, therefore, takes a broad look at potential activities that may result from leasing of offshore areas. These activities will take place primarily at distances greater than 3 nautical miles offshore, with some support activities occurring on land. Discussions of waste disposal are included in sale-specific documents that are generated later in the process.

Concern: Cascadia Wildlands Project expressed concern that the impacts from oil is not adequately addressed with the latest information about the toxic, persistent, and bioavailable polyaromatic hydrocarbons (PAH’s).

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Response: Oil and its toxicity has been studied for decades by many researchers and is the topic of numerous reports by MMS (see <http://www.mms.gov/offshore/EnvironmentalResearch.htm> for discussions about the MMS Environmental Studies Program and reports). The recent Oil and the Sea III, which is referenced in the EIS, gives an extensive discussion about oil pollution in the ocean. The EIS is not meant to be a treatise on the scientific literature from any given topic, but draws from these sources to evaluate the potential impacts. For the 5-Year Programmatic EIS, a very broad and general assessment is made. This will be followed by lease-sale-specific documents that offer more detail.

Concern: The Clean Ocean Action raised the concern that discharges from oil and gas platforms increase the exposure of marine organisms that aggregate around the platforms, thus resulting in population level effects. Also, there will be a cumulative exposure effect from the numerous types of discharges. Clean Ocean Action claims that the discharges contain substantial amounts of oil and grease, as well as heavy metals, toxic organics and a variety of highly toxic additives and are chronic, ongoing sources of contamination to the marine environment within the lease area that threatens to reduce or eliminate sensitive species from the areas around the drilling activity.

Response: All discharges from oil and gas structures are regulated by the USEPA through the NPDES permitting process. This process requires that USEPA evaluate the discharges to ensure that they meet ocean discharge criteria and will not adversely degrade the environment. This evaluation includes looking at cumulative effects of the constituents and limits the discharge of wastes containing oil and grease, trace metals, and PAH's. Studies have also been conducted to evaluate the bioaccumulation potential of these discharges to marine organisms. These types of discharges routinely occur around platforms in the Gulf of Mexico that also provide habitat to a diverse community of marine organisms, including corals, sponges, and tropical reef fish.

Concern: Page III- 94, paragraph 5, line 2: This should read hydrocarbon concentrations in sediments, rather than on sediments.

Response: The text has been revised

ISSUE 4g: Areas of Special Concerns

Issue Raised By: North Slope Borough; Virginia Department of Environmental Quality; National Oceanic and Atmospheric Administration; Shell Exploration and Production Company; Sierra Club; and Alaska Wilderness League

Concern: The NSB disagrees with statement that the Alaska Maritime National Wildlife Refuge (ANWR) is the only refuge in Arctic Alaska that could be potentially be affected by OCS oil and gas development. The MMS must consider potential effects on refuge resources and uses.

Response: We have clarified this section to explain that no direct onshore impacts to ANWR are likely since oil facility development on ANWR is prohibited. There could be indirect impacts from development on adjacent lands. More details on the potential impacts on protected areas would be part of any lease-sale environmental review.

Concern: The figure that depicts national parks, seashores and national wildlife refuges (NWR's) is missing several NWR's.

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Response: The figure has been corrected to include the omitted refuges.

Concern: The section on Areas of Special Concern omits important State parks and the Virginia Coastal Reserve, a set of 14 barrier islands owned by The Nature Conservancy.

Response: The discussion on “Areas of Special Concern” is focused on areas where the Federal Government has stewardship responsibilities. These include national marine sanctuaries, national parks and national seashores, NWR’s, estuarine research reserves, estuaries designated by the National Estuary Program, and the Chesapeake Bay which has its own unique program.

Concern: The National Marine Sanctuaries Act requires Federal Agencies to consult with Commerce (NOAA) concerning actions affecting sanctuary resources. The NOAA recommends that MMS look at any specific projects that might be developed under the 5-Year Program in order to determine whether consultation is appropriate.

Response: We agree and will consult on this issue as appropriate.

Concern: It was a misstatement when discussing impacts to Areas of Special Concern in the Bering Sea area to say that “it is unlikely that any onshore facilities or pipelines would be allowed to be constructed in NWR lands”.

Response: We have corrected the statement. It is true that four potential oil and gas pipelines have been identified in, for example, the recently revised Comprehensive Conservation Plan and Environmental Impact Statement for the Alaska Peninsula and Becharof NWR’s (FWS, 2006) to support off-refuge oil and gas development.

Concern: Nationally protected parks and refuges are near areas proposed for development. These areas were chosen for their resource values and should not be put at risk by oil and gas development.

Response: The OCS construction platforms and pipelines could contribute to cumulative impacts on wildlife and scenic values. Such effects would be localized and temporary. Day-to-day development activities offshore would have limited effects. If there were a large spill adjacent to a national park or refuge, it could negatively impact coastal habitats, wildlife and recreational values. Lease stipulations at the lease sale level can offer special protections to important or unique biological populations or habitats (See Appendix C. Assumed Mitigation Measures.) These measures could include shifts in operation sites, modifications in drilling procedures, and increased consideration of designated areas during oil-spill contingency planning.

Concern: The Alaska Maritime Refuge needs to be mentioned in the Arctic Subregion section as well as in the Bering Sea Subregion. It has important lands in both regions.

Response: We agree and have also included it under the Arctic Subregion.

ISSUE 4h: Seafloor Habitats

Issue Raised By: Alabama Department of Environmental Management; Shell Exploration and Production; and North Slope Borough

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Concern: There is a need to ensure protection of live bottoms, pinnacle reefs, chemosynthetic communities and other sensitive environments in the OCS off Alabama's coast.

Response: The MMS sale proposals include environmental controls on lease operators to protect sensitive seafloor habitats. Lease stipulations, OCS regulations, and other measures provide a regulatory base for environmental protection. Assumed mitigation measures include the following stipulations:

- **Topographical Features:** This stipulation designates a "No Activity Zone" around several topographical features commonly called "banks." The No Activity Zone protects the biota of these features by preventing the placement of platforms or the anchoring of service vessels or mobile drilling units on the banks and also by requiring that drilling discharges be shunted in such a manner that they do not settle on the biota.
- **Live Bottom (Pinnacle Trend):** This stipulation is intended to protect the pinnacle trend area and other associated hard-bottom communities from damage from oil and gas activities. If the required live bottom survey report determines that the live bottom may be adversely impacted by the proposed activity, certain measures, such as relocation or monitoring, may be required.
- **Live Bottom (Low Relief):** This stipulation is intended to protect hard-bottom communities not associated with bathymetric features on the sea bottom. Biological communities such as seagrass beds, sponges, and corals may occur on smooth topography. If the required live bottom survey report determines that the live bottom may be adversely impacted, certain measures, such as relocation or monitoring, may be required.
- **Chemosynthetic Communities:** There are also five mitigation measures applied to avoid impacts to chemosynthetic communities in deepwater areas of the Gulf of Mexico.

Concern: Shell questioned whether the Boulder Patch region had been completely delineated.

Response: The Boulder Patch is a well-studied area of hard-rock substratum in the Stefansson Sound of the Beaufort Sea. The term "Boulder Patch" is defined by the Arctic Biological Task Force as "kelp attached to boulders in concentrations of greater than 10 percent of 100 square meters". This area was first mapped by Barnes in 1981 based on sonar and video records. Additional mapping surveys employing side scan sonar with remotely operated vehicle verification were conducted in 1997-1998. The MMS has studied the Boulder Patch continuously since 1999 through the Nearshore Impact Monitoring in the Development Area and its continuation.

Concern: The MMS needs to acknowledge that there are major information gaps concerning the benthos in Chukchi and Beaufort Seas.

Response: There is always more to learn about biological systems, but in recent years, the Chukchi and Beaufort Seas have been getting more research attention. A recent sidescan survey (McDonald et al., 2005), for example, in the Chukchi revealed "pockmarks" in the seafloor that looked like small craters. In these areas benthos diversity and abundance are especially high. Similar marks in the Gulf of Mexico are associated with methane seeps and chemosynthetic-based biological communities. The MMS studies programs helps fill in information gaps to help better assess the affected environment and to help develop mitigation strategies.

Concern: The recovery of benthic habitats from impacts associated with construction and pipelines in 3-10 years is inconsistent with short-term impacts. The MMS should reference the statement on recovery time for habitats.

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Response: Recovery times of 3-10 years are estimated for the Arctic for disturbed benthic habitats. This is considered relatively short term in the context of the EIS process. Long-term impacts to higher elements of the food chain, i.e., fish, birds, and marine mammals, would be minimal due to the limited footprint of structures and the fact that areas will recover from construction activities.

ISSUE 4i: Coastal Habitats

Issue Raised By: Virginia Department of Environmental Quality; Alaska Maritime Council; Clean Water Action; National Oceanic and Atmospheric Administration; North Carolina Department of Environment and Natural Resources, Division of Coastal Management; Jane Thompson; and others

Concern: The DEIS (on page IV-10) should address the effects of oil and gas production on coastal wetlands and beach habitat.

Response: In the section referenced the focus is on impacts resulting from global climate change. Section IV.B.4g does discuss how the impacts associated with oil and gas production could affect the coastal barrier beaches and dunes and wetlands of the Atlantic. In addition, Section IV.B.2.h discusses how navigation channels and pipeline routes in the Gulf of Mexico can result in wetland losses in that environment, a particularly stressed wetland ecosystem.

Concern: The installation of pipelines is likely to provide an opportunity for the invasive common reed (*Phragmites australis*) to get a foothold. This could adversely affect other plants and natural areas in the vicinity. The Virginia Department of Environmental Quality would like more information on the location of possible pipelines.

Response: Disturbance activity in coastal wetlands can assist in the establishment of the invasive *Phragmites* species. The scenario proposed for this action would involve transportation to shore by a single subsea pipeline coming ashore in the Norfolk area. The State has the authority to regulate the construction of the pipeline within 3 miles of the coast. Since MMS does not have the authority to regulate onshore construction or operations, it cannot determine the siting of such facilities as docks, roads, utility or pipeline corridors, or terminal facilities. Depending on land ownership, these siting decisions are regulated by the State (through zoning, permitting and rulemaking) and by communities (through zoning).

Concern: The DEIS made conflicting statements concerning whether onshore structures will be constructed in wetlands.

Response: The MMS recognizes the value of avoiding impacts to wetlands. We also acknowledge that impacts could occur from construction activities. The magnitude of these impacts depends on the location of new construction, the level of shipping activity, and existing environmental conditions. Construction in wetlands is managed by the appropriate State agencies and the COE. The MMS does not have the authority to regulate onshore construction. The statements in the EIS may seem contradictory but are not. Even though it is not expected that facilities will be constructed in wetlands, they can still be expected to impact wetlands.

Concern: The impacts to streams and wetlands need to be minimized. Recommends specific approaches to minimize impacts.

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Response: The MMS agrees that stream and wetland impacts should be minimized to the extent possible. At the lease-sale stage, MMS can develop more specific stipulations and information to lessees to protect important habitat resources. However, MMS does not have the authority to regulate pipelines within 3 miles of the coast or onshore construction. These could be regulated by the state or by local communities.

Concern: Coastal habitats are particularly sensitive and valuable environments. Wetland and estuarine habitat alteration from pipelines and construction could impact nursery areas. Oil in intertidal areas/wetlands/lagoons could result in mortality of fish and wildlife.

Response: We agree that coastal habitats are sensitive and valuable habitats. We acknowledge in the Chapter IV.B (Environmental Impacts of Alternative 1—Proposed Action) that impacts on wetlands, and the fish and wildlife dependent upon them, could result from construction or indirect impacts on altered hydrology. Impacts from a spill are also acknowledged to range from a short-term reduction in photosynthesis to extensive mortality of marsh vegetation and, consequently, destabilization of the marsh system. Stipulations can be developed at the lease-sale stage to identify important or unique habitats that may need additional protection. This could include, for example, shifts in operational sites or increased consideration of areas during oil-spill contingency planning.

Concern: The NOAA is concerned how the proposed action could affect permafrost.

Response: The MMS recognizes that permafrost damage is a concern in Alaska. In areas of concern specific drilling muds, drilling rates, cementing techniques, and casing designed for permafrost conditions are used. Structures are generally elevated and positioned on gravel to provide insulation to the underlying permafrost.

Concern: The estuaries of North Carolina drop “in” and “out” of the environmental analyses.

Response: They are now included consistently in the analyses.

Concern: Ms. Jane Thompson commented: “It concerns me that noise and pollution from oil activities in the Beaufort and Chukchi Sea Planning Areas of the Arctic OCS will harm water, land, whales and other wildlife that are important to sustain our culture. People in Prince William Sound were told there would not be a big spill and if there was the oil industry could clean it up. There was long-lasting harm to water, land and subsistence foods from Exxon's spill. There were long-lasting emotional trauma to individuals and disruption to communities from Exxon's spill, cleanup, and litigation. Yet none of these long-lasting harms are recognized or addressed in the draft EIS for the 5-year lease plan, Chukchi Sea sale 193, or any other lease sales. We do not want devastation to our ocean and culture. I oppose oil and gas leasing in the Beaufort and Chukchi Seas and request you remove these areas from your plan. Thank you.”

Response: The MMS acknowledges the importance of protection of the environment in not only conserving natural resources but also preserving the cultures and people that depend on them for their livelihood. The mitigation measures included within MMS's environmental analyses, lease-sale stipulations, approval of development and production plans, etc. have all been carefully developed to minimize the potential for adverse impacts of many kinds. In the case of oil spills, these measures are based on the best available information, including lessons learned from the Exxon Valdez spill.

ISSUE 4j: Global Climate Change

The response to comments on this issue are included under Issue 6b, Analysis of Global Warming Incomplete or Inadequate.

ISSUE 4k: ESA-Listed Species (e.g., Sea Turtles)

Issue Raised By: National Oceanic and Atmospheric Administration; North Slope Borough; Alaska Center for Environment; Bering Sea Fishermen's Association; American Petroleum Institute; Clean Ocean Action; Virginia Department of Environmental Quality; and Center for Biological Diversity

Concern: Page III-221: Sea turtles are federally listed and should be included in this section. The same applies to a similar discussion on page IV-279.

Response: The sea turtle discussion starts on page III-221 of the DEIS, and notes in the first sentence that they are all listed under the ESA. This sea turtle section is separate from the fish section on the previous pages. The information appears to be correct as written and is also in the FEIS.

Concern: Page III-223: The statement that Kemp's ridleys are the most endangered of the sea turtles has been widely used but is somewhat subjective. Given the decline of leatherback sea turtles in the Pacific, and the generally positive trend information for Kemp's ridley sea turtles, it may be more appropriate to express the status in a different manner. Text that NMFS used in recent biological opinions is as follows: "The Kemp's ridley is one of the least abundant of the world's sea turtle species. In contrast to loggerhead, leatherback and green sea turtles which are found in multiple oceans of the world, Kemp's ridleys typically occur in the Gulf of Mexico and the northern half of the Atlantic Ocean (USFWS and NMFS, 1992). The only major nesting site for ridleys is a single stretch of beach near Rancho Nuevo, Tamaulipas, Mexico (Carr, 1963)."

Response: The MMS has made these changes for the FEIS.

Concern: Page III-224: The statement that the South Florida loggerhead subpopulation is stable could be misleading. Some reference should be given here to the most recent information on nesting for this subpopulation as well as a very brief statement on the use of nesting trends for assessing the status of loggerhead subpopulations (i.e., the caveats associated with a turtle with such a late age to maturity, the unknowns concerning whether nesting trends reflect the status of all age classes and sexes in the subpopulation, etc.).

Response: The MMS has made these changes for the FEIS.

Concern: A number of commenters disagreed with statements in the DEIS where MMS asserted that formal consultation under the ESA was not required at the 5-year EIS level and would instead occur at region-, site-, and/or project-specific levels.

Response: See General Response #1 on page V-55.

Concern: While the EIS considers the 5-year planning phase of the leasing program, NOAA agrees that future actions related to specific lease sales, for example, may affect listed species or their critical habitat, thereby warranting ESA consultation. As such, NMFS requests that following completion of the planning phase, MMS coordinate with NMFS on future steps in the leasing program and continue working with NMFS to collect data and analyze impacts to listed species or critical habitat.

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Response: The MMS agrees and traditionally follows this approach of close coordination with the various Federal resource Agencies.

Concern: Page C-5, Information to the Lessee: The following information should be made available to each applicant/lessee in all of the regions of this program and modified specifically according to habitats and species for each of the regions (for example considerations of bowhead whale populations in Alaska and right whale populations in the Atlantic): (1) During the lease-sale phase (e.g., presale process), MMS should provide a specific description of the area including listed species, critical habitat, and other important environmental factors; and (2) As the Federal Action Agency, MMS should thoroughly inform applicants of any environmental issues that may be involved with the potential lease sale of an area, including federally-listed species; critical habitat; whale and vessel strike interactions; seismic and marine mammal interactions; and those that will involve ESA consultations, MMPA authorizations, and EFH consultations.

Response: The MMS agrees and already incorporates these recommendations as part of its standard operating procedures.

Concern: Page IV-46, line 3: Since special mitigation measures have been established for the explosive removal of platforms, only 2-3 turtles have been observed to have been possibly injured, and to our knowledge, no marine mammals have been injured. This is after over 1,000 platforms have been removed. The success of these mitigation measures should be included in this document.

Response: The paragraph is updated to state there are no known injuries to marine mammals from the explosive removals following the MMS mitigation measures. The section is also updated to reflect the ongoing efforts to cover platform removals Gulfwide under the MMPA and ESA.

Concern: There are several other endangered marine mammals and sea turtles that migrate up and down the east coast annually, requiring them to pass through the program area twice a year. The DEIS underplays the significance of fatal collisions on the population of endangered species. The loss of individuals from a population that is so decimated as to be federally listed as endangered must be given substantially greater protection considering the elevated risk of extinction. In addition to increased risk of collision, endangered marine mammals and sea turtles will also be subjected to increased marine debris resulting from the "discharge or disposal of solid debris into offshore waters from OCS structures and vessels," as stated in the DEIS; impacts related to the "ingestion of or entanglement with discarded waste could lead to intestinal blocking, reduced mobility, and other lethal and sublethal effects"

Response: The information provided in the EIS does address the many ESA-listed species passing through the mid-Atlantic region throughout the year. It also discusses potential impacts, such as vessel collisions. See also General Response #2 on page V-56.

Concern: Pages IV-284 to IV-285: Information should be included that addresses the effects of exploration, development, and production activities on sea turtle prey in the area. The mid-Atlantic area is known to include foraging habitat for all four of the sea turtle species listed. Substantial scientific literature indicates that inshore and nearshore waters (e.g., Chesapeake Bay, Delaware Bay, nearshore open ocean waters) are important foraging habitat for juvenile green, Kemp's ridley, and loggerhead sea turtles. Given the importance of this habitat and its prey base for sea turtles, the proposed activities on turtle prey should be discussed.

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Response: The MMS agrees and has added a statement to the conclusion discussion in this section.

Concern: The Use of Seismic Technology in or Near Marine Mammals, Endangered Species or Sensitive Areas of the Marine Environment: Because a key data set in evaluating the oil and gas potential of g site is seismic reflection profiles, many of which have been collected through the years, NOAA assumes that this technology will be used in the implementation of this plan. Seismic exploration requires the generation of loud, low-frequency sound in the water column. Recent concerns on the impact of these operations on marine life, and marine mammals in particular, have led to greatly restricted permits for seismic exploration. The need to limit seismic testing places increased importance on more effectively using existing seismic reflection data which is scattered among NOAA, USGS, and various academic institutions. This information should be compiled, archived, and made more easily accessible.

The NOAA is concerned about the use of seismic technology associated with oil and gas exploration on the OCS in or near sensitive areas of the marine environment, such as national marine sanctuaries or where marine mammals and/or other endangered species may be located. The NOAA requests that, where appropriate, MMS consult with NOAA to identify ways to reduce potential adverse impacts to these areas and resources from the use of seismic technology. These consultations are important both to address any potential conflict between proposed seismic surveys and existing prohibitions against oil or gas exploration by any person (including Federal Agencies) that apply in most national marine sanctuaries, and to minimize or eliminate adverse impacts on sanctuary or marine mammal resources or qualities when conducting an inventory and assessment within or near the boundaries of any national marine sanctuary or near marine mammals.

Response: See General Response #2 on page V-56.

Concern: In previous comments, the DGIF discussed potential impacts of above-water and underwater lighting. This potential, however, was not evaluated in the DEIS. It is clearly understood that hatchling sea turtles use light for orientation, and further that lighting can alter the normal flight patterns of some bird species. It is unclear, though, how or if marine fishes and marine mammals respond to artificial lighting.

Response: See General Response #2 on page V-56.

Concern: The MMS cannot reasonably dispute that the proposed program affects ESA-listed species. Numerous listed species inhabit the waters and adjacent terrestrial habitat subject to the Program. The DEIS acknowledges as much. For each region proposed for leasing under the proposed program, the DEIS includes a short description of the ESA-listed species. For the Gulf of Mexico, the DEIS listed seven ESA-listed marine mammals—northern right whale, blue whale, fin whale, sei whale, humpback whale, sperm whale, and West Indian manatee (DEIS III-17), eight birds (DEIS III-23), two fish—Gulf sturgeon and smalltooth sawfish (DEIS III-29), and five species of sea turtle—green, hawksbill, Kemp’s ridley, leatherback and loggerhead. Additionally, and not addressed in the DEIS, two listed species of coral, elkhorn and staghorn, occur in the Gulf. See 71 FR 26852 (May 9, 2006)—Final Rule listing elkhorn and staghorn corals as threatened; see also Precht and Aronson (2004) (scientific article describing recently discovered elkhorn coral colonies in the northern Gulf of Mexico). The Atlantic program area contains essentially the same suite of listed species likely to be affected by the Program (DEIS III-209, 214, 218, 221).

Similarly, the Alaska program area is home to numerous ESA-listed species. These include nine marine mammals—north Pacific right whale, fin whale, sei whale, humpback whale, bowhead whale,

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blue whale, sperm whale, Steller sea lion, and southwest Alaska population of sea otter (DEIS at III-102) and three birds—spectacled and Steller’s eiders and short-tailed albatross (DEIS III-118). Additionally, the Cook Inlet distinct population segments of the beluga whale, the polar bear, and the Kittlitz’s murrelet have all been petitioned for listing and are likely to be listed during the implementation of the 2007-2012 Program.

