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# Shell Keys National Wildlife Refuge

## Comprehensive Conservation Plan



U.S. Department of the Interior  
Fish and Wildlife Service  
Southeast Region

October 2008

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**COMPREHENSIVE CONSERVATION PLAN**

**SHELL KEYS NATIONAL WILDLIFE REFUGE**

*IBERIA PARISH, LOUISIANA*

**U.S. Department of the Interior  
Fish and Wildlife Service**

*Southeast Region*  
**Atlanta, Georgia**

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# *Executive Summary*

The Fish and Wildlife Service prepared this Comprehensive Conservation Plan to guide the management of Shell Keys National Wildlife Refuge (Shell Keys NWR) in Iberia Parish, Louisiana. The plan outlines programs and corresponding resource needs for the next 15 years, as mandated by the National Wildlife Refuge System Improvement Act of 1997.

Public involvement in the development of the Comprehensive Conservation Plan and Environment Assessment for Shell Keys National Wildlife Refuge was sought throughout the planning process. The planning team held one public scoping meeting to solicit public reaction. Also, a 30 day public review and comment period of the draft comprehensive conservation plan and environmental assessment was provided.

The Service developed and analyzed three alternatives. Alternative A represents the “status quo” alternative in which current habitat, wildlife, and public use management would continue with no changes. On an annual basis, monitoring and trip report status is conducted. Periodically during winter migratory bird surveys, fly-over surveys are conducted to determine if the island is emergent. A cooperative law enforcement agreement will remain in effect with the Louisiana Department of Wildlife and Fisheries (LDWF).

Under Alternative B, nature would be allowed to take its course regarding the future of the islands with no restoration activities accomplished. If the islands fail to rebuild and continue to erode, areas available to birds may diminish. With the land area diminishing, the island will continue to not support colonial nesting birds. Working with LDWF, provide routine and additional patrols in coordination with Refuge law enforcement officers. Interpretation will concentrate on the history of the formation and subsequent changes and erosion of the shell key shoal/island and reef complex habitat through the Southwest Louisiana National Wildlife Refuge Complex (SW LA NWR Complex). Alternative B would open the refuge for public use by offering limited fishing and wildlife observation and photography.

Alternative C, the Service’s proposed alternative for Shell Keys NWR, assesses the feasibility of implementing large-scale habitat restoration efforts in cooperation with partners. The Service would enter into a new cooperative agreement with LDWF Fur and Refuge Division focusing on natural resource monitoring and restoration as appropriate. Partners are necessary to supply expertise and funding for the daunting task of restoration. Feasibility studies would be performed to determine the costs associated with rebuilding and re-establishing the Shell Islands, or portions of the Islands. Restoration efforts would adapt to changing conditions as practices and techniques are assessed. The Refuge will be open to recreational fishing and wildlife observation and photography. Because the Refuge is remote and few guests actually visit the islands, outreach would center around providing information in combination with SW LA NWR Complex and on web pages.

The Service selected Alternative C as its preferred alternative for implementation because these management actions provide balanced levels of compatible public use opportunities consistent with existing laws, Service policies, and sound biological principles. It provides the best mix of program elements to achieve desired long-term conditions.

Under this alternative, all lands under the management and direction of the Refuge will be protected, managed, maintained, and enhanced to best achieve national, regional, ecosystem, and refuge-specific goals and objectives within anticipated funding and staffing levels. In addition, the action positively addresses significant issues and concerns expressed by the public.



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## COMPREHENSIVE CONSERVATION PLAN

### *I. Background*

This Comprehensive Conservation Plan (CCP) was prepared to guide the management actions and direction of Shell Keys National Wildlife Refuge (Shell Keys NWR), Iberia Parish, Louisiana. Fish and wildlife conservation will receive first priority in refuge management; wildlife-dependent recreation will be allowed and encouraged as long as it is compatible with, and does not detract from, the mission of the refuge or the purposes for which it was established.

A planning team developed a range of alternatives that best met the goals and objectives of Shell Keys NWR and that could be implemented within the 15-year planning period. The draft of this plan was made available to state and federal government agencies, conservation partners, and the general public for review and comment. Comments from each entity were considered in the development of this final CCP.

#### **PURPOSE AND NEED FOR THE PLAN**

The purpose of this CCP is to identify the role that Shells Keys NWR will play in support of the National Wildlife Refuge System mission. It addresses key problems, issues and relevant mandates, and is consistent with sound principles of fish and wildlife management.

Specifically, the plan is needed to:

- Provide a clear statement of refuge management direction;
- Provide refuge neighbors, visitors, and government officials with an understanding of Service management actions on and around the refuge;
- Ensure that Service management actions, including land protection and recreation/education programs, are consistent with the mandates of the National Wildlife Refuge System; and
- Provide a basis for the development of budget requests for operations, maintenance, and capital improvement needs.

#### **FISH AND WILDLIFE SERVICE**

The Fish and Wildlife Service (Service) traces its roots to 1871 and the establishment of the Commission of Fisheries involved with research and fish culture. The once independent commission was renamed the Bureau of Fisheries and placed under the Department of Commerce and Labor in 1903.

The Service also traces its roots to 1886 and the establishment of a Division of Economic Ornithology and Mammalogy within the Department of Agriculture. Research on the relationship of birds and animals to agriculture shifted to delineation of the range of plants and animals, so the name was changed to the Division of the Biological Survey in 1896.

The Department of Commerce, Bureau of Fisheries, was combined with the Department of Agriculture, Bureau of Biological Survey, on June 30, 1940, and transferred to the Department of the Interior as the Fish and Wildlife Service. The name was changed to the Bureau of Sport Fisheries and Wildlife in 1956, and finally to the Fish and Wildlife Service in 1974.

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The Fish and Wildlife Service, working with others, is responsible for conserving, protecting, and enhancing fish and wildlife and their habitats for the continuing benefit of the American people through federal programs relating to migratory birds, endangered species, interjurisdictional fish and marine mammals, and inland sport fisheries (142 DM 1.1).

As part of its mission, the Service manages more than 540 national wildlife refuges covering over 95 million acres. These areas comprise the National Wildlife Refuge System, the world's largest collection of lands set aside specifically for fish and wildlife. The majority of these lands, 77 million acres, is in Alaska. The remaining acres are spread across the other 49 states and several United States territories. In addition to refuges, the Service manages thousands of small wetlands, national fish hatcheries, 64 fishery resource offices, and 78 ecological services field stations. The Service enforces federal wildlife laws, administers the Endangered Species Act, manages migratory bird populations, restores nationally significant fisheries, conserves and restores wildlife habitat, and helps foreign governments with their conservation efforts. It also oversees the Federal Aid program that distributes hundreds of millions of dollars in excise taxes on fishing and hunting equipment to state fish and wildlife agencies.

## **NATIONAL WILDLIFE REFUGE SYSTEM**

The mission of the National Wildlife Refuge System, as defined by the National Wildlife Refuge System Improvement Act of 1997 is:

“...to administer a national network of lands and waters for the conservation, management, and where appropriate, restoration of the fish, wildlife and plant resources and their habitats within the United States for the benefit of present and future generations of Americans.”

The National Wildlife Refuge System Improvement Act of 1997 (Improvement Act) established, for the first time, a clear legislative mission of wildlife conservation for the National Wildlife Refuge System (Refuge System). Actions were initiated in 1997 to comply with the direction of this new legislation, including an effort to complete comprehensive conservation plans for all refuges. These plans, which are completed with full public involvement, help guide the future management of refuges by establishing natural resources and recreation/education programs. Consistent with the Improvement Act, approved CCPs will serve as the guidelines for refuge management for the next 15 years. The Improvement Act states that each refuge shall be managed to:

- Fulfill the mission of the Refuge System;
- Fulfill the individual purposes of each refuge;
- Consider the needs of wildlife first;
- Fulfill requirements of comprehensive conservation plans that are prepared for each unit of the refuge system;
- Maintain the biological integrity, diversity, and environmental health of the Refuge System; and
- Recognize that wildlife-dependent recreation activities, including hunting, fishing, wildlife observation, wildlife photography, and environmental education and interpretation, are legitimate and priority public uses; and allow refuge managers authority to determine compatible public uses.

The following are just a few examples of your national network of conservation lands. Pelican Island NWR, the first refuge, was established in 1903 for the protection of colonial nesting birds in Florida, such as the snowy egret and the brown pelican. Western refuges were established for American bison



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(1906), elk (1912), prong-horned antelope (1931), and desert bighorn sheep (1936) after over-hunting, competition with cattle, and natural disasters decimated once-abundant herds. The drought conditions of the 1930s Dust Bowl severely depleted breeding populations of ducks and geese. Refuges established during the Great Depression focused on waterfowl production areas (i.e., protection of prairie wetlands in America's heartland). The emphasis on waterfowl continues today but also includes protection of wintering habitat in response to a dramatic loss of bottomland hardwoods. By 1973, the Service had begun to focus on establishing refuges for endangered species.

Approximately 38 million people visited national wildlife refuges in 2002, most to observe wildlife in their natural habitats. As the number of visitors grows, there are significant economic benefits to local communities. In 2001, 82 million people, 16 years and older, fished, hunted, or observed wildlife, generating \$108 billion. In a study completed in 2002 on 15 refuges, visitation had grown 36 percent in seven years. At the same time, the number of jobs generated in surrounding communities grew to 120 per refuge, up from 87 jobs in 1995, pouring more than \$2.2 million into local economies. The 15 refuges in the study were Chincoteague (Virginia); National Elk (Wyoming); Crab Orchard (Illinois); Eufaula (Alabama); Charles M. Russell (Montana); Umatilla (Oregon); Quivira (Kansas); Mattamuskeet (North Carolina); Upper Souris (North Dakota); San Francisco Bay (California); Laguna Atacosa (Texas); Horicon (Wisconsin); Las Vegas (Nevada); Tule Lake (California); and Tensas River (Louisiana) the same refuges identified for the 1995 study. Other findings also validate the belief that communities near refuges benefit economically. Expenditures on food, lodging, and transportation grew to \$6.8 million per refuge, up 31 percent from \$5.2 million in 1995. For each dollar spent on the Refuge System, surrounding communities benefited with \$4.43 in recreation expenditures and \$1.42 in job-related income (Caudill and Laughland, unpubl. data).

Volunteers continue to be a major contributor to the success of the Refuge System. In 2002, volunteers contributed more than 1.5 million hours on refuges nationwide, a service valued at more than \$22 million.

The wildlife and habitat vision for national wildlife refuges stresses that wildlife comes first; that ecosystems, biodiversity, and wilderness are vital concepts in refuge management; that refuges must be healthy and growth must be strategic; and that the Refuge System serves as a model for habitat management with broad participation from others.

The Improvement Act stipulates that CCPs be prepared in consultation with adjoining federal, state, and private landowners and that the Service develop and implement a process to ensure an opportunity for active public involvement in the preparation and revision (every 15 years) of the plans.

All lands of the Refuge System will be managed in accordance with an approved CCP that will guide management decisions and set forth strategies for achieving refuge unit purposes. The CCP will be consistent with sound resource management principles, practices, and legal mandates, including Service compatibility standards and other Service policies, guidelines, and planning documents (602 FW 1.1).

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## LEGAL AND POLICY CONTEXT

### Legal Mandates, Administrative and Policy Guidelines, and Other Special Considerations

Administration of national wildlife refuges is guided by the mission and goals of the Refuge System, congressional legislation, executive orders, and international treaties. Policies for management options of refuges are further refined by administrative guidelines established by the Secretary of the Interior and by policy guidelines established by the Director of the Fish and Wildlife Service. Select legal summaries of treaties and laws relevant to administration of the Refuge System and management of the Shell Keys NWR are provided in Appendix C.

Treaties, laws, administrative guidelines, and policy guidelines assist the refuge manager in making decisions pertaining to soil, water, air, flora, fauna, and other natural resources; historical and cultural resources; research and recreation on refuge lands; and provide a framework for cooperation between Shell Keys NWR and other partners, such as the Louisiana Department of Wildlife and Fisheries (LDWF), Louisiana Department of Natural Resources (LDNR), U.S. Army Corps of Engineers (COE), and private landowners, etc.

Lands within the Refuge System are closed to public use unless specifically and legally opened. No refuge use may be allowed unless it is determined to be compatible. A compatible use is a use that, in the sound professional judgment of the refuge manager, will not materially interfere with or detract from the fulfillment of the mission of the Refuge System or the purposes of the refuge. All programs and uses must be evaluated based on mandates set forth in the Improvement Act. Those mandates are to:

- Contribute to ecosystem goals, as well as refuge purposes and goals;
- Conserve, manage, and restore fish, wildlife, and plant resources and their habitats;
- Monitor the trends of fish, wildlife, and plants;
- Manage and ensure appropriate visitor uses as those uses benefit the conservation of fish and wildlife resources and contribute to the enjoyment of the public; and
- Ensure that visitor activities are compatible with refuge purposes.

The Improvement Act further identifies six priority wildlife-dependent recreational uses. These uses are: hunting, fishing, wildlife observation, wildlife photography, and environmental education and interpretation. As priority public uses of the Refuge System, they receive priority consideration over other public uses in planning and management.

### Biological Integrity, Diversity, and Environmental Health Policy

The Improvement Act directs the Service to ensure that the biological integrity, diversity, and environmental health of the Refuge System are maintained for the benefit of present and future generations of Americans. The policy is an additional directive for refuge managers to follow while achieving refuge purpose(s) and the Refuge System mission. It provides for the consideration and protection of the broad spectrum of fish, wildlife, and habitat resources found on refuges and associated ecosystems. When evaluating the appropriate management direction for refuges, refuge managers will use sound professional judgment to determine their refuges' contribution to biological integrity, diversity, and environmental health at multiple landscape scales. Sound professional judgment incorporates field experience, knowledge of refuge resources, and knowledge of the refuge role within an ecosystem, applicable laws, and best available science, including consultation with others both inside and outside the Service.

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## **The Coastal Barrier Resources Act of 1982**

The Coastal Barrier Resources Act of 1982 (CBRA) identifies undeveloped coastal barrier lands along the Atlantic and Gulf coasts and includes them in a coastal barrier resource system. Objectives of the CBRA are to restrict most federal expenditures that encourage development within the system to minimize loss of human life, reduce wasteful federal expenditures, and minimize damage to natural resources. Shell Keys NWR is located in Unit LA-05P under the CBRA and is classified as an “otherwise protected area.”

## **The Energy Policy Act of 2005**

The Energy Policy Act of 2005 (Public Law 109-58) was signed into law by President Bush on August 8, 2005. Section 384 of the Energy Policy Act establishes the Coastal Impact Assistance Program (CIAP), which authorizes funds to be distributed to Outer Continental Shelf oil and gas producing states to mitigate the impacts of outer continental shelf oil and gas activities. States to share these funds are Alabama, Alaska, California, Louisiana, Mississippi, and Texas. (See further discussion below under conservation plans and initiatives.)

## **NATIONAL AND INTERNATIONAL CONSERVATION PLANS AND INITIATIVES**

Multiple partnerships have been developed among government and private entities to address the environmental problems affecting regions. There is a large amount of conservation and protection information that defines the role of the refuge at the local, national, international, and ecosystem levels. Conservation initiatives include broad-scale planning and cooperation between affected parties to address declining trends of natural, physical, social, and economic environments. The conservation guidance described below, along with issues, problems and trends, was reviewed and integrated where appropriate into this CCP.

This CCP supports, among others, the Partners-in-Flight Plan, the North American Waterfowl Management Plan, the Western Hemisphere Shorebird Reserve Network, and the National Wetlands Priority Conservation Plan.

**North American Bird Conservation Initiative.** Started in 1999, the North American Bird Conservation Initiative (NABCI) is a coalition of government agencies, private organizations, academic institutions, and private industry leaders in the United States, Canada, and Mexico, working to ensure the long-term health of North America's native bird populations by fostering an integrated approach to bird conservation to benefit all birds in all habitats. The international and national bird initiatives include the North American Waterfowl Management Plan, Partners-in-Flight Plan, Waterbird Conservation for the Americas, and the U.S. Shorebird Conservation Plan.

**North American Waterfowl Management Plan.** The North American Waterfowl Management Plan is an international action plan to conserve migratory birds throughout the continent. The plan's goal is to return waterfowl populations to their 1970s' levels by conserving wetland and upland habitat. Canada and the United States signed the plan in 1986, in reaction to critically low numbers of waterfowl. Mexico joined in 1994, making it a truly continental effort. The plan is a partnership of federal, provincial/state and municipal governments, non-governmental organizations, private companies, and many individuals, all working towards achieving better wetland habitat for the benefit of migratory birds, other wetland-associated species, and people. Plan projects are international in scope, but implemented at regional levels. These projects contribute to the protection of habitat and wildlife species across the North American landscape.

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**Partners-in-Flight Bird Conservation Plan.** Managed as part of the Partners-in-Flight Plan, the Coastal Prairies physiographic area represents a scientifically based land bird conservation planning effort that ensures long-term maintenance of healthy populations of native land birds, primarily non-game land birds. Non-game land birds have been vastly under-represented in conservation efforts, and many are exhibiting significant declines. This plan is voluntary and non-regulatory, and focuses on relatively common species in areas where conservation actions can be most effective, rather than the frequent local emphasis on rare and peripheral populations.

**U.S. Shorebird Conservation Plan.** The U.S. Shorebird Conservation Plan is a partnership effort throughout the United States to ensure that stable and self-sustaining populations of shorebird species are restored and protected. The plan was developed by a wide range of agencies, organizations, and shorebird experts for separate regions of the country, and identifies conservation goals, critical habitat conservation needs, key research needs, and proposed education and outreach programs to increase awareness of shorebirds and the threats they face.

**North American Waterbird Conservation Plan.** This plan provides a framework for the conservation and management of 210 species of waterbirds in 29 nations. Threats to waterbird populations include destruction of inland and coastal wetlands, introduced predators and invasive species, pollutants, mortality from fisheries and industries, disturbance, and conflicts arising from abundant species. Particularly important habitats of the southeast region include pelagic areas, marshes, forested wetlands, and barrier and sea island complexes. Fifteen species of waterbirds are federally listed, including breeding populations of wood storks, Mississippi sandhill cranes, whooping cranes, interior least terns, and Gulf coast populations of brown pelicans. A key objective of this plan is the standardization of data collection efforts to better recommend effective conservation measures.

**Coastal Impact Assistance Program (CIAP).** A federal law, signed in 2005, authorizes the Secretary of the Interior to distribute \$250 million for each of the fiscal years 2007 through 2010 to oil and gas producing states (Alabama, Alaska, California, Louisiana, Mississippi, and Texas) and coastal political subdivisions to 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 plan.
- Mitigation of the impact of Outer Continental Shelf activities through funding or onshore infrastructure projects and public service needs

In a Continuing Resolution dated February 16, 2007, Congress approved a 3 percent appropriation of the CIAP funds to be used by Minerals Management Service (MMS) to administer the CIAP program. MMS will lead the CIAP by establishing an environment that will enhance partner communications and an effective business relationship. Each eligible state will be allocated its share based on the state's qualified Outer Continental Shelf revenue generated off of its coast in proportion to total revenue generated off the coasts of all eligible states. MMS will respond to recipients' needs and provide advice through guidance, direction, training, and by ensuring that monitoring and evaluation are incorporated into a system of accountability designed to accomplish the results intended by the Energy Policy Act of 2005.

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## RELATIONSHIP TO STATE WILDLIFE AGENCY

A provision of the Improvement Act, and subsequent agency policy, is that the Service shall ensure timely and effective cooperation and collaboration with state fish and game agencies and tribal governments during the course of acquiring and managing refuges. State wildlife management areas and national wildlife refuges provide the foundation for the protection of species, and contribute to the overall health and sustainment of fish and wildlife populations in the State of Louisiana.

In Louisiana, LDWF (<http://www.wlf.louisiana.gov>) is vested with responsibility for conservation and management of wildlife in the state, including aquatic life, and is authorized to execute the laws enacted for the control and supervision of programs relating to the management, protection, conservation, and replenishment of wildlife, fish, and aquatic life, and the regulation of the shipping of wildlife fish, furs, and skins. The mission of the LDWF is to manage, conserve, and promote wise utilization of Louisiana's renewable fish and wildlife resources and their supporting habitats through replenishment, protection, enhancement, research, development, and education for the social and economic benefit of current and future generations; to provide opportunities for knowledge of and use and enjoyment of these resources; and to promote a safe and healthy environment for the users of the resources. LDWF is divided into seven divisions for management of the state's resources: Enforcement, Fur and Refuge, Inland Fisheries, Management and Finance, Marine Fisheries, Public Information, and Wildlife.

The participation of the LDWF throughout this comprehensive conservation planning process has been valuable. LDWF personnel participated on the core planning team and are also active partners in annual hunt coordination, planning, and various wildlife and habitat surveys. A key part of the planning process is the integration of common objectives between the Service and the LDWF. Shell Keys NWR is located in close proximity to Marsh Island Wildlife Refuge, which is managed by the LDWF.



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## *II. Refuge Overview*

### **INTRODUCTION**

Shell Keys NWR is part of the Southwest Louisiana National Wildlife Refuge Complex, which also includes Cameron Prairie, Lacassine, and Sabine NWRs. Shell Keys NWR consists of an island off the Louisiana Gulf coast in southeast Louisiana (Iberia Parish) (Figure 1). Access is limited to boats that are able to venture offshore.

### **SHELL KEYS REFUGE HISTORY AND PURPOSE**

Shell Keys was established by Executive Order (EO) on July 9, 1855, as a lighthouse reservation and subsequently as Shell Keys Reservation, and a breeding ground for native birds as established by EO 682 on August 17, 1907. On July 27, 1940, Presidential Proclamation Number 2416 changed the name from Shell Keys Reservation to Shell Keys NWR. It is noted that upon becoming a state, Louisiana was granted title to all lands lying below mean high tide. The United States retained title to the islands that form the Shell Keys.

