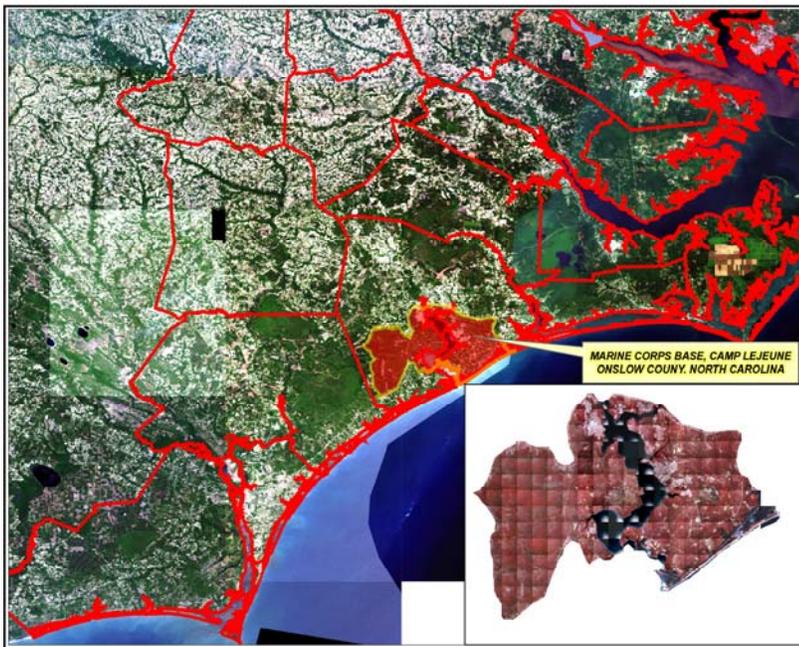


## **Introduction**

Marine Corps Base, Camp Lejeune (MCB CamLej), located on the North Carolina coast is the nation's largest Marine Corps installation on the eastern seaboard. MCB CamLej supports the Marine Corps's expeditionary training program and is the home of the II Marine Expeditionary Force. The mission of MCB CamLej is stated simply, to maintain combat ready units for expeditionary deployment. The complexity of this mission is clear when one considers the requirements for providing a sustainable training environment for approximately 41,000 active duty Marines, Sailors and other related military services. Directly contributing to this mission are approximately 4,500 civilian employees and the 67,000 plus retirees in the local area at the ready to support our active duty members.



***Camp Lejeune's physical location along the Atlantic Seaboard creates training opportunities not found in other areas of the nation. The combination of ocean, beach, swamp, and upland environments provides a diverse platform for military training.***

Of these sites, 11 are considered of state or national significance due to unique and sensitive plant communities. Two sites are officially entered on the NC Registry of Natural Heritage Areas.

MCB CamLej supports the wildlife and plant associations typical of the southeastern coastal plain fire-maintained ecosystem. Recreational hunting takes place on approximately 102,000 acres and anglers have 71 acres of freshwater ponds and 26,000 acres of estuarine and brackish water associated with the New River to explore. Stocked fishing ponds, conveniently located marinas, and access to remote beach locations provide valuable fishing opportunities for properly licensed personnel extended this privilege.

Located entirely within Onslow County, MCB CamLej occupies approximately 158,000 acres that includes dynamic beach and sand dune complexes along the Atlantic Ocean, ecologically diverse embayments and estuaries of the New River, extensive bottomland hardwood forests and swamps, with majestic long leaf pine savannahs. The Marine Corps and the abundant wildlife on MCB CamLej have co-existed in this coastal plain ecosystem for over sixty years.

The installation has an extensive natural and cultural resources program responsible for continued stewardship of this vast area. It includes active forest management of more than 92,000 acres and management and protection of eight federally threatened and endangered species. Twenty-nine significant natural areas have been identified by the North Carolina Natural Heritage Program in MCB CamLej training areas.

## **Background**

MCB CamLej's Integrated Natural Resources Management Plan (INRMP) was completed in January of 2007 and signed by the Base Commanding Officer, the US Fish and Wildlife Service, The NC Wildlife Resources Commission and the NC Division of Marine Fisheries. The revised INRMP improves military training opportunities while also providing a greater level of protection for sensitive species.

A number of cooperative agreements support the program. In 2003, MCB CamLej signed the Memorandum of Understanding (MOU) that established the Onslow Bight Conservation Forum MOU, which was revised in 2006. In August 2007, a multi-party MOU with the Nature Conservancy (TNC), the NC Coastal Land Trust, the state of North Carolina, and the DoN for encroachment partnering in support of Camp Lejeune was completed. MCB CamLej has Cooperative Agreements with the US Forest Service (July 2008) and the the NC Division of Forest Resources for wildland fire management. During FY08, work began on a new multi-party MOU to create an Onslow Bight Stewardship Alliance with TNC, the NC Wildlife Resources Commission, and the USDA Forest Service for cooperative prescribed burning activities.