For each of these species, the DEIS describes how the Program will likely affect them (see, e.g. DEIS IV-40, 48, 57, 64, 114, 136, 260, 269, 273, 281). We do not see how, given the specific admission of effects by MMS in the DEIS that MMS can lawfully avoid its consultation requirements. (Moreover, the Summary contained in the DEIS discusses the Program’s likely impacts on listed species and states that “[t]hreatened and endangered species, for example, are given special attention.” It seems like the Summary was written by someone at MMS who had not yet received the directive from above to simply skip ESA compliance.

Response: See General Response #2 on page V-56.

Concern: The NOAA recommends that MMS include additional information in the FEIS related to mitigation and monitoring measures for impacts on protected species and habitat.

Response: See General Response #2 on page V-56.

Concern: The DGIF continues to recommend that further research be performed to determine What impacts upon wildlife species may result from offshore oil and gas exploration and development. The mid-Atlantic coastal region is a globally significant area for the migration of birds, sea turtles, and marine mammals. The Eastern Shore, in particular, provides breeding grounds and stopover points for Federal- and state-listed sea turtles and shorebirds. Therefore, it is important to understand how the construction and operation of facilities related to oil and gas exploration, development, and production may impact these species and the resources upon which they depend.

The DGIF also recommends that, prior to lease sales and exploration, studies be performed to determine the current species assemblage within the proposed mid-Atlantic leasing blocks (particularly threatened and/or endangered species) and use of these areas by wildlife, both resident and migratory. Collection of pre-construction/exploration data will provide a baseline upon which the exploration, development, and operational impacts can be evaluated. These studies may also provide insight on the most effective way to mitigate for impacts.

The DGIF also recommends that research into effects of lighting on vessels and stationary platforms upon marine species movement and migration be conducted and addressed in the final EIS.

The Department of Conservation and Recreation also recommends that extensive research be conducted on potential impacts to marine mammals, sea turtles, and marine/coastal birds within the Virginia planning zone. Information on species distribution and abundance relative to the proposed lease sites is needed.

Response: The MMS acknowledges that there will be a need for studies should MMS lease in a new area. However, until final decisions are made on whether leasing will or will not occur in the Mid-Atlantic Planning Area, it is difficult to anticipate what studies will be needed. However, MMS will take the guidance provided by the Virginia Department of Environmental Quality into consideration.

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Concern: A number of commenters disagreed with statements in the DEIS where MMS asserted that formal consultation under the Endangered Species Act was not required at the five-year EIS level and would instead occur at region-, site-, and/or project-specific levels.

Response: See General Response #1 on page V-55.

ISSUE 5a: Impacts on Land Use and Infrastructure

Issue Raised By: State of Alaska; State of Louisiana; North Slope Borough; Aleutians East Borough; Aleut Corporation; Aleutian Pribilof Island Association; State of Alaska; Alaska Center for the Environment et al.; State of Louisiana; LA-1 Coalition; Bayou Industrial Group; South Central Industrial Association; Alaska and New Orleans public hearings; and numerous individuals.

Concern: The DEIS does not adequately address possible impacts to national protected parks and refuges that are near proposed lease sale areas, such as the risks of oil spills. Examples given include Katmai National Park, the Arctic National Wildlife Refuge, the Teshekpuk Lake Special Area, the Lake Clark National Park, the Kodiak, Alaska Peninsula and Alaska Maritime National Wildlife Refuges, and the Assateague National Seashore.

Response: The land-use and infrastructure analysis for the 2007-2012 program is a broad-level assessment designed to support decisions concerning the timing and scope of the Program, and it is not intended to address all assessment issues that are unique to a particular sale area. At this broad level, the EIS addresses possible impacts to parks and refuges through: (1) its analysis of the factors, such as oil spills, that might impact parks and refuges; and (2) its assumptions concerning the applicability of existing Federal and State laws and regulations that protect designated parks, refuges, wetlands, and other sensitive environments. Detailed assessments of possible land-use effects are developed in sale- and multisale-level EIS's. For example, while the 5-Year EIS considers oil-spill probabilities for a planning area, a sale-level assessment considers the probabilities for the sale, and the probability of a spill contacting particular coastlines. Sale-level EIS's are designed to support sale-level decisionmaking, such as those decisions related to the design of mitigation measures or deferral areas. Hence, greater detail is appropriate.

Concern: The NSB finds that paragraph 1 on page III-189 is poorly written. It notes that a description of federally controlled land in the Arctic Subregion would include all categories of ownership, not simply "national parks and wildlife preserves."

Response: The paragraph has been rewritten and expanded. The reference to national parks and wildlife preserves, for example, the ANWR (FWS), Gates of the Arctic National Park (National Park Service), the National Petroleum Reserve, Alaska (Bureau of Land Management), and a number of coastal lagoons and headlands administered by the Alaska Maritime NWR (FWS), is part of a general discussion concerning the timing and scope of the program that is appropriate to a 5-year programmatic analysis. More detailed assessments of land use are part of the detailed scenario development and impact assessment appropriate to sale- and multisale-level EIS's.

Concern: The NSB objects to the DEIS assumption that future worker-residential patterns will continue the current model of enclave housing separate from local communities since Barrow is likely to become an industrial hub if onshore development occurs in the area.

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Response: The EIS assumption of enclave housing concerns the labor force working on the OCS. In the Arctic, as in much of the world, the OCS work schedule is normally one of long periods at the worksite (including in worker housing) and long periods off the worksite at home. This pattern is characteristic of OCS work in general but is particularly strong in areas such as northern Alaska, where most of these workers commute long distances. The MMS has no reason to think that this situation will drastically change. Barrow is the largest North Slope community, with the largest and most diverse economy, and the center of the NSB government. If other onshore industrial development occurs in the area, Barrow is likely to become its hub. Currently, most oil production workers in northern Alaska commute long distances to work, and their work schedules and enclave housing patterns are like those found in offshore work. This is characteristic of that industry's labor conditions and is unlikely to change greatly. However, not all industrial development that may occur in the Barrow area or all its labor would necessarily follow this pattern. The EIS addresses these possibilities in its population projections (see Section IV.B.e.j) and in its analysis of the cumulative case.

Concern: The NSB argues that MMS scenarios underestimate the vessel traffic, aircraft flights, and water use necessary to maintain and support OCS offshore infrastructure, and consequently these scenarios underestimate the disruptions and impacts associated with the OCS leasing program. As an example, the Borough offers the unpredicted need for additional maintenance to the system of concrete matting and gravel bags protecting the Northstar production facility from moving.

Response: In order to accurately describe the range of outcomes that might be expected under the 2007-2012 program, 5-Year EIS projections of industry activity are based on a wide range of estimates of economically recoverable resources. The factors that encourage or retard industry investment fluctuate; the size, timing, and location of resource discoveries are uncertain; and offshore technology rapidly evolves. The EIS was designed to encompass both the low and high ranges of OCS infrastructure-related traffic and maintenance activities that will likely occur in the Arctic Subregion under the 2007-2012 Leasing Program. More detailed development scenarios are developed for sale- and multisale-level EIS's. These scenarios are based on the most current estimates of recoverable resources, industry activities, and industry technologies, as well as such considerations as sale-specific deletion alternatives and mitigation measures. The estimates of industry activities are based on past experience and the Agency's understanding of likely industry development approaches in the planning area. These estimates are updated based on new information, such as the experience with the Northstar production facility.

Concern: The AEB, Aleutian Pribilof Island Association, and State of Alaska stated that transportation routes, utility corridors, and infrastructure must be sited and constructed to allow for free movement of fish and wildlife, and not constructed during critical migration periods. The siting of facilities other than docks, roads, utility or pipeline corridors, or terminal facilities should be prohibited within one-half mile of the coast, barrier islands, reefs and lagoons, and fish bearing water bodies, and 1,500 feet from all drinking water sources. Traffic, dust, maintenance, and noise mitigation measures must be implemented. They noted that onshore and offshore facilities must be designed to the Seismic Zone IV, Uniform Building Code design standard for the Aleutian Chain.

Response: Transportation and utility corridors and infrastructure can affect communities and their uses of the surrounding environment by interfering with access (physically or by regulation), increasing access and use by nonresidents (e.g., via roads, airports), creating disturbances (e.g., traffic noise), and by affecting the environment itself (e.g., altering land use, increasing erosion). Offshore facilities include platforms and pipelines. These convert limited portions of the environment to other uses and can also affect access or usage of limited areas (e.g., fishing gear loss due to snagging). The

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MMS is responsible for regulating petroleum-related activity on the OCS including the installation of such infrastructure as production platforms and pipelines in waters 3 or more miles from shore. The Agency mitigates ocean-floor impacts through its permitting authority, for example, by ensuring that certain types of features are not disturbed. The state has the authority to regulate the construction of pipelines within 3 miles of the coast.

Onshore transportation and utility corridors and petroleum-related infrastructure may be substantial, particularly if offshore petroleum discoveries are made and produced. These might include such facilities as docks, terminal facilities, housing facilities, new or enlarged utilities, roads, and utility corridors. They might also include pipeline landfalls, a pipeline corridor, and access to the pipeline corridor. Since MMS does not have the authority to regulate onshore construction or operations, it cannot determine the siting of such facilities as docks, roads, utility or pipeline corridors or terminal facilities. Depending on land ownership, these siting decisions are regulated by the State (through zoning, permitting and rulemaking), by communities (through zoning), and by regional and village Native corporations (through permitting and lease stipulations). Activities that may affect coasts, barrier islands, reefs and lagoons, and fish bearing waterbodies are also protected under important Federal law.

Concern: The AEB, Aleutian Pribilof Island Association, and State of Alaska noted concern that the village of Nelson Lagoon is likely to be in the pipeline path bringing hydrocarbons from the Bering Sea to the Pacific; the City of Sand Point is likely to be impacted by any LNG or terminal facility; and the transportation infrastructure of the City of Cold Bay would likely receive additional traffic and usage. Also, the DEIS describes the Cold Bay runway as a World War II relic, but it has been substantially upgraded. Currently, Cold Bay boasts the fifth largest runway in Alaska with a 10,415-foot runway, and a 5,125-foot paved crosswind runway capable of handling a 747 emergency aircraft landing.

Response: The EIS has been changed to reflect these concerns and current information on the Cold Bay runway and airport.

Concern: The State of Louisiana and the LA1 Highway Coalition assert that the DEIS fails to adequately analyze the direct, indirect and cumulative effects, to coastal Louisiana, of the existing onshore petroleum-related infrastructure and the associated OCS oil activity. The State argues that MMS should undertake an actual analysis of the existing onshore infrastructure; assess how the direct, indirect and cumulative effects of OCS activity have historically affected coastal Louisiana; and base predictions of future impacts on this.

Response: As required by NEPA, the MMS analyzes the impacts to onshore petroleum-related infrastructure as part of analyzing the direct, indirect, and cumulative impacts of the proposed actions (lease sales). Onshore petroleum-related infrastructure is an indirect impact of activities related to the proposed actions. Much of this infrastructure also supports production offshore in state waters, onshore production, and foreign production. The NEPA does not require MMS to then analyze the direct, indirect, and cumulative impacts of individual indirect impacts of proposed actions. However, MMS has and continues to go the extra step to identify some of these further types of impacts in EIS's, particularly those related to Port Fourchon and LA-1.

The scenarios presented in the EIS are intended to express the level of activity that could result from the proposed lease sales. Using adaptive management procedures, MMS continually updates models and formulas used to develop these scenarios. The experience of subject matter experts is incorporated into this process along with the latest industry trends and historical data. Because

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historic data are incorporated and methods of projections are continually changing, MMS disagrees with the need to verify scenario projections stated in previous NEPA documents.

Concern: The DEIS cumulative analysis on land use and existing infrastructure fails to identify and consider cumulative impacts on the Louisiana Offshore Oil Port (LOOP) at Port Fourchon, which can be expected to service a significant level of deepwater activities under the proposed leasing program. The DEIS fails to mention the Port in the section on cumulative effects.

Response: The MMS considered this issue and determined there would be no cumulative impacts to LOOP. The primary purpose and design of LOOP is to serve as a lightering system to service oil imports from other countries, not to serve as a primary gathering hub for domestic operations. The pumping station at Clovelly, which services LOOP, has only recently begun to service the Mars platform in the central Gulf of Mexico. It is anticipated that the Thunder Horse platform will also be connected to the Clovelly pumping station. However, no expansions will occur to support these two domestic deepwater projects, and there has been no stated business goal of the LOOP operators to expand operations into the supporting of Gulf of Mexico production activities. The opportunities for potential floating production storage and offloading operations would offset any need for expansions at LOOP to service future GOM deepwater production since these tankers could unload their cargoes at virtually any port along the Gulf of Mexico handling large crude oil import supplies. Given that the bulk of recent refinery capacity expansions have been announced to occur along the Texas Gulf coast, it is anticipated that a greater share of crude imports as well as domestic production will be moving to those facilities.

Language on impacts to Port Fourchon will be included in the FEIS.

Concern: The DEIS lacks a full and complete description of the impacts of recent hurricanes on coastal Louisiana and its critical offshore-oil support infrastructure, for example, Highway 1 (LA1). Instead, the DEIS analysis is built on assumptions concerning the condition and operations of existing facilities that are no longer justified as coastal Louisiana faces the increasing threat of rising sea levels and the greater storm activity accompanying rising Gulf Coast temperatures. The DEIS should fully consider the new conditions in its assessment of the 5-Year Program's effects on Louisiana's infrastructure.

Response: The FEIS has been updated to include the current (i.e., post-hurricanes) conditions of onshore infrastructure facilities.

Concern: The State of Louisiana notes that the DEIS acknowledges the tremendous onshore infrastructure and workforce in the coastal Gulf that is necessary to support OCS activities, but argues that the DEIS does not adequately discuss the hurricane protection necessary for these people and assets that are necessary for the very activities to be authorized under the proposed action. Hurricane-associated risks to persons and OCS operations extend inland. The State concludes: "In order to provide a complete and meaningful assessment of the impacts of the proposed action, MMS should describe how it will work to reduce potential hurricane-associated risks to onshore coastal resources and infrastructure."

Response: The Federal Agency responsible for constructing flood, storm, and shore protection infrastructure is the COE. The MMS is the Federal Agency responsible for oversight of offshore infrastructure and workers, and therefore has and continues to work to reduce the hurricane-associated risks to offshore infrastructure and workers. The MMS has no jurisdiction, funding, or methods to

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provide hurricane protection for coastal resources, infrastructure and communities. However the EIS does discuss the impacts of hurricanes to these coastal communities and infrastructure.

ISSUE 5b: Economic and Fiscal Impacts

Issue Raised By: State of Louisiana; State of North Carolina; Aleutians East Borough; Alaska Center for the Environment; North Slope Borough; Anchorage public hearing testimony; Laborers International Union; American Petroleum Institute; ConocoPhillips; Shell Exploration and Production; State of Louisiana; State of North Carolina; Offshore Marine Service Association; James Madison Institute; and numerous individuals

Concern: The DEIS provides an inadequate and unbalanced discussion of the magnitude of the oil and gas industry; its contributions to the health of such other industries as tourism, transportation, or petrochemical; and its importance to national and regional economics. For example, the Gulf of Mexico discussion of the role of the offshore oil and gas industry is limited to one paragraph on page III-52 while the discussion of tourism, recreation, and fisheries covers five pages (III-61 to III-66).

Response: The purpose of the 5-Year EIS is to provide analysis in support of decisionmaking regarding the size, location, and timing of future lease sales. To that end, the discussions of the Gulf of Mexico tourism, recreation, and fisheries are more extensive than is that of its petroleum industry because of concerns that they might be negatively affected by future OCS lease sales, not because of their relative economic importance. The relative benefits of the program are considered through an analysis of social costs and benefits that is part of other secretarial issue documents. While we think that the discussion of the oil and gas industry is sufficient to meet the objectives of the EIS, we also recognize that this and other Agency documents would benefit from an up-to-date description of the magnitude of the industry and its role in the national and regional economies. The MMS is in the process of developing a series of studies designed to produce such descriptions.

Concern: The DEIS did not adequately address possible economic consequences of effects to other industries, such as recreation, tourism, and fisheries.

Response: We disagree. In fact, the socioeconomic analysis emphasizes the possible effects to other industries. See the response above.

Concern: The AEB and Shell Exploration and Production questioned the DEIS statement that local and Alaska Native employment resulting from the 5-Year Program is likely to be low. The AEB indicated that there was much local interest in training and employment in the industry. Shell objected, noting that Shell and other operators have policies designed to encourage local employment. For example, exploration activities in the Beaufort and Chukchi Seas have resulted in the hiring of local North Slope residents as marine mammal monitors and other positions. Shell also objected that the statement ignored employment associated with processing (e.g., LNG plants/terminals) and indirect employment as evidenced, for example, by a significant number of jobs in the NSB and regional and village Native corporations.

Response: The passage in the EIS has been clarified. It intended to convey the understanding that, historically, relatively few local jobs with the operators are generated in the early stages of offshore exploration. Direct employment in the industry during this period should be expected to be in the tens, not the hundreds. More indirect employment would result, although this too would be relatively limited. If sufficient resources are discovered and development occurs, the picture for both direct and

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indirect employment would change although historically, even at the development stage, significant local Native employment has tended to remain quite low. Local and company policies can also affect employment positively, but are not givens, considering the uncertainty of actual oil exploration and development in frontier areas.

As Shell indicates, for decades in northern Alaska, Shell and other operators put in place policies and programs designed to encourage local hire, but it should be noted that programs to encourage local Native hire do not equate with direct or long-term employment in the industry. Also, as Shell indicates, in northern Alaska the indirect employment that has resulted from petroleum exploration and development is extremely significant (see the MMS-funded study, North Slope Economy 1965 to 2005 by Northern Economics, 2005, for further detail), although industry contracts with regional and local village corporations do not necessarily translate into increases in local Native hire. The 5-Year EIS is a programmatic document that does not describe this issue in detail but includes it in the tables and summary discussion of the North Slope economy (see Section III.B.13). These issues will be more fully described in sale-level assessments.

Concern: The NSB disagreed with a conclusion regarding potential development and production facilities, that assumed the State of Alaska and the NSB lacked taxation authority on the National petroleum Reserve-Alaska.

Response: The statement has been removed.

Concern: The NSB noted that the statement (IV-221, first paragraph) that, in rural Alaska, sometimes State troopers and Village Public Safety Officers are the only law enforcement does not apply to the NSB, and that the paragraph greatly understates the role of the Borough in providing infrastructure and essential services within its eight rural communities.

Response: The sentence was not intended to apply to the NSB and has been changed to make this clear. The paragraph has also been revised. The EIS recognizes that, as a first class borough, the NSB assumed responsibilities for providing services such as sewer, water, light, power and heating systems, housing, health facilities, transportation infrastructures, police, and fire protection.

Concern: The State of Louisiana argues that, while the DEIS notes that Hurricanes Katrina and Rita “resulted in major socioeconomic changes . . . affecting population, employment, and regional income” (III-53), these changed conditions have not been meaningfully incorporated into the document’s analysis and conclusions.

Response: The FEIS incorporates new demographic projections based on Woods & Poole’s Complete Economic and Demographic Data Source (Woods & Poole Economics, Inc., 2006).

Concern: The State of Louisiana argues that the conclusion in the DEIS that employment demands due to the 5-year Leasing Program is not likely to stress the local labor market overlooks the demographic shifts that have occurred due to Hurricanes Katrina and Rita. The State asserts that the changed conditions have not been subject to a meaningful analysis.

Response: The FEIS incorporates new demographic projections based on Woods & Poole’s Complete Economic and Demographic Data Source (Woods & Poole Economics, Inc., 2006).

Concern: The State of North Carolina objects that the discussion of the affected environment in “Population, Employment, and Regional Income” (Section III.C.13, page III-236) does not mention

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the potential effects of the proposed lease sale on North Carolina even though, because of the sale's proximity, there would be socioeconomic impacts.

Response: The NEPA directs an assessment to focus on the geographic area that is likely to be directly and substantially affected by the proposed action. The purpose of this focus is to avoid diluting the analysis effects. The EIS defines this area and focuses on it. The discussion in Section III.C.13 (III-236) reflects this NEPA focus and intent. The MMS recognizes that North Carolina and other States that surround this area of focused analysis may be affected by the OCS leasing program to some degree, and the Agency does consider these possible socioeconomic effects as part of its analysis of effects at the national level. The socioeconomic consequences to North Carolina and the other 49 States of not having the leasing program are addressed in the No Action Alternative. The social benefits and costs of the Program are assessed in other Secretarial issue documents.

Concern: The API wrote that sub-bullet 14c is mislabeled as "Regional Income" instead of "Regional Earnings." Tables IV-7 and IV-20 are mislabeled as "Total Personal Income" instead of "Total Earnings." Also Tables IV-7 and IV-20 aggregate direct, indirect, and induced impacts which would be more useful data if they were disaggregated.

Response: The labeling has been changed in the FEIS to Labor Income, which includes employee compensation and proprietary income. The data in Tables IV-7 and IV-20 will be disaggregated in the multisale EIS's, which address the issue in greater detail.

Concern: Table III-37 fails to include census data on the AEB communities of Sand Point, King Cove, Cold Bay, Nelson Lagoon, and others.

Response: Table III-37 does include census data for Nelson Lagoon, but it has been changed to include the census data for Sand Point, King Cove, and Cold Bay. Cold Bay was not originally included in Table III-37 because the table was specifically highlighting subsistence-based communities.

ISSUE 5c: Impacts on Tourism and Recreation

Issue Raised By: State of Alabama; State of New Jersey; State of North Carolina; North Slope Borough; Clean Ocean Action; Alaska Maritime Conservation Council; Norfolk and Atlantic City public hearing testimonies; Pacific Seabird Group; and numerous individuals.

Concern: Offshore activities and associated oil spills may impact the recreation and tourism industry of New Jersey, New York, and North Carolina. These industries should be described, and the possible impacts addressed.

Response: The NEPA directs an assessment to focus on the geographic area that is likely to be directly and substantially affected by the proposed action. The purpose of this focus is to avoid diluting the analysis effects. As NEPA directs, the EIS defines this area and focuses on it. The State-level recreation and tourism industries of New Jersey, New York, and North Carolina are not individually addressed because they are outside this area of focus. This does not mean that the EIS ignores possible impacts outside of the area. The MMS recognizes that New Jersey, New York, North Carolina, and other States that surround this area of focused analysis may be affected by the OCS leasing program to some degree. The Agency does consider these possible socioeconomic effects as part of its analysis of effects at the national level. The socioeconomic consequences to New Jersey,

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New York, North Carolina, and the other 47 States of not being part of the leasing program are addressed in the No Action Alternative. The social benefits and costs of the Program are assessed in other Secretarial issue documents.