By the turn of the 20<sup>th</sup> century, the nation had witnessed the increasing devastation of wading bird populations by plume hunters in Florida, and severe reductions in the populations of other once abundant forms of wildlife, such as the passenger pigeon. Public support increased for more vigorous actions on the part of the Federal Government to reverse this downward slide.

Such public concern, combined with the conservation-minded President Theodore Roosevelt, resulted in the initial federal land specifically set aside for a non-marketable form of wildlife (the brown pelican) when Pelican Island was proclaimed a Federal Bird Reservation in 1903 (USFWS 2007).

Following the acquisition of Pelican Island, many other islands and parcels of land and water were quickly dedicated for the protection of various species of colonial nesting birds that were being destroyed for their plumes and other feathers. Such refuge areas included Breton, Louisiana (1904); Passage Key, Florida (1905); and Shell Keys, Louisiana (1907) (USFWS 2007).

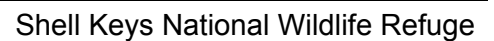
Congress established Shell Keys NWR on August 17, 1907, by EO 682, for the purpose “....as a reserve and breeding ground for native birds.”

Shell Keys NWR is one of the oldest refuges in the Refuge System. Its boundary was and still is rather loosely described as “... a small group of unsurveyed islets located in the Gulf of Mexico about three and one-half miles south of Marsh Island, Louisiana, and approximately in latitude 29 degrees 26 minutes north, longitude 91 degrees 51 minutes west from Greenwich....” The boundary of the refuge has been interpreted to be those areas in this vicinity that are above mean high tide.

Reference is given to 77 acres, but in a memorandum dated July 24, 1956, the total acreage of lands lying above mean high water is stated at approximately 8.0 acres.

It is noted that Shell Keys NWR is a small group of islands that are subject to shell deposits and erosion so the actual acreage above mean high water may, of course, be different at this time. How these islands change and move may affect ownership of that area lying above mean high water. Under certain circumstances, accreted areas above mean high water may belong to the State of

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Louisiana. Shell Keys NWR is located within the Lower Mississippi River Ecosystem in the Gulf of Mexico. The refuge's eight acres are located in the offshore waters to the west of the Atchafalaya River Delta and south of LDWF, Marsh Island Wildlife Refuge, Iberia Parish, Louisiana.

For a number of years, there has been only one islet at this location. This islet is composed almost entirely of shell fragments. It is extremely dynamic and builds or recedes with passing storms. Vegetation is almost entirely lacking.

Species known to nest here include royal terns, sandwich terns, black skimmers, and laughing gulls. In addition, the islet is used at various times as a loafing area by white pelicans, brown pelicans, and various other species of terns and gulls. Recent hurricanes and storms have eroded the island to such an extent that no known nesting has occurred since 1992.

Public access to the refuge is restricted due to its remoteness and sole accessibility by boat.

## **SPECIAL DESIGNATIONS**

The oyster reefs and shell water bottoms in the vicinity of Shell Keys NWR have been designated as essential fish habitat under provisions of the Magnuson-Stevens Fishery Conservation and Management Act (Magnuson-Stevens Act) for various life stages of red drum, brown shrimp, white shrimp, and Gulf stone crab. Any adverse impacts will be addressed in full detail if the study to determine what habitat restoration can be done is completed and the decision is made to implement any changes to the refuge.

## **ECOSYSTEM CONTEXT**

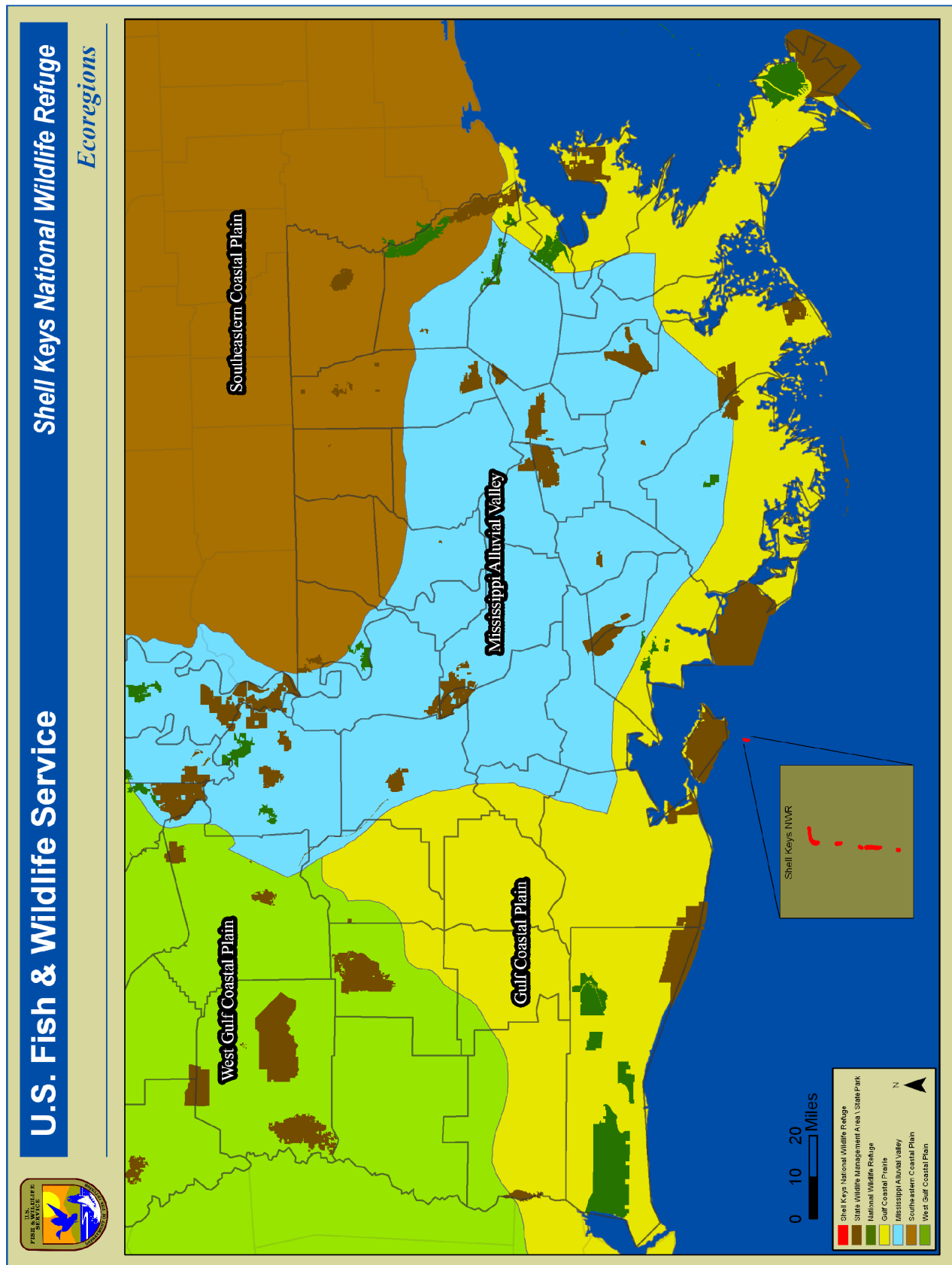
### *OVERVIEW*

The Service is increasing its efforts to adopt collaborative resource partnerships with private landowners and local communities, as well as state and federal governments within ecosystems, to reduce the declining trend of fish and wildlife populations and biological diversity; establish conservation priorities; clarify goals; and solve common threats and problems associated with fish and wildlife resources. The synergy of all federal, state, tribal, and private organizations, working together, will ensure that the Service not only protects the more important areas, but also reduces redundancy and overlap.

Shell Keys NWR is a member and participant of the Service's Lower Mississippi River Ecosystem (LMRE) Team. This ecosystem (Figure 2) serves as the primary wintering habitat for mid-continental waterfowl populations, as well as breeding and migration habitat for migratory songbirds returning from Central and South America, and numerous resident wildlife species.

Geographically, the refuge lies on the outer boundary of the ecosystem and has few opportunities to contribute to many of the goals and objectives of the LMRE. There are some common targets that are applicable to the refuge and to which they contribute. The refuge also could contribute to the objectives of the Service's Texas Gulf Coast Ecosystem (TGCE). The TGCE is considered by many to be part of a larger ecological Gulf coast system that also includes portions of coastal Louisiana and Mexico. The TGCE Team has requested the participation of the Shell Keys NWR and other nearby southwest Louisiana refuges in its ecosystem team meetings.

Figure 2. Lower Mississippi River Ecosystem and Shell Keys National Wildlife Refuge



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## *LOWER MISSISSIPPI RIVER ECOSYSTEM (LMRE)*

The LMRE includes the alluvial plain of the Mississippi River downstream of its confluence with the Ohio River and the delta plain and associated marshes and swamps created by the meanderings of the Mississippi River and its tributaries (FWS 2002). Louisiana has twelve water quality management basins delineated on the basis of natural drainage patterns of the state's major river basins (Lester et al., 2005). Shell Keys NWR is located in or just outside the Teche/Vermillion Basin.

The LMRE guides Service efforts to enhance, restore, and conserve the natural functional processes and habitat types of the LMRE, while maintaining the economic productivity and recreational opportunities. The ecosystem serves as primary wintering habitat for mid-continent waterfowl populations, as well as breeding and migrating habitat for migratory songbirds. The expansive flood plain forests of the past are now fragmented bottomland hardwood patches due to conversion from agriculture and flood control projects.

The LMRE developed eight goals that this CCP will promote to ensure Shell Keys NWR continues its contribution to ecosystem conservation and integrity.

- Conserve, enhance, protect, and monitor migratory bird populations and their habitats in the LMRE.
- Protect, restore, and manage the wetlands of the LMRE.
- Protect and/or restore imperiled habitats and viable populations of all threatened, endangered, and candidate species and species of concern in the LMRE.
- Protect, restore, and manage the fisheries and other aquatic resources historically associated with the wetlands and waters of the LMRE.
- Increase public awareness and support for LMRE resources and their management.
- Enforce natural resource laws.
- Protect, restore, and enhance water and air quality throughout the LMRE.

## *TEXAS GULF COAST ECOSYSTEM (TGCE)*

The priorities identified by the TGCE Team, to which the refuge can contribute, include:

- Encourage the Service's Region 4 field stations with similar coastal resource objectives to participate in ecosystem team meetings.
- Develop partnerships with other Service regions, Mexico, natural resource agencies, universities, and non-governmental organizations to plan and implement outreach programs.

## **REGIONAL CONSERVATION PLANS AND INITIATIVES**

Conservation priorities for national wildlife refuges in the Lower Mississippi Valley focus on threatened and endangered species, trust species, and species of local concern. The goals and objectives in this CCP are stepped down from the following plans:

- Gulf Coast Joint Venture
- North American Waterbird Conservation Plan
- United States Shorebird Conservation Plan
- Coastal Wetlands Planning, Protection, and Restoration Act
- Coast 2050 – Towards a Sustainable Coastal Louisiana
- Louisiana Coastal Area Ecosystem Restoration Plan

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- Fisheries Vision for the Future
  - Louisiana Comprehensive Wildlife Conservation Strategy (Wildlife Action Plan)

#### *GULF COAST JOINT VENTURE (MISSISSIPPI RIVER COASTAL WETLANDS INITIATIVE)*

Regional partnerships or joint ventures composed of individuals; sportsmen's groups; conservation organizations; and local, state, provincial, and federal governments were formed under the North American Waterfowl Management Plan. One such partnership—the Gulf Coast Joint Venture (GCJV)—was established to conserve priority waterfowl habitats along the western United States Gulf coast, one of the most important waterfowl areas in North America. The Gulf coast is the terminus of the Central and Mississippi Flyways and provides both wintering and migrating habitat for significant numbers of continental goose and duck populations. The GCJV's greatest contribution to the North American Waterfowl Management Plan is to provide wintering grounds for waterfowl. A great diversity of birds, mammals, fish, shellfish, reptiles, and amphibians also rely on the wetlands of the Gulf coast for part of their life cycles.

The GCJV is divided geographically into six initiative areas, one of which is the Mississippi River Coastal Wetland Initiative area. This area includes all or part of seventeen Louisiana parishes and is bounded on the east by the Louisiana state line and extends westward to Vermilion Bay. The northern boundary of the initiative area occurs at roughly the marsh-swamp interface. The area includes two major river deltas--the Mississippi and Atchafalaya. The goal of the initiative is to provide wintering and migrating habitat for significant numbers of dabbling ducks, diving ducks, and snow geese, as well as year-round habitat for mottled ducks. The Mississippi River Coastal Wetlands Initiative focuses on coastal marshes, forested wetlands, and sea grass beds of the Chandeleur Sound. Shell Keys NWR may contribute to some of the objectives of the Mississippi River Coastal Plain Initiative.

#### *NORTH AMERICAN WATERBIRD CONSERVATION PLAN*

The North American Waterbird Conservation Plan was developed under a partnership called the Waterbird Conservation for the Americas, which is a group of individuals and organizations having interest and responsibility for the conservation of waterbirds and their habitats in the Americas. Shell Keys NWR is located in the Southeast U.S. Regional Waterbird Conservation Planning Area. The refuge can contribute to a key objective of this region, which is to standardize data collection efforts and analysis procedures to allow better tracking of regional movements and the association of these movements with environmental or land use changes.

#### *UNITED STATES SHOREBIRD CONSERVATION PLAN*

The United States Shorebird Conservation Plan is a partnership involving organizations throughout the United States committed to the conservation of shorebirds. Shell Keys NWR is located within the Lower Mississippi, Western Gulf Coast Shorebird Planning Region. On a regional scale, the refuge can help ensure that adequate quantity and quality of habitat is identified and maintained to support the different shorebirds that breed in, winter in, and migrate through the area.

#### *COASTAL WETLANDS PLANNING, PROTECTION AND RESTORATION ACT*

In 1990, Congress passed the Coastal Wetlands Planning, Protection, and Restoration Act (CWPPRA) that generates \$50 to \$60 million annually for Louisiana coastal wetland restoration projects via an 85/15 federal/state cost-share, and which provided for the development of the 1993 comprehensive Louisiana Coastal Wetlands Restoration Plan. Funding of proposed projects is

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determined by the Louisiana Coastal Wetlands Conservation and Restoration Task Force, which is composed of five federal agencies and the State of Louisiana. As mandated by CWPPRA, the task force developed a detailed Coastal Wetlands Restoration Plan in 1993 that describes the restoration actions and projects that should be implemented to address Louisiana's coastal land loss crisis. A priority project list is developed and approved by the task force each year, outlining which projects will receive CWPPRA funding.

### *COAST 2050 - TOWARDS A SUSTAINABLE COASTAL LOUISIANA*

Coast 2050, funded by CWPPRA, is a comprehensive, ecosystem-based plan developed by private citizens; local, state, and federal agencies; and the scientific community to address coastal wetland loss throughout southern Louisiana. This plan, which is recognized by the State of Louisiana, five federal agencies, and local coastal parish governments, serves as the joint coastal restoration plan for CWPPRA. Its overarching goal is to sustain a coastal ecosystem that supports and protects the environment, economy, and culture of southern Louisiana and that contributes greatly to the economy and well-being of the nation. The strategic objectives of Coast 2050 are to (1) sustain a coastal ecosystem with the essential functions and values of the natural ecosystem; (2) restore the ecosystem to the highest practicable acreage of productive and diverse wetlands; and (3) accomplish this restoration through an integrated program that has multiple use benefits (Louisiana Coastal Wetlands Conservation and Restoration Task Force and the Wetlands Conservation and Restoration Authority 1998). Shell Keys NWR is included in Region 3 - Terrebonne, Atchafalaya, and Teche/Vermilion of this plan.

### *LOUISIANA COASTAL AREA ECOSYSTEM RESTORATION PLAN*

The Louisiana Coastal Area Ecosystem Restoration Plan evolved from the Coast 2050 Plan, with the overarching goal of reversing the current trend of degradation of the coastal ecosystem. This plan formed the basis for the Louisiana Coastal Area Ecosystem Restoration Study, which was designed to identify critical ecological needs, restoration efforts, scientific uncertainties to present a strategy for addressing the long-term needs of coastal Louisiana restoration, and to establish restoration priorities.

Shell Keys NWR is located within Sub-province 3 for the Louisiana Coastal Area. The restoration plans identified in the Louisiana Coastal Area relate directly and indirectly to the refuge through long-term efforts to explore large-scale restoration projects that will influence the entire coastal zone of Louisiana.

### *FISHERIES VISION FOR THE FUTURE*

In 2001, the Service worked with partners to refocus its Fisheries Program and to develop a vision. This vision of the Service and its Fisheries Program *"is working with partners to restore and maintain fish and other aquatic resources at self-sustaining levels and to support Federal mitigation programs for the benefit of the American public."* To achieve the vision, the Fisheries program works with its partners to:

- protect the health of aquatic habitats,
- restore fish and other aquatic resources, and
- provide opportunities to enjoy the benefits of healthy aquatic resources.

Together, the group developed a series of goals, objectives, and strategies to focus on key needs. Shell Keys NWR can contribute to the program's recreational fishing goal to provide quality opportunities for responsible fishing and other related recreational enjoyment of aquatic resources on Service lands.

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## *LOUISIANA COMPREHENSIVE WILDLIFE CONSERVATION STRATEGY (WILDLIFE ACTION PLAN)*

The Louisiana Department of Wildlife and Fisheries Comprehensive Wildlife Conservation Strategy (CWCS) was defined in 2005 (Lester et al., 2005). Their mission statement follows:

Louisiana Department of Wildlife and Fisheries' mission is to manage, conserve, and promote wise utilization of Louisiana's renewable fish and wildlife resources and their supporting habitats through replenishment, protection, enhancement, research, development, and education for the social and economic benefit of current and future generations; to provide opportunities for knowledge of and use and enjoyment of these resources; and to promote a safe and healthy environment for the users of the resources.

The primary focus of the CWCS is species of conservation concern and the habitats they depend upon. Information relative to these species and those habitats found on Refuge System lands will be evaluated for opportunities to foster conservation efforts.

In the Louisiana CWCS, Shell Keys NWR is located in the Gulf Coast Prairies and Marshes ecoregion. Shell Keys NWR is in the marine habitat outside the Vermillion/Cote Blanche/Atchafalaya Bay Complex Coastal Study Area, constituting one of seven coastal study areas seaward of the Gulf Intracoastal Waterway. Shell Keys NWR is one of numerous oyster reefs buffering Marsh Island Wildlife Refuge. Although no specific strategies for partnering with the Service are listed for the habitats on Shell Keys NWR, more general strategies on which the Service can partner with LDWF are:

- partner to promote protection and support efforts for shoreline stabilization and habitat restoration of barrier islands; and
- work with interested groups to promote appropriate use of dredge material and to develop improved management techniques for vegetated pioneer emerging delta habitat

### **ECOLOGICAL THREATS AND PROBLEMS**

National wildlife refuges in the Mississippi Alluvial Valley (MAV) serve as part of the last safety net to support biological diversity—the greatest challenge facing the Service. According to the LMRE Team, the greatest threats to biological diversity within the MAV include:

- The loss of sustainable communities, including the loss of 20 million acres of bottomland hardwood forests.
- The loss of connectivity between bottomland hardwood forest sites (e.g., forest fragmentation).
- The effects of agricultural and timber harvesting practices.
- The simplification of the remaining wildlife habitats within the ecosystem and gene pools.
- The effects of constructing navigation and water diversion projects.
- The cumulative habitat effects of land and water resource development activities.

Specific threats applicable to Shell Keys NWR include:

- Problems associated with the Gulf of Mexico shipping operations, including soil erosion caused by wave action and contamination resulting from barge accidents.
- Problems associated with sea level rise and climate change.

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## *EROSION AND CONTAMINATION*

Several major ecological threats that cause land loss and damage to Shell Keys NWR are tropical storms, subsidence and sea level rise, and oil and gas development. Shell Keys NWR is located in an area frequently in the path of tropical storms and hurricanes. Out of the 92 major hurricanes (category 3 or higher) recorded making landfall between Texas and Maine from 1851 through 2004, 85 entered the Gulf of Mexico. Even storms coming onshore in states other than Louisiana can affect Shell Keys NWR, which is located off the mainland in the Gulf of Mexico. The shell/shell hash bottom habitat absorbs frequent storm surges. Although even tropical storms can cause impacts such as nest loss of ground nesting birds, much land loss has been caused by such notable hurricanes as the unnamed storm of 1947, Camille in 1969, Georges in 1998, Ivan in 2004, and Katrina and Rita in 2005.

Active oil and gas development and exploration occur in areas adjacent to Shell Keys NWR. While impacts on the marine ecosystem are minimized and mitigated when possible, accidents near Shell Keys NWR occur that cause biological and ecological damage. Waterfowl and other water birds are susceptible to oiling and are especially vulnerable during nesting. Soils soak up oil and, depending on type, severity, and amount of oiling, have to be removed from the site.

In the past there have been applications made for oil, gas, and mineral development and drilling but file documentation revealed that the islands were unsuitable for drilling and that it would destroy the area for the purpose for which it was established. A memorandum dated October 22, 1956, to the Service's Regional Director stated "Although Shell Keys is listed in Appendix B of the revised leasing regulations, we believe that all operations should be denied on the basis that they would totally destroy the area for which it was established...." In a response to an application made in 1956, the Service's Regional Director denied lease application citing that a "...so-called freeze order applicable to oil and gas leases on refuge lands still in effect...."