Concern: A commenter at the Norfolk public hearing expressed the concern that, even if offshore drilling operations had no visual effect on the oceanfront and tourism, any oil slicks, debris, and sediments that are carried onto the beaches would.

Response: The EIS considers the issue of beach aesthetics on tourism, and this issue will be analyzed in more detail at the appropriate stage EIS should an OCS lease sale be considered for the planning area. Beyond the general consideration of beach aesthetics in the 5-Year EIS, effects on tourism are considered in other Secretarial issue documents that address the costs and benefits of the program.

Concern: The State of Alabama expressed the desire to minimize the visual impact of new natural gas structures along the Baldwin County coast, stated its continued opposition to offering lease blocks south and within 15 miles of the Baldwin County coast, and requested that MMS exclude these blocks from consideration in the 2007-2012 Leasing Program.

Response: The 5-Year EIS does not determine which offshore areas will be, or will not be, included in the 2007-2012 Leasing Program for later consideration and assessment. Rather, the 5-Year EIS is essentially an informational and analytical document designed to support informed decisionmaking concerning the timing and location of possible OCS lease sales. The MMS does not have the authority to decide to exclude or include areas from consideration. This decision is made by the Secretary of Interior.

Concern: The NSB asserts that the DEIS fails to adequately describe tourist and recreation activities in the Arctic Subregion. The DEIS primarily describes tourist activities on the Beaufort Sea coast, not the Chukchi Sea coast where a growing number of hikers and rafters use it as well as ANWR (ecotourism). Also, a growing number of cruise ships are entering the Chukchi and Beaufort Seas. Potential impacts to tourism and potential tourism impacts to subsistence activities need to be considered.

Response: The EIS has been revised to note growing tourism in the Chukchi Sea region. At this time, cruise ships do not contribute greatly to the area's economy, and the tourist vessels that do visit the region are small in comparison to the large cruise ships carrying thousands of passengers. At this time, cruise ship tourism and ecotourism associated with the coasts of the Chukchi and Beaufort Seas constitute a small portion of the Borough's economy, and for the purposes of the 5-Year EIS, it is considered within the general assessment of economic impacts. Future sale- or multisale-level assessments may address tourism in more detail. At this time, ecotourism may have a potential to affect North Slope subsistence, but what those effects might be, and their potential magnitude and location, remain virtually unknown and, therefore, not part of the cumulative assessment. We assume that, should significant conflicts arise, the NSB, city governments, the regional and village Native corporations, and the Inupiat community of the Arctic Slope will act vigorously to mitigate them.

Concern: The AMCC stated that recreational fisheries will be adversely affected by the loss of fishing areas occupied by offshore vessels, platforms, and exposed pipelines, particularly in areas where oil and gas activities are not currently occurring.

Response: To date, there are no offshore platforms or exposed pipelines in Federal waters off Alaska. In Cook Inlet, where there are numerous producing platforms, impacts to recreational fisheries have

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not been raised as a serious concern. All pipelines in Cook Inlet are submerged. Offshore vessels work in deep water in the Gulf of Alaska and the Bering Sea far from recreational fisheries. In The Chukchi and Beaufort Seas, offshore vessels operate during a limited summer open-water season that lasts little more than 4 months. Vessel operations, as they relate to oil industry activities, are highly regulated, and in the Chukchi and Beaufort Seas, they are mitigated by Conflict Avoidance Agreements between subsistence whalers and the oil industry. Additionally, there are no actual offshore recreational fisheries that have ever been identified in Alaska.

If offshore seismic survey vessels operate in the future in the North Aleutian Basin and if platforms are ever built, potential impacts on Bering Sea and Bristol Bay commercial fisheries could result. Appropriate siting, timing, and mitigation would be developed in the sale-specific EIS that would analyze such activities if and when they occurred.

Concern: The DEIS discussion of tourism and recreation fails to mention that seabird colonies are major tourist attractions in Bristol Bay and the Cook Inlet.

Response: The 5-Year EIS is intended to provide information and analysis in support of decision concerning the location and timing of lease sales. As such discussions of specific areas are general. Sale-level EIS for the Bristol Bay and Cook Inlet will include more detailed descriptions and analyses of tourism and recreation if an OCS lease sale is proposed for either area.

ISSUE 5d: Impacts on Fisheries

Issue Raised By: National Oceanic and Atmospheric Administration; Alaska Maritime Conservation Council; Aleutians East Borough; Bering Sea Fishermen Association; North Slope Borough; Oceana; Anchorage public hearing; Alaska Center for Environment et al; Alaska Department of Natural Resources; Chukchi public hearing; Shell Exploration and Production; Virginia Department of Environmental Quality; North Carolina Division of Marine Fisheries; Clean Ocean Action; and others

Concern: The statement that the single largest activity to affect fishery resources within Alaska is commercial fishing is unsupported.

Response: The MMS has modified the statement in the FEIS.

Concern: Exposed pipelines could impact fisheries because it would require an exclusion zone for commercial trawlers and could interfere with migrations/movements of bottom-dwelling invertebrates.

Response: The MMS prefers transferring offshore oil and gas in pipelines to help reduce any potential threats to water quality and the marine biological community. It also develops stipulations at the lease-sale level to limit potential conflicts with fisheries. For example, in Cook Inlet within 2-3 miles of tidelands, pipelines are to be buried. Beyond that distance the pipeline would not be buried initially, but due to turbidity would be expected to be buried by siltation over time. Pipelines can interfere with fishing, and in the Gulf of Mexico, it is the practice to bury pipelines in less than 60 m (200 feet.)

Concern: The statement that the Gulf of Mexico leads all other U.S. regions in fishery production is incorrect.

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Response: We agree. In the most recent statistics from the NMFS, the State of Alaska led in both the weight and value of the fisheries. The FEIS reflects that change.

Concern: The EIS needs to better describe the fisheries resources of Alaska, particularly the resources of Bristol Bay, in the “Affected Environment” and other sections. The EIS is uneven in its description of fishery resources among regions.

Response: We have included additional information about the importance of fisheries in Alaska in the FEIS and, in particular, the eastern Bering Sea. Additional region-specific information would be included in any subsequent lease-sale environmental documentation.

Concern: The concern is that offshore oil activities, both routine and in the event of an oil spill, could have an adverse effect on the ability to market Alaskan seafood. There was also concern that the action could potentially affect Marine Stewardship Council certification.

Response: The crux of the concern seems to be that, with offshore oil development, Alaskan seafood would be viewed as “less pristine” and less appealing to the broader marketplace. We are not familiar with specific studies that could help us evaluate this potential impact. We also are unaware of a case (such as from the Gulf of Mexico, California, or the northern Atlantic) where coexistence of the fishing and petroleum industries in the normal operations of the petroleum industry has undermined the markets for fish. Alaska is currently known nationwide for its oil and gas production as well as for its wild fish (not farm raised). It may be that there would be little change except in the worst-case scenario of a major spill. We have seen that, even in the case of the *Exxon Valdez*, public perceptions improved over time. The marketing challenges currently faced by this fishery are, as in the case of many other U.S. enterprises, due to changes in international trade and competition rather than to the lingering effects of this worst-case disaster.

Certification by the Marine Stewardship Council is based on a systematic evaluation that a fishery stock is sustainable, the fishery itself does not adversely affect the marine environment, and the fishery is well-managed to achieve these ends. The Alaska pollock fisheries in the Bering Sea and the Aleutians Islands and also the Gulf of Alaska are certified, as is the Alaska salmon fishery. All are considered well-managed fisheries; this should not change based on the proposed action.

Concern: Many commenters argued that the DEIS downplays the potential of offshore operations to have widespread and long-term impacts on commercial fisheries.

Response: The MMS disagrees. The very small area of the planning area that might be included in a future lease sale substantially limits the geographic area that would be affected by offshore platforms and the areas in which development and production activities would be concentrated. The size of this area is expected to limit interference with the areas that support commercial fisheries. The EIS also fully considers the possible effects of an oil spill.

Concern: The OCS development in the Bering Sea could impact communities, fishing families, and individuals across Alaska and in other parts of the United States who travel to the region to earn a living, or who harvest resources that could be affected by events in Bristol Bay. Impacts could be severe in some communities. The EIS should consider potential impacts in the Yukon-Kuskokwim region, Homer, Kodiak, Anchorage, the Alaska Southeast, and elsewhere.

Response: We recognize that many people across Alaska and in other parts of the United States receive income from participation in Bering Sea fisheries. However, NEPA directs assessment to

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focus on the geographic area that is likely to be directly and substantially affected by the proposed action. The purpose of this focus is to avoid diluting the analysis effects, not to exclude other effects from consideration. While we focus our analysis of community-level impacts that are most likely to be affected by the proposed action and its associated transportation needs, the effects to the rest of Alaska and the United States are addressed in terms of possible consequences to the fisheries industry. More detailed analyses would be appropriate at the lease-sale stage.

Concern: The commenter is concerned about conflicting statements in the DEIS. For example, in the discussion of “Impacts on Sociocultural Systems and Environmental Justice,” the document states that, in Alaska “Routine operations will not affect fishing and the harvest by affecting access” (page II-17), while in the “Unavoidable Impacts” discussion, it states that “Commercial and, to a lesser extent, recreational fisheries will be adversely affected by the loss of fishing areas occupied by offshore vessels, platforms, and exposed pipelines, particularly in areas where oil and gas activities are not currently occurring” (page IV-492).

Response: The two sentences quoted only appear to be in conflict, and this appearance is due to differences in the objectives of the two sections of the EIS that are referenced. As its title implies, the objective of the “Unavoidable Impacts” section is to describe all the negative impacts of an action that cannot be avoided. That an offshore platform takes up space that, previously, could have been fished is an unavoidable characteristic of offshore platforms that is discussed in this section of the EIS. The discussion on “Impacts on Sociocultural Systems and Environmental Justice” is analytical. In the case referenced, it is analyzing the consequences of unavoidable, likely, and possible impacts of the action on the fishery itself. For reasons discussed in the EIS and in the responses above, the space-use conflicts noted in the “Unavoidable Impacts” section are not expected to meaningfully affect commercial or subsistence fisheries.

Concern: Lease-related use needs to be restricted to prevent conflicts with local commercial, subsistence, and sport harvest activities. Lease stipulation No. 3 from Appendix C is not sufficient. All OCS operations, both onshore and offshore, must be designed, sited and operated to ensure that adverse changes to the distribution or abundance of fish resources do not occur and that fish or shellfish catches are not adversely impacted by OCS activities.

Response: The EIS includes the following assumed stipulations on leases:

- If previously unknown sensitive biological resources are identified during the conduct of lease activities under an approved Plan of Exploration or Development and Production Plan, the lessee will be required to modify operations, if necessary, to minimize adverse impacts to those resources (Appendix C, page C-3).
- Lease-related uses will be restricted to prevent unreasonable conflicts with local subsistence hunts and sport and commercial fishing operations (Appendix C, page C-4).
- The Information to Lessees (ITL’s) advise lessees of “sensitive areas to be considered when developing oil-spill contingency plans to help protect environmentally sensitive areas and their concentrations of marine birds, marine mammals, fishes and other biological resources” (Appendix C, page C-5).
- The ITL advise lessees of “the implementation of stipulations and regulations that provide for mitigation of unreasonable conflicts with subsistence activities which will be used to make determinations regarding the type and location of facilities and the timing of activities in this area” (Appendix C, page C-6)

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In addition, the regulatory requirements that would apply to any leases would include a consultation with NMFS. In 1996, Congress formalized the process by which the NMFS interacts with other Federal Agencies on activities that may adversely affect habitats for federally managed species of fish.

The MMS would initiate essential fish habitat (EFH) consultations with the NMFS as part of the environmental review at the lease-sale stage. The NMFS must then provide recommendations for conserving the habitat and reducing the impact of the action. If MMS disagrees with NMFS's advice, it must explain why.

The EFH are described for federally managed species in each fish management plan (FMP). There are four FMP's covering the Bering Sea and the Aleutian Islands. These are a Bering Sea and Aleutians Islands groundfish FMP, a king and Tanner crab FMP, a scallop FMP, and a salmon FMP. The groundfish FMP governs all stocks of finfish and marine invertebrates except salmonids, shrimps, scallops, snails, king crab, Tanner crab, Dungeness crab corals, surf clams, horsehair crab, lyre crab, Pacific halibut, and Pacific herring.

Concern: There is a need to coordinate all exploration, construction and operation activities with the fishing community to maximize communication, ensure public participation, and avoid conflicts; for example, not to drill or conduct exploration when salmon runs are migrating in or out of an area.

Response: The EIS includes the following assumed stipulations on leases:

- Protection of Fisheries—This stipulation requires the lessee to review planned exploration and development activities (including plans for seismic surveys, drilling rig transportation, or other vessel traffic) with potentially affected fishing organizations, subsistence communities, and port authorities to prevent unreasonable fishing gear conflicts. (Appendix C, page C-4).
- Conflict Avoidance Mechanisms to Protect Subsistence Whaling and Other Subsistence Activities—This stipulation is designed to reduce disturbance effects on native lifestyles and subsistence practices from oil and gas industry activities by requiring industry to make reasonable efforts to conduct all aspects of their operation in a manner that recognizes Native subsistence requirements and avoids adverse effects on local subsistence harvests and cultural values. It requires industry to conduct all exploration, development, and production activities in a manner that prevents unreasonable conflicts between the oil and gas industry and subsistence activities, especially the subsistence bowhead whale hunt. This stipulation also requires industry to consult with potentially affected Native communities, the NSB, and the AEWC to discuss possible timing and siting conflicts and to assure that exploration, development, and production activities do not result in unreasonable conflict with subsistence whaling and other subsistence harvests. It also provides a mechanism to address unresolved conflicts between the oil and gas industry and subsistence activities. This stipulation provides for restriction of lease-related uses, when necessary, to prevent unreasonable conflicts with local subsistence activities. These might include a seasonal drilling restriction, seismic and threshold depth restriction, and requirements for directional drilling and the use of other technologies. (Appendix C, page C-5).

It is anticipated that comparable stipulations would be developed for any proposed lease sale in the North Aleutian Basin, or in other proposed lease areas, and that industry would be required to consult with all affected boroughs, including the AEB. In addition, the lease-sale NEPA process will provide additional opportunities for the fishing community to communicate its concerns.

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Concern: Industry needs to treat ballast water to remove or eliminate nonindigenous species and the threat of nonnative species introductions. The AEB is also concerned that existing regulations do not go far enough.

Response: In July 2004, the USCG promulgated regulations (33 CFR 151.2035(a) and (b) and 33 CFR 151.2041) establishing a national mandatory ballast water management program for all vessels equipped with ballast water tanks that enter or operate within U.S. waters. These regulations implement the Non-Indigenous Aquatic Nuisance Prevention and Control Act of 1990, as amended by the National Invasive Species Act of 1996.

The regulations require that vessels bound for ports or places in the United States maintain a ballast management plan specifically designed for their vessel and also report on ballast operations. The required ballast water management practices include:

- avoiding discharge or uptake of ballast water in areas that may directly affect marine sanctuaries, parks, preserves or coral reefs;
- minimizing or avoiding uptakes in areas of known infestations, sewage outfalls, dredging operations, where tidal flushing is poor, in darkness, where propellers stir up sediments, and in areas with whale pods, convergence zones, and boundaries of major currents;
- discharging only the minimal amount of ballast water essential for vehicle operation while in the waters of the United States;
- rinsing anchors and anchor chains at the point of origin to remove organisms and sediment;
- cleaning tanks regularly to remove sediments; and
- cleaning in mid-ocean or under controlled conditions in port or drydock.

A penalty of up to \$27,500 per day can be assessed for noncompliance. For more information on the USCG regulations, see <http://ecfr.gpoaccess.gov/cgi/t/text/text-idx?c=ecfr&sid=a012610bf14be90f3867f74318e70f4c&rqn=div6&view=text&node=33:2.0.1.5.20.4&idno=33>

Concern: The concern was expressed that fishermen not be displaced or precluded from access to fishing areas unless they are adequately compensated for their displacement, and also that fishermen not be precluded from participating in designated fishing seasons unless they are adequately compensated for the lost season(s).

Response: As explained above, the assumed lease stipulations would include coordination with the fishing communities. This coordination should help limit conflicts/displacement. In case of disruption, the EIS includes the following assumed stipulations on leases:

- The Good Neighbor Policy, which may provide a more immediate compensation system to minimize disruption to subsistence activities and provides resources to relocate subsistence hunters to alternate hunting areas or provides temporary food supplies if a spill affects the taking of marine subsistence resources. (Appendix C, page. C-6.).

Concern: Fishermen need to be compensated for damage to fishing equipment, vessels, gear, and decreased harvest value from OCS operations in a timely manner.

Response: The Fishermen's Contingency Fund was established by the Outer Continental Shelf Lands Act (OCSLA), as amended (43 U.S.C. 1841-184.) to compensate commercial fishermen for damages from OCS operations. Its implementing regulations can be found at 50 CFR 296. This fund can

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compensate commercial fishermen for actual and consequential damages, including loss of profit due to damage or loss of fishing gear associated with oil and gas exploration, development or production on the OCS, including Alaska. The accounts are maintained by assessing holders of leases, pipeline rights of way and easements, and exploratory permits. The fund is administered by NMFS.

For information, refer to a MMS factsheet at: <http://www.gomr.mms.gov/homepg/regulate/regs/laws/fcf.html>. The NMFS information on the fund can be found at: <http://www.gomr.mms.gov/homepg/regulate/regs/laws/fcf.html>. Its Catalog for Federal Domestic Assistance entry can be found at: http://12.46.245.173/pls/portal30/CATALOG.PROGRAM_TEXT_RPT.SHOW?p_arg_names=prog_nbr&p_arg_values=11.408.

Concern: The AEB asked that NOAA Fisheries complete a baseline fisheries assessment prior to commencement of OCS exploration. They further requested that NOAA Fisheries review and approve all exploration and development activities under the leases issued in collaboration with local, State and Federal Agencies, and implement Federal monitoring programs to ensure these fish resource standards are met.

Response: It is beyond the scope of NMFS to approve all exploration and development activities on the OCS. Under the OCSLA, the USDOJ is responsible for managing the orderly leasing, exploration, development, and production of oil and gas resources on the Federal OCS and ensuring the protection of the human, marine, and coastal environments. Within the USDOJ, the MMS has been given these responsibilities and authorities.

The 1996 amendments to the Magnuson-Stevens Fishery Conservation and Management Act (16 U.S.C. 1801 et seq) required that NMFS designate and conserve EFH (implementing regulations are at 50 CFR 600) for those species managed under an FMP. At the lease-sale stage, MMS must consult with NMFS on EFH issues.

Within MMS, the Environmental Studies Program provides a mechanism to collect information to be used in EIS document preparation. In November 2006, the program sponsored a workshop to collect and summarize existing scientific information about the North Aleutian Basin and to identify information gaps. Should the moratoria be lifted, MMS is prepared to address these information gaps as resources allow. The MMS frequently works closely with other Federal Agencies, such as NOAA, in performing data collection. The mechanisms are in place to move forward with opportunities.

Concern: The EIS did not have enough information about ecological context and the unique aspects of the fisheries resources in Bering Sea and Aleutians Islands and the overall importance of fisheries to Alaska. The commenters preferred the coverage of fisheries in the EIS for the North Aleutian Basin Sale 92 from 1985.

Response: We have reviewed the fisheries sections in both documents. We have incorporated more of the ecological context in the EIS and also unique aspects of the fishery resources. The difference in the coverage between the two documents is in keeping with MMS's established staged approach to environmental review. More detailed review is provided in successive stages of the program. Therefore, more detailed discussion was provided in the Sale 92 EIS than is provided in the current 5-Year Program EIS. A comparable level of coverage would be in the EIS prepared for any proposed lease sale in the North Aleutian Basin.

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Concern: In the “Unavoidable Impacts,” it states that an oil spill that contacted fish habitat would have an adverse impact on fishery stocks and food webs. There could not be a spill that did not affect fish habitat.

Response: We agree and have improved the wording.

Concern: The MMS needs to correct a statement regarding the lack of a means to compensate commercial fishermen and reference the Fishermen’s Contingency Fund.

Response: We agree and have clarified the text.

Concern: The 1985 EIS for North Aleutian Basin Sale 92 indicated that there could be major impacts to the red king crab populations; the DEIS did not. Explain the difference.

Response: Based on the analysis that the most vulnerable concentration of red king crab life stages would be co-located with the area most at risk to oil spills, the 1985 FEIS for the North Aleutian Basin Sale 92 concluded that the overall effects of the lease sale on the regional population of the red king crab could be major. With changes in assumptions and scenarios, the risks to these populations may not be the same as was described in 1985. More detailed information on any proposed project would be available at the lease-sale level to help evaluate whether likely sources of oil pollution and population concentrations would coincide and, therefore, elevate the risk of population effects. We do agree that it is possible that significant portions of a year-class could be lost if oil were transported to areas of the benthic environment that were occupied by gravid females. We have added language to reflect this.

Concern: The DEIS needs to include more information about the fish and fisheries of the Mid-Atlantic Bight, particularly the productivity of the area, the ecological value of the shellfish beds and benthic communities, and the forage base.

Response: We have included some additional information about the resource base for fisheries in the Atlantic. More detailed coverage would be included in the lease sale’s environmental documentation.

Concern: The MMS states that the proposed action will not create adverse population-level effects on fish and wildlife, but without data to support these statements. Much of the documentation for such conclusions is based on experience from the Gulf and Alaskan regions.

Response: The MMS has drawn upon its experience in Alaska and the Gulf in evaluating impacts on fish and wildlife. Although the affected environments are different, we have had the experience in managing exploration construction and production while protecting resource values through regulatory mechanisms like EFH and ESA consultations and lease stipulations. More detailed analyses would be required at the lease-sale stage.

Concern: How would oil and gas exploration and production affect navigation of recreational and commercial fishing vessels off the Virginia Coast and their ability to use various fishing methods.