## *GLOBAL WARMING AND SEA LEVEL RISE*

The Service is mandated to address climate change in its management planning by the U.S. Department of Interior's Secretarial Order 3226, issued on January 19, 2001. This order states that each bureau and office of the Department will consider and analyze potential climate change impacts when undertaking long-range planning exercises, when setting priorities for scientific research and investigations, when developing multi-year management plans, and/or when making major decisions regarding the potential utilization of resources under the Department's purview.

There is scientific consensus that suggests the earth is warming and that the primary cause of this warming is human-caused increases in greenhouse gas emissions. Since the beginning of the Industrial Revolution, average global temperatures have risen by one degree Fahrenheit, with the most accelerated warming occurring in the past two decades (Schlyer 2006). The complexity of effects that global warming will have on habitat and wildlife on national wildlife refuges is not known. Hand-in-hand with global warming is sea level rise.

Coastal Louisiana has lost more than 1.2 million acres of land along its coast in the last 100 years and 15,300 acres between 1990 and 2000, mostly due to the conversion of coastal wetlands to open water. Sea level is predicted to increase by 30 cm to 100 cm by 2100 based on the International Panel on Climate Change (IPCC) Special Report on Emissions Scenarios (SRES) (Meehl et al. 2007). Rising sea level may result in tidal marsh submergence (Moorhead and Brinson 1995).

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In an effort to address the potential effects of sea level rise on United States national wildlife refuges, the Fish and Wildlife Service contracted the application of the Sea-Level Affecting Marshes Model (SLAMM) for most Region 4 refuges. The SLAMM analysis for Shell Keys NWR assessed four different scenarios of sea level rise. Every scenario utilized predicted that by 2025 the southern portion of the refuge is predicted to disappear and a continued process of submergence is predicted for this site with complete loss by 2050 (Clough 2008).

The SLAMM analysis further stated that "It is possible that Shell Keys NWR may reappear due to consolidation of submerged sediments and storm activities. The SLAMM model does not estimate such potential consolidation and reemergence of submerged lands. However, the results from this modeling indicate that permanent reemergence is unlikely due to the significant pressures of rising sea levels" (Clough 2008).

## **PHYSICAL RESOURCES**

### *CLIMATE*

The climate in southwest Louisiana is relatively mild due to the subtropical influence of the Gulf of Mexico and cooler, drier air from the central plains. Summers tend to be hot and humid, and winters are mild. Average yearly precipitation is 66 inches. Louisiana is impacted by tropical weather disturbances with an average frequency of one tropical storm every 1.6 years, one hurricane every 3.3 years, and a major hurricane every 14 years (Roth 1998).

The Intergovernmental Panel on Climate Change recently concluded that warming of the climate is undeniable and could cause changes in our stewardship of land. Examples of potential changes are altered fire regimes, rain and snowfall patterns, access to water resources, hydrology in rivers and wetlands, frequency of extreme weather events, and rising sea levels at coastal refuges.

### *GEOLOGY AND TOPOGRAPHY*

The Gulf of Mexico is a Mediterranean-type sea located at the southeastern corner of North America. The Gulf is bordered by the United States to the north (Florida, Alabama, Mississippi, Louisiana, Texas); five Mexican states to the west (Tamaulipas, Veracruz, Tabasco, Campeche, Yucatan); and the island of Cuba to the southeast. The Gulf measures approximately 1,600 kilometers from east to west, 900 kilometers from north to south, and has a surface area of 1.5 million square kilometers.

The Gulf of Mexico basin is a relatively simple, roughly circular structural basin approximately 1,500 km in diameter, filled in its deeper part with 10 to 15 km of sedimentary rocks that range in age from Late Triassic to Holocene (approximately 230 m.y. to present). The present Gulf of Mexico basin is believed to have had its origin in Late Triassic time as the result of rifting within the North American Plate at the time it began to crack and drift away from the African and South American plates. Rifting probably continued through Early and Middle Jurassic time with the formation of "stretched" or "transitional" continental crust throughout the central part of the basin. Intermittent advance of the sea into the continental area from the west during late Middle Jurassic time resulted in the formation of the extensive salt deposits known today in the Gulf of Mexico basin. It appears that the main drifting episode, during which the Yucatan block moved southward and separated from the North American Plate and true oceanic crust formed in the central part of the basin, took place during the early Late Jurassic, after the formation of the salt deposits (Gore 1992; Donnelly 1975; Martin 1975; Uchupi 1975; and Salvador 1991).



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Since Late Jurassic time, the basin has been a stable geologic province characterized by the persistent subsidence of its central part, probably due at first to thermal cooling and later to sediment loading as the basin filled with thick prograding clastic wedges along its northwestern and northern margins, particularly during the Cenozoic. To the east, the stable Florida platform was not covered by the sea until the latest Jurassic or the beginning of Cretaceous time. The Yucatan platform was emergent until the mid-Cretaceous. After both platforms were submerged, the formation of carbonates and evaporites has characterized the geologic history of these two stable areas. Most of the basin was rimmed during the Early Cretaceous by carbonate platforms, and its western flank was involved during the latest Cretaceous and early Tertiary in a compressive deformation episode, the Laramide Orogeny, which created the Sierra Madre Oriental of eastern Mexico.

The northern Gulf of Mexico extends from Florida to the United States/Mexico border. North to south, the province extends from 200 miles inland of the present day shoreline to the Sigsbee escarpment. Sediments in the region are generally thick with the greatest sediment load provided by the Mississippi River.

Shell Keys NWR is just outside the Teche/Vermillion Basin, in the Gulf of Mexico. Much of the basin is occupied by three large bays: East Cote Blanche, West Cote Blanche, and Vermilion. Marsh Island Wildlife Refuge is between the Gulf of Mexico and Vermillion Bay. Marsh Island Wildlife Refuge is an important hydrologic feature because it separates these bays from saltier water in the Gulf of Mexico. Shell Keys NWR and other live and relic oyster reefs southeast of Marsh Island buffer water exchange between the big bays and the Gulf of Mexico and contribute to stability of the coastlines.

#### *HYDROLOGY AND WATER QUALITY*

Shell Keys NWR is surrounded by shallow sea water. Pollutants in the water are a major problem in the Gulf coast region. The highest concentration of petrochemical companies in the nation is in the Gulf coast (Ning et. al, 1998). In addition to the chemicals released by the petrochemical companies, the Mississippi River carries the chemical pollutants of the central United States to the Gulf coast region (Ning et. al, 1998). Extraction, refining, and transport of oil and petro-chemicals all carry risks for the health of humans, wildlife, and ecosystems (Ning et. al, 1998). Extreme rains and flooding can enhance run-off of nutrients, pollutants, and micro-organics. Heavy rains and high nutrient levels can increase algal blooms and add to the "hypoxic zone" in the Gulf of Mexico, currently the size of New Jersey (Ning et. al, 1998). Salinity of water is also a problem in the Gulf coast region because it contributes to the loss of oysters (Ning et. al, 1998). Oysters have a positive effect on water quality by filtering water and removing pollutants.

#### *AIR QUALITY*

The growth of major cities and the effects of this growth on air quality is a major health concern in the Gulf coast region (Ning et. al, 1998). Large cities, such as Houston, Atlanta, and New Orleans, have major problems with air pollution, particularly tropospheric ozone (O<sub>3</sub>) (Ning et. al, 1998). Pollution stagnation, such as occurred in Baton Rouge in 1990 and 1995, is dangerous and may be exacerbated by increased temperatures (Ning et. al, 1998).

### **BIOLOGICAL RESOURCES**

#### *HABITAT*

Shell/Shell Hash Bottoms are estuarine water bottoms with significant coverage of mollusk shells. These bottoms may have potential for settlement of oysters, barnacles, or other invertebrate larvae

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that require hard substrates, and also serve as shelter for fish living in cryptic environments. These relatively hard substrates may reduce shoreline erosion along shallow, sloped shorelines, providing physical protection for adjacent marshlands. They also may cause changes in currents, creating environments that are beneficial for many species of fish and invertebrates. In the very low-salinity environments, relatively few species other than some small invertebrates are able to utilize the shell as a settlement substrate, but the other values of the habitat remain.

Oysters provide the majority of the shell substrate in Louisiana, and are also a major fishery resource. Mussels, barnacles, worms, fishes, and a variety of other animals are either found in increasing abundance around oyster reefs, or are dependent upon these types of bottoms to survive. Other shell bottoms include Rangia clam and mixed shell hash. A number of bivalve mollusk species can co-exist in a single area, providing a variety of food sources and substrates to the animal communities. Shell and shell hash bottoms tend to be more resistant to erosion than mud bottoms, and relief to the bottom and modifying tidal currents, especially near passes.

## **WILDLIFE**

In the past, Shell Keys NWR has supported large colonies of colonial nesting seabirds, although very limited. For a number of years, there has been only one islet at this location. This islet is composed almost entirely of shell fragments. It is extremely dynamic and builds or recedes with passing storms. Birds known to nest here include royal terns, sandwich terns, black skimmers, and laughing gulls. In addition, the islet is used at various times as a loafing area by white pelicans, brown pelicans, and various other species of terns and gulls. Recent hurricanes and storms have eroded the island to such an extent that no known nesting has occurred since 1992. On a recent survey of the island (May 2007), staff observed brown pelicans (30), Caspian terns (4), gull-billed tern (1), royal terns (6), ruddy turnstone (1), sandwich terns (12), sanderlings (6), and semi-plumated sandpipers (4). At the time, the tide was 2' 7" above normal, exposing about 100 yards by 10 feet from 3-4 feet above the water.

Gulf fisheries are some of the most productive in the world. In 2000, the commercial fish and shellfish harvest from the five U.S. Gulf states was estimated to be 1.7 billion pounds (approximately 772 million kg), which represents almost 1/5 (19.4 percent) of the total domestic landings in the United States. In the same year, commercial catches in the Gulf represented approximately 25 percent of the total U.S. domestic commercial fishing revenue and were valued at over \$900 million. The Gulf also supports a productive recreational fishery. Excluding Texas, U.S. Gulf states accounted for over 40 percent (>104,000 lbs or >47,000 kg) of the U.S. recreational finfish harvest in 2000 (O'Bannon 2001). As the refuge is located just south of the coastline, fishing is the only activity that can reliably occur on the refuge. Redfish, spotted seatrout, flounder, and other species feed on the baitfish sheltering in the shallow waters of the key.

## **CULTURAL RESOURCES**

There are no known cultural resources on Shell Keys NWR. Geologically, Shell Keys NWR is relatively young and since formation, little-to-no human habitation has occurred. Infrastructure adjacent to the keys has been associated with the oil and gas industry.

## **SOCIOECONOMIC ENVIRONMENT**

Shell Keys NWR is a remote island off the Louisiana coast and is considered part of Iberia Parish, Louisiana. Many of the land-based communities have rich historical backgrounds which began as large sugar cane plantations. Five percent of Iberia Parish residents report German ancestry and three percent report Irish.

The parish seat is in the New Iberia metro area. The estimated population in 2004 was 74,449. This was an increase of 1.61 percent from the 2000 census. In 2002, the per capita personal income in Iberia Parish was \$22,107. This was an increase of 17.6 percent from 1997. The 2002 figure was 72 percent of the national per capita income, which was \$30,906.

Iberia Parish is one of about 3,141 counties and county equivalents in the United States. It has 575.1 square miles in land area and a population density of 131.3 per-square-miles. In the last three decades of the 1900s, its population grew by 27.6 percent. On the 2000 census form, 98.8 percent of the population reported only one race, with 30.8 percent of these reporting African-American. The population of this parish is 1.5 percent Hispanic (of any race). The average household size is 2.82 persons compared to an average family size of 3.28 persons.

In 2006, manufacturing was the largest of 20 major sectors. It had an average wage per job of \$46,858 (Table 1). Per capita income grew by 26.5 percent between 1995 and 2005 (adjusted for inflation).

**Table 1. Population and industry statistics of Iberia Parish**

<b>People and Income Overview</b> (By Place of Residence)	<b>Value</b>	<b>Industry Overview (2006)</b> (By Place of Work)	<b>Value</b>
Population (2006)	75,509	Covered Employment	34,050
Growth (%) since 1990	10.6%	Average wage per job	\$39,154
Households (2000)	25,381	Manufacturing - % all jobs in County	12.7%
Labor Force (persons) (2006)	34,099	Average wage per job	\$46,858
Unemployment Rate (2006)	3.3	Transportation and Warehousing - % all jobs in County	4.7%
Per Capita Personal Income (2005)	\$26,378	Average wage per job	\$51,362
Median Household Income (2004)	\$33,358	Health Care, Social Assistance - % all jobs in County	9.6%
Poverty Rate (2004)	21.1	Average wage per job	\$26,821
H.S. Diploma or More - % of Adults 25+ (2000)	66.9	Finance and Insurance - % all jobs in County	2.0%
Bachelor's Degree or More - % of Adults 25+ (2000)	11.2	Average wage per job	\$36,884

## **REFUGE ADMINISTRATION AND MANAGEMENT**

### **LAND PROTECTION AND CONSERVATION**

At present, no physical land protection measures other than refuge designation and law enforcement activities exist.

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## OIL AND GAS ACTIVITY

Shell Keys NWR does not hold the mineral rights for any of the acreage in its trust. Historically, no wells have been drilled on the refuge and currently no transmission or flow lines are present. However, as global and domestic demand increases for oil and gas, the refuge could potentially find itself with additional oil and gas related activities mainly in the form of a being in a proposed pipeline corridor or offshore drilling lease.

As stated in previous comprehensive conservation plans (Cameron Prairie, Lacassine, and Sabine NWRs) recently completed, all refuges within the Southwest Louisiana National Wildlife Refuge Complex will manage future oil and gas development in accordance with the following: current Fish and Wildlife Service policy, which is derived from a July 17, 1986, Department of Interior Solicitor's opinion and Louisiana State mineral rights law, which states that owners of sub-surface oil and gas mineral rights must be granted a reasonable and necessary means of extraction and production.

In more explicit terms the Solicitor's opinion states:

The United States has a number of rights as a surface owner of refuge lands in Louisiana:

1. It may request the mineral owner to alter its proposed operation to accommodate existing and planned uses of the refuge, provided that the burden on the mineral owner is not unreasonable.
2. It may insist that the mineral owner use only the minimum amount of land that is required to carry out the operations.
3. The necessary operations that are performed on the refuge must be carried out in a manner which is least injurious to refuge resources.
4. Upon conclusion of each separable phase of operation the mineral owner must restore the surface to its original condition, insofar as is practicable. This will include filling pits no longer required, leveling land, cleaning up spilled oil and salt water, reseeding, and repair or replacement of damaged improvements.
5. Access roads damaged by the mineral operator must be put in a condition for use by the United States, although they need not be completely regraded if damage is recurring and unavoidable.

The United States may not:

1. Charge a mineral operator for excavation of dirt on the lease where the dirt is required in order to carry out the operation.
2. Charge for destruction of timber unless such right was reserved by the United States "grantor."
3. Interfere with the reasonable and necessary operations of the mineral owner.

Federally owned oil and gas rights on Refuge System lands embraced in the withdrawal of public domain and acquired lands of the United States are not available for leasing (43 CFR 3101.5-1) except where drainage occurs (43 CFR 3100.2). Shell Keys NWR falls under this closure. However, in the event circumstances ever change and some form of oil and gas development was to occur, a

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mutually agreed upon special use permit would be issued for all oil and gas operations to communicate Service expectations and environmental concerns to all operating companies.

### **Transmission Pipeline Rights-of-Way**

Rights-of-way were inherited for transmission lines that traverse the refuge for the purpose of transporting oil, natural gas, synthetic liquid or gaseous fuels, or any refined petroleum based product. Transmission lines are usually large in diameter and transport product to or from large processing plants. These pipelines do not service mineral production from sub-surface minerals, but require a corridor of refuge land for transportation. In contrast, flow lines are usually the smallest in diameter and transport raw product from individual wells, from sub-surface mineral production, through the production separation process. Gathering lines, similar to flow lines, usually “gather” the production from multiple wells and transport it to production facilities. Permits for rights-of-way are not issued for flow lines and gathering lines.

Existing oil and gas transmission lines and their associated rights-of-way on refuges in the Southwest Louisiana National Wildlife Refuge Complex that have been in place for decades have become manageable over the years. Their long-term effects on the environment, which have been identified as creating pathways for saltwater intrusion into freshwater marshes, are being indirectly addressed through numerous wetland management programs and laws such as the Louisiana Coastal Act, the Coastal Louisiana Wetlands Planning Protection and Restoration Act, the North American Wetlands Conservation Act, and many local government and private watershed initiatives such as the Cameron Creole Watershed Management Plan. These laws and initiatives have led to the development of significant wetland restoration projects which have mitigated the effects of some negative impacts associated with oil and gas transmission lines and associated rights-of-way.

### **Future Management**

Existing oil and gas transmission lines on approved Fish and Wildlife Service rights-of-way currently within a national wildlife refuge will be managed as per Fish and Wildlife Service Policy 603 FW 2 in general, and explicitly under section 2.11D which states:

Existing rights-of-way: We will not make a compatibility determination and will deny any request for maintenance of an existing right-of-way that will affect a unit of the Refuge System unless (1) the design adopts appropriate measures to avoid resource impacts and includes provisions to ensure no net loss of habitat quantity and quality; (2) restored or replacement areas identified in the design are afforded permanent protection as part of the national wildlife refuge or wetland management district affected by the maintenance; and (3) all restoration work is completed by the applicant prior to any title transfer or recording of the easement, if applicable. Maintenance of an existing right-of way includes minor expansion or minor realignment to meet safety standards. Examples of minor expansion or minor realignment include: expand the width of a road shoulder to reduce the angle of the slope; expand the area for viewing on-coming traffic at an intersection; and realigning a road to reduce the amount of curve. New construction for oil and gas transmission line rights-of-way will not be permitted because they can significantly contribute to further land loss on coastal Louisiana national wildlife refuges. Canals built for the construction and repair of oil and gas transmission lines allow saltwater to penetrate further inland, particularly during droughts and storms and can have severe effects on wetlands (Wang 1987). This is evident for the oil and gas transmission line rights-of-way which were established in accordance with federal and state transportation regulations already established on Sabine NWR. Oil and gas transmission lines constructed since the 1940s are still readily apparent. Compaction and displacement of hydric soils during oil and gas transmission lines repair or construction reduces water exchange and can result in increased waterlogging and plant mortality (Swenson and Turner 1987). Excavation

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necessary for oil and gas transmission line construction causes significant hydrological changes. Exposing hydric soil to oxygen changes the natural ecological processes, including chemical transformations, sediment transport, vegetation health, and migration of organisms. Furthermore, by altering salinity gradients and patterns of water flow, the natural process by which coastal marshes are replenished and protected cannot occur (U.S. Army Corps of Engineers 2004).

Restoration of coastal marsh is a priority on national wildlife refuges in the Louisiana coastal zone. Approximately \$24 million from CWPPRA has been dedicated to construct eight coastal restoration projects, and another \$12 million is approved to construct two more projects within the Southwest Louisiana National Wildlife Refuge Complex. Extensive changes and alterations due to new pipeline rights-of-way could negatively affect restoration project predictability and life span. The stability created through these restoration projects could be jeopardized when major hydrologic changes occurred due to new pipeline construction. Therefore, managing existing pipelines and rights-of-way in accordance with current Service policy, and state and federal law is permissible under current conditions. Any expansion beyond the current conditions will be an inappropriate use considering the current status of Louisiana's coastal wetlands and the Service's role in managing and protecting this state's coastal resources.

### *VISITOR SERVICES*

Shell Keys NWR is accessible by boat only. The refuge is currently closed to all public use; however, occasional recreational fishing and wildlife observation is known to occur.

Currently, no law enforcement position exists for Shell Keys NWR. The law enforcement staff from the Complex is available to patrol the refuge and partners with LDWF agents for coverage of each refuge in the Complex. Law enforcement issues involve oil and gas concerns, commercial fishing, and oyster shell dredging.

### *PERSONNEL, OPERATIONS, AND MAINTENANCE*

Shell Keys NWR is part of the Southwest Louisiana National Wildlife Refuge Complex, which also includes the Cameron Prairie, Lacassine, and Sabine NWRs. Shell Keys NWR shares staff with Sabine NWR, which consists of three permanent employees, with occasional interns, volunteer workers, and term appointments supervised by the refuge manager. Positions include one refuge manager, one maintenance worker, and one refuge officer. A project leader stationed at the Complex headquarters at Cameron Prairie NWR supervises the refuge manager for Shell Keys/Sabine NWRs.

### **Coordination/Cooperative Programs**

The refuge staff coordinates and cooperates extensively with state agencies, tribes, landowners, the public, conservation groups, oil and gas companies, and local agencies and organizations. Shell Keys NWR is a component of several important regional or ecosystem planning and management efforts, and works with all levels of government and non-governmental organizations and private citizens to accomplish goals and objectives specific to those efforts.

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## *III. Plan Development*

### **SUMMARY OF ISSUES, CONCERNS, AND OPPORTUNITIES**

The planning team identified a number of issues, concerns, and opportunities related to fish and wildlife protection, habitat restoration, recreation, and management of threatened and endangered species. Additionally, the planning team considered federal and state mandates, as well as applicable local ordinances, regulations, and plans. The team also directed the process of obtaining public input through a public scoping meeting and personal comments. All public and advisory team comments were considered; however, some issues important to the public fall outside the scope of the decisions to be made within this planning process. The team has considered all issues that arose through the planning process, and has developed a plan that attempts to balance the competing opinions regarding important issues. The team identified those issues that, in the team's best professional judgment, are most significant to the refuge. A summary of the significant issues for Shell Keys NWR follows.

#### *FISH AND WILDLIFE POPULATION MANAGEMENT*

Historically, Shell Keys NWR has supported colonial nesting birds. Small nesting colonies of brown pelicans; laughing gulls; and royal, Caspian, and sandwich terns used the islands. It is possible that black skimmers and sooty, common, least, Forster's, and gull-billed terns also used the island. Hurricanes and tropical storms have significantly eroded and submerged the island, leaving very little habitat above the waterline. It is doubtful the island will ever regain enough land above the waterline to provide safe nesting sites for significant numbers of birds.

The eastern and Caribbean subspecies of the brown pelican remain endangered in California, Louisiana, Mississippi, Oregon, Puerto Rico, Texas, Virgin Islands, Washington, and Central and South America. The brown pelican was extirpated from Louisiana during the 1960s and later reintroduced at three sites, one of which was the north island of the Chandeleurs. The Louisiana population grew exponentially after the reintroductions.

Small shorebirds have utilized the refuge as stop-over habitat. The federally listed piping plover is considered threatened throughout its wintering range along the south Atlantic and Gulf coasts, and Caribbean beaches and barrier islands. Other shorebirds of interest observed on Shell Keys NWR are semi-palmated sandpipers, ruddy turnstones, dowitchers, sanderlings, and other shorebird species.

#### *HABITAT MANAGEMENT*

Shell Keys NWR has the potential for being an important area for black skimmers, piping plovers, brown pelicans, and other bird species; however, it would have to be enhanced by adding more shell to a much higher level.

Given the current circumstances, future habitat management depends on the amount and sources of sediment and funding available, and any new technologies which can be developed. A feasibility study would need to be conducted through partnerships with U.S. Geological Survey (USGS), LDWF, and others to determine restoration options and the sustainability of restoration efforts.

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## *RESOURCE PROTECTION*

Law enforcement is involved with every release or spill event involving oil and gas on the refuge. Officers work cooperatively with the state and other federal agencies to investigate each event to determine if charges should be filed. Other violations involve illegal fishing, oyster dredging, and oyster spreading.

## *VISITOR SERVICES*

Due to the remoteness of the island, opportunities for public use are extremely limited. The refuge is currently closed to all public use; however, recreational fishing, bird watching, and photography have been observed. Since it is possible this use can occur on the refuge, given its compatibility, opening the refuge to these uses would be in the best interest of the Service.

## *REFUGE ADMINISTRATION*

Presently, support from other staff of the Complex cover the administration of Shell Keys NWR. Funding is administered through the Complex as part of the headquarters.

## **Wilderness Review**

Refuge planning policy requires a wilderness review as part of the comprehensive conservation planning process. The results of the wilderness review are included in Appendix H.



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## *IV. Management Direction*

### **INTRODUCTION**

The Service manages fish and wildlife habitats considering the needs of all resources in decision-making. But first and foremost, fish and wildlife conservation assumes priority in refuge management. A requirement of the Improvement Act is for the Service to maintain the ecological health, diversity, and integrity of refuges. Public uses are allowed if they are appropriate and compatible with wildlife and habitat conservation. The Service has identified six priority wildlife-dependent public uses. Hunting, fishing, wildlife observation, wildlife photography, and environmental education and interpretation are therefore emphasized in this CCP.

Described below is the CCP for managing the refuge over the next 15 years. This management direction contains the goals, objectives, and strategies that will be used to achieve the vision of Shell Keys NWR.

### **ALTERNATIVES FOR MANAGING SHELL KEYS NWR**

The following three alternatives for managing the refuge were considered, with Alternative C chosen as the preferred alternative. Each alternative was described in section B of the Draft CCP.

A - No Action (Current Management)

B - Custodial Cooperative Management

C - Large-scale Habitat Restoration and Cooperative Management (Preferred)

Implementing the preferred alternative will result in partnering with the LDWF, other conservation agencies, and large corporations to conduct a feasibility study based on dedicated dredging and exploring landscape scale efforts to restore the shell islands. Management will open the refuge to the public uses of fishing, wildlife observation, and wildlife photography. Public outreach will improve through the use of kiosks and a wayside exhibit, with updated brochures and maps, at the Complex headquarters.

### **VISION FOR SHELL KEYS NWR**

Shell Keys NWR will provide dynamic shell island and reef complex habitat for the conservation and protection of colonial nesting seabirds and other wildlife in partnership with LDWF, other agencies, organizations, and individuals. Through the Complex visitor center, public use will emphasize fishing, wildlife observation, and wildlife photography; outreach will focus on interpretation and environmental education programs based on Shell Keys NWR's unique natural resources.

### **GOALS, OBJECTIVES, AND STRATEGIES FOR SHELL KEYS NWR**

The goals, objectives, and strategies presented for Shell Keys NWR are the Service's response to the issues, concerns, and needs expressed by the planning team, the refuge staff and partners, and the public, and are presented in hierarchical format. Chapter V identifies the projects associated with the various strategies.

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These goals, objectives, and strategies reflect the Service's commitment to achieve the mandates of the Improvement Act, the mission of the Refuge System, and the purposes and vision of Shell Keys NWR. With resources, as outlined in Chapter V, the Service intends to accomplish these goals, objectives, and strategies within the next 15 years.

### *FISH AND WILDLIFE POPULATION MANAGEMENT*

**Goal A. Through the use of partnerships, protect coastal fish and wildlife species, placing special emphasis on migratory birds, colonial nesting waterbirds, and threatened and endangered species.**

*Discussion:* Because of its location, Shell Keys NWR has historically served as habitat for many migratory bird species either for an entire season or for only a matter of hours or days. The island can give refuge to migratory birds on a regular basis or may serve as a haven to birds blown off course and not following normal migration patterns.

Species that may use the refuge include brown pelicans; laughing gulls; black skimmers; and royal, Caspian, sandwich, sooty, common, least Forster's, and gull-billed terns. It is unknown if the island will rebuild or be restored to the extent that nesting colonies can return.

Threatened and endangered species that may utilize the refuge include the eastern brown pelican and the piping plover (wintering).

**Objective A-1.** Develop a cooperative natural resource agreement with LDWF to monitor if colonial nesting seabirds, federally listed threatened and endangered species, and other species of federal responsibility are using the refuge.

*Discussion:* Situated within close proximity to the Marsh Island Wildlife Refuge, developing a memorandum of understanding with LDWF would assist Shell Keys NWR in monitoring biological resources, managing natural resources, and addressing enforcement issues related to commercial and recreational fishing, and issues related to oil and gas. The most recent hurricanes, Lilli and Rita, severely impacted this area. The establishment of a cooperative agreement with LDWF relative to habitat restoration, biological monitoring, and natural resource management will benefit both agencies and the resources.

#### *Strategies:*

- If any nesting occurs in response to habitat recovery and restoration, close island to public use.
- Conduct annual bird surveys on the island in conjunction with LDWF, paying particular attention to brown pelican and piping plover use.
- Monitor shorebird and other migratory bird populations during peak migration periods.
- Develop and maintain a data base of survey information.
- Determine the value of the essential fish habitat within the Shell Keys NWR boundary to species such as red drum, brown shrimp, white shrimp, and Gulf stone crab.

**Objective A-2.** Working with academia, LDWF, and the National Marine Fisheries Service (NMFS), initiate study to determine the value of Shell Keys NWR to oyster resource and provide recommendations.

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*Strategies:*

- Utilize grants and other funding sources to initiate oyster resource survey in partnership with others.
- Determine feasibility of restoring island with oyster resource.
- In the process of the feasibility study, consult with the National Marine Fisheries Service under provision of the Magnuson-Stevens Act, and other entities to ensure adverse impacts are avoided or mitigated.

**HABITAT MANAGEMENT**

**Goal B. Through the use of partnerships, protect, conserve, and, if feasible, restore the physical and ecological functions of shell island and reef complex habitats for fish and wildlife resources.**

*Discussion:* The refuge is highly dynamic and constantly evolving. The most influential effect on the refuge is erosion, which results from strong storms and overwash. Over the years, hurricanes and severe storms have changed the face of the refuge in both dramatic and subtle ways. Severe storms in recent history have resulted in either moderate build-up or significant loss of the land existing above water. Usually, there is post-storm recovery to some extent. The Intergovernmental Panel on Climate Change recently concluded that warming of the climate is undeniable and could cause changes in our stewardship of land. Examples of potential changes are frequency of extreme weather events and rising sea levels at coastal refuges. At this point, it is difficult to set specific wildlife habitat goals. Refuge staff has learned from the past that small-scale restoration projects can no longer achieve lasting benefits. It will take working in partnership with others to achieve large-scale and costly restoration of the refuge. Information to be provided by USGS on sediment loss and the availability of suitable dredge material will be used to determine the feasibility of restoration options.

**Objective B-1. Shell Island Habitat:** In partnership with LDWF, COE, USGS, and others, conduct a feasibility study to restore and/or enlarge the entire island to provide increased nesting habitat for colonial nesting birds based on historic information.

*Strategies:*

- Appropriately survey and mark the boundary with anchored ocean buoys.
- Work with the state to establish a well-defined buffer zone approximately one-half mile around the island.
- Enter into a contract with USGS or other appropriate contractor to determine the feasibility of protecting the shoreline and base substrate of the Shell Keys NWR. If it is determined that the project is feasible, move forward to seek funding for a beach nourishment and substrate replacement project to include anchoring buoy markers along the boundary of the island to aid in preventing oyster dredging ships from impacting the island.
- Work with LDWF to determine if oyster seed ground areas within the boundary of Shell Keys NWR can be dissolved and that oyster leases not be renewed.
- Develop and maintain partners such as LDWF, COE, USGS, TNC, Gulf of Mexico Foundation, Conoco Phillips, Shell Oil, and others to determine potential and value of restoration.
- Seek funding and partners for dedicated dredge disposal projects to create three to five acres of restored shell habitat if the project is deemed feasible.

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- If restoration is feasible, and implementation is successful, proactively search for funding and partners for maintaining shell habitat.
  - If restoration is feasible, design restoration features that minimize impacts to the large oyster reef complex. Oysters tend to be more resistant to erosion and create relief which increases fish utilization. Designs should include access routes and containment dikes that avoid or minimize disturbances or impacts to the large oyster reef.
  - If restoration is feasible, consult with the National Marine Fisheries Service under provision of the Magnuson-Stevens Act and other entities to ensure adverse impacts are avoided or mitigated.
  - Participate in landscape-level coastal initiatives such as CWPPRA, LCA, CIAP, and Coast 2050 as appropriate.

## *RESOURCE PROTECTION*

**Goal C. Through the use of partnerships, manage natural, cultural, and historical resources, and petroleum infrastructure and activities to protect habitat, and migratory and nesting birds.**

**Objective C-1.** Work with the LDWF and other partners to monitor oil and gas activity in the area.

*Discussion:* Shell Keys NWR does not hold the mineral rights for any of the acreage in its trust. Historically, no wells have been drilled on the refuge and currently no transmission or flow lines are present. However, as global and domestic demand increases for oil and gas, the refuge could potentially find itself with additional oil and gas activities.

### *Strategies:*

- All transmission and oil and gas activities will be managed in accordance with the policy described in Chapter II under the Refuge Administration and Management section.
- Convey the Shell Keys NWR spill response protection strategy to the appropriate United States Coast Guard (USCG) Area Contingency Plan coordinators annually.
- Coordinate with the One Gulf Plan for spill response priorities and refuge emergency spill response actions.

**Objective C-2.** Work with State Historic Preservation Office to determine if any cultural or historic resources existed on the island.

## *VISITOR SERVICES*

**Goal D. Provide, as appropriate, limited public wildlife-dependent recreational activities, such as fishing, wildlife observation, and wildlife photography.**

*Discussion:* Recreational activities on Shell Keys NWR revolve around fishing, principally wade fishing in the shallow waters. Access is by boat. Disturbance to nesting colonies, if nesting were to resume, will be discouraged by posting the area as closed to prevent anglers and other visitors from walking among the nesting birds. Wildlife observation and photography are allowed but are not common because of the harshness of the environment, remoteness, insects, and rapidly changing weather patterns. The refuge does not offer transportation to the islands for any of the uses open to the public; visitors must rely on privately owned boats and charter fishing businesses.

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**Objective D-1:** Offer limited visitor services and programs of fishing, wildlife observation, and wildlife photography except in certain portions identified with “Area Closed” signs to protect bird nesting areas.

*Discussion:* Opening opportunities for fishing, wildlife observation, and wildlife photography will allow the public to appreciate the value of the refuge as long as nesting areas are protected, should nesting resume.

*Strategies:*

- Open limited fishing program; partner with LDWF for enforcement of regulations.
- Explore possibilities of providing a tour of the islands for wildlife observation and interpretation as part of a Southwest Louisiana NWR Complex special event.
- Develop a Visitor Services’ Plan as part of Southwest Louisiana NWR Complex Visitor Service Plan within six years of CCP implementation.
- Evaluate access as appropriate.

**Objective D-2:** Improve the quality and quantity of information about Shell Keys NWR offered to the public.

*Discussion:* Shell Keys NWR is part of a unique and declining chain of barrier islands along the Louisiana coast. As stated in the Final CCP for Lacassine NWR, Cameron Prairie NWR’s Visitor Center will also serve as the Southwest Louisiana National Wildlife Refuge Complex Visitor Center, highlighting all refuges within the Complex. Through the use of this Visitor Center, Shell Keys NWR’s unique wildlife habitat and coastal protection stature will be portrayed.

*Strategies:*

- Include information about Shell Keys NWR at wayside panels and kiosk at Southwest Louisiana NWR Complex Headquarters.
- Improve and maintain current information on the web page and make it interactive so that information is two-way; include interpretive information.
- Update the Shell Keys general refuge brochure as needed.
- Include maps on kiosks; place fishing information and maps at local marinas; place small kiosk or panel at marina to include fish identification.
- Include information on kiosks about the Refuge System, colonial nesting birds, and wading birds.
- Communicate key issues and special events in news releases in local papers, partner with Iberia Parish on special events and festivals, and with the Southwest Louisiana NWR Complex headquarters’ special events.

## **REFUGE ADMINISTRATION**

**Goal E. Develop and maintain the Southwest Louisiana NWR Complex Headquarters to support, direct, and manage the needs, resources, and staff of Cameron Prairie, Lacassine, Sabine, and Shell Keys NWRs; Rockefeller State Refuge (administrative oversight); and the Cameron-Creole Watershed Project. Work with LDWF and other partners to protect Shell Keys NWR.**

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*Discussion:* Shell Keys NWR is administered as one of four refuges under the Southwest Louisiana NWR Complex. Presently, two staff members share direct responsibility for Shell Keys NWR, with assistance from approximately 20 other staff members working on the Complex of refuges. Most personnel work out of the Complex headquarters. Law enforcement is an important tool for protection of the natural resources of the refuge.

**Objective E-1:** Ensure employees with complex-wide responsibilities support the refuge.

*Strategies:*

- Increase refuge officers' presence at Shell Keys NWR.
- Update Law Enforcement Plan by 2014.
- Partner with LDWF to provide protection to resources and visitors.

**Objective E-2:** Develop Memorandum of Understanding (MOU) with the LDWF to protect natural resources.

*Discussion:* Given the close proximity to the LDWF Marsh Island Wildlife Refuge, and difficulty reaching Shell Keys NWR, co-management of the natural resources and law enforcement issues is most practical.

*Strategies:*

- Develop a MOU to manage natural resources of Shell Keys NWR in coordination and collaboration with LDWF.
- Review Law Enforcement MOU and update as necessary.

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## V. *Plan Implementation*

### INTRODUCTION

Refuge lands are managed as defined under the Improvement Act. Congress has distinguished a clear legislative mission of wildlife conservation for all national wildlife refuges. National wildlife refuges, unlike other public lands, are specifically dedicated to the conservation of the Nation's fish and wildlife resources and wildlife-dependent recreational uses. Priority projects emphasize the protection and enhancement of fish and wildlife species first and foremost, but considerable emphasis is placed on balancing the needs and demands for wildlife-dependent recreation and environmental education.

To accomplish the purpose, vision, goals, and objectives contained in this CCP for Shell Keys NWR, this section identifies specific projects, funding and personnel needs, partnership opportunities, and required step-down management plans.

This CCP focuses on the importance of funding the operations and maintenance needs of the refuge to ensure the refuge staff can achieve the goals and objectives identified and are crucial to fulfill the purpose for which the refuge was established. The refuge's role in protecting and providing habitat for migratory waterfowl, birds, and endangered species is critical. Proposed priority public use programs will establish opportunities for wildlife-dependent recreation.

### PROPOSED PROJECTS

Listed below are the proposed project summaries and their associated costs for fish and wildlife population management, habitat management, resource protection, visitor services, and refuge administration for the next 15 years. This proposed project list (Table 2.) reflects the priority needs identified by the public, planning team, and refuge staff based upon available information. These projects were generated for the purpose of achieving refuge-specific objectives and strategies. The primary linkages of these projects to those planning elements are identified in each summary.

#### *FISH AND WILDLIFE POPULATION MANAGEMENT*

**Project 1.** Work with LDWF to monitor species of concern, targeted species, and species of federal responsibility.

National wildlife refuges are mandated to manage for threatened and endangered species if they occur on the refuge. However, refuges are also responsible for management of other wildlife species if the action does not negatively impact the threatened or endangered species. Refuge management is geared toward managing the ecosystem as a whole.

- Develop a wildlife inventory plan based on species selected as priority species.
- Partner with local colleges or universities to conduct research concerning remaining available nesting habitat since Hurricane Rita.
- Threatened and endangered species will be surveyed and monitored. Adaptive refuge management actions will reflect data collected.

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The initial cost for researchers and planning documents will be approximately \$75,000. The annual survey cost for one biologist's time is \$5,000. (*Linkages: Goal A, Objectives A-1-2; Goal E, Objectives E-1-2*)

## **HABITAT MANAGEMENT**

**Project 2.** Conduct and coordinate a feasibility study to determine if island restoration is possible. Refuge staff will:

- Determine a reasonable and feasible way to identify the boundary of the refuge with a triangulation of anchored navigational buoys placed in such a manner as to prevent the raking of the refuge by oyster boats.
- Appropriately survey and mark the refuge boundary with ocean buoys.
- Work with the Louisiana Governor's office and LDWF to establish a well-defined buffer zone approximately one-half mile around island.
- Develop a scope of work and contract with USGS and the University of New Orleans to determine current status of the island and the ability to rebuild with restoration.
- Develop cost estimate of feasibility study in partnership with others.
- Determine sources of dredge material.
- If restoration is economically and environmentally feasible, determine cost estimates, timeline for completion, and implementation of each construction phase.
- Consult with all necessary state and federal agencies regarding things such as threatened and endangered species, essential fish habitat, and mitigation measures.

The initial and annual cost for evaluating the feasibility of large scale habitat restoration of the island is unknown due to project complexities. This cost will be assessed once the project is initiated. (*Linkages: Goal B, Objectives B-1-2; Goal C, E*):

## **RESOURCE PROTECTION**

**Project 3.** Administer oil and gas program with efforts guided to protect surface habitat and wildlife on the refuge. All activities relating to oil and gas near the refuge should be monitored. (*Linkages: Goal C, Objective C-1, Goal E*)

- Issue special use permits and assess mitigation for impacts to the surface of the refuge if they cannot be avoided.
- Response to all spill event and releases are conducted immediately after located; however, before work is performed the response/clean-up company must consult with the refuge manager to ensure methods are approved.
- Provide guidance for wildlife-oriented protection methods, such as bird cannons, mylar steamers, and predator eyes, during spill events.
- All transmission lines and oil and gas activities will be managed in accordance with the policy described in Chapter II.

## **VISITOR SERVICES**

**Project 4.** Provide opportunities for recreational fishing, wildlife observation, and wildlife photography (*Linkages: Goal D, Objectives D-1-2, Goal E*).



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Fishing, wildlife observation, and wildlife photography opportunities on the refuge will be offered. Shell Keys NWR offers limited emergent shell habitat for fishing off of and for viewing sea birds. Access to the refuge is by boat only. Construct and place kiosks or other outreach materials at local marinas.

## **FUNDING AND PERSONNEL**

**Table 2. Summary of projects**

<b>PROJECT NUMBER</b>	<b>PROJECT TITLE</b>	<b>FIRST YEAR COST *</b>	<b>RECURRING ANNUAL COST</b>
1	Monitor and manage other trust resource populations	\$75,000	\$5,000
2	Conduct and coordinate a feasibility study to determine if island restoration is possible	Unknown	Unknown
3	Administer oil and gas program	\$70,000	\$70,000
4	Provide opportunities for recreational fishing, wildlife observation, and wildlife photography	\$15,000	\$10,000

*\* Cost estimates are rough and undocumented; funding sources would be various and not all FWS funding.*

## **PARTNERSHIP/VOLUNTEER OPPORTUNITIES**

A key element of this CCP is to establish a cooperative agreement with LDWF, and partnerships with private organizations and other state and federal natural resource agencies. Partnerships are critically important to achieve refuge goals, leverage funds, minimize costs, reduce redundancy, and bridge relationships. In the immediate vicinity of the refuge, opportunities exist to establish and maintain partnerships with LDWF, Iberia Parish organizations, U.S. Customs, and the U.S. Coast Guard.

## **STEP-DOWN MANAGEMENT PLANS**

A CCP is a strategic plan that guides the direction of the refuge. A step-down management plan provides more specific guidance on activities, such as habitat and visitor services' management. Step-down plans (Table 3) are developed in accordance with the National Environmental Policy Act (NEPA), which requires the identification and evaluation of alternatives and public review and involvement prior to their implementation.

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**Table 3. Shell Keys NWR step-down management plans**

Step-down Plans	Completion Date
Visitor Use	2010
Law Enforcement	2014
Wildlife Inventory	2010
Habitat Management	2015
Sign	2020
Fisheries Management	2020

## **MONITORING AND ADAPTIVE MANAGEMENT**

Adaptive management is a flexible approach to long-term management of biotic resources that is directed over time by the results of ongoing monitoring activities and other information. More specifically, adaptive management is a process by which projects are implemented within a framework of scientifically driven experiments to test the predictions and assumptions outlined within a plan.