Response: The areas occupied by structures and safety zones associated with any proposed action would be unavailable to commercial and recreational fishermen. Pipelines can cause loss of trawls, but those in depths of less than 61 m (200 feet) are required to be buried, and their locations are public knowledge. If gear is lost, commercial fishermen can apply for compensation to the Fishermen’s Contingency Fund. During periods of seismic surveys, fishermen may be excluded for a few days

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from a small area. All seismic survey locations and schedules would be published in the USCG's *Local Notice to Mariners*, a free publication available to all fishermen. The overall effect on access for fishermen is expected to be small.

Concern: What would be the socioeconomic effects on owners and operators of fishing vessels and on the dockside infrastructure?

Response: Access issues should be minor (see above.) The EIS concludes that the existing maritime infrastructure in the Hampton Roads area of Virginia can fulfill the requirements for a support base. Additional, more detailed analysis would be part of any lease sale action.

Concern: The DEIS assumes that, because fishery resources are widespread and the exploratory activity is minimal, impacts are minor. This cannot be substantiated until a specific EFH assessment has been conducted.

Response: Based on MMS's current scenarios and past experience, we have concluded that impacts on fishery resources would be minor. At the lease-sale stage, MMS will initiate an EFH consultation with NOAA, which will provide MMS with additional information that can be used to identify populations and habitats at greatest risk and ways to minimize identified risks to fisheries resources.

For arctic environments, MMS has also prepared a PEA (Final Programmatic Environmental Assessment on Arctic Ocean Continental Shelf Seismic Surveys–2006) which we will incorporate by reference. In addition, NOAA and MMS are in the process of preparing an EIS on seismic impacts in Arctic Alaska that will be an opportunity to further address impacts and mitigation approaches.

Concern: The EIS concludes that population-level impacts to commercial fisheries in Alaska are not anticipated; the finding should be that accidental oil spills will adversely impact fisheries.

Response: Although population-level impacts are not anticipated, the EIS does recognize that a large spill, depending upon specific conditions (volume, timing and location) could potentially affect local subpopulations or stocks of some species for one or more generations. Through regulatory compliance and lease stipulation, MMS works to decrease the risks to fisheries. This might include siting and timing of activities, stipulations concerning oil-spill response capabilities, and monitoring for compliance.

Concern: The DEIS fails to evaluate risks to New York and New Jersey's fisheries resources and their economic value.

Response: Information about the commercial and recreation fisheries values are included for New York and New Jersey under the Fisheries sections.

Concern: Summary does not include commercial fisheries. Alternative 2 does not discuss any foregone impacts to commercial fisheries.

Response: We have added commercial fisheries to the summary and have modified the discussion of Alternative 2 to include the avoidance of conflicts with major commercial fisheries.

Concern: The EIS needs to include more information about the Gulf Sturgeon critical habitat and its relationship to pipelines and other infrastructure resulting from a lease sale.

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Response: More information is included concerning the relationship between the Gulf sturgeon's critical habitat and the proposal in the FEIS. The MMS will also request an ESA consultation at the lease sale stage.

Concern: The cumulative case discussion does not adequately analyze the oil-spill risk to fisheries.

Response: The analysis considers the impact of oil spills from OCS development on fisheries. At the lease-sale level, the environmental analysis could be more specific as to the cumulative impacts to Alaska's fisheries.

ISSUE 5e: Impacts on Subsistence

Issue Raised By: State of Alaska; Alaska Governor; NOAA; North Slope Borough; Alaska Eskimo Whaling Commission; Alaska Beluga Whale Committee; Alaska Department of Natural Resources; Aleutians East Borough and city governments within the Borough; Alaska Center for the Environment; Alaska Maritime Conservation Council; Bering Sea Fishermen's Association; Cascadia Wildlands Project; Oceana; Resource Development Council; Shell Exploration and Production; Alaska public hearing testimony; and numerous individuals.

Concern: The claim was made that the FEIS does not adequately consider the proposed program's possible effects to subsistence systems, harvests, and use, particularly in the light of the fundamental importance of subsistence to local socioeconomic and sociocultural systems.

Response: The MMS disagrees. The assessments of the possible environmental impacts from the 2007-2012 program consider the factors that may affect subsistence resources (for example, seismic activities, traffic, disposal of drilling muds and cuttings, and accidental oil spills) and the possible consequences to those subsistence resources. The Alaska socioeconomic sections of the FEIS emphasize the fundamental importance of subsistence to local socioeconomic and sociocultural systems, and focus on the analysis of the possible consequences that effects on subsistence resources might have on subsistence systems, harvests, nutrition and use. See sections IV.B.3.k and IV.B.3.l.

Concern: The NSB expressed the concern that the system of area deferrals and lease stipulations that has evolved for past sales be applied to the 5-Year Programmatic Plan. The Borough also believes deferral areas should be expanded to cover the full extent of areas critical to the subsistence whaling success of all affected communities.

Response: The 5-Year EIS is not the appropriate vehicle for analyzing sale-specific area deferrals and lease stipulations. The 5-Year EIS is a programmatic document, and its primary intent is to consider issues related to the size, timing, or location of possible future lease sales. As such, the EIS focuses its analysis on a set of possible alternatives that are designed to provide decisionmakers with a meaningful range of choices related to the size, timing, and location of possible lease sales on the OCS. This focus is consistent with the OCSLA requirement that the USDO develop a schedule of potential lease sales that specifies, as precisely as possible, the size, timing, and location of those sales. To include in its analysis proposed mitigation measures that relate to one planning area or to a limited number of planning areas would bury the intent of the document in a myriad of regional and local details and alternatives. Sale- and multisale-level EIS's are the appropriate vehicle for addressing such issues. Should areas in the Chukchi or the Beaufort Sea be included in the future program, these areas

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shall be addressed by a full NEPA assessment, one that considers all appropriate mitigation measures and deferral alternatives.

Concern: The complaint was made that the definitions of levels of subsistence effects was inadequate, that the MMS should not consider any conflicts with subsistence as “reasonable,” and that MMS must adopt the standard for subsistence impact employed by the NMFS that disallows the incidental take of marine mammals unless there be “no unmitigable adverse impact to subsistence.”

Response: The MMS disagrees. The definitions of levels of impacts were developed over time and reflect many years of comments and refinements to provide an understanding of the scale or scope of the effects being assessed. The MMS defines them to be flexible so they can be applied to diverse resources and conditions of the different Alaska OCS Planning Areas. In evaluating the potential adverse effects from OCS activities, we look at the magnitude and duration of disruption. The MMS uses the five categories shown below, ranging from very low to very high, with “significant” effects equated to conditions described in the high category definition:

- Very Low—Subsistence resources could be periodically affected with no apparent effects on subsistence harvests.
- Low—Subsistence resources would be affected for a period of 1 year, but no resource would be unavailable, undesirable for use, or greatly reduced in number.
- Moderate—One or more important subsistence resource would become unavailable, undesirable for use, or available only in greatly reduced numbers for a period not exceeding 1 year.
- High—One or more important subsistence resource would become unavailable, undesirable for use, or available only in greatly reduced numbers for a period of 1-2 years.
- Very High—One or more important subsistence resource would become unavailable, undesirable for use, or available only in greatly reduced numbers for a period of 2 or more years.

For subsistence resources, as the categories move from very low to very high, the timeframe of disruption increases (from periodic to 2 or more years), but the magnitude of the effect stays relatively constant (one or more important subsistence resources would become unavailable, undesirable, or available only in greatly reduced numbers). The categories have some overlap but have enough differences to allow the analyst to accurately describe the myriad of potential effects in a single category.

The MMS also disagrees that the use of these effects level definitions diminishes the importance placed on impacts to subsistence or that the FEIS definition of significant subsistence effects is “weak.” The EIS defines “significant” effects on subsistence-harvest patterns as: one or more important subsistence resources would become unavailable, undesirable for use, or available only in greatly reduced numbers for a period of 1-2 years. In reporting the conclusion of our analysis of the potential adverse effects from OCS activities, we use a single standard to provide a clear boundary that, when crossed, signals significant effects. In part, the high category was selected to maintain continuity between our assessment of subsistence and sociocultural effects and the environmental justice significance threshold of disproportionately high adverse effects embedded in our assessment of human health and environmental effects of a proposed action on low-income, minority populations under Executive Order 12898.

These thresholds were developed over time and reflect many years of comments and refinements to establish a reasonable threshold definition. The MMS defines the thresholds to be flexible so they can

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be applied to diverse resources of the different Alaska OCS Planning Areas. The MMS carefully and rigorously applies these criteria to circumstances within each planning area.

The threshold for subsistence-harvest effects reflects what we have learned regarding the importance of subsistence resources. Using the threshold, a significant effect occurs if a single important resource becomes unavailable or undesirable for use or available only in greatly reduce numbers for 1 year. Please note that the use of “or” instead of “and” means that any one of the three conditions individually will result in a significant effect. This approach results in a fairly broad threshold. For example, the significance threshold would be met if OCS oil and gas activities resulted in one important resource becoming undesirable for use for a period of 1 year, regardless of how available the resource was.

The absence of a significant effect does not equate to “no effect.” As shown in the five-category scale, and in the numerous analyses that MMS has undertaken, effects from activities can be adverse and noticeable before they reach the significance threshold. Furthermore, in the cumulative effects analysis, MMS analyzes the combined effects of projected activities with other actions, because they know that effects that individually do not reach the significance threshold can exceed that significance threshold when considered collectively.

Concern: The NSB objected to the statement that routine petroleum industry activities generally do not interfere with subsistence fishing and request references in support of this conclusion.

Response: This conclusion is based on an analysis of the factors related to routine industry activities and characteristics of the area’s subsistence fishing. Generally on the North Slope, subsistence fishing occurs inland or near shore, not where these factors would be in evidence (Luton 1985; George and Kovalsky 1986; Craig 1984).

Concern: The NSB objected to the statement that the effects from seismic activity are localized to the vicinity of the seismic vessel.

Response: While this statement is generally true, the EIS recognizes that seismic and other noise-generating activities can have “downstream” effects on the hunt for whales. That whales can alter their routes or become more wary and harder to take is discussed. Additionally, conflict avoidance protocols required through the NMFS Incidental Harassment Authorization process and endorsed by MMS that involve the coordination of industry seismic survey activities and local subsistence whaling practices have, to date, accommodated both development and subsistence interests.

Concern: The NSB comments that the MMS Bowhead Whale Aerial Survey Program data and mapping have shown a clear “hole” offshore of Prudhoe Bay, where seals seem to have largely abandoned the area and whales seem to avoid. Such a situation elsewhere would be an impact of great significance.

Response: Certainly, such a situation could indicate a significant impact; nevertheless, the statement that BWASP data show a clear “hole” is a specialized and problematic interpretation of that data and needs further review by marine mammal specialists both within and outside the MMS. Further analysis will be conducted prior to subsequent lease-sale document release.

Concern: The NSB comments that the second full paragraph on page IV-222 of the DEIS should be modified as follows:

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The potential disturbance effects of production operations will (rather than may) be more difficult to mitigate, as such activities will, by definition, be longer term and operate year-round. Further, the need to install up to three additional platforms in the Arctic and Bering Sea Subregions (beyond those already in development or planning), over a period of 40 years, would (rather than could) increase the areas and times where either industry or subsistence activities are restricted. This would increase the likelihood (rather than possibility) for significant harvest disruption.

Response: The text has been modified in response to the commenter's concerns. However, conditional statements are used because production operations may or may not occur under the 5-Year Program.

Concern: The argument was made that the cumulative case analysis does not adequately account for the effects of the impacts of oil spills, seismic activities, or global warming to subsistence.

Response: We disagree. The EIS cumulative effects analysis considers seismic effects, particularly as they relate to subsistence whaling. The EIS recognizes the need to continue mitigation defined by conflict avoidance measures between whalers and the oil industry. The analysis also considers the possible and likely consequences of oil spills in the cumulative case. Finally, the potential effects of climate change to subsistence hunting are highlighted, for example, concerning changing ocean ice conditions and consequent stress to polar bear populations or possible alterations in bowhead migration patterns.

Concern: The Alaska Beluga Whale Committee comments that the FEIS fails to adequately address beluga whales. The Committee notes that beluga whales are an extremely important part of the subsistence economies of the North Slope communities of Point Lay and Wainwright, from both nutritional and cultural standpoints.

Response: The EIS sections on Alaskan subsistence have been expanded to include a discussion of beluga whales and to make clear that they are considered in the Agency's analyses of the effects of the Program on subsistence.

Issue Raised By: Alaska Department of Natural Resources; Aleutians East Borough

Concern: The ADNDR and AEB stated that the DEIS must be amended to highlight the importance of subsistence in the Aleutians region. For example, page III-172 does not include the Aleutians in the subsistence use section.

Response: Section III.B.14 of the EIS has been changed to address this oversight.

Concern: The AEB and AMCC argued that the DEIS analysis of subsistence impacts was inadequate for the identified transportation corridor for North Aleutian Basin OCS activities.

Response: The EIS has been changed to expand the consideration of subsistence in this transportation corridor.

Concern: Shell Exploration and Production stated that the discussion of the subsistence food impacts of oil spills should include a reference to the USEPA Cook Inlet subsistence food studies after 40 years of offshore oil production.

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Response: The MMS has incorporated this reference in the FEIS.

ISSUE 5f: Impacts to Environmental Justice

Issue Raised By: The North Slope Borough; Aleutians East Borough; all city councils within the Aleutians East Borough; Alaska Marine Conservation Council; Bering Sea Fishermen's Association; Alaska Eskimo Whaling Commission; Alaska Center for Environment; Barrow and North Slope Borough public hearings; and numerous individuals

Concern: A concern of many commenters was that environmental justice was not adequately addressed in terms of the assessment of issues and possible mitigation.

Response: As explained in Chapter I of the EIS, mitigation at the 5-year program stage is considered at a broad level in terms of timing and general location of proposed leasing. Subsequently, mitigation measures will be developed for various lease sales. Many of these mitigation measures are developed to address issues or concerns related to specific geographic locations or socioeconomic and sociocultural conditions, and many of these mitigation measures relate to environmental justice concerns. For example, mitigation measures used in Lease Sale 202 included conflict avoidance mechanisms to protect subsistence whaling and other subsistence activities, a site-specific Bowhead Whaling Monitoring Program, information on community participation in operations planning, a Good Neighbor Policy, and information on sensitive areas to be considered in the oil-spill contingency plans. For future lease sales, MMS will continue to consider and include measures intended to mitigate the undesirable socioeconomic, sociocultural, and environmental justice effects of its actions and to consult with affected governmental agencies and Native organizations concerning environmental justice concerns. Also, environmental justice and sociocultural research and analysis will continue to be conducted for future decision documents. Consultation, research, and analysis will lead to additional mitigation.

Concern: Bowhead whales should be added to a list of species on page IV-443.

Response: Bowhead whales have been added to this list in the FEIS.

ISSUE 5g: Impacts on Public Health

Issue Raised By: North Carolina State agencies; North Slope Borough; Aleutians East Borough; Alaska Eskimo Whaling Commission; Alaska Inter-Tribal Council; and others

Concern: The NSB and AEB argue that Executive Order 12898 (Environmental Justice) directs Federal Agencies to place strong emphasis on analysis of potential health impacts on minority populations and specifies the consideration of relevant public health data. They conclude that the DEIS does not adequately address human health as an environmental justice issue.

Response: The EIS does address human health in the context of Alaskan socioeconomic, sociocultural, and subsistence systems at the level of detail appropriate for a 5-Year EIS. However, to more fully address these concerns, MMS has incorporated new information and analysis into the document.

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Concern: The NSB and AEB objected that the DEIS incorrectly concludes that, in Alaska: “The proposed action is not expected to significantly change the risk exposure of nearby residents. Given current infrastructure distributions, coastal demographic patterns, and the distance from shore of likely deepwater activities, any new infrastructure, air emissions, or oil spills that result from the proposed action are not expected to have disproportionate environmental or health effects to low-income or minority populations.”

Response: This objection resulted from a misreading of the DEIS. The passage in question referred to deepwater development in the Gulf of Mexico, not oil activity in Alaska. The wording has been changed in the FEIS to make this clear.

Concern: The NSB, AEWC, Alaska Inter-Tribal Council, and others expressed concern that the 5-Year DEIS does not adequately address human health impacts of the proposed action on minority populations, as required by NEPA, the Council on Environmental Quality (CEQ) regulations on implementing NEPA, and by Executive Order 12898 on Environmental Justice. Commenters noted that the DEIS stated that it did not address health effects, and recommended the use of the Human Health Impact Assessment—currently the most widely practiced method for assessing human health impacts—in the EIS to properly address human health impacts of the proposed action for each upcoming lease sale in the 2007-2012 timeframe.

Response: One purpose of any EIS is to address significant issues raised by people living in the affected area. The MMS discussed the scope of these concerns with representatives of the NSB and the Alaska Inter-Tribal Council. The DEIS incorrectly stated that health issues were not addressed. As required by NEPA, the CEQ regulations on implementation of NEPA, and Executive Order 12898, the MMS addresses human health issues at a level that MMS believes is appropriate for this pending programmatic decision and in light of the inherent uncertainty about projected activities at this OCS program stage. Human health issues are discussed in the Sociocultural and Environmental Justice sections of Chapters III and IV. Dr. Aaron Wernham, acting on behalf of the Alaska Inter-Tribal Council and the NSB, provided suggested text changes to these sections of the DEIS as they pertain to health. Many of these suggestions have been incorporated in the FEIS.

Concern: The NSB and the Alaska Inter-Tribal Council requested that the FEIS address public health by including an additional subsection in Chapter III that would describe “Health Status” coupled with an additional subsection in Chapter IV that would discuss “Potential Effects on Health Status.” Commenters pointed out that ethics and common sense dictate that human health and minority population impacts must receive at least equal funding, research, and attention as wildlife and other environmental concerns considered in the EIS.

Response: The EIS identifies pathways for effects from OCS activities on health. Some of the factors identified and discussed in the EIS are noise and traffic related to offshore activities; oil spills; air emissions; water discharges; employment changes; and effects on subsistence resources and subsistence hunting and whaling including making whaling more dangerous; potentially diminishing subsistence harvests; and decreasing the availability, safety, or reliability of subsistence foods. Direct causal linkages between OCS activities and health are unclear. For example, attribution of impacting factors to OCS activities as opposed to activities onshore or in State waters is not possible at this OCS Program stage. The EIS addresses human health issues at a level that MMS believes is appropriate for this pending programmatic decision and in light of the inherent uncertainty about projected activities at this OCS Program stage. Human health issues are discussed in the Sociocultural and Environmental Justice sections of Chapters III and IV. At MMS’s request, the NSB and the Alaska Inter-Tribal Council drafted new proposed subsections on health and provided suggested text changes to these

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sections of the DEIS as they pertain to health. Much of this material has been incorporated in the FEIS. The FEIS now makes a more explicit link between the pathways and certain health issues.

It is MMS's policy to mitigate adverse impacts of the OCS Program, including identified potential impacts on human health and minority populations, and to consult with affected tribes to ensure their concerns are addressed as part of the leasing, NEPA, and permitting processes. In those areas where the Agency has the authority, it has acted to mitigate through rules, regulations, research, and inspections. For example, the MMS requires the use of technologies that limit air and water pollution. While the possibility of oil spills can never be zero, the Agency has acted to advance the technologies and procedures designed to prevent them and its regulations require Best Available Control Technology. Mitigation for newly identified health concerns will be identified, developed, and considered at the lease sale and permitting stages. In accordance with NEPA and CEQ's implementing regulations and guidance, MMS can work with the appropriate agencies to identify mitigation measures outside of MMS regulatory authority. The MMS also works with the NSB, organizations such as the AEWG, and industry to develop mitigations at all stages of the OCS Program.

ISSUE 6a: Cumulative Impact Analysis Incomplete or Inadequate

Issue Raised By: North Slope Borough; Alaska Center for the Environment; Alaska Eskimo Whaling Commission; Bering Sea Fishermen's Association; State of North Carolina; National Oceanic and Atmospheric Administration; Alaska Maritime Conservation Council; and Shell Exploration and Production

Concern: The Alaska Center for Environment commented that the DEIS cumulative analyses do not consider impacts to species that migrate across Alaskan OCS planning areas.

Response: The EIS analyses do evaluate the relationships between impacts to species in one planning area and effects to that population in other planning areas in Alaska. The spectacled Eider and Steller sea lion are two examples.

Concern: The cumulative analysis of the beluga whale in Cook Inlet should have included more information about non-OCS activities occurring in the area.

Response: This EIS supports a decision about a national schedule of OCS lease sales between 2007 and 2012. In previous 5- year programs, MMS has completed more detailed analyses in the lease-sale and exploration/development NEPA documents that follow the programmatic 5-year EIS. The MMS intends to continue that approach in the 2007-2012 program. More detailed data and analyses will be used in these documents.

Concern: The cumulative analyses lacks sufficient detail, such as failure to address impacts to individual species but instead only to groups of species.

Response: This EIS is a national programmatic assessment of potential environmental impacts that could be associated with the schedule of lease sales in the 2007-2012 program. The kind of detail this comment requests is more appropriate in a lease-sale EIS that will follow since a lease-sale EIS usually focuses on an individual planning area. The DEIS did, however, base its impact conclusions on analyses of individual species, particularly endangered and threatened species and those of high commercial and/or subsistence importance, in its impact evaluations. It would be an inappropriate

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level of detail at this initial planning stage of the program to provide separate impact conclusions for each individual species.

Concern: The State of North Carolina commented that the cumulative analysis for the mid-Atlantic is weak particularly with regard to potential seismic impacts.

Response: The EIS analyses use a scenario of amounts of exploration and development activity expected to occur during the life of the program as a basis to evaluate impacts. This approach is based on the fundamental assumption that, in most cases, more activity and production is associated with a greater potential for impacts. The exploration and development scenario for the mid-Atlantic, shown in Table IV-3 in the DEIS, is modest indicating barely enough activity and resource potential to support an exploration and development program. With respect to the cumulative analysis, the EIS cumulative exploration and development scenario is the same as the proposed action scenario for the mid-Atlantic. This is because the EIS does not consider it reasonably foreseeable that OCS activity will continue beyond the 2007-2012 program based on current available information. Furthermore, this EIS is the initial national planning level NEPA document for the 2007-2012 program. Additional more detailed and geographically focused analysis is more appropriate in a lease-sale EIS.