To apply adaptive management, specific survey, inventory, and monitoring protocols will be adopted for the refuge. The habitat management strategies will be systematically evaluated to determine management effects on wildlife populations. This information will be used to refine approaches and determine how effectively the objectives are being accomplished. Evaluations will include ecosystem team and other appropriate partner participation. If monitoring and evaluation indicate undesirable effects for target and non-target species and/or communities, then alterations to the management projects will be made. Subsequently, the CCP will be revised. Specific monitoring and evaluation activities will be described in the step-down management plans.

## **PLAN REVIEW AND REVISION**

The CCP will be reviewed annually in development of refuge annual work plans and budget. It will also be reviewed to determine the need for revision. A revision will occur if and when conditions change or significant information becomes available, such as a change in ecological conditions or a major refuge expansion. The CCP will be augmented by detailed step-down management plans to address the completion of specific strategies in support of goals and objectives. Revisions to the CCP and the step-down management plans will be subject to public review and NEPA compliance.

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## APPENDICES

# Appendix A. Glossary

<b>Adaptive Management:</b>	Refers to a process in which policy decisions are implemented within a framework of scientifically driven experiments to test predictions and assumptions inherent in management plan. Analysis of results help managers determine whether current management should continue as is or whether it should be modified to achieve desired conditions.
<b>Alluvial:</b>	Sediment transported and deposited in a delta or riverbed by flowing water.
<b>Alternative:</b>	(1) A reasonable way to fix the identified problem or satisfy the stated need (40 CFR 1500.2). (2) Alternatives are different sets of objectives and strategies or means of achieving refuge purposes and goals, helping fulfill the Refuge System mission, and resolving issues (Service Manual 602 FW 1.6B).
<b>Anadromous:</b>	Migratory fishes that spend most of their lives in the sea and migrate to fresh water to breed.
<b>Beneficial Dredging</b>	Using the spoil for restoring and building elevation from dredging that would take place regardless of the use of the spoil (see dedicated dredging).
<b>Biological Diversity:</b>	The variety of life and its processes, including the variety of living organisms, the genetic differences among them, and the communities and ecosystems in which they occur (Service Manual 052 FW 1. 12B). Focus is on indigenous species, biotic communities, and ecological processes. Also referred to as Biodiversity.
<b>Carrying Capacity:</b>	The maximum population of a species able to be supported by a habitat or area.
<b>Categorical Exclusion (CE,CX, CATEX, CATX):</b>	A category of actions that do not individually or cumulatively have a significant effect on the human environment and have been found to have no such effect in procedures adopted by a federal agency pursuant to the National Environmental Policy Act (40 CFR 1508.4).
<b>CFR:</b>	Code of Federal Regulations.

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<b>Compatible Use:</b>	A proposed or existing wildlife-dependent recreational use or any other use of a national wildlife refuge that, based on sound professional judgment, will not materially interfere with or detract from the fulfillment of the National Wildlife Refuge System mission or the purpose(s) of the national wildlife refuge (50 CFR 25.12 (a)). A compatibility determination supports the selection of compatible uses and identifies stipulations or limits necessary to ensure compatibility.
<b>Comprehensive Conservation Plan (CCP):</b>	A document that describes the desired future conditions of a refuge or planning unit and provides long-range guidance and management direction to achieve the purposes of the refuge; helps fulfill the mission of the Refuge System; maintains and, where appropriate, restores the ecological integrity of each refuge and the Refuge System; helps achieve the goals of the National Wilderness Preservation System; and meets other mandates (Service Manual 602 FW 1.6 E).
<b>Concern:</b>	See Issue.
<b>Cover Type:</b>	The present vegetation of an area.
<b>Crevasse</b>	Relatively small opening or breach in levee or embankment.
<b>Cultural Resource Inventory:</b>	A professionally conducted study designed to locate and evaluate evidence of cultural resources present within a defined geographic area. Inventories may involve various levels, including background literature search, comprehensive field examination to identify all exposed physical manifestations of cultural resources, or sample inventory to project site distribution and density over a larger area. Evaluation of identified cultural resources to determine eligibility for the National Register follows the criteria found in 36 CFR 60.4 (Service Manual 614 FW 1.7).
<b>Cultural Resource Overview:</b>	A comprehensive document prepared for a field office that discusses, among other things, its prehistory and cultural history, the nature and extent of known cultural resources, previous research, management objectives, resource management conflicts or issues, and a general statement on how program objectives should be met and conflicts resolved. An overview should reference or incorporate information from a field office's background or literature search described in Section VIII of the Cultural Resource Management Handbook. (Service Manual 614 FW 1.7)
<b>Cultural Resources:</b>	The remains of sites, structures, or objects used by people in the past.
<b>Dedicated Dredging</b>	Dredging for the purpose of restoring and building elevation (see Beneficial Dredging).

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<b>Designated Wilderness Area:</b>	An area designated by the United States Congress to be managed as part of the National Wilderness Preservation System (Draft Service Manual 610 FW 1.5).
<b>Disturbance:</b>	Significant alteration of habitat structure or composition. May be natural (e.g., fire) or human-caused events (e.g., aircraft overflight).
<b>Ecosystem:</b>	A dynamic and interrelating complex of plant and animal communities and their associated non-living environment.
<b>Ecosystem Management:</b>	Management of natural resources using system-wide concepts to ensure that all plants and animals in ecosystems are maintained at viable levels in native habitats and basic ecosystem processes are perpetuated indefinitely.
<b>Emergent Marsh</b>	Wetlands dominated by erect, rooted, herbaceous plants.
<b>Endangered Species (Federal):</b>	A plant or animal species listed under the Endangered Species Act that is in danger of extinction throughout all or a significant portion of its range.
<b>Endangered Species (State):</b>	A plant or animal species in danger of becoming extinct or extirpated in the state within the near future if factors contributing to its decline continue. Populations of these species are at critically low levels or their habitats have been degraded or depleted to a significant degree.
<b>Environmental Assessment (EA):</b>	A concise public document, prepared in compliance with the National Environmental Policy Act, that briefly discusses the purpose and need for an action, alternatives to such action, and provides sufficient evidence and analysis of impacts to determine whether to prepare an environmental impact statement or finding of no significant impact (40 CFR 1508.9).
<b>Environmental Impact Statement (EIS):</b>	A detailed written statement required by Section 102(2)(C) of NEPA, analyzing the environmental impacts of a proposed action, adverse effects of the project that cannot be avoided, alternative courses of action, short-term uses of the environment versus the maintenance and enhancement of long-term productivity, and any irreversible and irretrievable commitment of resources (40 CFR 1508.11).
<b>Estuary:</b>	The wide lower course of a river into which the tides flow. The area where the tide meets a river current.
<b>Finding of No Significant Impact (FONSI):</b>	A document prepared in compliance with NEPA, supported by an environmental assessment, that briefly presents why a federal action will have no significant effect on the human environment and for which an environmental impact statement, therefore, will not be prepared (40 CFR 1508.13).

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<b>Goal:</b>	Descriptive, open-ended, and often broad statement of desired future conditions that conveys a purpose but does not define measurable units (Service Manual 620 FW 1.6J).
<b>Habitat:</b>	Suite of existing environmental conditions required by an organism for survival and reproduction. The place where an organism typically lives.
<b>Habitat Restoration:</b>	Management emphasis designed to move ecosystems to desired conditions and processes, and/or to healthy ecosystems.
<b>Habitat Type:</b>	See Vegetation Type.
<b>Improvement Act:</b>	The National Wildlife Refuge System Improvement Act of 1997.
<b>Informed Consent:</b>	The grudging willingness of opponents to “go along” with a course of action that they actually oppose (Bleiker).
<b>Issue:</b>	Any unsettled matter that requires a management decision, such as an initiative, opportunity, resource management problem, threat to the resources of the unit, conflict in uses, public concern, or other presence of an undesirable resource condition (Service Manual 602 FW 1.6K).
<b>Management Alternative:</b>	See Alternative.
<b>Management Concern:</b>	See Issue.
<b>Management Opportunity:</b>	See Issue.
<b>Migration:</b>	The seasonal movement from one area to another and back.
<b>Mission Statement:</b>	Succinct statement of the unit’s purpose and reason for being.
<b>Monitoring:</b>	The process of collecting information to track changes of selected parameters over time.
<b>National Environmental Policy Act of 1969 (NEPA):</b>	Requires all agencies, including the Service, to examine the environmental impacts of their actions, incorporate environmental information, and use public participation in the planning and implementation of all actions. Federal agencies must integrate NEPA with other planning requirements, and prepare appropriate NEPA documents to facilitate better environmental decision-making (40 CFR 1500).

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**National Wildlife  
Refuge System  
Improvement Act of  
1997 (Public Law 105-  
57):**

Under the Improvement Act, the Service is required to develop 15-year comprehensive conservation plans for all national wildlife refuges outside Alaska. The Act also describes the six public uses given priority status within the NWRS (i.e., hunting, fishing, wildlife observation, wildlife photography, and environmental education and interpretation).

**National Wildlife  
Refuge System  
Mission:**

The mission is to administer a national network of lands and waters for the conservation, management, and where appropriate, restoration of the fish, wildlife, and plant resources and their habitats within the United States for the benefit of present and future generations of Americans.

**National Wildlife  
Refuge System:**

Various categories of areas administered by the Secretary of the Interior for the conservation of fish and wildlife, including species threatened with extinction; all lands, waters, and interests therein administered by the Secretary as wildlife refuges; areas for the protection and conservation of fish and wildlife that are threatened with extinction; wildlife ranges; games ranges; wildlife management areas; or waterfowl production areas.

**National Wildlife  
Refuge:**

A designated area of land, water, or an interest in land or water within the Refuge System.

**Native Species:**

Species that normally live and thrive in a particular ecosystem.

**Notice of Intent (NOI):**

A notice that a comprehensive conservation plan will be prepared and considered (40 CFR 1508.22). Published in the Federal Register.

**Noxious Weed:**

A plant species designated by Federal or State law as generally possessing one or more of the following characteristics: aggressive or difficult to manage; parasitic; a carrier or host of serious insect or disease; or non-native, new, or not common to the United States, according to the Federal Noxious Weed Act (PL 93-639). A noxious weed is one that causes disease or had adverse effects on man or his environment and therefore is detrimental to the agriculture and commerce of the United States and to the public health.

**Objective:**

A concise statement of what we want to achieve, how much we want to achieve, when and where we want to achieve it, and who is responsible for the work. Objectives derive from goals and provide the basis for determining strategies, monitoring refuge accomplishments, and evaluating the success of strategies. Making objectives attainable, time-specific, and measurable (Service Manual 602 FW 1.6N).

**Plant Association:**

A classification of plant communities based on the similarity in dominants of all layers of vascular species in a climax community.

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<b>Plant Community:</b>	An assemblage of plant species unique in its composition; occurs in particular locations under particular influences; a reflection or integration of the environmental influences on the site such as soils, temperature, elevation, solar radiation, slope, aspect, and rainfall; denotes a general kind of climax plant community.
<b>Preferred Alternative:</b>	This is the alternative determined [by the decision-maker] that best achieves the refuge purpose, vision, and goals; contributes to the Refuge System mission, addresses the significant issues; and is consistent with principles of sound fish and wildlife management.
<b>Prescribed Fire:</b>	The application of fire to wildland fuels to achieve identified land use objectives (Service Manual 621 FW 1.7). May be from natural ignition or intentional ignition.
<b>Priority Species:</b>	Fish and wildlife species that the Service believes require protective measures and/or management guidelines to ensure their perpetuation. Priority species include the following: (1) State-listed and candidate species; (2) species or groups of animals susceptible to significant population declines within a specific area or statewide by virtue of their inclination to aggregate (e.g., seabird colonies); and (3) species of recreation, commercial, and/or tribal importance.
<b>Public Involvement Plan:</b>	Broad long-term guidance for involving the public in the comprehensive planning process.
<b>Public Involvement:</b>	A process that offers impacted and interested individuals and organizations an opportunity to become informed about, and to express their opinions on Service actions and policies. In the process, these views are studied thoroughly and thoughtful consideration of public views is given in shaping decisions for refuge management.
<b>Public:</b>	Individuals, organizations, and groups; officials of federal, state, and local government agencies; Indian tribes; and foreign nations. It may include anyone outside the core planning team. It includes those who may or may not have indicated an interest in service issues and those who do or do not realize that Service decisions may affect them.
<b>Purposes of the Refuge:</b>	“The purposes specified in or derived from the law, proclamation, executive order, agreement, public land order, donation document, or administrative memorandum establishing, authorizing, or expanding a refuge, refuge unit, or refuge sub-unit.” For refuges that encompass congressionally designated wilderness, the purposes of the Wilderness Act are additional purposes of the refuge (Service Manual 602 FW 106 S).



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<b>Recommended Wilderness:</b>	Areas studied and found suitable for wilderness designation by both the Director of the Fish and Wildlife Service and the Secretary of the Department of the Interior, and recommended for designation by the President to Congress. These areas await only legislative action by Congress in order to become part of the Wilderness System. Such areas are also referred to as “pending in Congress.” (Draft Service Manual 610 FW 1.5).
<b>Record of Decision (ROD):</b>	A concise public record of decision prepared by the federal agency, pursuant to NEPA, that contains a statement of the decision, identification of all alternatives considered, identification of the environmentally preferable alternative, a statement as to whether all practical means to avoid or minimize environmental harm from the alternative selected have been adopted (and if not, why they were not), and a summary of monitoring and enforcement where applicable for any mitigation (40 CFR 1505.2).
<b>Refuge Goal:</b>	See Goal.
<b>Refuge Purposes:</b>	See Purposes of the Refuge.
<b>Songbirds:</b> (Also Passerines)	A category of birds that is medium to small, perching landbirds. Most are territorial singers and migratory.
<b>Splay</b>	Splay in biological terms is a vegetated, emergent marsh that develops from sediments deposited in open water as a result of overflow of the natural banks or levees of a river or channel or as the result of a natural or created crevasse or sediment diversion.
<b>Step-down Management Plan:</b>	A plan that provides specific guidance on management subjects (e.g., habitat, public use, fire, safety) or groups of related subjects. It describes strategies and implementation schedules for meeting CCP goals and objectives (Service Manual 602 FW 1.6 U).
<b>Strategy:</b>	A specific action, tool, technique, or combination of actions, tools, and techniques used to meet unit objectives (Service Manual 602 FW 1.6 U).
<b>Threatened Species (Federal):</b>	Species listed under the Endangered Species Act that are likely to become endangered within the foreseeable future throughout all or a significant portion of their range.
<b>Threatened Species (State):</b>	A plant or animal species likely to become endangered in the state within the near future if factors contributing to population decline or habitat degradation or loss continue.

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<b>Tiering:</b>	The coverage of general matters in broader environmental impact statements with subsequent narrower statements of environmental analysis, incorporating by reference, the general discussions and concentrating on specific issues (40 CFR 1508.28).
<b>U.S. Fish and Wildlife Service Mission:</b>	The mission of the U.S. Fish and Wildlife Service is working with others to conserve, protect, and enhance fish and wildlife and their habitats for the continuing benefit of the American people.
<b>Unit Objective:</b>	See Objective.
<b>Vegetation Type, Habitat Type, Forest Cover Type:</b>	A land classification system based upon the concept of distinct plant associations.
<b>Vision Statement:</b>	A concise statement of what the planning unit should be, or what we hope to do, based primarily upon the Refuge System mission and specific refuge purposes, and other mandates. We will tie the vision statement for the refuge to the mission of the Refuge System; the purpose(s) of the refuge; the maintenance or restoration of the ecological integrity of each refuge and the Refuge System; and other mandates (Service Manual 602 FW 1.6 Z).
<b>Wilderness Study Areas:</b>	<p>Lands and waters identified through inventory as meeting the definition of wilderness and undergoing evaluation for recommendation for inclusion in the Wilderness System. A study area must meet the following criteria:</p> <ul style="list-style-type: none"> <li>▪ Generally appears to have been affected primarily by the forces of nature, with the imprint of man's work substantially unnoticeable;</li> <li>▪ Has outstanding opportunities for solitude or a primitive and unconfined type of recreation;</li> <li>▪ Has at least 5,000 contiguous roadless acres or is sufficient in size as to make practicable its preservation and use in an unimpaired condition (Draft Service Manual 610 FW 1.5).</li> </ul>
<b>Wilderness:</b>	See Designated Wilderness.
<b>Wildfire:</b>	A free-burning fire requiring a suppression response; all fire other than prescribed fire that occurs on wildlands (Service Manual 621 FW 1.7).
<b>Wildland Fire:</b>	Every wildland fire is either a wildfire or a prescribed fire (Service Manual 621 FW 1.3).

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## ACRONYMS AND ABBREVIATIONS

BCC	Birds of Conservation Concern
BRT	Biological Review Team
CBRA	Coastal Barrier Resources Act of 1982
CCP	Comprehensive Conservation Plan
CFR	Code of Federal Regulations
cfs	cubic feet per second
CIAP	Coastal Impact Assistance Program
CWCS	Comprehensive Wildlife Conservation Strategy
CWPPRA	Coastal Wetland Planning, Protection, and Restoration Act
COE	US Army Corps of Engineers
DOI	Department of the Interior
DU	Ducks Unlimited
EA	Environmental Assessment
EE	Environmental Education
EIS	Environmental Impact Statement
EO	Executive Order
EPA	U.S. Environmental Protection Agency
ESA	Endangered Species Act
FONSI	Finding of No Significant Impact
FR	Federal Register
FTE	Full-time Equivalent
FY	Fiscal Year
GIS	Global Information System
GIW	Gulf Intracoastal Waterway
GCJV	Gulf Coast Joint Venture
IPCC	Intergovernmental Panel on Climate Change
LCA	Louisiana Coastal Area
LDWF	Louisiana Department of Wildlife and Fisheries
LMRE	Lower Mississippi River Ecosystem
MMS	Mineral Management Service
MOU	Memorandum of Understanding
NABCI	North American Bird Conservation Initiative
NEPA	National Environmental Policy Act
NMFS	National Marine Fisheries Society
NRHP	National Register of Historic Places
NWR	National Wildlife Refuge
NWRS	National Wildlife Refuge System
PFT	Permanent Full Time
PUNA	Public Use Natural Area
RM	Refuge Manual
RNA	Research Natural Area
ROD	Record of Decision
RONs	Refuge Operating Needs System
RRP	Refuge Roads Program
Service	U.S. Fish and Wildlife Service (also, FWS)
TFT	Temporary Full Time
TGCE	Texas Gulf Coast Ecosystem
USC	United States Code
USFWS	U.S. Fish and Wildlife Service
USGS	U.S. Geologic Survey



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## *Appendix C. Relevant Legal Mandates and Executive Orders*

STATUE	DESCRIPTION
Administrative Procedures Act (1946)	Outlines administrative procedures to be followed by federal agencies with respect to identification of information to be made public; publication of material in the Federal Register; maintenance of records; attendance and notification requirements for specific meetings and hearings; issuance of licenses; and review of agency actions.
American Antiquities Act of 1906	Provides penalties for unauthorized collection, excavation, or destruction of historic or prehistoric ruins, monuments or objects of antiquity on lands owned or controlled by the United States. Authorizes the President to designate as national monuments objects or areas of historic or scientific interest on lands owned or controlled by the United States.
American Indian Religious Freedom Act of 1978	Protects the inherent right of Native Americans to believe, express, and exercise their traditional religions, including access to important sites, use and possession of sacred objects, and the freedom to worship through ceremonial and traditional rites.
Americans With Disabilities Act of 1990	Intended to prevent discrimination of and make American Society more accessible to people with disabilities. The Act requires reasonable accommodations to be made in employment, public services, public accommodations, and telecommunications for persons with disabilities.
Anadromous Fish Conservation Act of 1965, as amended	Authorizes the Secretaries of Interior and Commerce to enter into cooperative agreements with states and other non-federal interest for conservation, development, and enhancement of anadromous fish; and contribute up to 50 percent as the federal share of the cost of carrying out such agreements. Reclamation construction programs for water resource projects needed solely for such fish are also authorized.
Archaeological Resources Protection Act of 1979, as amended.	Strengthens and expands the protective provisions of the Antiquities Act of 1906 regarding archaeological resources. It also revised the permitting process for archaeological research.

STATUE	DESCRIPTION
Architectural Barriers Act of 1968	Requires that buildings and facilities designed, constructed, or altered with federal funds, or leased by a federal agency, comply with standards for physical accessibility.
Bald and Golden Eagle Protection Act of 1940, as amended	Prohibits the possession, sale, or transport of any bald or golden eagle, alive or dead, or part, nest, or egg except as permitted by the Secretary of the Interior for scientific or exhibition purposes, or for the religious purposes of Indians.
Bankhead-Jones Farm Tenant Act of 1937	Directs the Secretary of Agriculture to develop a program of land conservation and utilization in order to correct maladjustments in land use and thus assist in such things as control of soil erosion, reforestation, preservation of natural resources, and protection of fish and wildlife. Some early refuges and hatcheries were established under authority of this Act.
Cave Resources Protection Act of 1988	Established requirements for the management and protection of caves and their resources on federal lands, including allowing the land managing agencies to withhold the location of caves from the public, and requiring permits for any removal or collecting activities in caves on federal lands.
Clean Air Act of 1970	Regulates air emissions from area, stationary, and mobile sources. This Act and its amendments charge federal land managers with direct responsibility to protect the “air quality and related values” of land under their control. These values include fish, wildlife, and their habitats.
Clean Water Act of 1974, as amended	This Act and its amendments have as their objectives the restoration and maintenance of the chemical, physical, and biological integrity of the Nation’s waters. Section 401 of the Act requires that federally permitted activities comply with the Clean Water Act standards, state water quality laws, and any other appropriate state laws. Section 404 charges the COE with regulating discharge of dredge or fill materials into waters of the United States, including wetlands.
Coastal Barrier Resources Act of 1982 (CBRA)	Identifies undeveloped coastal barriers along the Atlantic and Gulf coasts and included them in the John H. Chafee Coastal Barrier Resources System (CBRS). The objectives of the Act are to minimize loss of human life, reduce wasteful federal expenditures, and minimize the damage to natural resources by restricting most federal expenditures that encourage development within the CBRS.