Concern: The Alaska Center for Environment commented that the DEIS presented incorrect and misleading information in the cumulative analyses of oil spills in Alaska, as described in these statements:

- Information is misleading in that the EIS assumed that several large spills will occur, yet the analysis of birds states that the “potential for a large spill is unlikely.”
- Information is not used correctly in the cumulative Air Quality analysis because the impacts from spills compared the number spills under the proposed action to the number under the cumulative case.
- Information is confusing or wrong because the EIS does not explain the statement that there will only be a slight increase in occurrence of oil spills in the Arctic under the cumulative scenario.
- Analysis is incorrect.

Response: The MMS offers the following in response to the four comments listed:

- The statement on page IV-415 has been clarified in the FEIS to read “the potential for contact from a large spill is unlikely.” This was the intended meaning of the statement. That same page exposes the number of spills that are assumed to occur for analysis purposes, so there was no intent to mislead. The potential impacts from a spill, should it occur and contact bird populations, are described in the analysis.
- The Air Quality analysis addresses a range of activities and events that could affect air quality. Oil spills are just one of the factors analyzed. The MMS sees nothing wrong with including a statement to clarify the contribution of OCS oil-spill impacts under the 2007-2012 program to the contributions of OCS oil spills under the cumulative scenario. This clarifying statement does not form the basis of the cumulative analysis.
- The EIS does assume only a slight increase in the number of oil spills under the cumulative scenario (5 large spills in the cumulative vs. 4 in the proposed action). This assumption is based on the uncertainty about future activity in Alaska because of the absence of detailed geologic and geophysical information, the cost of operations there, and other factors. The EIS did not consider it reasonably foreseeable that leasing activity would continue beyond the 2007-2012 Program in some areas, based on currently available information. The oil spill

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tables in the EIS (Tables IV-4 and IV-17) show that additional development is only anticipated in the Chukchi and Beaufort Sea Planning Areas after the 2007-2012 Program.

- The comment stated that the EIS's contention that "the effect of an individual spill would not change; only the probable number of spills would increase" is not a cumulative analysis. This statement is not the cumulative analysis; rather it provides clarifying information.

Concern: The DEIS did not identify specific mitigations for the Beaufort Sea. Meaningful assessments of impacts cannot be determined without disclosing the specific mitigations measures that will be imposed.

Response: The EIS assumes that all existing OCS mitigations to protect environmental resources will be applied in the 2007-2012 Leasing Program. Furthermore, the EIS assumes these existing mitigations will be applied in comparable situations in other areas without a history of OCS development should lease sales occur there. Since the decision that the 5-Year EIS supports is the establishment of a schedule of lease sales for 2007-2012, the MMS believes it is appropriate to establish additional mitigations later in the 5-year process during the prelease stage prior to the occurrence of a lease sale. At that time, recommendations for additional mitigation will directly support the decision of what conditions should be imposed on OCS activities for the lease sale to proceed with adequate environmental protection. Also at that time, more data may be available through the completion of existing research. In addition, MMS-funded research through its Environmental Studies Program can be done to determine appropriate mitigations for the lease-sale stage.

Concern: The cumulative analyses are inadequate because they consider the incremental increase of the OCS program, and they compare area impacted to total area.

Response: The MMS believes that the cumulative analyses in the EIS are appropriate for a national programmatic analysis. The OCS and non-OCS factors that could affect the resources are identified and considered. Global climate change is identified where appropriate as a factor affecting the cumulative condition of a resource. In the context of breadth of the cumulative analyses, MMS thinks it is appropriate to expose the relationship of the contribution of the OCS program to total cumulative impacts.

We disagree that a comparison of area impacted to total area is absolutely wrong in and of itself. That relationship would seem to be of some relevance in an analysis. In the case referenced by this comment, the comparison was contained in one line of a four-page analysis. The comparison was briefly mentioned to provide perspective.

Concern: The EIS should include a full analysis of factors that could influence impacts from LNG facilities.

Response: The MMS believes that the existing treatment of LNG facilities in the EIS is adequate. The EIS includes LNG discussions in two places. One is in a discussion of cumulative impacts factors in Section IV.K.1., where the likely increased presence of LNG facilities on the OCS during the life of the 2007-2012 Program and associated environmental impact factors are described. The LNG facilities were also included in cumulative analyses, where appropriate. At the current time, only one LNG on the OCS is operational.

The EIS also anticipates that an onshore LNG facility will be constructed in the North Aleutian Basin area. This assumption is based on information from industry about development plans there. The

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construction of this facility is included in the activity scenario because it is reasonably foreseeable, should a lease sale be held and should commercial quantities of natural gas be discovered, that an onshore LNG facility could be built. The construction of such a facility will be permitted and regulated by other State and Federal Agencies, and will require extensive environmental analysis.

Concern: Why does the EIS assume that an onshore LNG facility will be built in the North Aleutian Basin but not in the Chukchi Sea.

Response: The assumption about an onshore LNG facility in North Aleutian Basin is based on information from industry. In the Chukchi Sea, the MMS assumes that offshore gas production will be reinjected into the formation to enhance oil recovery. The gas will be left in the formation until a gas transmission system is developed to transport the product. The development of a gas transmission infrastructure is unlikely to be completed during the life of the 2007-2012 Program.

Concern: The cumulative analyses should have included a detailed description of all impact factors from the OCS program

Response: The EIS addressed the major impact factors associated with OCS development including accidental oil spills, air emissions, platform and pipeline emplacements, seismic activity, and more. The MMS thinks the detail provided in the DEIS was appropriate for a national programmatic EIS.

Concern: The DEIS should include more analysis of impacts that could occur from earthquakes and tsunamis, particularly in Alaska.

Response: The EIS discusses geologic and oceanographic hazards for all the areas included in the 2007-2012 Program. These discussions include the risk of earthquakes, tsunamis, and volcanic eruptions in Alaska. The EIS assumes that all existing appropriate mitigations, stipulations, and regulations from areas with existing OCS development will be applied to areas with no current OCS activity. These regulations include shut-in, abandonment, and other procedures for a natural disaster. Furthermore, additional more detailed analyses of geologic and oceanographic hazards affecting OCS activities will be done in lease-sale EIS's for specific planning areas in the program. At the exploration and development stages, detailed geologic information and construction plans will be evaluated prior to allowing activity to proceed.

Concern: The DEIS analyses should discuss remediation and infrastructure removal techniques

Response: The MMS includes estimates of the number of platform removals with explosives during the life of the 2007-2012 program in Tables IV-1, IV-3, IV-14 and IV-16. The impacts of these removals are evaluated in the analyses for resources vulnerable to impacts from these activities. Remediation after abandonment is covered by various regulations and lease stipulations. The EIS assumes that these regulations and stipulations will be applied to leases and activities in areas currently without OCS development.

Concern: Cumulative analyses do not consider range of non-OCS activities that are likely to occur.

Response: Previous 5-year EIS's included some descriptive information about mining, oil and gas development in Canada, and some other activities in the Cumulative Scenario sections. In an effort to manage the size of the document, the EIS did not include descriptive information in the beginning sections of Chapter IV that had not been used in any of the environmental analyses that followed. This included the information that the comment identifies. We did discuss the non-OCS projects and

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activities in the specific analyses where this information was relevant, such as the analysis of Areas of Special Concern.

Concern: The risk of impacts from a large oil spill do not account for the affects of such an event on commercial fisheries.

Response: The MMS believes that the cumulative analysis of oil-spill impacts to fisheries is sound. Declines in fish populations, closures of fishing grounds, and other impacts are identified and analyzed. The MMS assumes, for analytical purposes, the occurrence of at least one large oil spill in each area included in the 5-year program. The analysis describes what may occur should such a spill happen. More complete and detailed treatments of oil-spill occurrence probabilities and oil-spill trajectory analysis will be done in NEPA documents prior to a lease sale, should a lease sale occur.

The comment also pointed out a confusing statement in the DEIS that described the risk of an oil spill from the 2007-2012 program and the cumulative risk. We have added clearer text to that section for the FEIS.

Concern: The EIS does not include polar bears in the discussion of cumulative seismic impacts even though the DEIS indicates that seismic activities could have some impact on polar bears.

Response: The MMS has rewritten the paragraph on seismic impacts to make clearer the impact relationships between marine mammals, including the polar bear, and seismic activity.

Concern: The DEIS should not use the term “pristine” to describe the Alaska area because a misleading impression that the baseline environment there is untouched when in fact various contaminants have likely accumulated there.

Response: The EIS used the term “relatively pristine” in almost all cases, rather than an unqualified pristine. The MMS believes that “relatively pristine” is an accurate descriptive term for large areas of Alaska considering its low population density and isolated geographic location relative to many other parts of the world.

Concern: There is no evidence to support the EIS conclusion that routine operations would not impact population and employment, given the cumulative impacts that are already occurring on the North Slope.

Response: The EIS analyzes socioeconomic impacts using information generated by MMS computer models that have been used in many of its NEPA documents. The analysis does acknowledge larger potential impacts from a large oil spill. Furthermore, the comment refers to the analysis of the proposed action on population and employment, not to the cumulative analysis.

Concern: The EIS fails to adequately identify the specific kinds of impacts from oil spills that could occur.

Response: The MMS considers the analysis of oil-spill impacts in the EIS is adequate. The EIS identifies potential oil-spill impacts to the resources being analyzed. The analyses include the potential for oil-spill impacts. The analyses are supported by a reasonable scenario of anticipated levels of OCS activity and numbers of associated oil spills. The MMS believes that the EIS provides the relevant information needed to support a decision about the schedule of lease sales for the 2007-2012 Program. An additional EIS will be prepared for each scheduled lease sale or series of lease

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sales. The geographic focus of this EIS will be an OCS planning area. At this scale of analysis, oil-spill probability and trajectory analyses will be done to provide a clearer view of the likelihood of impacts occurring at different locations. The EIS would also include more detailed fates and effects analyses of the spills.

Concern: The cumulative analyses do not consider impacts to species that migrate across Alaska OCS Planning Areas.

Response: The EIS analyses do consider how impacts to species in one planning area could affect the population of that species in other planning areas. The spectacled eider, and Steller sea lion are two examples.

Concern: Page IV-220, Routine Operations: It is inappropriate for MMS to state that "...it is not likely that routine petroleum activities arising from the proposed action would have significant (i.e., major) effects." There are no data to support this conclusion. In fact, residents of the North Slope are expressing concern that the cumulative effects of petroleum activities are occurring (i.e., seismic operations impacting marine mammal migration, land operations disrupt the migration of land animals, particularly caribou, but also wolves and wolverines, and stress in the communities is increasing because of the increasing oil and gas activities).

Response: Activities associated with routine operations, such as air emissions, discharges, seismic activity and others, were analyzed for each resource that was potentially at risk. Impact assessments were based on assumed activity levels, the potential for interactions between routine activities and potentially affected resources, and fates and effects models and assumptions. In the case of the socioeconomic assessment, the MMS used an economic impact model called MAG-PLAN to assess impacts.

Concern: The cumulative case does not adequately account for impacts of seismic activities to subsistence resources and activities.

Response: We disagree. The EIS highlights possible impacts of seismic activities to marine mammals. See General Response #2, on page V-56. These possibilities are thoroughly considered in the EIS analysis of subsistence in the cumulative case.

Concern: Page IV-345, Cumulative Case: The MMS misses a considerable number of ongoing and foreseeable human activities in the Chukchi and Beaufort Seas. These include: Red Dog Mine, expansion of the port site at Red Dog Mine, development of a coal mine by Arctic Slope Regional Corporation at Dead Fall Syncline (adjacent to Ledyard Bay), international shipping through the Arctic, and increasing scientific activity in the Arctic related to climate change studies. All of these activities will contribute to environmental impacts from humans in the Arctic Subregion. They may discharge oil, there will be increases in the amount of anthropogenic sounds introduced into the environment, and additional pressure will be placed on communities to provide access to housing and food for those people associated with these activities. The MMS must do a better job in identifying the numerous human activities for the cumulative case.

Response: Thank you for your comment. We have added additional information about these topics in the FEIS.

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Concern: Page IV-345, Cumulative Case, OCS Oil and Gas Activities: paragraph 2: Table IV-17 indicates that MMS is anticipating 3 large and 165 small oil spills in the cumulative case for the Beaufort and Chukchi Seas. Table IV-4 indicated that 2 large and 110 small spills will occur because of MMS' actions in the 5-year program alone. These numbers do not include spills that would occur outside the region during transportation of oil (see comments about pages IV-26 and 27, above). Thus, the cumulative case also does not include spills outside the planning area. The cumulative case must include all impacts that will result from MMS' proposed actions, including oil spilled during transportation, even if it occurs outside the planning area.

Response: As stated on page IV-345, transportation and other scenario assumptions that were used in the proposed action scenario are incorporated here. The assumptions listed on page IV-27 include spills outside of the planning areas.

Concern: Page IV-346, Alaska: The MMS has missed additional non-OCS activity. The Bureau of Land Management has sold a large number of leases within the National Petroleum Reserve Alaska (NPR). Oil and gas industry is currently exploring and planning development within the NPR. Why is this activity not included in the cumulative case? It is absolutely necessary because onshore activity has a considerable amount of offshore support that is required, such as transport of equipment and material.

Further, MMS must also include oil and gas activity that is occurring in the Canadian Beaufort Sea. There is considerable oil and gas activity in the Mackenzie River Delta just east of the US/Canada border. Also, there may be oil and gas activity in the Russian Chukchi Sea. Both of these activities must be included in the cumulative case.

Response: Thank you for your comment. We have added additional information about these topics in the FEIS.

Concern: Page IV-348: Liquefied Natural Gas (LNG): The third paragraph assumes that a LNG facility will be built in the North Aleutian Basin. It is known that a large amount of natural gas is present in the Chukchi Sea and that oil companies have a great deal of interest in that gas. If MMS assumes a LNG facility will be built in the North Aleutian Basin, why is it not assumed that a LNG facility will be built in the Chukchi Sea?

Response: The assumption about an onshore LNG facility in the North Aleutian Basin is based on information from industry. In the Chukchi Sea, the MMS assumes that offshore gas production will be reinjected into the formation to enhance oil recovery. The gas will be left in the formation until a gas transmission system is developed to transport the product. The development of a gas transmission infrastructure is unlikely to be completed during the life of the 2007-2012 program.

Concern: Page IV-406, Cumulative Impacts of Non-OCS Activities: Again, MMS has not considered oil and gas activities in the Beaufort Sea of Canada, or the Chukchi Sea of Russia, or impacts from Red Dog Mine or coal development at Deadfall Syncline.

Response: Thank you for your comment. We have added additional information about these topics in the FEIS.

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Concern: Page IV-408, Nonenergy Related Minerals: The MMS must also consider the development of a coal mine adjacent to the Chukchi Sea, as mentioned previously.

Response: Thank you for your comment. We have added additional information about these topics in the FEIS.

Concern: Page IV-408, State and Canadian oil and gas activities: MMS finally mentions oil and gas activities in the Beaufort Sea of Canada. Unfortunately, virtually no information is provided on how much activity is taking place in Canada. If no information is presented, how can decisions be made about cumulative impacts or about the conclusion that “incremental increase in adverse impacts of the proposed action would be expected to be small?”

Response: Thank you for your comment. We have added additional information about these topics in the FEIS.

Concern: Page IV-410, Construction and Operation of Offshore Facilities: The conclusion that no long-term, population-level effects would be expected from construction and operation of offshore facilities, in the cumulative case, is not warranted nor supported by data. Bowhead whales are very sensitive to sound. If there were 5 to 15 platforms in the Beaufort and Chukchi seas and several seismic operations in Alaska and Canada, it is very easy to envision that cumulative impacts could be significant. Bowheads could be deflected around each operation they encounter as they migrate west through the Beaufort Sea. Being deflected could result in the loss of feeding opportunities or increase energy expenditure to avoid industrial operations. Loss of feeding opportunities or increased energy expenditures easily could lead to population level effects. The MMS should base their conclusions on analysis of data and provide a detailed accounting of those analyses.

Response: The conclusions for the cumulative scenario do state that population-level impacts are possible for certain species. The MMS has revised the “Construction and Operation of Offshore Facilities” to add a statement regarding the potential for discussion on cumulative, population-level impacts to bowhead whales. However, a more detailed analysis of existing data and conclusions on effects for the bowhead whale will instead occur in more regional, site-specific environmental analyses.

Concern: Page IV-411, State Oil and Gas Exploration and Development: This section discusses exploration, including seismic, in State waters. It is not clear why MMS did not include seismic surveys in State waters in their section on “Seismic Surveys and Exploration”. Dividing up seismic into different sections is confusing and does not allow for a reasonable assessment of cumulative effects. In addition, the section contains no estimates of oil and gas activity in State waters during the 40-year life of the 2007-2012 Program activities. There are no estimates as to numbers, locations, or the timing of developments in state waters. Merely identifying a class of potential impacts that may occur during 5-year program activities is no substitute for actually describing and evaluating reasonably foreseeable activity and impact scenarios with enough specificity to allow for consideration of appropriate mitigation measures.

Response: We disagree with the assertion that it is necessary to develop scenarios for State oil and gas activity in the 5-Year Program EIS. We think that the EIS informs the decisionmaker about anticipated magnitudes of state oil and gas activities at a level of specificity appropriate for a national programmatic NEPA assessment. Later in the 5-year process more detailed analyses will be conducted in a lease sale EIS. At that time, it may be appropriate to look at State oil and gas activity

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in more detail. We have added more information in the FEIS to the cumulative scenario section on state and Canadian oil and gas.

Concern: The analyses of oil-spill impacts do not include enough detail of the specific impacts that could occur to the affected resources.

Response: The 5-Year EIS is a national programmatic environmental assessment used in the decision to establish a schedule of OCS lease sales. The analyses of oil-spill impacts use a reasonable scenario of assumed spill occurrences to identify potential risks to resources from the occurrence of and contact from a spill. The kinds of analytic detail and itemization of the range of impacts to different species or habitats is done in a lease sale EIS that includes oil-spill trajectory modeling and analyzes potential impacts within typically one planning area.

Concern: The Arctic environmental baseline should include information on water and air emissions due to local development in North Slope communities.

Response: Thank you for the suggestion. The MMS currently is not developing these kinds of baseline data. The North Slope Borough planning divisions maintain this information. The MMS may consider assimilating these data into a more comprehensive Arctic baseline data set in the future.

Concern: The discussion of potential effects of oil and gas development in the DEIS appears one-sided in that positive impacts are not discussed.

Response: We think the DEIS does acknowledge positive effects of the program. For example, the economic analyses describe the effects of OCS activity on employment and income, and the analyses of marine resources in the Gulf of Mexico recognize the significance of active and abandoned platforms as reef-like substrate.

Concern: The DEIS does not address the potential effects from future OCS activities in the mid-Atlantic beyond the 2007-2012 program even though it is likely that more leasing will take place.

Response: Based on available geologic, economic and other information, the EIS does not consider it reasonably foreseeable that there will be leasing activity in the area offshore Virginia beyond the 2007-2012 program. For that reason, the cumulative exploration and development scenario for the mid-Atlantic is the same as the exploration and development scenario for the proposed action.

Concern: The DEIS does not discuss MMS coordination with BLM and the State of Alaska to manage cumulative impacts. Nor is there a coordinated research plan to evaluate cumulative impacts.

Response: The MMS Environmental Studies Program has invested large amounts of resources in efforts to collect baseline data and to evaluate the fates and effects of OCS activities. Many of these projects have been done in coordination or cooperation with State and other Federal Agencies. The MMS also works with universities in affected states to develop information needed to assess cumulative impacts.

ISSUE 6b: Analysis of Global Warming Incomplete or Inadequate (includes Issue 4j—Global Climate Change)

Issue Raised By: Alaska Center for the Environment; Alaska Coalition; Alaska Wilderness League; Center for Biological Diversity; Cook Inlet Keeper; Earth Island Institute; Greenpeace; Northern Alaska Environmental Center; Natural Resources Defense Council; Pacific Environment; Redoil; Sierra Club; The Wilderness Society; World Wildlife Fund; Bering Sea Fishermen's Association; North Slope Borough; and a number of private citizens.

Concern: The commenters stated that the global climate impact analysis in the DEIS was inadequate and that much more detail was needed. Resource topics that were mentioned as receiving insufficient treatment included marine mammals (particularly polar bears), terrestrial mammals, wildlife, seabirds, marine and coastal habitat, fisheries, marine productivity, protected species, sea ice, wetlands, Native subsistence, and human communities. The groups also thought that additional literature should have been cited and that the more recent scientific articles and publications point to larger climate changes.

Response: In the EIS, the MMS attempted to present a general overview of climate change and how it may affect the environment in the future. A more comprehensive treatment of the various resources was not possible because of the uncertainties about the nature and magnitude of the effects on the ecosystems. The MMS could, therefore, only present a very general description of possible impacts of climate change and relied heavily on the 2001 Intergovernmental Panel on Climate Change (IPCC) document because we consider it the most comprehensive and authoritative. For impacts in the Arctic, the MMS cited the Arctic Climate Impact Assessment reports published in 2004 and 2005. These reports provide an exhaustive treatment of possible impacts of climate change on all critical components of the Arctic environment.

The Fourth Assessment Report by the IPCC Working Group I is being released in February 2007. In the FEIS, the MMS is including the major findings of *Climate Change 2007: The Physical Science Basis, Summary for Policymakers* (IPCC, 2007). The MMS has also added some recent articles on the global energy balance and provided updated information about sea-ice trends. The MMS has modified the statement regarding the possible effects of global warming on hurricane intensity based on more current information. Finally, information has been added on projected economic effects of climate change on the United States and the world.

Comment: The NSB stated that, throughout the EIS, it should be acknowledged that, with respect to global climate change impacts, adverse incremental cumulative effects derived from the proposed action cannot be accurately predicted.

Response: This uncertainty is evident from the discussions throughout the EIS. This is why the MMS has been able to describe impacts only very qualitatively, as they are aware that responses of the ecosystems to climate change are unpredictable.

Concern: The Center for Biological Diversity stated the opinion that the climate change impacts analysis did not consider greenhouse gas emissions from consumption and that, therefore, it violated NEPA and the OCSLA. The Alaska Center for the Environment and associated groups listed above expressed the need for the Nation to develop a clean energy plan, and a number of private citizens favored programs to reduce energy consumption.

Response: It is difficult to evaluate the effect of the 2007-2012 program on consumption. Consumption of oil and gas is driven by a variety of factors including energy costs, energy efficiency, economic factors, demography, and weather or climate. The Energy Information Administration

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(2006) projects petroleum consumption to grow from 20.7 million barrels per day in 2005 to 26.9 million barrels per day in 2030, about a 30-percent increase. It also projects natural gas consumption to increase from 22.0 trillion cubic feet in 2005 to 26.1 in 2030, about a 19-percent rise. According to the Energy Information Administration figures, in 2005 oil and gas consumption accounted for 44.1 and 19.9 percent, respectively, of the total U.S. carbon dioxide (CO₂) emissions. The transportation sector is the largest contributor, accounting for 33 percent of the total CO₂ emissions.

If the proposed leasing program does not occur, the MMS projects that about 95 percent of the lost oil production would be replaced by a combination of imports, fuel switching, and increased onshore production (see the discussion in Section IV.I—No Action Alternative and Table IV-27). For natural gas, about 84 percent of the lost production would be made up by fuel switching, increased onshore production, and imports. The remaining 5 percent of the oil and 16 percent of the natural gas resource that would not be developed is expected to trigger some modest conservation measures, which would have some benefits in terms of reduced greenhouse gas emissions. However, this benefit could be offset by a boost in CO₂ emissions from tanker transport as a consequence of a greater reliance on oil imports. More importantly, if there is a significant switch from natural gas to oil as a result of lost OCS gas production, the benefits from conservation measures could be offset since oil combustion causes more CO₂ emissions than gas does.

The development of a clean energy plan would have a large bearing on the consumption and economics of energy resources in the future. Some States, municipalities, and even some private corporations have adopted clean energy goals. A national clean energy program would require legislation by the U.S. Congress. A variety of proposals to curb greenhouse gas emissions have been introduced in Congress recently. A national program to reduce greenhouse gas emissions would entail measures such as higher fuel efficiency standards, a low-emission vehicle program, higher energy efficiency standards, a carbon tax, and a cap-and-trade program. These measures would increase the cost per unit of energy, but would have the benefit of lowering energy needs and would help reduce adverse effects arising from global warming. A clean energy policy would not forestall the need to develop OCS oil and gas resources, however. Since currently the U.S. imports about 60 percent of its oil needs, OCS oil and gas resources will still fill a role in the Nation's energy production in the foreseeable future.

Concern: The Alaska Center for the Environment and associated groups listed above noted that the climate change discussion in the DEIS is fragmented with some resources being considered in defining the baseline (Affected Environment), while others are being treated as part as the cumulative analysis. The Center for Biological Diversity thought that the DEIS does not adequately define baseline as affected by climate change.

Response: Any discernable trends in the environment due to climate change were presented in Chapter III, Affected Environment. Projected changes in the environment due to climate change were placed in Chapter IV because they are much more difficult to quantify. For example, a certain change in temperature or precipitation will have an effect on the physical and biological environment. The nature of the effects on ecosystems is very complex, and it is difficult to quantify effects on individual species. The literature describes various ecosystems that are vulnerable to climate change and the possible nature of the consequences, but mostly in a very general way. It was, therefore, difficult to evaluate the effects of OCS oil and gas operations on a resource that may undergo changes that cannot yet be clearly defined. The MMS decided that the best place to discuss future projected changes was in Section IV.J—Environmental Impacts of the Cumulative Case. This also allows us to include the contribution of all other factors that have an effect on the physical, biological, and human environment.

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The MMS believes that the treatment of baseline in the EIS is appropriate. The baseline used in the EIS is defined by the existing environment at the time the proposed action is under consideration. The MMS realizes that the environment changes over time, but in a way that cannot yet be assessed with enough certainty. Therefore climate change is considered one of the impacting agents in the cumulative analysis.

Concern: The Center for Biological Diversity noted that the DEIS fails to present mitigation measures for greenhouse gas emissions and their impacts on the environment. In particular, they cited a need for mitigating methane emissions from oil/gas production activities.

Response: A number of mitigation measures to reduce greenhouse gas emissions from OCS oil and gas activities were described in Section IV.A.2.b. The MMS is studying the optimum way to reduce methane emissions from venting. Mitigation measures related to impacts on the various resources were described in various parts of the EIS. As the environment changes, these mitigation measures may need to be adjusted. It is too early to tell what type of adjustments would need to be made. The application of adaptive management as a tool for managing resources under changing conditions would be the most effective means to mitigate impacts in the future.

Comment: The NSB raised the concern of coastal erosion being a major problem in the Arctic. They pointed out that retreating sea ice and raising permafrost temperatures have led to rapidly eroding coastlines. Including these types of impacts is essential to fully evaluate potential impacts from oil and gas as well as conditions that oil and gas activity must be aware of and responsive too.

Response: The problems of coastal erosion and melting of permafrost are discussed in Sections IV.A.2.a(2) and IV.A.4.c. Potential impacts from the placement of oil and gas production facilities on shoreline stability and soil structure will need to be mitigated on a case-by-case basis through careful design and engineering. It is too early at this point to address specific measures.

Comment: The NSB expressed the concern that offshore structures would have sufficient ability to withstand forces greater than the maximum measured currents, as well as sea ice. They also cited inadequate amounts of oceanographic data, especially for surface currents in the Chukchi Sea. Also, there is insufficient knowledge on how climate change may impact the physical oceanography and the concurrent forces exerted on offshore structures.

Response: Design of any structures in the Arctic Ocean will incorporate the latest information on currents and ice flow. We continue to gather more physical oceanography data in the Beaufort Sea, and more site-specific information will be studied for individual plans. Technology will be evolving in the future to better adapt to the Arctic environment.

Concern: The DEIS on page III-87 states that arctic sea ice reached a new record minimum in 2002. This is outdated. Sea ice has continued to decline rapidly despite a switch in the Arctic Oscillation (“AO”) to a more neutral, and even slightly negative state in recent years. Moreover, the Arctic appears to be on a trajectory to be seasonally ice-free, a state not witnessed for well over a million years.

Response: We have updated information about sea ice. Arctic sea ice reached a record minimum in 2005 (see http://www.nasa.gov/centers/goddard/news/topstory/2005/arcticice_decline.html).

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Concern: The DEIS on page IV-3 states that the atmospheric concentration of CO² is currently 370 ppm, and that the rate of increase since 1980 is about 1.5 parts per million (ppm) per year. This is outdated. As of March 2006, the atmospheric CO² concentration was 381 ppm, and rising at over 2 ppm per year.

Response: The information on atmospheric greenhouse gas concentrations has been updated.

Concern: The DEIS on page IV-7 states “[i]t is not known whether warming would lead to an increase in the number or intensity of hurricanes.” This does not correctly summarize the current scientific understanding. To the contrary, climate scientists have long predicted an increase in hurricane intensity due to increasing sea surface temperatures and have, in recent years, observed exactly that.

Response: The text has been changed to reflect the conclusions of the 2007 IPCC Fourth Assessment Report regarding the intensity of hurricanes.

Concern: The DEIS also failed to disclose the economic cost of the Program’s greenhouse gas emissions, both from the very limited subset of emissions that were disclosed and from the emissions of utilizing the oil and gas resources that were hidden from view. A large, peer-reviewed literature exists on estimating the social costs of climate change and quantifying the cost of CO² emissions (Stern, 2006). As the scientific understanding of global warming impacts and predictive ability has also improved, the estimated cost of greenhouse gas emissions in the literature has increased steadily, and we now know that the cost of continued greenhouse gas emission trajectories would be astronomical (Stern, 2006). While monetizing the impact of greenhouse gas emissions cannot substitute for a full discussion of all impacts under NEPA, an estimate of the economic costs should have been included in the DEIS.

Very few of the early economic studies included any nonmarket damages such as species extinction, or the risk of potential extreme weather such as hurricanes, droughts, and floods. This indicates that values in the literature are a subtotal of the full economic (or social) cost of greenhouse gas pollution, and therefore by definition are underestimates, though researchers cannot yet say by how much. Researchers have concluded that \$73/ton of carbon (year 2010) is a reasonable figure for decisionmakers to use as a lower benchmark of the economic cost of greenhouse gas emissions, but this figure rises sharply over time.

Response: We have added text regarding studies of the economic impacts of greenhouse gas emissions. The estimated cost figures in the literature are too tentative to use in an analysis. Moreover, one cannot really estimate such economic impacts from a single program as one can attempt this only in a cumulative context.

Concern: On page IV-356 of the DEIS, it states that it is not possible at this time to identify the likelihood, direction, or magnitude of any changes in the environment of the Gulf of Mexico due to changes in the climate, so it is too speculative to further discuss climate change impacts on marine mammals.

Response: We acknowledge in the same paragraph that climate change could affect the distribution, availability, and quality of feeding habitats and the abundance of food resources for marine mammals. Because the response of the ecosystem is likely to be very complex, it simply is not possible to predict the outcome resulting from these changes.

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Concern: On page IV-360 of the DEIS, it states that it is not possible at this time to identify the likelihood, direction, or magnitude of any changes in the environment of the Gulf of Mexico due to changes in the climate, so it is too speculative to further discuss climate change impacts on marine and coastal birds.

Response: We acknowledge in the same paragraph that climate change could affect the distribution, availability, and quality of feeding habitats and the abundance of food resources for marine and coastal birds. Because the response of the ecosystem is likely to be very complex, it simply is not possible to predict the outcome resulting from these changes.

Concern: On page IV-361 of the DEIS, it states that the proposed action is expected to contribute little, if any, incremental impact to the four beach mouse species or to the salt marsh vole.

Response: We stand by the conclusion that the proposed action would have little incremental impact to these species. We did state in the same section that species could be affected by climate change and a rising sea level. Furthermore, heightened wave action and storm surge associated with hurricanes could greatly reduce or eliminate the habitats of terrestrial mammals.

Concern: On page IV-386 of the DEIS, it states that it is unlikely that there would be impacts from OCS-related spill on the Florida Keys National Marine Sanctuary because there are no ongoing, planned, or proposed exploration or development activities in the immediate vicinity.

Response: We stand by the conclusion regarding OCS impacts on the Florida Keys National Marine Sanctuary. The marine sanctuary could be affected by global climate change as a result of changes to the ecosystem. However, we did not include a discussion of this because the 2007-2012 program would not contribute to impacts cumulatively.

Concern: On page IV-409 of the DEIS, it states that the magnitudes of the changes produced by climatic change are poorly known, and that, therefore, adverse incremental increases derived from the proposed action on water quality cannot be accurately predicted.

Response: As is explained in Section IV.J.3.b, warming in the Arctic has resulted in a decrease in the extent and thickness of sea ice, retreat of glaciers, and changes in stream flow, and these changes could impact water quality. However, at this point we cannot determine the nature or the magnitude of these impacts.

Concern: On page IV-412 of the DEIS, it says that it is not possible at this time to identify the likelihood, direction, or magnitude of any changes in the environment of Alaska waters due to changes in climate, or how climate change could impact marine mammals in these waters. The current state of climate change and its impacts on marine mammals would need to be further considered in any subsequent environmental reviews for lease sales or other OCS-related activities.

Response: See discussions in Issue 4b, Marine Mammal, and 4k, ESA Listed Species.

Concern: There is some speculation within the scientific community that climate change will, in fact, increase marine production. As arctic waters are ice-free for greater periods of time, productivity may very well increase. George et al. (2005) presented data indicating that a standard body condition of bowhead whales (length/girth²) was significantly higher on light ice years than low ice years. Further, the biomass of benthic invertebrates and some fish species (e.g., arctic cod) are considerably higher now than measurements made in the 1970's and 1980's referenced by Continental Shelf and

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Associates (p. 89). The MMS must consider climate change predictions in their analysis of marine productivity.

Response: We are aware that global climate change will affect marine productivity in many ways. We expect that changes in temperatures would increase marine productivity of some species, while for others it may be reduced. Knowledge in this area will increase as more data are being gathered. There is insufficient information at the present time to predict future trends.

Concern: The Alaska North Slope Borough raised the problem of major coastal erosion in the Arctic. Retreating sea ice and raising permafrost temperatures have led to rapidly eroding coastlines. Including these types of impacts is essential to fully evaluate potential impacts from oil and gas as well as conditions that oil and gas activity must be aware of and responsive to.

Response: The problems of coastal erosion and melting of permafrost are discussed in Sections IV.A.2.a(2) and IV.A.4.c. Potential impacts from the placement of oil and gas production facilities on shoreline stability and soil structure will need to be mitigated on a case-by-case basis through careful design and engineering. It is too early at this point to address specific measures.

Concern: The Alaska North Slope Borough stated that in Section III.B.14.c and elsewhere in the DEIS where climate change is discussed, dramatic effects are predicted. The effects described are far greater than were described in even recent MMS documents, including the 2002-2007 OCS Leasing Program Final EIS and Beaufort Sea Multiple-Sale Final EIS. The new and striking information and predictions do not appear to have influenced proposed leasing decisions at all, and no mitigation measures designed to address potential impacts have been identified or analyzed.

Response: There will continue to be a need to develop domestic energy supplies regardless of measures that are put in place to reduce reliance on fossil fuels and limit greenhouse gas emissions. See response to comment on clean energy.

A number of mitigation measures to reduce greenhouse gas emissions from OCS oil and gas activities were described in Section IV.A.2.b. We are studying the optimum way to reduce methane emissions from venting. Mitigation measures related to impacts on the various resources were described in various parts of the EIS. As the environment changes, these mitigation measures may need to be adjusted. It is too early to tell what type of adjustments would need to be made. The application of adaptive management as a tool for managing resources under changing conditions would be the most effective means to mitigate impacts in the future.

ISSUE 6c: Analysis of Hurricanes Katrina and Rita Incomplete or Inadequate

Issue Raised By: National Ocean Industry Association; USEPA Office of Federal Activities; Clean Ocean Action; Private Speakers at the Mobile, Alabama and Harahan (New Orleans), Louisiana public hearings; Louisiana Department of Natural Resources

Concern: The effects of Hurricanes Katrina and Rita on the energy supply are a reason to expand the OCS program to other areas to achieve economic growth, energy supply, and national security from the OCS program.

Response: The impacts of the program on energy supply and national security have not been directly addressed in the EIS. These issues were discussed in Chapter I as one of the purposes and needs for

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the proposed action. Economic impacts are addressed in the analyses of impacts of the OCS program on regional employment, income and population. The analyses of these impacts are based on a scenario of exploration and development activities that are assumed to occur as a result of the program. In the Gulf of Mexico, the scenario is based on a 50-year data record that includes the impacts of hurricanes in the data record itself. An analysis of the affects of a wider distribution of OCS development on energy supply and national security is beyond the scope of this EIS.

Concern: The EIS should address the impacts of certain hurricane restoration activities as cumulative impacts in the Gulf of Mexico.

Response: The FEIS incorporates existing information on the hurricane impacts. This information was added to the descriptions of the baseline environmental conditions to evaluate whether the post-hurricane baseline should be used in cumulative analyses. Where appropriate, some aspects of the post-hurricane environment were used as factors in the cumulative analyses. The suggestion to evaluate restoration projects as an impact factor in cumulative analyses would require information about scope, magnitude, and location of such projects that is not available at this time. Furthermore, such an analysis is beyond the scope of this national programmatic document.

Concern: The DEIS needs to include information about oil spills that emanated from platforms in the Gulf of Mexico after Hurricane Katrina in 2005 because hurricanes occur in the Atlantic.

Response: The DEIS was being compiled when Hurricanes Rita and Katrina occurred in 2005. In the few months between the occurrence of these storms and the publication of the DEIS, the MMS updated the DEIS with information available at the time. The FEIS includes more information about the hurricane impacts that has become available since the publication of the DEIS. Hurricane Katrina, for example, caused 70 spills (≥ 1 barrel [bbl]) on the OCS. None of these OCS spills reached the coastline. The MMS estimates that a total of 5,552 bbl of were released onto the OCS from damage to pipelines and offshore facilities during and after Hurricane Katrina. Of the 70 spills only 23 (33%) exceeded 50 bbl, but these spills accounted for 5,047 bbl (91%) of the spilled petroleum products. Only one spill, a 2,000-bbl spill in Mississippi Canyon Block 109, exceeded 1,000 bbl. The 2,000-bbl figure for this spill is estimated from the higher value of an approximated range for this particular spill. The actual amount of spillage may have been only a few hundred barrels.

An investigation into the spill is ongoing. For OCS waters, Hurricane Katrina spill data are available on the MMS website at <http://www.mms.gov/incidents/SigPoll2005.htm>.

Concern: Because the DEIS did not include enough information about the longer term effects of Hurricanes Katrina and Rita on the Gulf of Mexico environment, the EIS should consider an alternative to temporarily postpone leasing in the Gulf of Mexico until more information from damage surveys is available.

Response: Hurricanes Katrina and Rita occurred as the DEIS was being written. The MMS modified the DEIS as information about the effects of the hurricanes became available until it was published. The MMS had included information in the DEIS to show the magnitude of impacts from the storm as they have affected baseline environmental conditions in the Gulf of Mexico. The MMS has incorporated additional information in the FEIS about the hurricanes' impacts that has become available since the publication of the DEIS. More analyses about hurricane impacts and possible mitigations and leasing strategies have been described in the Gulf of Mexico Multisale EIS.

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Concern: The discussion in the DEIS on hurricane-associated risks to workers, structures, and the environment fails to consider impacts to onshore communities and infrastructure that service the OCS leasing activities. The MMS should describe how it will work to reduce these potential impacts.

Response: The MMS has no jurisdiction over onshore communities or infrastructure. The measures that MMS has in place to reduce risk of damage to offshore platforms and pipelines will lower the potential impacts to installations in State waters and at the shoreline.

Concern: There should be a mechanism for oil and gas industries to provide funding in support of efforts to assist local communities affected by Hurricane Katrina.

Response: The MMS cannot require the industry to provide this type of assistance. Section 384 of the Energy Policy Act of 2005 established the Coastal Impact Assistance Program (CIAP) that authorizes Federal funds generated by the leasing program to be distributed to OCS oil and gas producing States to mitigate the impacts of OCS oil and gas activities. The funds are to be used for conservation, restoration projects, and mitigation of damage to natural resources. However, the CIAP does not provide specifically for funds to assist in the recovery from natural disasters.

ISSUE 7a: Impacts on Archaeological Resources

Issue Raised By: Pribilof Islands, Associates; Aleutians East Borough; Alabama Department of Environmental Management; Virginia Department of Historic Resources; and Alabama Department of Environmental Management; and Shell Exploration and Production

Concern: The OCS operators must protect all existing cultural and historic sites and notify the local governments as soon as possible about the discovery of prehistoric, historic, and archaeological sites. A final report must be submitted to the local governments.

Response: The State and Federal laws, regulations and procedures for identifying significant historic properties (i.e. historic and prehistoric cultural resources) prior to approval of any projects or activities that might adversely affect those properties are discussed in the “Archaeological Resources” section of Chapter IV of the EIS. Under MMS regulations at 30CFR250.194, OCS operators are required to conduct marine remote sensing surveys within all OCS areas determined to have potential for historic properties. If the results of the remote sensing survey show any evidence of possible historic properties at the site of a proposed operation, the MMS requires the OCS operator to either move the site of the proposed operation to avoid the potential historic property, or to conduct further investigations to determine whether an historic property actually exists at the site of the proposed operations. If it is determined that a significant historic property exists and cannot be avoided by the proposed operations, Section 106 of the National Historic Preservation Act, requires the MMS to enter into a formal consultation process with the appropriate State Historic Preservation Officer (SHPO)/Tribal Historic Preservation Officer. In this consultation process, the SHPO reflects the interests of the State and its citizens in the preservation of their cultural heritage. The function of the SHPO is to cooperate with Federal Agencies, local governments and organizations and individuals to ensure that historic properties are taken into consideration at all levels of planning and development. As the Section 106 process moves forward, local governments may be invited to participate in the process.

In the event that a previously unidentified historic property is located during the course of approved OCS operations, the MMS regulations at 30CFR250.194 require the operator to immediately halt

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operations within the area of the discovery and report the discovery to the appropriate MMS Regional Director. If investigations determine that the resource is significant, the Regional Director will tell the operator how to protect the resource, and will notify the appropriate SHPO of the discovery.

The following text is included in the appropriate sections of Chapter IV (Archaeological Resources–Routine Activities) of the FEIS outlining the regulatory procedure in the event of an unanticipated discovery during approved operations:

If an archaeological resource is discovered during lease operations, the operator is required to halt operations within the area of the discovery and report the discovery to the MMS Regional Director. The MMS will then notify the State Historic Preservation Officer/Tribal Historic Preservation Officer, Advisory Council on Historic Preservation and other appropriate entities as per the requirements of 36 CFR 800.13 regarding the discovery.

Concern: The MMS should develop probability maps of the North Slope coastal areas of Alaska for potential archaeological sites.

Response: The MMS Handbook for Archaeological Resource Protection (MMSM 620.1-H) requires the MMS to complete a Prehistoric Resource Analysis and a Shipwreck Update Analysis as part of each individual lease sale EIS. All available information pertinent to the location and survival potential of prehistoric and historic sites within the sale area analyzed to determine which portions of the sale area have potential for prehistoric and/or historic sites to occur. Those areas determined to have site potential are required to have a marine remote sensing survey and archaeological analysis of the remote sensing data completed prior to approval of OCS operations. The State of Alaska maintains the site database for onshore historic properties.

Concern: The MMS needs to analyze both the direct and the indirect impacts of the proposed 5-year oil and gas leasing program to all historic properties; including onshore historic architectural resources, districts, or landscapes (i.e. not just archaeological resources).

Response: Section 106 of the National Historic Preservation Act requires each Federal Agency to take into account the effects of any project for which they provide funding or permits to any National Register or National Register eligible property. As the MMS has no permitting authority and provides no funding to construction activities either within State waters or onshore, the MMS has no authority to mitigate direct impacts to historic properties in these areas. However, it is recognized that the MMS does have a responsibility to analyze the potential visual impacts to onshore National Register and National Register eligible properties that may occur as a result of our permitted OCS leasing activities.

The location of specific OCS structures that may cause a significant visual impact (i.e., a visual intrusion that interferes with the qualities that make the property eligible for the National Register) to properties is unknown at the lease-sale scheduling phase of the 5-Year Leasing Program. There is more specific information upon which to base an actual analysis of potential visual impacts at the lease sale and exploration/development plan stage of the process.

The following text is included in appropriate sections of Chapter IV (Archaeological Resources–Routine Activities) of the Final EIS:

There is also the potential for OCS-permitted activities to result in visual impacts to coastal National Register or National Register-eligible properties. The source of the

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potential impact will vary with the specific location and nature of the routine operation.