STATUE	DESCRIPTION
Coastal Barrier Improvement Act of 1990	Reauthorized the CBRA, expanded the CBRS to include undeveloped coastal barriers along the Great Lakes and in the Caribbean, and established “Otherwise Protected Areas (OPAs).” The Service is responsible for maintaining official maps, consulting with federal agencies that propose spending federal funds within the CBRS and OPAs, and making recommendations to Congress about proposed boundary revisions.
Coastal Wetlands Planning, Protection, and Restoration (1990)	Authorizes the Director of the Fish and Wildlife Service to participate in the development of a Louisiana coastal wetlands restoration program, participate in the development and oversight of a coastal wetlands conservation program, and lead in the implementation and administration of a national coastal wetlands grant program.
Coastal Zone Management Act of 1972, as amended	Established a voluntary national program within the Department of Commerce to encourage coastal states to develop and implement coastal zone management plans and requires that “any Federal activity within or outside of the coastal zone that affects any land or water use or natural resource of the coastal zone” shall be “consistent to the maximum extent practicable with the enforceable policies” of a State’s coastal zone management plan. The law includes an Enhancement Grants Program for protecting, restoring or enhancing existing coastal wetlands or creating new coastal wetlands. It also established the National Estuarine Reserve Research System, guidelines for estuarine research, and financial assistance for land acquisition.
Emergency Wetlands Resources Act of 1986	Authorized the purchase of wetlands from Land and Water Conservation Fund moneys, removing a prior prohibition on such acquisitions. Requires the Secretary of the Interior to establish a National Wetlands Priority Conservation Plan, requires the states to include wetlands in their comprehensive outdoor recreation plans, and transfers to the Migratory Bird Conservation Fund amounts equal to import duties on arms and ammunition. It also established entrance fees at national wildlife refuges.
Endangered Species Act of 1973, as amended	Provides for the conservation of threatened and endangered species of fish, wildlife, and plants by federal action and by encouraging the establishment of state programs. It provides for the determination and listing of threatened and endangered species and the designation of critical habitats. Section 7 requires refuge managers to perform internal consultation before initiating projects that affect or may affect endangered species.

STATUE	DESCRIPTION
Energy Policy Act of 2005	Includes a section that establishes the Coastal Impact Assistance Program (CIAP), authorizing funds to outer continental shelf oil and gas producing states to mitigate the impact of oil and gas activities.
Environmental Education Act of 1990	Established the Office of Environmental Education within the Environmental Protection Agency to develop and administer a federal environmental education program in consultation with other federal natural resource management agencies, including the Fish and Wildlife Service.
Estuary Protection Act of 1968	Authorized the Secretary of the Interior, in cooperation with other federal agencies and the states, to study and inventory estuaries of the United States, including land and water of the Great Lakes, and to determine whether such areas should be acquired for protection. The Secretary is also required to encourage state and local governments to consider the importance of estuaries in their planning activities that relate to federal natural resource grants. In approving any state grants for acquisition of estuaries, the Secretary is required to establish conditions to ensure their permanent protection.
Estuaries and Clean Waters Act of 2000	Creates a federal interagency council that includes the Director of the Fish and Wildlife Service, the Secretary of the Army for Civil Works, the Secretary of Agriculture, the Administrator of the Environmental Protection Agency, and the Administrator of the National Oceanic and Atmospheric Administration. The Council is charged with developing a national estuary habitat restoration strategy and providing grants to entities to restore and protect estuary habitat to promote the strategy.
Food Security Act of 1985, as amended (Farm Bill)	Contains several provisions that contribute to wetland conservation. The Swampbuster provisions state that farmers who convert wetlands for the purpose of planting after enactment of the law are ineligible for most farm program subsidies. The Act also established the Wetlands Reserve Program to restore and protect wetlands through easements and restoration of the functions and values of wetlands on such easement areas.
Farmland Protection Policy Act of 1981, as amended	Minimizes the extent to which federal programs contribute to the unnecessary conversion of farmland to nonagricultural uses. Federal programs include construction projects and the management of federal lands.

STATUE	DESCRIPTION
Federal Advisory Committee Act (1972), as amended	Governs the establishment of and procedures for committees that provide advice to the federal government. Advisory committees may be established only if they will serve a necessary, non-duplicative function. Committees must be strictly advisory unless otherwise specified and meetings must be open to the public.
Federal Coal Leasing Amendment Act of 1976	Provided that nothing in the Mining Act, the Mineral Leasing Act, or the Mineral Leasing Act for Acquired Lands authorized mining coal on refuges.
Federal-Aid Highways Act of 1968	Established requirements for approval of federal highways through wildlife refuges and other designated areas to preserve the natural beauty of such areas. The Secretary of Transportation is directed to consult with the Secretary of the Interior and other federal agencies before approving any program or project requiring the use of land under their jurisdiction.
Federal Noxious Weed Act of 1990, as amended	The Secretary of Agriculture was given the authority to designate plants as noxious weeds and to cooperate with other federal, state and local agencies; farmers associations; and private individuals in measures to control, eradicate, prevent, or retard the spread of such weeds. The Act requires each federal land-managing agency, including the Fish and Wildlife Service, to designate an office or person to coordinate a program to control such plants on the agency's land, and implement cooperative agreements with the states, including integrated management systems to control undesirable plants.
Fish and Wildlife Act of 1956	Established a comprehensive national fish, shellfish, and wildlife resources policy with emphasis on the commercial fishing industry, but also includes the inherent right of every citizen and resident to fish for pleasure, enjoyment, and betterment, and to maintain and increase public opportunities for recreational use of fish and wildlife resources. Among other things, it authorizes the Secretary of the Interior to take such steps as may be required for the development, advancement, management, conservation and protection of fish and wildlife resources including, but not limited to, research, development of existing facilities, and acquisition by purchase or exchange of land and water or interests therein.
Fish and Wildlife Conservation Act of 1980, as amended	Requires the Service to monitor non-gamebird species, identify species of management concern, and implement conservation measures to preclude the need for listing under the Endangered Species Act.

STATUE	DESCRIPTION
Fish and Wildlife Coordination Act of 1958	Promotes equal consideration and coordination of wildlife conservation with other water resource development programs by requiring consultation with the Fish and Wildlife Service and the state fish and wildlife agencies where the “waters of a stream or other body of water are proposed or authorized, permitted or licensed to be impounded, diverted...or otherwise controlled or modified” by any agency under federal permit or license.
Improvement Act of 1978	Passed to improve the administration of fish and wildlife programs and amend several earlier laws, including the Refuge Recreation Act, the National Wildlife Refuge Administration Act, and the Fish and Wildlife Act of 1956. It authorizes the Secretary to accept gifts and bequests of real and personal property on behalf of the United States. It also authorizes the use of volunteers on Service projects and appropriations to carry out volunteer programs.
Fish and Wildlife Programs Improvement and National Wildlife Refuge System Centennial Act of 2000	Recognizes the vital importance of the Refuge System and the fact that the Refuge System would celebrate its centennial anniversary in the year 2003. Established the National Wildlife Refuge System Centennial Commission to prepare a plan to commemorate the 100th anniversary of the Refuge System, coordinate activities to celebrate that event, and host a conference on the Refuge System. The commission is also responsible for developing a long-term plan to meet the priority operations; maintenance and construction needs for the Refuge System, and improve public use programs and facilities.
Fishery (Magnuson) Conservation and Management Act of 1976	Established Regional Fishery Management Councils comprised of federal and state officials including the Fish and Wildlife Service. It provides for regulation of foreign fishing and vessel fishing permits.
Freedom of Information Act, 1966	Requires all federal agencies to make available to the public for inspection and copying administrative staff manuals and staff instructions; official, published and unpublished policy statements; final orders deciding case adjudication; and other documents. Special exemptions have been reserved for nine categories of privileged material. The Act requires the party seeking the information to pay reasonable search and duplication costs.
Geothermal Steam Act of 1970, as amended	Authorizes and governs the lease of geothermal steam and related resources on public lands. Section 15c of the Act prohibits issuing geothermal leases on virtually all Service-administrative lands.



STATUE	DESCRIPTION
Lacey Act of 1900, as amended	Originally designed to help states protect their native game animals and to safeguard U.S. crop production from harmful foreign species. This Act prohibits interstate and international transport and commerce of fish, wildlife, or plants taken in violation of domestic or foreign laws. It regulates the introduction to America of foreign species into new locations.
Land and Water Conservation Fund Act of 1948	Provides funding through receipts from the sale of surplus federal land, appropriations from oil and gas receipts from the outer continental shelf, and other sources for land acquisition under several authorities. Appropriations from the fund may be used for matching grants to states for outdoor recreation projects and for land acquisition by various federal agencies including the Fish and Wildlife Service.
Marine Mammal Protection Act of 1972, as amended	The 1972 Marine Mammal Protection Act established a federal responsibility to conserve marine mammals with management vested in the Department of the Interior for sea otter, walrus, polar bear, dugong, and manatee. The Department of Commerce is responsible for cetaceans and pinnipeds, other than the walrus. With certain specified exceptions, the Act establishes a moratorium on the taking and importing of marine mammals, as well as products taken from them.
Migratory Bird Conservation Act of 1929	Established a Migratory Bird Conservation Commission to approve areas recommended by the Secretary of the Interior for acquisition with Migratory Bird Conservation Funds. The role of the Commission was expanded by the North American Wetland Conservation Act to include approving wetlands acquisition, restoration, and enhancement proposals recommended by the North American Wetlands Conservation Council.
Migratory Bird Hunting and Conservation Stamp Act of 1934	Also commonly referred to as the Duck Stamp Act,” requires waterfowl hunters 16 years of age or older to possess a valid federal hunting stamp. Receipts from the sale of the stamp are deposited into the Migratory Bird Conservation Fund for the acquisition of migratory bird refuges.
Migratory Bird Treaty Act of 1918, as amended	Implements various treaties and conventions between the U.S. and Canada, Japan, Mexico and the former Soviet Union for the protection of migratory birds. Except as allowed by special regulations, this Act makes it unlawful to pursue, hunt, kill, capture, possess, buy, sell, purchase, barter, export, or import any migratory bird, part, nest, egg, or product.

STATUE	DESCRIPTION
Mineral Leasing Act for Acquired Lands (1947), as amended	Authorizes and governs mineral leasing on acquired public lands.
Minerals Leasing Act of 1920, as amended	Authorizes and governs leasing of public lands for development of deposits of coal, oil, gas and other hydrocarbons, sulphur, phosphate, potassium, and sodium. Section 185 of this title contains provisions relating to granting rights-of-way over federal lands for pipelines.
Mining Act of 1872, as amended	Authorizes and governs prospecting and mining for the so-called “hardrock” minerals (such as gold and silver) on public lands.
National and Community Service Act of 1990	Authorizes several programs to engage citizens of the U.S. in full-and/or part-time projects designed to combat illiteracy and poverty, provide job skills, enhance educational skills, and fulfill environmental needs. Among other things, this law established the American Conservation and Youth Service Corps to engage young adults in approved human and natural resource projects, which will benefit the public or are carried out on federal or tribal lands.
National Environmental Policy Act of 1969	Requires analysis, public comment, and reporting for environmental impacts of federal actions. It stipulates the factors to be considered in environmental impact statements, and requires that federal agencies employ an interdisciplinary approach in related decision-making and develop means to ensure that unqualified environmental values are given appropriate consideration, along with economic and technical considerations.
National Historic Preservation Act of 1966, as amended	Established a National Register of Historic Places and a program of matching grants for preservation of significant historical features. Federal agencies are directed to take into account the effects of their actions on items or sites listed or eligible for listing in the National Register.
National Trails System Act (1968), as amended	Established the National Trails System to protect the recreational, scenic, and historic values of some important trails. National Recreation Trails may be established by the Secretary of Interior or Agriculture on land wholly or partly within their jurisdiction, with the consent of the involved State(s), and other land managing agencies, if any. National scenic and national historic trails may only be designated by an Act of Congress. Several national trails cross units of the National Wildlife Refuge System.

STATUE	DESCRIPTION
National Wildlife Refuge System Administration Act of 1966	Prior to 1966, there was no single federal law that governed the administration of the various wildlife refuges that had been established. This Act defines the National Wildlife Refuge System and authorizes the Secretary of the Interior to permit any use of an area provided such use is compatible with the major purposes(s) for which the area was established.
National Wildlife Refuge System Improvement Act of 1997	This Act amends the National Wildlife Refuge System Administration Act of 1966. This Act defines the mission of the National Wildlife Refuge System, establishes the legitimacy and appropriateness of six priority “wildlife-dependent” public uses, establishes a formal process for determining “compatible uses” of Refuge System lands, identifies the Secretary of the Interior as responsible for managing and protecting the Refuge System, and requires the development of a comprehensive conservation plan for all refuges outside of Alaska.
Native American Graves Protection and Repatriation Act of 1990	Requires federal agencies and museums to inventory, determine ownership of, and repatriate certain cultural items and human remains under their control or possession. The Act also addresses the repatriation of cultural items inadvertently discovered by construction activities on lands managed by the agency.
Neotropical Migratory Bird Conservation Act of 2000	Establishes a matching grants program to fund projects that promote the conservation of neotropical migratory birds in the United States, Latin America, and the Caribbean.
North American Wetlands Conservation Act of 1989	Provides funding and administrative direction for implementation of the North American Waterfowl Management Plan and the Tripartite Agreement on wetlands between Canada, U.S., and Mexico. North American Wetlands Conservation Council is created to recommend projects to be funded under the Act to the Migratory Bird Conservation Commission. Available funds may be expended for up to 50 percent of the United States share cost of wetlands conservation projects in Canada, Mexico, or the United States (or 100 percent of the cost of projects on federal lands).
Refuge Recreation Act of 1962, as amended	Authorized the Secretary of the Interior to administer refuges, hatcheries, and other conservation areas for recreational use, when such uses do not interfere with the area’s primary purposes. It authorizes construction and maintenance of recreational facilities and the acquisition of land for incidental fish and wildlife-dependent recreational development or protection of natural resources. It also authorizes the charging of fees for public uses.

STATUE	DESCRIPTION
Partnerships for Wildlife Act of 1992	Established a Wildlife Conservation and Appreciation Fund to receive appropriated funds and donations from the National Fish and Wildlife Foundation and other private sources to assist the state fish and game agencies in carrying out their responsibilities for conservation of non-game species. The funding formula is no more than 1/3 federal funds, at least 1/3 foundation funds, and at least 1/3 state funds.
Refuge Revenue Sharing Act of 1935, as amended	Provided for payments to counties in lieu of taxes from areas administered by the Fish and Wildlife Service. Counties are required to pass payments along to other units of local government within the county, which suffer losses in tax revenues due to the establishment of Service areas.
Rehabilitation Act of 1973	Requires nondiscrimination in the employment practices of federal agencies of the executive branch and contractors. It also requires all federally assisted programs, services, and activities to be available to people with disabilities.
Rivers and Harbors Appropriations Act of 1899, as amended	Requires the authorization by the COE prior to any work in, on, over, or under navigable waters of the United States. The Fish and Wildlife Coordination Act provides authority for the Service to review and comment on the effects on fish and wildlife activities proposed to be undertaken or permitted by the COE. Service concerns include contaminated sediments associated with dredge or fill projects in navigable waters.
Sikes Act (1960), as amended	Provides for the cooperation by the Departments of Interior and Defense with state agencies in planning, development, and maintenance of fish and wildlife resources and outdoor recreation facilities on military reservations throughout the U.S. It requires the Secretary of each military department to use trained professionals to manage the wildlife and fishery resource under his jurisdiction, and requires federal and state fish and wildlife agencies be given priority in management of fish and wildlife activities on military reservations.
Transfer of Certain Real Property for Wildlife Conservation Purposes Act of 1948	Provides that upon determination by the Administrator of the General Services Administration, real property no longer needed by a Federal agency can be transferred, without reimbursement, to the Secretary of the Interior if the land has particular value for migratory birds, or to a state agency for other wildlife conservation purposes.

STATUE	DESCRIPTION
Transportation Equity Act for the 21st Century (1998)	Established the Refuge Roads Program, requires transportation planning that includes public involvement, and provides funding for approved public use roads and trails and associated parking lots, comfort stations, and bicycle/pedestrian facilities.
Uniform Relocation and Assistance and Real Property Acquisition Policies Act (1970), as amended	Provides for uniform and equitable treatment of persons who sell their homes, businesses, or farms to the Service. The Act requires that any purchase offer be no less than the fair market value of the property.
Water Resources Planning Act of 1965	Established Water Resources Council to be composed of Cabinet representatives, including the Secretary of the Interior. The Council reviews river basin plans with respect to agricultural, urban, energy, industrial, recreational, and fish and wildlife needs. The Act also established a grant program to assist States in participating in the development of related comprehensive water and land use plans.
Wild and Scenic Rivers Act of 1968, as amended	Selects certain rivers of the nation possessing remarkable scenic, recreational, geologic, fish and wildlife, historic, cultural, or other similar values; preserves them in a free-flowing condition; and protects their local environments.
Wilderness Act of 1964, as amended	Directs the Secretary of the Interior to review every roadless area of 5,000 acres or more and every roadless island regardless of size within the National Wildlife Refuge System and to recommend suitability of each such area. The Act permits certain activities within designated wilderness areas that do not alter natural processes. Wilderness values are preserved through a “minimum tool” management approach, which requires refuge managers to use the least intrusive methods, equipment and facilities necessary for administering the areas.
Youth Conservation Corps Act of 1970	Established a permanent Youth Conservation Corps (YCC) program within the Departments of Interior and Agriculture. Within the Service, YCC participants perform many tasks on refuges, fish hatcheries, and research stations.

EXECUTIVE ORDERS	DESCRIPTIONS
EO 11593, Protection and Enhancement of the Cultural Environment (1971)	States that if the Service proposes any development activities that may affect the archaeological or historic sites, the Service will consult with Federal and State Historic Preservation Officers to comply with Section 106 of the National Historic Preservation Act of 1966, as amended.
EO 11644, Use of Off-road Vehicles on Public Land (1972)	Established policies and procedures to ensure that the use of off-road vehicles on public lands will be controlled and directed so as to protect the resources of those lands, to promote the safety of all users of those lands, and to minimize conflicts among the various uses of those lands.
EO 11988, Floodplain Management (1977)	Prevent federal agencies from contributing to the “adverse impacts associated with occupancy and modification of floodplains” and the “direct or indirect support of floodplain development.” In the course of fulfilling their respective authorities, federal agencies “shall take action to reduce the risk of flood loss, to minimize the impact of floods on human safety, health, and welfare, and to restore and preserve the natural and beneficial values served by floodplains.
EO 11989 (1977), Amends Section 2 of EO 11644	Directs agencies to close areas negatively impacted by off-road vehicles.
EO 11990, Protection of Wetlands (1977)	Directs federal agencies to provide leadership and take action to minimize the destruction, loss of degradation of wetlands, and to preserve and enhance the natural and beneficial values of wetlands.
EO 12372, Intergovernmental Review of Federal Programs (1982)	Seeks to foster intergovernmental partnerships by requiring federal agencies to use the state process to determine and address concerns of state and local elected officials with proposed federal assistance and development programs.
EO 12898, Environmental Justice (1994)	Requires federal agencies to identify and address disproportionately high and adverse effects of its programs, policies, and activities on minority and low-income populations.

EXECUTIVE ORDERS	DESCRIPTIONS
<p>EO 12906, Coordinating Geographical Data Acquisition and Access (1994), Amended by EO 13286 (2003). Amendment of EO's and other actions in connection w/ transfer of certain functions to Secretary of DHS.</p>	<p>Recommended that the executive branch develop, in cooperation with state, local, and tribal governments, and the private sector, a coordinated National Spatial Data Infrastructure to support public and private sector applications of geospatial data. Of particular importance to CCP planning is the National Vegetation Classification System (NVCS), which is the adopted standard for vegetation mapping. Using NVCS facilitates the compilation of regional and national summaries, which, in turn, can provide an ecosystem context for individual refuges.</p>
<p>EO 12962, Recreational Fisheries (1995)</p>	<p>Directs federal agencies to improve the quantity, function, sustainable productivity, and distribution of U.S. aquatic resources for increased recreational fishing opportunities in cooperation with states and Tribes.</p>
<p>EO 13007, Native American Religious Practices (1996)</p>	<p>Provides for access to, and ceremonial use of, Indian sacred sites on federal lands used by Indian religious practitioners and direction to avoid adversely affecting the physical integrity of such sites.</p>
<p>EO 13061, Federal Support of Community Efforts Along American Heritage Rivers (1997)</p>	<p>Established the American Heritage Rivers initiative for the purpose of natural resource and environmental protection, economic revitalization, and historic and cultural preservation. The Act directs federal agencies to preserve, protect, and restore rivers and their associated resources important to our history, culture, and natural heritage.</p>
<p>EO 13084, Consultation and Coordination With Indian Tribal Governments (2000)</p>	<p>Provides a mechanism for establishing regular and meaningful consultation and collaboration with tribal officials in the development of federal policies that have tribal implications.</p>
<p>EO 13112, Invasive Species (1999)</p>	<p>Directs federal agencies to prevent the introduction of invasive species, detect and respond rapidly to and control populations of such species in a cost effective and environmentally sound manner, accurately monitor invasive species, provide for restoration of native species and habitat conditions, conduct research to prevent introductions, to control invasive species, and to promote public education on invasive species and the means to address them. This EO replaces and rescinds EO 11987, Exotic Organisms (1977).</p>

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EXECUTIVE ORDERS	DESCRIPTIONS
EO 13186, Responsibilities of Federal Agencies to Protect Migratory Birds. (2001)	Instructs federal agencies to conserve migratory birds by several means, including the incorporation of strategies and recommendations found in Partners in Flight Bird Conservation plans, the North American Waterfowl Plan, the North American Waterbird Conservation Plan, and the United States Shorebird Conservation Plan, into agency management plans and guidance documents.