Concern: Because combining Section 106 and NEPA presents many challenges, the MMS should carry out direct Section 106 consultations with affected coastal States

Response: Section 106 of the NHPA requires all Federal Agencies to take into account the effects of any undertaking for which they will provide funding or approval on National Register or National Register-eligible properties. The NEPA process is an appropriate avenue to begin Section 106 analysis of the potential effects of a proposed undertaking on historic properties. The MMS regulations at 30 CFR 250.194 and the MMS Handbook for Archaeological Resource Protection (MMS Manual 620.1-H) outline the procedures that the MMS follows to initiate formal Section 106 Consultations with an affected coastal State at any point in the planning process through completion of a project (i.e. unanticipated discoveries during construction and operations) when National Register or National Register-eligible properties are identified that may be adversely affected by the project.

Concern: The Federal Agency should keep in mind that preservation in place is always the preferred option.

Response: The MMS Handbook for Archaeological Resources Protection (MMS Manual 620.1-H) outlines the procedures that MMS follows in identifying and protecting historic properties that may be adversely affected by MMS-funded or permitted undertakings. The entire MMS archaeological resource protection program is one of avoidance; not only of identified historic properties, but also avoidance of areas on the OCS where MMS-required marine remote sensing survey data indicate there may be an historic resource. The MMS does not have the authority for project approvals in State waters or onshore. In these areas, the individual coastal States have the authority to require mitigation measures leading to avoidance (i.e., preservation in place) of significant historic properties.

ISSUE 7b: Oceanography

Issue Raised By: Trustees for Alaska; North Slope Borough; National Oceanic and Atmospheric Administration; and Lynn Shawbeck, King Salmon

Concern: The MMS must provide a detailed analysis of the effects of oil development on the marine ecosystem, endangered and threatened species, and the subsistence needs and traditions of rural communities, as well as the importance of these areas to the commercial and sportfishing industries.

Response: The MMS has provided a detailed analysis of the effects of the proposed leasing program in the EIS using the best available information. The environmental information and analysis of impacts meets all of the essential NEPA requirements.

Concern: The DEIS indicates that there are no ordnance hazards on the Alaska OCS while several ordnance hazards do exist there.

Response: The MMS used a USDOD database on ordnance hazards in the offshore Alaska area, which indicated no ordnance hazards in the OCS areas where OCS activities could disturb the seafloor.

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Concern: On page III-86, first paragraph, the expected maximum wave heights for the Chukchi and Beaufort Seas are from a 1988 reference. There is only brief mention of frequency of high-wave-height events, i.e., storms. Frequency of storm events and associated high-wave heights are known locally to be increasing, and have significant implications for facility siting and design, as well as appropriate mitigation measures.

Response: Text has been added to present recent extreme storm events in the Arctic Ocean coastal area. Information about wave heights in the Arctic Ocean is scarce because of the difficulties of performing long-term measurements. The MMS would expect that with a trend toward decreasing sea ice in the future, extreme wave heights would increase due to the wider extent of open water as well as the longer period of time for ice-free conditions to exist.

Concern: The NSB commented that on page IV-18, it states that, “All offshore structures are designed to withstand forces greater than the maximum measured currents, as well as sea ice.” First, in the Beaufort and Chukchi Seas the only permanent offshore structures are BP’s Northstar facility and the West Dock and Endicott Causeways. The Northstar gravel island has suffered greater erosion and damage than had been predicted, and the company has had to reconstruct portions of the island’s armoring. The causeways have experienced their own problems. Given that we only have these few examples of how the physical oceanography impacts structures in the Arctic Subregion, the lack of information and uncertainty must be acknowledged here. Failures such as these can produce ongoing impacts that were never fully analyzed. The additional maintenance required at Northstar, and likely to continue to be required, will produce additional offshore noise and turbidity for the life of the project. Similarly, underestimates of water use and aircraft flights have produced greater-than-predicted impacts associated with other projects. With storm, ice, and other climatic conditions intensifying, the MMS must be more conservative and predict and analyze potential impacts with reference to higher-end levels of activities and effects. We believe, for instance, that Federal and State Agencies have provided for coastal buffers that are insufficient to protect industry infrastructure from the effects of accelerating erosion rates. The consequences may be significant and long-term.

Further, no structures have yet been built in the Chukchi Sea. Thus, we have no data on impacts to structures in the Chukchi Sea where the oceanographic features such as ice movement are more extreme than in the Beaufort. Second, the statement talks about “maximum measured currents, as well as ice.” There are inadequate amounts of oceanographic data, especially for surface currents in the Chukchi Sea. Compounding this problem, we do not know how climate change may impact the physical oceanography and the concurrent forces exerted on offshore structures. Again, these types of uncertainties and unknowns must be acknowledged.

Response: Design of any structures in the Arctic Ocean will incorporate the latest information on currents and ice flow. The MMS continues to gather more physical oceanography data in the Beaufort Sea, and more site-specific information will be studied for individual plans. Technology will be evolving in the future to better adapt to the Arctic environment.

Concern: Lynn Shawbeck, King Salmon, commented: “The whole area from Cape Newenham to Cape Sarichef is lacking in moored reporting sea buoys, with little or nothing being out there. October is historically typically when the weather starts changing, and the weather pattern starts going in a counterclockwise area. The lows start going like from Cape Sarichef around Cape Newenham and up around the Kamchatka Peninsula, and that’s when they basically start their winter pattern. And if you look at the reporting stations for moored sea buoys out in Bristol Bay, well, there is little or nothing. So I am basically for the whole oil and gas exploration, but I would like to see more

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safeguards out there so you can basically pull things up on your high speed Internet and get a really close, accurate reading of what is happening.”

Response: The MMS is aware of the lack of meteorological buoys in the entire North Aleutian Basin. This forces one to rely primarily on shore-based weather stations, which severely limits the capability to forecast winds and weather over open waters. Collection of meteorological data in the area is primarily the task of the National Weather Service and NOAA. Data collection has been constrained by practical considerations as well as by low prioritization. If oil/gas development were to take place in the future, there would be a greater likelihood that some meteorological measurement program would be initiated.

ISSUE 7c: Geology

Issue Raised By: Aleutian Pribilof Islands Association, Inc.; Aleutians East Borough; Dianna Mahony; Helen Hawver, Norfolk public hearing; Christine Morgan; State of New Jersey; Virginia Department of Environmental Quality; Virginia Department of Mines, Minerals and Energy; Center for Regulatory Effectiveness; North Slope Borough; Shell Exploration and Production; U.S. Geological Survey; Vic Fisher, North Aleutian Basin public hearing, Unalaska;

Concern: “All onshore and offshore facilities must be designed to the Seismic Zone IV, Uniform Building Code design standard for the Aleutian Chain.”

Response: The MMS regulations at 30CFR250.901 require that OCS platforms conform to certain industry standards. They include the American Petroleum Institute (API) Recommended Practice 2A—WSD, Recommended Practice for Planning, Designing, and Constructing Fixed Offshore Platforms—Working Stress Design, and the American Concrete Institute 357R, Guide for the Design and Construction of Fixed Offshore Concrete Structures. Both of these standards include comprehensive seismic requirements. Platforms located in seismically active areas are also subject to the MMS platform verification program [30 CFR 250.910 (a) (5)]. Under the platform verification program, industry must identify the codes and standards used in the design. Offshore oil and gas platforms have been used successfully in seismically active areas, such as offshore California and in Cook Inlet, Alaska. The MMS does not have the authority to mandate design standards for onshore facilities, but would assume that these would be applied by local authorities. We thank you for your comment. We have added the appropriate language to the document to clarify these requirements.

Concern: Ms. Mahony stated that she would like to see the following comments from the DEIS more fully explored in the revised report:

- Large-volume extraction of hydrocarbon fluids and formation water has likely caused compaction of the overlying rock strata and downward displacement along nearby faults, resulting in land surface subsidence and conversion of marsh to open water, particularly during the years of high petroleum production (DEIS III-42, line 2).
- The distribution of seagrass beds in coastal waters of the Western and Central Gulf have diminished during recent decades. Primary factors believed to be responsible include dredging, dredged material disposal, trawling, water quality degradation, hurricanes, a combination of flood protection levees that have directed freshwater away from wetlands, saltwater intrusion that moved growing conditions closer inland, and infrequent freshwater diversions from the Mississippi River into coastal areas during flood stage (DEIS III-42, last paragraph).

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Response: The extent to which extraction of hydrocarbon fluids and formation water from offshore oil and gas exploration activities has contributed to onshore subsidence and land loss in the Gulf Coast region, particularly in the vicinity of the Mississippi Delta (Louisiana coast), is not well defined, to date. The results of research conducted by the MMS, in onshore and State and Federal waters well fields, regarding the amount to which these activities have contributed to subsidence and land loss in the Louisiana coastal region are inconclusive (currently unpublished). This is due to the fact that numerous factors, both natural and anthropogenic, contribute to subsidence and land loss in this area, and at this time, the individual contribution of each of these factors to the overall subsidence and land loss rates cannot be isolated. Currently, MMS continues to conduct research to answer these questions.

Several studies indicate that the contribution of hydrocarbon fluids and formation water extraction to onshore subsidence and land loss in the Gulf Coast region is predominantly due to oil and gas activities conducted onshore and in State waters, of which MMS has no jurisdiction.

Research conducted by the USGS in the onshore region of the Louisiana coast indicates a general positive correlation between hydrocarbon fluids and formation water extraction and subsidence and wetland loss. To better clarify the first statement listed above (for DEIS III-42, last paragraph), the following text is included from the research studies currently referenced in the EIS:

In coastal Louisiana, it is difficult to establish possible linkages from deep onshore and nearshore hydrocarbon production to subsidence and wetland loss because wetland loss is ubiquitous and caused by numerous processes and conditions, both natural and anthropogenic (Morton et al., 2002). Thus, it is increasingly complex and difficult to establish the extent to which onshore subsidence and land loss is caused by hydrocarbon fluids and formation water extraction in offshore Federal waters. Recent research conducted by the MMS, in well fields located onshore and in State and Federal waters, yielded inconclusive results as to defining the possible extent to which anthropogenic activities (particularly hydrocarbon extraction) versus naturally-occurring processes contribute to onshore subsidence and wetland loss (currently unpublished). Existing estimates, published by the USGS, of cumulative naturally-occurring onshore subsidence rates in the Mississippi Delta have been as high as approximately 1 centimeter per year (USGS, 2001b; Roberts et al., 1994).

With respect to onshore subsidence and land loss, research conducted by the USGS in the Louisiana coastal region indicates a positive correlation between hydrocarbon fluids and formation water extraction and subsidence and interior wetland loss. The studies indicate that induced subsidence and fault reactivation attributed to onshore and nearshore (underline added) oil and gas extraction below the coastal marshes have been identified as causes of coastal wetland loss in some locations of Louisiana (USGS, 2001b; Morton et al., 2002, 2003). Large-volume extraction of hydrocarbon fluids and formation water has likely caused compaction of the overlying rock strata and downward displacement along nearby faults, resulting in land surface subsidence and conversion of marsh to open water, particularly during the years of high petroleum production (Morton et al., 2002, 2003).

For example, former marshes of Madison Bay, a well-known wetland loss hot-spot, are now submerged by approximately 1 m of water. A study using field surveys and sediment cores to estimate land subsidence and marsh erosion at Madison Bay concluded that nearly two-thirds of the permanent flooding was caused by rapid

subsidence in the late 1960's, while the remaining third was caused by subsequent erosion. Subsidence rates in the Madison Bay vicinity since the 1960's (~20 mm/year) are an order of magnitude greater than average deltaic subsidence rates for the past 400-4,000 years (~2 mm/year). The study suggests that this increase is difficult to explain on the basis of most physical and biological processes. Furthermore, rapid wetland loss closely correlates, both spatially and temporally to long-term, large-volume hydrocarbon production from the Lapeyrouse, Lirette, and Bay Baptiste fields. Annual production from these fields accelerated in the 1960's, peaked about 1970, and then declined abruptly. Large-volume extraction during this period of peak production may have lead to large decreases in sediment pore pressure and subsequent altering of subsurface stress regimes that possibly induced fault reactivation and subsidence. Decreases observed in wetland losses at Madison Bay since the 1970's may be related to decreased rates of subsidence caused by significantly decreased rates in subsurface fluid withdrawal (Morton et. al, 2003).

Concern: Ms. Hawver stated: "I am a widow, of 81 years, commenting on the threat to my State of Virginia, of oil exploration again, after following the drilling plans since May 3, 1000 [2000]. According to a study then, scientists using sophisticated tracking equipment have discovered cracks on the Atlantic Ocean floor that could portent underwater landslides, which in turn could possibly some day trigger tsunamis."

"A scientist leading the study from Woods Hole Oceanographic Institution said Virginia, North Carolina and the lower Chesapeake Bay would be most at risk from such tidal waves since the cracks were found on the outer continental shelf parallel to southern Virginia Beach and the northern Outer Banks. The study by geologists on July 14, 2000 – "that the outer sloping edge of the continental shelf along the East Coast has the potential to cave in" if happening abruptly enough, could send destructive tidal waves or tsunamis speeding to shore."

Ms Morgan offered a similar comment: "Scientists from Columbia, University of Texas, and the Woods Hole Oceanographic Institution discovered cracks along the edge of the Atlantic Continental Shelf. Now, these cracks, it says here, could be an early warning sign that the sea floor is unstable. These cracks -- and there's evidence of past landslides -- indicate the sea floor could slump, slide like an avalanche, triggering waves, tsunamis. Now, why has that not been addressed? I would like to know, what is this blasting going to do?"

Response: The cracks referred to in the two comments above were originally identified in May 2000 as a system of en echelon cracks resembling small-offset (50 m) normal faults along a 40-km section of the OCS off southern Virginia and North Carolina (Driscoll et al., 2000). In this publication, the authors state, "From a societal perspective, we need to evaluate the degree of tsunami hazard that might be posed by a major submarine landslide, such as the nearby late Pleistocene Albemarle-Currituck slide, if it nucleated on the newly discovered crack system." (Driscoll et al., 2000). Therefore, the authors constructed a tsunami scenario for the nearby coastal zone based on the estimated volume and nature of the potential landslide. The maximum tsunami height was predicted to be only several meters (equivalent to the height of a storm surge associated with a category 3 or 4 hurricane), in which the degree of flooding would be highly variable depending on the tidal state during tsunami arrival, continental shelf morphology, and hinterland topography. The maximum height of the tsunami would also depend on the volume and suddenness of the slide as well as the morphology of the resulting debris deposits downslope from the failure scarp, which varies depending on the failure mode. The authors proposed that the Virginia-North Carolina coast would be most

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susceptible to flooding based on its low-lying topography and position opposite the potential slide motion (Driscoll et al., 2000).

Given the results of this model, the authors conclude that “we know the location of the potential slide very well, we do not yet know if and when slope failure is likely to occur” because the occurrence of a large submarine landslide is a rare event on human time scales (Driscoll, et al., 2000). “Given this risk to the coastal community, it seems wise to invest effort to determine whether the en echelon cracks along the Virginia–North Carolina continental shelf edge are fossil features or are active and likely to produce a potentially disastrous, large submarine slide in the near future.” (Driscoll et al., 2000).

Given this recommendation, in May 2000, Driscoll and others surveyed these features in greater detail to discover they are actually a series of en echelon, asymmetric depressions along the outer shelf off Virginia and North Carolina. The features are elongated parallel to the shelf edge with steep landward walls and dimensions of ~4 km long, 1 km wide, and up to 50 m deep. The authors conclude that “the depressions do not appear to result from simple, down-to-the-east, normal displacement along deep-seated faults or structure. Rather, the depressions seem to have been excavated primarily by gas expulsion, creating large-scale asymmetric gas escape structures that have been termed ‘gas blowouts’.” (Driscoll et al., 2004). The authors state that the gas appears to have been trapped beneath a layer of shelf edge delta sediments a few tens of meters thick. These sediments, deposited after the last major period of lowered sea level or Last Glacial Maximum (LGM), exhibit internal soft sediment deformation suggesting progressive downslope (seaward) creep. Based on this new data, the authors suggest these blowouts are the result of shallow deformation and creep of the surficial deltaic sediment layers in conjunction with updip/upslope gas migration that ultimately led to gas pressure in excess of the overburden followed by expulsion (Driscoll et al., 2004). There is no evidence of normal faulting or other structural control on the strata geometry. The precise age of the blowouts remains unknown; however, they postdate the formation of the deltaic sediments, which was after the LGM approximately 20,000 years ago (Driscoll et al., 2004), reinforcing that these events are rare on human time scales. Driscoll was later quoted in the October 2000 *Discover* magazine regarding the rarity of such an occurrence, “The risk of a slope failure triggering a tsunami along the East Coast is small, but it is real.” (Svitil, 2000).

The authors suggest that even though the complex interplay between differential permeability, overpressure, and upslope fluid migration remains poorly understood, such interactions may play an important role in controlling slope stability. These types of shallow hazards are currently known, by the MMS and oil and gas industry, and are mitigated during oil and gas operations in the Gulf of Mexico where similar types of shallow hazards are encountered. To mitigate such hazards, operators are required to perform Shallow Hazards Surveys (in any national OCS Planning Area) prior to conducting any oil and gas exploration and production operations to avoid such features in the subsurface. The Shallow Hazard Surveys must address and analyze potential hazards associated with water depths; water column velocities; seafloor conditions including seafloor topography, seafloor gradient and slope, seafloor sediment types, sediment geotechnical properties, presence and locations of gas venting features such as blowholes; and subbottom strata characteristics including strata thickness and geometry, locations of pockets of gaseous sediments, gas concentrations in the sediments, pressure regime of gaseous sediments, and gas saturation versus shear strength properties of the sediments, as well as the locations of magnetic anomalies which may indicate the presence of man-made features (such as pipelines) or potential cultural resources.

Concern: “DMME [Virginia Department of Mines, Minerals and Energy] finds that the geologic description of the Virginia OCS area appears to be adequate given the scope of the proposal and the limited availability of data for the region. The proposed action may result in an impact to geologic

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resources, since the proposal is to provide a mechanism for exploration and potential extraction of offshore gas and oil.”

Response: We thank you for your comment.

Concern: “The Virginia Department of Mines, Minerals and Energy has reviewed the information that you provided for the above-referenced project. It is recognized at this stage that the project description with respect to Virginia is general. The geologic description of the Virginia OCS area appears to be (adequate?) given the scope of the proposal and the limited availability of data for the region. This project may result in an impact to geologic resources, since the purpose is to provide a mechanism for exploration and potential extraction of offshore gas and oil. The Virginia OCS area may contain other economic mineral resources such as sand used for beach replenishment, carbonate sands used in commercial and industrial applications, and heavy mineral deposits including titanium- and zirconium-bearing minerals. The impacts of oil and gas exploration and development on these potential resources cannot be determined at this time.”

Response: We thank you for your comment.

Concern: “I submit these comments on behalf of the Center for Regulatory Effectiveness ("CRE"). CRE's comments on the Draft Environmental Impact Statement ("DEIS") only address issues arising from seismic oil and gas exploration and its effects, if any, on marine mammals. As discussed below [formatting added]:

- CRE agrees with MMS that oil and gas exploration in the Outer Continental Shelf ("OCS") is essential to the nation's energy use and security. Seismic surveys are necessary for successful and efficient oil and gas discovery and extraction in the OCS.
- CRE agrees with MMS that there is no evidence that oil and gas seismic surveys have had any adverse effect on marine mammals despite decades of seismic surveys.
- MMS cannot require mitigation measures that are infeasible.
- The oil and gas industry has conducted seismic surveys for decades in most OCS regions. The DEIS repeatedly and correctly states that there is no evidence that these many years of seismic survey have done any harm to marine mammals.”

Response: We thank you for your comments.

Concern: “Pg. III-69, Paragraph 4, Permafrost: Once more, only references for the 1980s and the Multiple-Sale EIS are cited. Also, the statement that “subsea permafrost has not been identified beneath the Chukchi Sea shelf” must be clarified and qualified. There is no indication as to whether or to what extent the occurrence of permafrost in that area has been investigated. Saying it has not been identified is not the same as saying it does not occur.”

Response: Page III-69, Section (6) Permafrost is rewritten as follows:

Permafrost or perennially frozen ground is defined as earth material that remains at or below 0 °C for at least 2 consecutive years (Gascoyne, 2000). Permafrost forms as a result of long periods of continuous cold climate as occurred frequently over the Pleistocene Epoch, i.e., the last ~2 million years (Gascoyne, 2000). There is a transition from bonded permafrost on land that is unstable when thawed to generally thaw-stable materials offshore.

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Bonded permafrost formed on the Beaufort shelf during the Pleistocene lowstands of sea level to several hundred meters below the exposed shelf (Wang et al., 1982; Hunter and Hobson, 1974 as cited in MMS, 1985a, 2003a). During the subsequent highstands of sea level, melting of the permafrost occurred, in part, due to geothermal heating and saline advection of seawater into the sediments (MMS, 1985a, 2003a). Currently, permafrost is known to be present onshore and is inferred to be present offshore in the Beaufort Sea Planning Area (MMS, 1985a). Detailed information on the distribution of subsea permafrost in the Beaufort Sea is limited, and extreme variability in the properties of subsea permafrost on large areas of the Beaufort shelf may be problematic to offshore facility design (NRC, 1994b). Depths and thicknesses to the subsea permafrost in the Beaufort shelf are highly variable (MMS, 1985a). The subsea permafrost appears to be thinner and limited to within 2 km of the coast in the Chukchi Sea (NRC, 1994b). Subsea permafrost appears absent in the Bering Sea except for the most rapidly retreating coastal segments along Norton Sound (NRC, 1994b).

Research models by Herman and Cranswick (2005) predict that the of the upper several kilometers of the Beaufort Sea continental shelf should be underlain by a remnant layer of permafrost that formed during the last glacial period, when the shelf was subaerially exposed to air temperatures of approximately -12 °C. This permafrost layer is roughly 300 m below sea level and up to approximately 200 m thick. The permafrost layer is indicated to be relatively common beneath the Beaufort Sea continental shelf between the coast and the barrier islands; however, beyond the barrier islands, it appears to be discontinuous. Areas lacking the permafrost layer may be predominated by fine-grained rocks that would have little free water available to form ice. Alternatively, lateral variations in heat transport due to advection with subsurface water flow may have melted the ice (Herman and Cranswick, 2005).

Concern: “Pg. III-68, Given current trends toward higher rates of coastal erosion, it is unacceptable that the most recent data cited in the DEIS is from 1987. Reports associated with both the Nikaitchaq and Ooguruk development projects, as well as the 2005 BLM emergency remediation effort at the abandoned J.W. Dalton well, contain far more recent data. Furthermore, even absent such reports, it should be incumbent upon MMS given the importance of the issue to make some attempt to locate and use current data and develop more useful erosion estimates using alternate sources, including perhaps NASA and National Weather Service satellite imagery.”

Response: Page III-68, Section (3) Waves and Coastal Erosion, is rewritten as follows:

Nearly the entire mainland coast along the Beaufort and Chukchi Sea regions of Alaska has experienced erosion (Manley, 2004; Lynch and Brunner, 2005). Various spatial analyses of coastal erosion along approximately 250 km of mainland coastline near Barrow, Alaska, over the past five decades have shown highly variable rates of erosion (Lestak, et al., 2006; Lestak, et al., 2004; Lynch and Brunner, 2005; Manley et al., 2003; Manley, 2004; Syvitski et al., 2003). One study estimated average rates of -0.91 meters per year (m/yr) with an average horizontal shoreline displacement of -42.5 m over 250 km of mainland coastline near Barrow, Alaska, for the past 47 years (rates and displacements are negative for erosion) (Manley, 2004). The coastal system appears to be sensitive to a range of factors including frequency and intensity of storm events, increased temperatures, permafrost melting, sea-level rise, and increasing

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length of the summer ice-free season (Lestak, et al., 2006; Manley, 2004). Therefore, quantitative information on sediment transport as well as coastal erosion patterns and processes will be necessary for coastal regions of Alaska where causeways or pipeline crossings are anticipated (NRC, 1994b).

During the open-water season along the Beaufort shelf, storm waves can become effective agents of erosion to the barrier islands and coastal areas. Wind-induced storm surges can raise sea level and force ice and water onshore (Hopkins and Hartz, 1978 as cited in MMS, 1985a; Lynch and Brunner, 2005). During the most extreme storm surges, coastal areas can become engulfed, causing significant sediment transport and bluff erosion (Lynch and Brunner, 2005). In addition, barrier islands can become completely submerged causing rapid and major changes in their size and shape (Reimnitz and Maurer, 1978 as cited in MMS, 1985a, 2002b:figs. VI.C-2 and 3, p. 165).

Ice content of coastal sediments contributes to rapid coastal erosion and movement of large amounts of sediments, which are common and highly variable, particularly in the Beaufort Sea region, where coastal erosion is a major problem (NRC, 1994b). Wave action during the open-water season along the finer-grained, ice-rich, peaty soils of the Beaufort shelf, coupled with the melting of coastal permafrost, causes significant rates of coastal erosion, with the highest rates concentrated along coastal promontories (Manley, 2004; Hopkins and Hartz, 1978 as cited in MMS, 1985a). Since 1948, the bluffs south of Barrow, Alaska, have retreated 0.2 meters, compared to an average of 17.6 meters and a maximum of 35 meters near Barrow (Lynch and Brunner, 2005; Lestak, et al., 2006; Lestak, et al., 2004; Manley et al., 2003). Predictions of the long-term mean shoreline erosion rates near Barrow, Alaska are estimated at -0.05 m/yr with inter-year mean changes that vary from -1.0 m/yr (erosion) to 1.41 m/yr (accretion) (Lestak, et al., 2006). Long-term bluff top erosion rates are approximately -0.21 m/yr (Lestak, et al., 2006).

Accretion along the coast has been limited to short stretches of widening beach along the Chukchi coast as well as in the vicinity of shifting nearshore bars and spits (Manley, 2004; Lynch and Brunner, 2005). Along the Chukchi shelf, coastal erosion is lower, most likely because the bluffs of the Chukchi coastal promontories are higher in elevation and composed of coarser-grained material (sand and gravel) than those of the Beaufort (ice-rich, peaty soils) (Manley, 2004; Hopkins and Hartz, 1978 as cited in MMS, 1985a, 1987b). Rates also decrease, on a local scale, within areas that are more protected from the impacts of open-water processes such as small bays and inlets (Manley, 2004) (Also see USGS Map I-1182-H, USGS, 1992b).

Concern: “III-78: Industry designs infrastructure to withstand seismic-related hazards including earthquakes and tsunamis according to API Recommended Practice RP-2a.”

Response: The following is inserted into Section III.B.1.b(1), Bering Sea Subregion, Seismic and Volcanic Processes: “All onshore and offshore facilities should be designed to the Seismic Zone IV, Uniform Building Code design standard for the Aleutian Chain. Designing infrastructure to withstand these seismic-related hazards including earthquakes and tsunamis is addressed in the American Petroleum Institute Recommended Practice RP-2A WSD 21st Edition with Commentary. Industry should design infrastructure according this to API Recommended Practice.”

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Concern: “IV-109. In paragraph 3. There is a reference that offshore pipelines in AK in waters less than 60 meters are normally placed in a dredged trench. It should be noted that this is due to protection from ice scour.”

Response: So noted. We thank you for your comment.

Concern: “Section III, Affected Environment, A. Gulf of Mexico, b. General Environmental Geology and Geologic Hazards, Active Faulting, page III-3, second paragraph. "Diapers" should read "diapirs.””

Response: So noted. We thank you for your comment.

Concern: “Section III, Affected Environment, A. Gulf of Mexico. Consideration should be given to including a section on seismicity due to the recent magnitude 5.8 earthquake that occurred in the Gulf of Mexico.” [Information for this section was provided by the USGS in their comments.]

Response: The following subsections are added to Section III.A.1.b, General Environmental Geology and Geologic Hazards

(1) Seismicity

In general, the Gulf of Mexico is considered a relatively stable tectonic setting, distantly located from a tectonic plate boundary where frequent high energy earthquakes are typically more common. This intraplate setting is not a seismic-free location; however, the seismic activity here is less frequent than at plate boundaries. Therefore, occasional low-intensity earthquakes have occurred in the Gulf of Mexico Region. A map showing the locations of earthquake epicenters in the U.S. Gulf Coastal States for the period of 1865-1968 and in the Gulf of Mexico and adjacent onshore areas of Mexico for the period of 1961-1971 is presented in USGS (1981). This map indicates very few earthquakes have occurred in the Gulf of Mexico Region during this timeframe, and the majority of them are concentrated in the southwestern-most Gulf along the Mexican coast.

The USGS Earthquake Hazard Program Website contains recent information regarding occurrence of earthquakes in the Gulf of Mexico and adjacent States and shows that few earthquakes have occurred in this region from 1990 through 2001 (http://neic.usgs.gov/neis/general/seismicity/us_east.html, accessed 01/09/2007).

Occasionally, higher energy earthquakes will occur in the Gulf of Mexico, such as the recent magnitude 5.8 earthquake on September 20, 2006 (1056 AM EDT in Florida), that occurred approximately 250 miles west-southwest of Apalachicola, Florida (west coast), and 330 miles southeast of New Orleans, Louisiana. This earthquake was centered beneath the Gulf of Mexico, well distant from the nearest active plate boundary. Such "midplate" earthquakes are much less common than earthquakes occurring on faults near plate boundaries, and most probably represent the release of long-term tectonic stresses that ultimately originate from forces applied at the plate boundary. This earthquake was the largest of more than a dozen shocks that have been instrumentally recorded from the eastern Gulf of Mexico in the past three decades, and it was the most widely felt. This earthquake was felt in parts of Florida, Georgia, and Alabama. No reports of damage or casualties have been received at this time. The most recent significant earthquake in the region occurred on February 10, 2006, and

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had a magnitude of 5.2. This earthquake has not been associated with a specific causative fault. Earthquakes of this magnitude are unlikely to generate destructive tsunami. No significant tsunami was generated by this earthquake (<http://earthquake.usgs.gov/eqcenter/equinthenews/2006/usslav> accessed 01/09/2007).

Detailed information regarding specific earthquakes can be found on the USGS Earthquake Hazards Program web site: <http://earthquake.usgs.gov/eqcenter/equinthenews/2006/usslav>.

(2) GOMR Seismic Hazards

Seismic waves travel out from an earthquake epicenter through the surrounding rock. Ground motion is higher closer to the location of the event. In general, ground motion decreases away from the epicenter, though the amount of ground motion at the surface is related to more than just distance from the epicenter. In general, some natural materials can amplify ground motion, that is, ground motion is less on solid bedrock and greater on thick deposits of clay, sand, or artificial fill.

Seismic hazards defined in building codes are typically based on peak ground acceleration. During an earthquake, a particle attached to the earth will move back and forth irregularly. The horizontal force a structure must withstand during an earthquake is related to ground acceleration. Peak ground acceleration is the maximum acceleration experienced by a particle during an earthquake.

The USGS produces probabilistic seismic hazard maps for the United States with peak ground acceleration values represented as a factor of “g”. The factor “g” is equal to the force on an object at the surface relative to gravity. Engineers utilize these probabilistic ground motion values, representing hard rock beneath site soils, when designing earthquake resistant structures. For offshore facilities, building code design standards for specific seismic zones are addressed in the API Recommended Practice RP-2a. Industry designs infrastructure to withstand seismic-related hazards including earthquakes and tsunamis according to API Recommended Practice RP-2a Working Stress Design (WSD) 21st Edition with Commentary.

The USGS Seismic Hazard Maps were reviewed for the Gulf of Mexico Region. Along the Florida-Alabama-Mississippi-Louisiana-Texas coast, there is a 10-percent probability of a 1- to 2-percent g exceedance in 50 years, with 0- to 2-percent g being the lowest hazard and 180-percent g the highest. In addition, there is a 2-percent probability of a 2- to 4-percent g exceedance in 50 years, with 0-to 2-percent g being the lowest hazard and 300-percent g the highest hazard (http://earthquake.usgs.gov/research/hazmaps/products_data/2002/ceus2002.php, accessed 01/09/2007). Overall, the risk of earthquakes in the northern Gulf of Mexico Region is low, and damage to offshore installations by earthquake activity has never been reported. Earthquake hazard maps for the northern Gulf of Mexico and each State are available at the USGS Earthquake Hazard Program web sites (http://earthquake.usgs.gov/research/hazmaps/products_data/2002/ceus2002.php and <http://neic.usgs.gov/neis/states/>).

Concern: “Section III, Affected Environment, B. Alaska, b. Bering Sea Subregion, (1) Seismic and Volcanic Processes, page III-75, last paragraph; Consideration should be given to including Fourpeaked Volcano in the list of active volcanoes. It has shown recent activity, as described in the information below.

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Recent activity at Fourpeaked Volcano (located south of Mount Douglas) is being monitored closely by the Alaskan Volcano Observatory. Fourpeaked Volcano is not known to have erupted historically but the composition of the volcano indicates that eruptions can be explosive, possibly producing plumes reaching in excess of 10 km above sea level and local ashfall.”

Further information at the Alaskan Volcano Observatory (AVO) website: <http://www.avo.alaska.edu/volcanoes/volcinfo.phb?volcname=Fourpeaked>).

Response: Section III.B.1.b(1), last paragraph, first sentence is changed as follows: Fourpeaked Volcano is inserted after Augustine Volcano and (<http://www.avo.alaska.edu/activity/Fourpeaked.php>, accessed 01/09/2007) is added to the reference list at the end of the sentence.

Also, the following is added to page III-76, end first paragraph: Recent activity at Fourpeaked Volcano (located south of Mount Douglas) is being monitored closely by the AVO. Fourpeaked Volcano is not known to have erupted historically but the composition of the volcano indicates that eruptions can be explosive, possibly producing plumes reaching in excess of 10 km above sea level and local ashfall.

Detailed information including historic and current activity for the volcanoes referenced in this section can be obtained AVO web site <http://www.avo.alaska.edu/>. The AVO is a joint program of the USGS, the Geophysical Institute of the University of Alaska Fairbanks, and the State of Alaska Division of Geological and Geophysical Surveys.

Concern: “Section III, Affected Environment, B. Alaska, b. Bering Sea Subregion, (1) Seismic and Volcanic Processes, page III-76, second full paragraph. The most recent activity at Veniaminof is listed as January 4, 2005; however the USGS website lists observed activity from September 7, 2005. From the AVO webpage, activity at Veniaminof was last observed September 7, 2005.”

Further information from <http://www.avo.alaska.edu/volcanoes/volcinfo.php?volcname=Veniaminof> was included in the USGS comments.

Response: Section III.B.1.b(1), page III-76, second full paragraph: January 4, 2005, is changed to September 7, 2005, and (<http://www.avo.alaska.edu/activity/Veniaminof.php>, accessed 01/09/2007) is added to the reference list at the end of the sentence.

Concern: “Additionally, the project may effect sand flow and deposition, since large structures trap sand or at last impede movement by water currents, which may affect natural accretion/erosion processes on Wreck Island and other barrier islands. Seaside preserves, especially Parramore Island and Wreck Island NAP [natural area preserve] may be directly impacted, due to close proximity to drilling.”

Response: There is no change to the EIS text regarding this comment. However, the following response is provided for clarification:

The primary processes (accretion/erosion) that shape barrier islands include long shore sediment transport and storm events. Long shore sediment transport is the wave/current-generated transport of sediment within the surf zone parallel to the coastline. This process occurs predominantly within the region of State waters where MMS has no jurisdiction.

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During normal sea conditions, wave impact to the shelf does not occur below the depth of closure, which is generally in 20 to 25 m of water depth along the Atlantic coast. Wave energy that would affect the shelf sediments generally does not go deeper than this point because the wave base does not extend beyond this depth. However, during storm events in which larger waves are generated, impacts to the shelf sediments as well as dramatic reshaping of barrier islands can occur via the resulting erosion and/or accretion.

In the vicinity of the Virginia coast, prospective sites for offshore oil and gas exploration and production structures are at least 50 miles offshore. Therefore, these structures are far beyond the near shore long shore sediment transport and the depth of closure for wave impact processes. Furthermore, the legs of these structures are not large enough to affect sediment movement/transport. At most, the impact to sediment transport would be very localized only during storm events.

Concern: “Can we say anything like off the coast of California, we had -- in the '70s we had real problems with leaky rocks as far as oil coming up, and they blew out.”

Response: Interpretation of question: Do we have natural oil seeps of the coast of Arctic Alaska? There is no change to the EIS text regarding this comment. However, the following response is provided for clarification:

Generally, when hydrocarbons are known to exist in the shallow subsurface, natural oil seeps are likely to also exist. This is because oil and gas are less dense than the surrounding materials, and therefore buoyant, which enables them to migrate upward through the rock column. Some of this oil and gas becomes “trapped” by natural features in the subsurface and accumulates into economically viable deposits. However, not all oil and gas will be trapped as it migrates upward through the rock column, and therefore, some will escape to the surface as natural seeps.

Natural oil seeps are known to occur along the Alaskan coast. Becker and Manen (1988) identified 29 seeps within the coastal regions of Alaska, of which 14 are confirmed as actual oil seeps and 15 are unconfirmed reports from the shoreline of the Gulf of Alaska (NRC, 2003). None of these seeps are located beneath the water surface; they all lie above the low-tide line or at inland sites (NRC, 2003a). Although submarine oil seeps offshore of the Alaskan coast have been suspected, there are no documented reports in the public record (Becker and Manen, 1988 as cited in NRC, 2003a). Seepage rates for Alaska are conservatively estimated at approximately 400 tonnes annually, to account for the probable undiscovered seeps and the lack of full documentation of Alaskan seeps (NRC, 2003a).

The MMS posts OCS-related incidents on its official web site at <http://www.mms.gov/incidents/>. Please visit this webpage to obtain further information regarding OCS-related incidents. This webpage provides basic statistics for OCS incidents reported to MMS for the calendar years 1997 to the present. In addition, each year MMS compiles summaries of these incidents. Operators and lessees are required to report incidents related to OCS operations to MMS, including fatalities, injuries, explosions, fires, losses of well control, collisions, pollution, and other incidents. The MMS tracks, investigates, and analyzes the incident information

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to identify the causes, trends, and safety concerns. The MMS uses this information to identify appropriate actions to enhance safety and environmental protection on the OCS.

ISSUE 7d: Air Quality/Meteorology

Issue Raised By: Alaska Department of Natural Resources; the Aleutian Pribilof Island Association; City of Cold Bay; Aleutians East Borough; North Slope Borough; Virginia Department of Environmental Quality; and Shell Exploration & Production Company

Concern: The ADNDR, the Aleutian Pribilof Island Association, City of Cold Bay, and the AEB stated that best available emission control technology should be required for all criteria pollutants as well as hazardous air pollutants (HAP). They noted that the level of projected emissions for the proposed program in the Aleutian Basin region is a significant increase for that area of Alaska. In particular, it was felt that the 1500 tons of volatile organic compound (VOC) emissions are unacceptably high and need to be mitigated. They also stated that the EIS should present emission estimates from a potential LNG facility as well as estimates of HAP from all facilities.

Response: Air emissions from OCS facilities in the North Aleutian Basin would be regulated by the USEPA, as mandated by the 1990 Clean Air Act Amendments. The USEPA requirements include best available control technology (BACT) on all sources of the criteria pollutants. Major emission sources (with projected annual emissions greater than 250 tons/yr) are subject to the Prevention of Significant Deterioration permit requirements, which include an air quality impact modeling analysis. Facilities located within 25 miles of the State seaward boundary would be subject to any applicable State requirements as well. Applicants for an air permit also calculate HAP emissions. Projected HAP emissions from the Northstar and Liberty projects in the Beaufort Sea were below the threshold level for a major emission source. The USEPA has promulgated HAP emission standards for oil and natural gas production facilities (40 CFR 63, Subpart HH). These regulations set standards and control requirements for glycol dehydration units, condensate tank batteries, and natural gas processing plants. Facilities in the North Aleutian Basin would be subject to these regulations when applicable.

Estimated emissions assumed that about four to six platforms would be installed in the North Aleutian Basin. Emission factors were determined from an emission inventory of platforms in the Gulf of Mexico. The VOC emission figures obtained in that study were primarily attributed to fugitive sources and from vents. Emissions for other OCS areas may be different. For the Alaska OCS, the BACT is required under the USEPA OCS regulations (40 CFR 55), and these would reduce VOC emissions. Fugitive emissions can be significantly reduced through an inspection and maintenance program, and VOC emissions from venting can be largely eliminated by flaring excess gas instead of venting. The MMS did not estimate emissions from a potential LNG facility because no emission factors are readily available for that type of facility.

Concern: The NSB stated that the DEIS should note that many of the hazardous air pollutants that would be emitted from a major oil spill are carcinogenic. They raised their concern about exposure of residents to contamination through consumption of subsistence foods.

Response: The text has been revised to note that some of the air pollutants released by major oil spills have carcinogenic properties. Emissions of toxic pollutants from oil spills are short-lived because of the volatility of these compounds. We have no information about any possible effect from the

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inhalation of air contaminants by subsistence animals, but we would expect that this effect would be much less than any contamination by contact with hazardous compounds in the water. These effects on subsistence are described in Section IV.B.3.k.

Concern: The Virginia Department of Environmental Quality commented that fugitive dust from any oil and gas exploration- and production-related construction activities must be kept to a minimum by using control measures required under the Virginia air pollution abatement regulations.

Response: The MMS does not have jurisdiction over onshore construction activities related to offshore oil and gas development. Approval for onshore construction activities must be obtained from the local regulatory jurisdiction. We assume that the appropriate local air pollution control requirements will be followed.

Concern: The NSB commented that the description of Alaska climate in Section IV.A.4.c should include current trends as a result of climate change in the last two decades. In particular, it should include recent trends in severe storm events and more current information about wave heights.

Response: Text has been added to present recent extreme storm events in the Arctic Ocean coastal area. Information about wave heights in the Arctic Ocean is scarce because of the difficulties of performing long-term measurements. It is expected that, with a trend toward decreasing sea ice in the future, extreme wave heights would increase due to the wider extent of open water as well as the longer period of time for ice-free conditions to exist.

Concern: The NSB noted that the information on the expected maximum wave heights for the Chukchi and Beaufort Seas in the DEIS are from a rather old (1988) reference and that there is only brief mention of frequency of high-wave-height events, i.e., storms. Frequency of storm events and associated high wave heights are known locally to be increasing, and have significant implications for facility siting and design, as well as appropriate mitigation measures.

Response: Text has been added to present recent extreme storm events in the Arctic Ocean coastal area. Information about wave heights in the Arctic Ocean is scarce because of the difficulties of performing long-term measurements. It is expected that, with a trend toward decreasing sea ice in the future, extreme wave heights would increase due to the wider extent of open water as well as the longer period of time for ice-free conditions to exist.

Concern: The NSB urged that, in the discussion of oil spills and oil-spill response, MMS also consider the psychological effect of a spill and spill response, including perhaps seeing a black plume of smoke from in situ burning in a subsistence harvest area. The issues of tainting and hunter avoidance should be discussed.

Response: The effects of an oil spill on subsistence hunting were discussed in Section IV.B.3.k. The following text has been added to Section IV.B.3.a, Air Quality, Accidental Oil Spills: “The appearance of a black plume from in situ burning in a subsistence hunting area could have an adverse effect on subsistence hunting practices due to the creation of a perception that wildlife has been contaminated. Subsistence hunters may avoid areas where such incidents have occurred.”

Concern: On page IV-103, last paragraph, the MMS mentions open-water and broken-ice oil spill scenarios, but not intact sea-ice oil spill scenarios. This type of scenario needs to be included here as well.

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Response: The following text has been added to Section IV.B.3.a(1), Arctic subregion, Accidents: “An oil spill on solid sea ice would spread relatively slowly depending upon the properties of the crude oil. The more volatile components of the oil would evaporate rather rapidly, but the heavier compounds would linger on the surface. The effects on air quality would be larger than would be the case for a spill in open water. If an oil spill occurred under the ice, oil would be trapped for an extended period of time and would not reach the atmosphere until ice breakup. Impacts to air quality would then be similar to those associated with a spill in open water.”

Concern: Shell Exploration & Production Company recommended that MMS work with other agencies to update air quality baseline data for the Arctic Ocean and Bering Sea subregions.

Response: Air quality baseline data are very limited due to the smaller number of emission sources. The MMS will consult with USEPA Region 10 and the State of Alaska to examine needs for ambient air quality measurements in these areas.

VI. PRINCIPAL PREPARERS

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