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# Appendix D. Public Involvement

## SUMMARY OF PUBLIC SCOPING COMMENTS

*Public involvement process:* The notice of intent to prepare the draft comprehensive conservation plan was published in the Federal Register on June 27, 2007. The public was notified in the local newspapers and media of an open house meeting held on July 11, 2007, at the Central School in Lake Charles, Louisiana. Approximately 11 members of the public attended the open house and scoping meeting. In addition, information packets, including a letter of notice and invitation to attend, public input questionnaire, and mailing list request form were mailed to approximately 90 different federal, state, non-governmental agencies, state and federal congressional offices, and private individuals. Seven individuals provided comments at the scoping meeting; no other comments were received.

*State involvement and date of initial contact:* The Louisiana Department of Wildlife and Fisheries (LDWF) was contacted in May 2007, with an invite for state involvement in the comprehensive conservation planning process. We received word from LDWF of their agreement to participate.

### Major Issues Identified:

- *Internally:* Major internal issues surrounding Shell Keys NWR include barrier island protection, global warming and sea level rise, adjacent oil well development, access to the refuge, management capabilities on the refuge, law enforcement issues regarding commercialized oyster shell dredging and regulating fishing or prohibited uses, partnerships with LDWF and Marsh Island Wildlife Refuge, and potential or lack of potential for boundary posting.

An important issue identified was increasing the potential for nesting and stop-over habitat for concentrations of shorebirds and colonial sea birds.

- *State:* The LDWF provided comments and a sincere willingness to participate in the Shell Keys NWR CCP. Comments included support for restoration by adding sand/shells to increase the elevation of Shell Keys NWR, interest in participating in cooperative management by staff from Marsh Island Wildlife Refuge, and continuing to restrict public access. LDWF believes restoration of Shell Keys NWR could be a great public relations opportunity in habitat and coastal restoration and could provide good shorebird/waterbird nesting habitat in southwest Louisiana.
- *Tribes:* Letters were provided to representatives of Tunica-Biloxi Indians of Louisiana, Coushatta Tribe of Louisiana, the Jena Band of Choctaw Indians of Louisiana, and the Chitimacha Tribe of Louisiana, requesting issues they would like to see addressed in the CCP and inviting them to participate in the process. No responses were received.
- *Partners:* Included above under Internal and State headings.
- *Public:* After reviewing all comments received from scoping, the planning team identified the following significant issues: (1) hurricane coastal barrier island and shoreline protection; (2) fishing opportunities; (3) access to the refuge; (4) global warming and sea level rise effects; (5) mineral exploration; (6) oyster shell dredging; and (7) shorebird and colonial waterbird nesting habitat and refuge.

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## **SUMMARY OF PUBLIC DRAFT CCP COMMENTS**

Public involvement in the development of the comprehensive conservation plan for Shell Keys NWR, Iberia Parish, Louisiana, was sought throughout the planning process. The issues and alternatives generated from the scoping meeting, coupled with the input of the planning team, are summarized in Chapter III of the CCP.

Approximately 100 copies of the Draft CCP/EA were made available for public review, beginning June 13, 2008, and ending July 14, 2008. A news release was sent to 21 local area media outlets. Copies of the Draft CCP/EA were posted at refuge headquarters and area locations and over 100 copies were distributed to local landowners; the public; and local, state, and federal agencies. Seven respondents consisting of the Service, the LDWF, and the National Oceanic and Atmospheric Administration submitted written comments by mail or email. Draft CCP comments and the Service response to those comments are summarized below.

### ***DRAFT CCP/EA COMMENTS AND SERVICE RESPONSE***

#### **General**

Four respondents provided general editorial comments.

*Service Response:* The Service will incorporate these changes where appropriate.

One respondent believes specific projects need to be developed for implementing Objectives A-2, C-2, D-2, E-1, and E-2.

*Service Response:* The Service will ensure the addition of these objectives with associated funding are incorporated or added to Chapter V, Plan Implementation, of the CCP when appropriate.

#### **Fish and Wildlife Population Management**

One respondent states oyster reefs and shell water bottoms in the vicinity of Shell Keys NWR have been designated as essential fish habitat (EFH) under provisions of the Magnuson-Stevens Fishery Conservation and Management Act (Magnuson-Stevens Act) for various life stages of red drum, brown shrimp, white shrimp, and Gulf stone crab. The respondent further states that any actions proposed that could adversely impact such habitats must be coordinated with National Marine Fisheries Service (NMFS) under provisions of the Magnuson-Stevens Act.

*Service Response:* The Service will ensure the inclusion of the EFH designation under the Magnuson-Stevens Act is cited throughout the CCP. The CCP only proposes to look into the feasibility of the large-scale habitat restoration and does not propose to implement this action until all biological, ecological, socio-economical, and economical impacts are thoroughly evaluated and determined to provide beneficial affects. Once an evaluation of how habitat restoration would occur, a simultaneous evaluation of impacts to EFH will be initiated in consultation with all appropriate partners and entities.

One respondent recommends the Intra-Service Section 7 Endangered Species Consultation Form should more explicitly identify the management action, potential impacts, and mitigation measures from the CCP.

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*Service Response:* The Service will ensure the impacts and mitigation measures from the CCP are included where appropriate; however, given the Section 7 Form is part and parcel of the CCP, only references to the action identified are needed.

### **Habitat Management**

One respondent believes the Service should design restoration features that minimize impacts to the large oyster reef complex located at the refuge (e.g., access route and containment dikes) into the habitat feasibility study.

*Service Response:* The Service agrees and references these specific design features in Goal B, Objective B-1.

One respondent believes increasing the size of the island will provide benefits to waterbirds and possibly reduce erosion along the Marsh Island Wildlife Refuge Gulf of Mexico Shoreline.

*Service Response:* The Service concurs and notes that the feasibility study will assess the impacts of increasing the size of the island in regards to benefits to fish and wildlife and erosion, among other impacts.

### **Resource Protection**

One respondent believes the Service in direct coordination with LDWF should ensure that any oyster seed ground areas within the boundary of Shell Keys NWR be dissolved and that oyster leases (if any) not be renewed to decrease oyster dredging and spreading in the area.

*Service Response:* The Services concurs and will work with LDWF to implement these changes. This information is added to the Resource Protection section of Chapter IV.

Two respondents believe the Service needs to clarify information related to oil and gas activities in the area of Shell Keys NWR to respond to any potential oil and gas spills and placement and future management of transmission pipeline rights-of-way. One respondent further states that if oil and gas activities are to occur on the refuge, the Service should analyze potential impacts in the Environmental Assessment.

*Service Response:* Currently, there is no oil and gas activity on the refuge. The Service has added clarifying language on how we would handle future requests, activities, and impacts to Chapters II and IV.

One respondent requests the Service clarify how Objective C-2 will address and meet Goal C.

*Service Response:* The Resource Protection goal was clarified to include language regarding cultural and historic resources as well as natural and petroleum resources.



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# Appendix E. Compatibility Determinations

## Shell Keys National Wildlife Refuge Compatibility Determination

**Uses:** The following uses were considered for compatibility determination:

- (1) Recreational fishing of saltwater fish in accordance with the State of Louisiana regulations; and
- (2) Wildlife observation/photography.

A description and the anticipated biological impacts for each use are addressed separately in this Compatibility Determination.

**Refuge Name:** Shell Keys National Wildlife Refuge

**Date Established:** August 17, 1907

**Establishing and Acquisition Authorities:** Shell Keys National Wildlife Refuge was established by Executive Order 682 for the purpose "...as a reserve and breeding ground for native birds."

**Refuge Purpose:** The refuge was established to provide sanctuary for nesting wading birds.

### National Wildlife Refuge System Mission:

The mission of the Refuge System, as defined by the National Wildlife Refuge System Improvement Act of 1997, is:

*... to administer a national network of lands and waters for the conservation, management, and where appropriate, restoration of the fish, wildlife and plant resources and their habitats within the United States for the benefit of present and future generations of Americans.*

### Other Applicable Laws, Regulations, and Policies:

Antiquities Act of 1906 (34 Stat. 225)  
Migratory Bird Treaty Act of 1918 (15 U.S.C. 703-711; 40 Stat. 755)  
Migratory Bird Conservation Act of 1929 (16 U.S.C. 715r; 45 Stat. 1222)  
Migratory Bird Hunting Stamp Act of 1934 (16 U.S.C. 718-178h; 48 Stat. 451)  
Criminal Code Provisions of 1940 (18 U.S.C. 41)  
Bald and Golden Eagle Protection Act (16 U.S.C. 668-668d; 54 Stat. 250)  
Refuge Trespass Act of June 25, 1948 (18 U.S.C. 41; 62 Stat. 686)  
Fish and Wildlife Act of 1956 (16 U.S.C. 742a-742j; 70 Stat. 1119)  
Refuge Recreation Act of 1962 (16 U.S.C. 460k-460k-4; 76 Stat. 653)  
Wilderness Act (16 U.S.C. 1131; 78 Stat. 890)  
Land and Water Conservation Fund Act of 1965  
National Historic Preservation Act of 1966, as amended (16 U.S.C. 470, et seq.; 80 Stat. 915)  
National Wildlife Refuge System Administration Act of 1966 (16 U.S.C. 668dd, 668ee; 80 Stat. 927)  
National Environmental Policy Act of 1969, NEPA (42 U.S.C. 4321, et seq; 83 Stat. 852)  
Use of Off-Road Vehicles on Public Lands (Executive Order 11644, as amended by Executive Order 10989)

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Endangered Species Act of 1973 (16 U.S.C. 1531 et seq; 87 Stat. 884)  
Refuge Revenue Sharing Act of 1935, as amended in 1978 (16 U.S.C. 715s; 92 Stat. 1319)  
National Wildlife Refuge Regulations for the Most Recent Fiscal Year  
(50 CFR Subchapter C; 43 CFR 3101.3-3)  
Emergency Wetlands Resources Act of 1986 (S.B. 740)  
North American Wetlands Conservation Act of 1990  
Food Security Act (Farm Bill) of 1990 as amended (HR 2100)  
The Property Clause of the U.S. Constitution Article IV 3, Clause 2  
The Commerce Clause of the U.S. Constitution Article 1, Section 8  
The National Wildlife Refuge System Improvement Act of 1997 (Public Law 105-57, USC668dd)  
Executive Order 12996, Management and General public Use of the National Wildlife Refuge  
System, March 25, 1996  
Title 50, Code of Federal Regulations, Parts 25-33  
Archaeological Resources Protection Act of 1979  
Native American Graves Protection and Repatriation Act of 1990

Compatibility determinations for each description listed are considered separately. Although, for brevity, the preceding sections from “Uses” through “Other Applicable Laws, Regulations and Policies” are only written once within the CCP, they are part of each descriptive use and become part of that compatibility determination if considered outside of the CCP.

#### **(1) Description of Use:** Recreational Fishing

Recreational fishing, a wildlife-dependent activity, has been identified in the National Wildlife Refuge System Improvement Act of 1997 as a priority public use, provided it is compatible with the purpose for which the refuge was established.

Recreational fishing of saltwater species will be open year-round on the refuge. Fishermen usually wade into the adjacent shallow areas. While fishing is a popular public use, fishing pressure should not be heavy due to access issues.

All fishing will fall within the framework of the State of Louisiana open seasons and follow state regulations. Refuge-specific regulations will be reviewed annually and incorporated into the refuge brochure. Fishermen are not required to possess refuge permits while fishing on the refuge. The entire refuge is open to fishing during hours of daylight, with the exception of areas posted with “Area Closed” signs as designated in the refuge brochure.

Recreational fishing is permitted with rod and reel or pole and line only. The use or possession of any other type of fishing gear is prohibited. No commercial fishing activities, including guiding or participating in a charter fishing trip, are permitted.

**Availability of Resources:** Funding for recreational fishing is supported by annual operation and maintenance funds. Costs include permit printing, administration, and monitoring of the activity.

**Anticipated Impacts of the Use:** While managed fishing opportunities result in impacts to individual fish, effects at the population level are usually negligible. The fish populations are capable of sustaining harvest because of the availability of abundant habitat in coastal Louisiana. Regulations for saltwater fishing are based on specific state-wide harvest objectives. State biologists set limits and harvest guidelines based on population survey and habitat condition data. Refuge fishing programs are always within these regulations. As currently proposed, the known and anticipated levels of disturbance of allowing fishing is considered minimal and well within the tolerance level of

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known fish species and populations present on the refuge. All fishing activities will be conducted with the constraints of sound biological principles and refuge-specific regulations established to restrict illegal or questionable activities. Monitoring activities through fish wildlife inventories in partnerships with the state and assessments of public use levels and activities will be utilized, and public use programs will be adjusted as needed to limit disturbance. Implementation of an effective law enforcement program and development of site-specific refuge regulations that are reviewed annually should minimize most problems.

**Public Review and Comment:** This compatibility determination was part of the Draft CCP/EA for Shell Keys NWR, which was announced in the *Federal Register* (73 FR 33848) on June 13, 2008, and made available for public comment until July 14, 2008. A news release was sent to 21 local area media outlets. Copies of the Draft CCP/EA were posted at refuge headquarters and area locations and over 100 copies were distributed to local landowners; the public; and local, state, and federal agencies.

**Determination (check one below):**

☐ Use is Not Compatible

☒ Use is Compatible with Following Stipulations

**Stipulations Necessary to Ensure Compatibility:**

- Access to areas of the refuge identified as “Area Closed” during nesting season for sea and shore birds will be instituted if nesting occurred.
- Refuge fishing hours open 30 minutes before legal sunrise to 30 minutes after sunset for all public use on the refuge.
- Trotlines, slat traps, nets, and jug fishing are prohibited.

**Justification:** The National Wildlife Refuge System Improvement Act of 1997 identified recreational fishing as one of the priority public uses on national wildlife refuges, where compatible with refuge purposes. This use is legitimate and appropriate and is dependent upon healthy wildlife populations. Offering recreational fishing is in compliance with refuge goals, is a management objective for Shell Keys NWR, and furthers the goals and missions of the National Wildlife Refuge System.

**Mandatory 15-year Re-evaluation Date:** 9/12/2023

**(2) Description of Use:** Wildlife Observation and Photography

Wildlife observation and photography have been identified in the National Wildlife Refuge System Improvement Act of 1997 as priority wildlife-dependent recreational uses provided they are compatible with the purpose for which the refuge was established.

Though photography and observation have occurred on the refuge, these activities are not currently open. However, opportunities exist for visitors traveling to the refuge to participate in these activities.

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The general public may participate in wildlife observation and photography year-round from one-half hour before sunrise to one-half hour after sunset in the open areas of the refuge. Boating is the only available access for these activities due to location and area.

**Availability of Resources:** Funding for wildlife observation and photography is supported by annual operation and maintenance funds. Costs include permit printing, administration, and monitoring of the activities.

**Anticipated Impacts of the Use:** Wildlife observation and photography should not have any significant adverse biological impacts. As currently proposed, the known and anticipated levels of disturbance of allowing these activities are considered minimal and well within the tolerance level of known fish and wildlife species and populations present on the refuge. Implementation of an effective law enforcement program and development of site-specific refuge regulations that are reviewed annually should minimize most problems.

**Public Review and Comment:** This compatibility determination was part of the Draft CCP/EA for Shell Keys NWR, which was announced in the *Federal Register* (73 FR 33848) on June 13, 2008, and made available for public comment until July 14, 2008. A news release was sent to 21 local area media outlets. Copies of the Draft CCP/EA were posted at refuge headquarters and area locations and over 100 copies were distributed to local landowners; the public; and local, state, and federal agencies.

**Determination (check one below):**

☐ Use is Not Compatible

☒ Use is Compatible with Following Stipulations

**Stipulations Necessary to Ensure Compatibility:**

- Access to areas of the refuge identified as "Area Closed" during nesting season for sea and shore birds will be implemented if nesting occurs.
- Refuge hours will open 30 minutes before legal sunrise to 30 minutes after sunset for all public use on the refuge.

**Justification:** The National Wildlife Refuge System Improvement Act of 1997 identified wildlife observation and photography as two of the priority public uses on national wildlife refuges, where compatible with refuge purposes. This use is legitimate and appropriate and is dependent upon healthy wildlife populations. Offering wildlife observation and photography is in compliance with refuge goals, is a management objective for Shell Keys NWR, and furthers the goals and missions of the National Wildlife Refuge System.

**Mandatory 15-year Re-evaluation Date:** 9/12/2023



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## Approval of Compatibility Determinations

The signature of approval is for all compatibility determinations considered within the Comprehensive Conservation Plan for Shell Keys National Wildlife Refuge. If one of the descriptive uses is considered for compatibility outside of the Comprehensive Conservation Plan, the approval signature becomes part of that determination.

Refuge Manager:

  
Signature 8-3-08  
Date

Regional Compatibility  
Coordinator:

  
Signature 8-14-08  
Date

Refuge Supervisor:

  
Signature 8/18/08  
Date

Regional Chief, National  
Wildlife Refuge System,  
Southeast Region:

  
Signature 8-19-08  
Date



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# *Appendix F. Intra-Service Section 7 Biological Evaluations*

**Originating Person:** Roy Walter  
**Telephone Number:** (337) 598.2216  
**E-Mail:** roy\_walter@fws.gov  
**Date:** January 2, 2008

**PROJECT NAME:** Shell Keys National Wildlife Refuge Comprehensive Conservation Plan

**I. Service Program:**

- ☐ Ecological Services
- ☐ Federal Aid
- ☐ Clean Vessel Act
- ☐ Coastal Wetlands
- ☐ Endangered Species Section 6
- ☐ Partners for Fish and Wildlife
- ☐ Sport Fish Restoration
- ☐ Wildlife Restoration
- ☐ Fisheries
- ☒ Refuges/Wildlife

**II. State/Agency:** Louisiana, U.S. Fish and Wildlife Service

**III. Station Name:** Shell Keys National Wildlife Refuge

**IV. Description of Proposed Action**

The proposed action would result in the implementation of the preferred alternative developed during the preparation of the Comprehensive Conservation Plan (CCP) for Shell Keys National Wildlife Refuge, Iberia Parish, Louisiana. Upon approval of the CCP, the following uses on the refuge will be implemented for a period of fifteen years; recreational fishing, wildlife observation, and wildlife photography.

The preferred alternative identified in the CCP is to continue providing sanctuary for sea birds, as well as wintering shore birds and waterfowl. This alternative supports the purpose for which the refuge was established.

**V. Pertinent Species and Habitat:**

Shell Keys National Wildlife Refuge is located within the Lower Mississippi River Ecosystem in the Gulf of Mexico, Louisiana. The eight-acre refuge is located in the offshore waters to the west of the Atchafalaya River Delta, and south of Marsh Island Wildlife Refuge, Iberia Parish, Louisiana.

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It is noted that Shell Keys National Wildlife Refuge is a small group of islands that are subject to shell deposits and erosion so the actual acreage above mean high water may, of course, be different at this time. How these islands change and move may affect ownership of that area lying above mean high water. Under certain circumstances, accreted areas above mean high water may belong to the State of Louisiana.

For a number of years, there has been only one islet at this location. This islet is composed almost entirely of shell fragments. It is extremely dynamic and builds or recedes with passing storms. Vegetation is almost entirely lacking.

Species known to nest here include royal terns, sandwich terns, black skimmers, and laughing gulls. In addition, the islet is used at various times as a loafing area by white pelicans, brown pelicans, and various other species of terns and gulls. Recent hurricanes and storms have eroded the island to such an extent that no nesting has occurred since 1992.

Public access to the refuge is restricted due to its remoteness and only accessible by boat.

The islands have been reshaped and continually decreasing in size due to impacts from tidal action, winds, and tropical storms. An endangered species occurring on the refuge is the brown pelican (*Pelecanus occidentalis*). A threatened species possibly occurring on the refuge is the piping plover (*Charadrius melodus*).

A. Include species/habitat occurrence map: See Figure 1 in CCP.

B. Complete the following table:

SPECIES/CRITICAL HABITAT	STATUS <sup>1</sup>
Brown Pelican ( <i>Pelecanus occidentalis</i> )	Endangered
Piping Plover ( <i>Charadrius melodus</i> )	Threatened

<sup>1</sup>STATUS: E=endangered, T=threatened, PE=proposed endangered, PT=proposed threatened, CH=critical habitat, PCH=proposed critical habitat, C=candidate species, S/A=Similar Appearance

**VI. Location (attach map):**

**A. Ecoregion Number and Name:** 27, Lower Mississippi River

**B. County and State:** Iberia Parish, Louisiana

**C. Section, township, and range (or latitude and longitude:** N 29 degrees 26 minutes  
W 91 degrees 51 minutes from Greenwich

**D. Distance (miles) and direction to nearest town:** Cypremort, LA, twenty miles north  
of the refuge

**E. Species/habitat occurrence:**

Brown pelicans use the refuge for loafing, resting, and feeding around the islands throughout the year.

Piping plovers have been observed occasionally during the winter.

## VII. Determination of Effects:

### A. Explanation of effects of the action on species and critical habitats in item V. B:

SPECIES/ CRITICAL HABITAT	IMPACTS TO SPECIES/CRITICAL HABITAT
Brown Pelican	If restoration of island habitat is feasible, positive population benefits will occur. Actions identified in CCP will further protect species.
Piping Plover	If restoration of island habitat is feasible, positive stop-over habitat may increase. Actions identified in CCP will further protect species.

### B. Explanation of actions to be implemented to reduce adverse effects:

SPECIES/ CRITICAL HABITAT	ACTIONS TO MITIGATE/MINIMIZE IMPACTS
Brown Pelican	Public access would be restricted during nesting season, increased law enforcement and staff presence from cooperative agreement, oil and gas activity surrounding refuge would be closely monitored, and if habitat restoration is feasible, increased nesting and loafing habitat developed.
Piping Plover	Public access would be restricted during nesting season, increased law enforcement and staff presence from cooperative agreement, oil and gas activity surrounding refuge would be closely monitored, and if habitat restoration is feasible, increased nesting and loafing habitat developed.

## VIII. Effect Determination and Response Requested:

SPECIES/CRITICAL HABITAT	DETERMINATION <sup>1</sup>			REQUESTED
	NE	NA	AA	
Brown Pelican		X		Concurrence
Piping Plover		X		Concurrence

<sup>1</sup>DETERMINATION/ RESPONSE REQUESTED:

NE = no effect. This determination is appropriate when the proposed action will not directly, indirectly, or cumulatively impact, either positively or negatively, any listed, proposed, candidate species or designated/proposed critical habitat. Response Requested is optional but a "Concurrence" is recommended for a complete Administrative Record.

NA = not likely to adversely affect. This determination is appropriate when the proposed action is not likely to adversely impact any listed, proposed, candidate species or designated/proposed critical habitat or there may be beneficial effects to these resources. Response Requested is a "Concurrence".

AA = likely to adversely affect. This determination is appropriate when the proposed action is likely to adversely impact any listed, proposed, candidate species or designated/proposed critical habitat. Response Requested for listed species is "Formal Consultation". Response requested for proposed and candidate species is "Conference".

**Signed** 2/4/05  
Signature (originating station) Date

Project Leader - SWLA NWRC  
Title

**IX. Reviewing Ecological Services Office Evaluation:**

A. Concurrence ☒ Nonconcurrence \_\_\_\_\_

B. Formal consultation required \_\_\_\_\_

C. Conference required \_\_\_\_\_

D. Informal conference required \_\_\_\_\_

E. Remarks (attach additional pages as needed):

**Signed** Feb 25, 2005  
Signature Date

Acting Supervisor L.A. Ecological Services Office  
Title Office

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## *Appendix G. Wilderness Review*

The Wilderness Act of 1964 defines a wilderness area as an area of federal land that retains its primeval character and influence, without permanent improvements or human inhabitation, and is managed so as to preserve its natural conditions and which:

1. generally appears to have been influenced primarily by the forces of nature, with the imprint of man's work substantially unnoticeable;
2. has outstanding opportunities for solitude or primitive and unconfined types of recreation;
3. has at least 5,000 contiguous roadless acres or is of sufficient size to make practicable its preservation and use in an unimpeded condition; or is a roadless island, regardless of size;
4. does not substantially exhibit the effects of logging, farming, grazing, or other extensive development or alteration of the landscape, or its wilderness character could be restored through appropriate management at the time of review; and
5. may contain ecological, geological, or other features of scientific, educational, scenic, or historic value.

The lands within Shell Keys National Wildlife Refuge were reviewed for their suitability in meeting the criteria for wilderness, as defined by the Wilderness Act of 1964. No lands in the refuge were found to meet these criteria primarily because of the size and often submerged nature of the island. Therefore, the suitability of Shell Keys National Wildlife Refuge lands for wilderness designation is not further analyzed in this CCP.





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## Appendix H. Refuge Biota

Species of concern and/or significance for management purposes occurring on Shell Keys National Wildlife Refuge are listed below.

### Common Name

### Scientific Name

#### **BIRDS**

Piping Plover  
Eastern Brown Pelican  
Laughing Gull  
Royal Tern  
Caspian Tern  
Sandwich Tern  
Black Skimmer  
Sooty Tern  
Common Tern  
Least Tern  
Forster's Tern  
Gullbilled Tern  
Magnificent Frigate Bird  
Common Egret  
Reddish Egret  
Snowy Egret  
Clapper Rail  
White Ibis  
Louisiana or Tricolored Heron  
Black-Crowned Night Heron  
Little Blue Heron  
Herring Gull  
Kelp Gull

*Charadrius melodus*  
*Pelecanus occidentalis carolinensis*  
*Larus atricilla*  
*Sterna maxima*  
*Sterna caspia*  
*Sterna sandvicensis*  
*Rynchops niger*  
*Onychoprion fuscata*  
*Sterna hirundo*  
*Sternula antillarum*  
*Sterna forsteri*  
*Gelochelidon nilotica*  
*Fregata magnificens*  
*Casmerodius albus*  
*Egretta rufescens*  
*Egretta thula*  
*Rallus longirostris*  
*Eudocimus albus*  
*Egretta tricolor*  
*Nycticorax nycticorax*  
*Egretta caerulea*  
*Larus argentatus*  
*Larus dominicanus*

#### **HABITAT COMMUNITIES**

Oyster shell



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# *Appendix I. List of Preparers*

## **CORE PLANNING TEAM**

**Don Voros**, Refuge Project Leader, Fish and Wildlife Service, Southwest Louisiana National Wildlife Refuge Complex - Editor, provided overall guidance and oversight

**Terry Delaine**, Refuge Manager, Fish and Wildlife Service, Southwest Louisiana National Wildlife Refuge Complex - Writer and Editor

**Tina Chouinard**, Natural Resource Planner, Fish and Wildlife Service, North Louisiana National Wildlife Refuge Complex - Planning Team Leader, Writer and Editor

**Roy Walter**, Supervisory Wildlife Biologist (former), Fish and Wildlife Service, Southwest Louisiana National Wildlife Refuge Complex - Writer and Editor

**Diane Borden-Billiot**, Park Ranger, Southwest Louisiana National Wildlife Refuge Complex - Writer and Editor

**Billy Leonard**, Oil and Gas Specialist/Wildlife Biologist, Southwest Louisiana National Wildlife Refuge Complex

**Cassidy Lejeune**, Biologist, Louisiana Department of Wildlife and Fisheries, Fur and Refuge Division - Editor

**Michael Carloss**, Supervisory Biologist, Louisiana Department of Wildlife and Fisheries, Fur and Refuge Division - Editor

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# *Appendix J. Finding of No Significant Impact*

## **Shell Keys National Wildlife Refuge Comprehensive Conservation Plan Iberia Parish, Louisiana**

### **Introduction**

The U.S. Fish and Wildlife Service (Service) proposes to protect and manage certain fish and wildlife resources in Iberia Parish, Louisiana, on the Shell Keys National Wildlife Refuge. An Environmental Assessment was prepared to inform the public of the possible environmental consequences of implementing the Comprehensive Conservation Plan for Shell Keys National Wildlife Refuge. A description of the alternatives, the rationale for selecting the proposed alternative, the environmental effects of the preferred alternative, the potential adverse effects of the action, and a declaration concerning the factors determining the significance of effects, in compliance with the National Environmental Policy Act of 1969, are outlined below. The supporting information can be found in the Environmental Assessment, which was Section B in the Draft Comprehensive Conservation Plan.

### **Alternatives**

In developing the Comprehensive Conservation Plan for Shell Keys National Wildlife Refuge, the Fish and Wildlife Service evaluated three alternatives:

Alternative A – No Action

Alternative B – Custodial Cooperative Management

Alternative C – Large-Scale Habitat Restoration and Cooperative Management Approach (Preferred Alternative)

Alternative A: No Action (Current Management)

This is the “status quo” alternative in which current habitat, wildlife, and public use management would continue with no changes. On an annual basis, monitoring and trip report status is conducted. Periodically during winter migratory bird surveys, fly-over surveys are conducted to determine if the island is emergent. A cooperative law enforcement agreement would remain in effect with the LDWF.

Alternative B: Custodial Cooperative Management

Under Alternative B, nature would be allowed to take its course regarding the future of the islands, with no restoration activities accomplished. If the islands fail to rebuild and continue to erode, areas available to birds may diminish. With the land area diminishing, the island would continue to not support colonial nesting birds. Working with LDWF, provide routine and additional patrols in coordination with refuge law enforcement officers. Interpretation will concentrate on the history of the formation and subsequent changes and erosion of the shell key shoal/island and reef complex habitat through the Southwest Louisiana National Wildlife Refuge Complex. Alternative B would open the refuge for public use by offering limited fishing and wildlife observation and photography.

Alternative C: Large-Scale Habitat Restoration and Cooperative Management Approach (Preferred Alternative)

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Alternative C, the Service's preferred alternative for Shell Keys NWR, will explore the feasibility of implementing large-scale restoration efforts in cooperation with partners. The Service will enter into a new cooperative agreement with LDWF Fur and Refuge Division, focusing on natural resource monitoring and restoration as appropriate. Partners are necessary to supply expertise and funding for the daunting task of restoration. Feasibility studies will be performed to determine the costs associated with rebuilding and re-establishing the Shell Islands, or portions of the Islands. If the Service and Partners deem the feasibility study economically, ecologically, and biologically beneficial, further analysis of the environmental effects with appropriate state and federal agencies will occur. Restoration efforts will adapt to changing conditions as practices and techniques are assessed. The refuge will be open to recreational fishing and wildlife observation and photography. Because the refuge is remote and few guests actually visit the islands, outreach would center around providing information in combination with the Complex and on web pages.

The Service adopted Alternative C, the "Preferred Action," as the comprehensive conservation plan for guiding the direction of the refuge for the next 15 years. The overriding concern reflected in this CCP is that wildlife conservation assumes first priority in refuge management; wildlife-dependent recreational uses are allowed if they are appropriate and compatible with wildlife conservation. Wildlife-dependent recreational uses (fishing and wildlife observation and photography) will be emphasized and encouraged.

### **Comparison of Alternatives**

Each of the three alternatives outlined above would pursue the refuge's purpose, mission, vision, and management goals. However, each represents a different approach to doing so; while there are certainly overlaps between the three, each alternative has its own emphases and priorities, as well as tradeoffs toward land management, conservation, and public use.

Each of the three would be consistent with the following: Partners-in-Flight Plan; North American Waterfowl Management Plan; Lower Mississippi Valley Joint Venture; Chenier Plain Initiative of the Gulf Coast Joint Venture; Endangered Species Act; National Wildlife Refuge System Improvement Act of 1997; Migratory Bird Conservation Act; and mission and goals of the National Wildlife Refuge System. Alternative C will achieve more in approaching the intent of these plans and statutes, but it will also cost more to implement than Alternatives A or B. Alternative B would be considered consistent with the intent of the above plans and statutes, but no active habitat restoration would be applied. Instead, the refuge and Complex staff in cooperation with the LDWF would serve as custodians of the refuge, observing and monitoring the natural forces and ecological succession that would shape its habitats and effectively determine their suitability for wildlife.

### **Selection Rationale**

Alternative C is selected for implementation because it directs the development of programs to best achieve the refuge's purposes, vision, and goals; fulfills the mission of the National Wildlife Refuge System; determines the feasibility to restore the refuge's ecological integrity; addresses significant refuge issues and mandates; and is consistent with the principles of sound fish and wildlife management.

Coastal Louisiana has lost more than 1.2 million acres of land along its coast in the last 100 years and 15,300 acres between 1990 and 2000, mostly due to the conversion of coastal wetlands to open water. These habitat losses have led to commensurate impacts on wildlife populations, especially those species dependent on island habitat for nesting and loafing. Implementing the long-term management goals identified in this Comprehensive Conservation Plan will assess the feasibility of restoring shell island habitat to the refuge and improving areas available to avian wildlife.

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## **Environmental Effects**

Implementation of the Service's management action is expected to result in environmental, social, and economic effects as outlined in the Comprehensive Conservation Plan. Potential habitat restoration, fish and wildlife management, resource protection, and visitor service activities on Shell Keys National Wildlife Refuge would result in increased protection for threatened and endangered species, enhanced wildlife populations, habitat restoration, and appropriate, compatible public use. This alternative will improve management of the refuge in all program areas.

This alternative will not directly impact water quality, air quality, noise levels, or surrounding land uses. Any adjacent oil and gas exploration will be monitored and protective measures will be implemented to reduce these activities and any associated effects.

### *Habitat and Wildlife*

This alternative (Alternative C) will strive to protect habitat for wildlife, including colonial and nesting migratory and resident birds and fish. The refuge hosts few threatened, endangered, or sensitive species and this alternative will not have adverse effects on these species.

Alternative C will partner with other conservation agencies to assess the feasibility of and funding for restoring specific emergent shell habitat of the refuge. If large-scale habitat restoration is feasible, restoration would provide positive environmental effects, such as an increase in nesting habitat and buffering from storms. If colonies of terns, gulls, pelicans, and other seabirds return and successfully produce young, research can resume and increase in scope; predator control can be initiated to support nesting success.

### *Cultural Resources*

The selected alternative will protect the refuge's cultural resources in accordance with federal and state historic preservation legislation and regulations. No known cultural and historic resources exist on Shell Keys NWR. In most cases, new management actions will require review by the Service's Regional Archaeologist in consultation with the State of Louisiana Historic Preservation Office, as mandated by Section 106 of the National Historic Preservation Act. Therefore, the determination of whether a particular action within the selected alternative has the potential to affect cultural resources is an on-going process that would occur during the planning stages of every project.

Service ownership of land with known or potential archaeological or historical sites provides two major types of protection for these resources: protection from damage by federal activity and protection from vandalism or theft. The National Historic Preservation Act requires that any actions by a federal agency which may affect archaeological or historical resources be reviewed by the State Historic Preservation Office, and that the identified effects must be avoided or mitigated. The Service's policy is to preserve these cultural, historic, and archaeological resources in the public trust, and avoid any adverse effects wherever possible. Development of off-refuge lands has the potential to destroy archaeological artifacts and other historical resources, thereby decreasing opportunities for cultural resource interpretation and research.

### *Oil and Gas Activity*

The selected alternative offers protection for future oil and gas activities on the refuge. Currently, there are no oil and gas activities on the refuge. The refuge will be protected from any harmful effects caused by existing oil and gas activity in accordance with Fish and Wildlife Service Policy 603 FW 2 in general, and explicitly under section 2.11D and state and federal laws. This alternative will treat requests for new oil and gas activity as an inappropriate use considering the current status of Louisiana's coastal wetlands and the Fish and Wildlife Service's role in managing and protecting this state's coastal resources.

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### *Public Use*

The selected alternative will open public use opportunities on the refuge. Fishing and wildlife observation and photography will all be accommodated and encouraged under Alternative C. Environmental education and interpretation would occur off refuge and in coordination with the Southwest Louisiana National Wildlife Refuge Complex. The alternative will involve preparation of a visitor services' plan, which will include recommendations for environmental education, interpretation, and outreach, and should include recommendations for a safe, quality experience for all visitors. Limited fishing will be opened and accessible only by boat. Opportunities for wildlife observation and wildlife photography will be initiated. Similarly, environmental education and interpretation will be maintained at the refuge complex headquarters.

Disturbance to wildlife is an unavoidable consequence of any public use program, regardless of the activity involved. While some activities, such as wildlife observation, may be less disturbing than others, all of the public use activities under the selected alternative will be planned to avoid unacceptable levels of impact.

The known and anticipated levels of disturbance from the selected alternative are not considered to be significant. Nevertheless, the refuge will manage public use activities to reduce impacts. Providing access for recreational fishing opportunities allows the use of a renewable natural resource without adversely impacting other resources. General wildlife observation may result in minimal disturbance to wildlife. If the refuge determines that impacts from the expected visitor uses are above the levels that are anticipated, those uses will be discontinued, restricted, or rerouted to other less sensitive areas.

### *Economics*

This alternative will offer some benefit to the local economy through visitation and use by local residents and nonresident visitors, as well as from purchases in the local economy by the refuge and its employees. Fishing, wildlife observation, and wildlife photography all contribute to local economic activity through purchases of food, lodging, gasoline, supplies, and from sales taxes. In addition, the Refuge Revenue Sharing Act requires the Service to make payments to local taxing authorities to offset the loss in tax revenue when private land is acquired for a refuge. These payments will continue.

## **Potential Adverse Effects and Mitigation Measures**

### *Wildlife Disturbance*

Disturbance to wildlife at some level is an unavoidable consequence of any public use program, regardless of the activity involved. Obviously, some activities innately have the potential to be more disturbing than others. The management actions to be implemented have been carefully planned to avoid unacceptable levels of impact.

As currently proposed, the known and anticipated levels of disturbance of the management action are considered minimal and well within the tolerance level of known wildlife species and populations present in the area. Implementation of the public use program will take place through carefully controlled time and space zoning and establishment of protection zones around key sites to avoid direct contact with sensitive areas, such as nesting bird habitat, etc. Monitoring activities through wildlife inventories and assessments of public use levels and activities will be utilized, and public use programs will be adjusted as needed to limit disturbance.

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### *User Group Conflicts*

As public use levels expand across time, some conflicts between user groups may occur. Programs will be adjusted, as needed, to eliminate or minimize these problems and provide quality wildlife-dependent recreational opportunities. Experience has proven that time and space zonings, such as establishment of separate use areas, use periods, and restricting numbers of users, are effective tools in eliminating conflicts between user groups.

### *Site Development*

Opening public use opportunities of fishing and wildlife observation and photography are not expected to have any adverse effects due to the remoteness and limited emergent land of the island. If the feasibility study results in large-scale habitat restoration, further analysis of the environmental effects and consultation with state and federal agencies will occur prior to project implementation.

The management action is not expected to have significant adverse effects on wetlands and floodplains, pursuant to Executive Orders 11990 and 11988.

### *Environmental Justice*

Executive Order 12898, "Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations" was signed by President Clinton on February 11, 1994, to focus federal attention on the environmental and human health conditions of minority and low-income populations, with the goal of achieving environmental protection for all communities. The order directed federal agencies to develop environmental justice strategies to aid in identifying and addressing disproportionately high and adverse human health or environmental effects of their programs, policies, and activities on minority and low-income populations. The order was also intended to promote nondiscrimination in federal programs substantially affecting human health and the environment, and to provide minority and low-income communities with access to public information and opportunities for participation in matters relating to human health or the environment.

The selected alternative will not disproportionately place any adverse environmental, economic, social, or health impacts on minority and low-income populations. Implementation of any action that includes public use and environmental education is anticipated to provide a benefit to the residents residing in the surrounding communities.

### **Cumulative Impacts**

Cumulative impacts include impacts on the environment which result from incremental effects of proposed actions when added to other past, present, and reasonable foreseeable future actions. Cumulative impacts can result from individually minor, but collectively significant actions taking place over a period of time.

Collectively implementing the goals, activities, and strategies as outlined in Alternative C or more explicitly, the Comprehensive Conservation Plan for Shell Keys National Wildlife Refuge would generally result in positive and beneficial impacts to habitat, wildlife, visitor programs, oil and gas activities, and general refuge administration.



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### **Coordination**

The management action has been thoroughly coordinated with all interested and/or affected parties. Parties contacted include:

All affected landowners; Congressional representatives; Governor of Louisiana; Louisiana Department of Wildlife and Fisheries; Louisiana State Historic Preservation Officer; Interested citizens; and Conservation organizations.

### **Findings**

It is my determination that the management action does not constitute a major federal action significantly affecting the quality of the human environment under the meaning of Section 102(2)(c) of the National Environmental Policy Act of 1969 (as amended). As such, an environmental impact statement is not required. This determination is based on the following factors (40 C.F.R. 1508.27), as addressed in the Environmental Assessment for Shell Keys National Wildlife Refuge:

1. Both beneficial and adverse effects have been considered and this action will not have a significant effect on the human environment.
2. The actions will not have a significant effect on public health and safety.
3. The project will not significantly affect any unique characteristics of the geographic area such as proximity to historical or cultural resources, wild and scenic rivers, or ecologically critical areas.
4. The effects on the quality of the human environment are not likely to be highly controversial.
5. The actions do not involve highly uncertain, unique, or unknown environmental risks to the human environment.
6. The actions will not establish a precedent for future actions with significant effects nor do they represent a decision in principle about a future consideration.
7. There will be no cumulatively significant impacts on the environment. Cumulative impacts have been analyzed with consideration of other similar activities on adjacent lands, in past action, and in foreseeable future actions.
8. The actions will not significantly affect any site listed in, or eligible for listing in, the National Register of Historic Places, nor will they cause loss or destruction of significant scientific, cultural, or historic resources.
9. The actions are not likely to adversely affect threatened or endangered species, or their habitats.
10. The actions will not lead to a violation of federal, state, or local laws imposed for the protection of the environment.

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#### Supporting References

U.S. Fish and Wildlife Service. 2008. Draft Comprehensive Conservation Plan and Environmental Assessment for Shell Keys National Wildlife Refuge, Iberia Parish, Louisiana. U.S. Department of the Interior, Fish and Wildlife Service, Southeast Region.

#### Document Availability

The Environmental Assessment was Section B of the Draft Comprehensive Conservation Plan for Shell Keys National Wildlife Refuge and was made available in June 2008. Copies of the Environmental Assessment are available by writing: Southwest Louisiana National Wildlife Refuge Complex, 1428 Highway 27, Bell City, LA 70630.

*Signed*  
*for* Sam D. Hamilton 9-12-08  
Regional Director Date