The Environmental Conservation Branch (ECON) at MCB CamLej is charged with INRMP development, implementation and revision. The ECON staff includes wildlife biologists, foresters and forestry technicians, National Environmental Policy Act staff, biological technicians, an archeologist, and conservation law enforcement officers.

The Conservation Working Group (CWG) is a permanent committee given oversight responsibility for the successful revision and implementation of MCB CamLej's INRMP. Established in FY2004, it continues to meet quarterly and address INRMP and Environmental Management System (EMS) issues related to conservation. The key to the CWG's effectiveness is the participation and buy-in from Base and Tenant command staffs. The CWG also serves as the Conservation Working Group for MCB CamLej's EMS. The base's Environmental Impact Working Group also supports the natural resources program by providing a venue for our natural resources professionals to interface with the trainers and developers on a regular basis.

The Forest Management Program provides a varied forested environment that meets the needs of the military mission while sustaining a flow of forest products on approximately 92,000 acres at MCB CamLej. Silvicultural plans that fulfill ecosystem management goals while complying with applicable laws and regulations are developed annually through the prescription process and outlined in the annual Long Range Silvicultural Prescription Plan. As documented in the Integrated Natural Resources Management Plan, emphasis is placed on longleaf pine restoration and habitat enhancement.

Resource-based outdoor recreational activities are vital for many members of our military community, enhancing their quality of life through individual pursuits and providing important contact with family and friends. Recreational users at MCB CamLej log 100,000 hours a year in hunting and fishing activities. Wildlife biologists at MCB CamLej scientifically manage wildlife and fisheries resources to provide recreation, promote conservation of native species, and support the mission by coordinating wildlife management activities and long-range plans with training and facility planners.

## **Program Summary**

### **Camp Lejeune's INRMP**

Cooperative Preparation. The plan was prepared in cooperation with the US Fish and Wildlife Service and the state fish and wildlife agencies - NC Wildlife Resource Commission and NC Division of Marine Fisheries. The public was afforded an opportunity to comment. The MCB CamLej Conservation Working Group, with representatives invited from all major stakeholder departments was formed in 2004 to help scope and coordinate the development of the INRMP.

Mission Drivers. Mission drivers were identified to serve as the basis for developing INRMP objectives and actions. The 6 mission drivers identified address the following subject areas: integrity of the amphibious maneuver areas, ensuring viability of its impact areas and associated training ranges, integration of the Land Use Master Plan and Range Transformation Plan, compliance with the Endangered Species Act, military training use of the New River and Onslow Bay and Clean Water Act compliance, and elimination of bird and wildlife strike hazards to aircraft at MCAS New River.

Natural Resource Objectives. Specific objectives were developed for each of the following natural resource management areas: Threatened and Endangered Species, Species at Risk and Natural Communities, Migratory Birds, Forest Management, Forest Protection, Wetlands Management, Soil Conservation/Land Management, Wildlife and Fisheries Management, Public Access, Outdoor Recreation and Law Enforcement, Regional Conservation, and Conservation Outreach/Education.

Critical Habitat. In accordance with recent Congressional authority, the INRMP places high priority on providing an exemption for MCB CamLej. The FWS certified that MCB CamLej's INRMP satisfies the US Fish and Wildlife Service criteria for an exemption from any threatened and endangered species critical habitat designation.

Metrics and Measures of Success. Of particular note are the 153 Actions and Measures of Success developed for the various natural resource management objectives and mission drivers. All action items were tracked during the year, and reports submitted to the stakeholders on progress. MCB CamLej and our INRMP stakeholders participated in the DoN INRMP Metrics Builder web-based INRMP reporting system. By all measures of success, MCB CamLej is doing an outstanding job managing natural resources in support of the military mission.

### **Accomplishments**

Sea Turtle Nest Management - Onslow Beach continues to be an important habitat for nesting sea turtles as well as a premier location for amphibious training. In FY09/10 MCB CamLej had 78 active sea turtle nests. These nests are located by technicians on daily pre-dawn surveys between May and October. Once nests are located, cages are placed over nests to protect them from predators and alert humans of their presence. Any nests laid in the designated amphibious landing beach are moved upon discovery. Sixteen nests laid in the amphibious landing beach were relocated to allow continued training in this area. If necessary, nests were shielded from artificial light coming from the land, so hatchlings would not be disoriented. Nests were monitored until the turtles hatched and the nests were excavated three days after hatching to determine nest success.

Shorebird Management. MCB CamLej protects potential shorebird habitat outside of the amphibious landing beach. Much of the southwestern end of Onslow Beach is good potential habitat for shorebirds, and is outside the designated amphibious landing beach. In FY09/10, approximately 84 acres of potential nesting habitat and foraging habitat were protected. In FY09, MCB CamLej had its first documented piping plover nest. This nest was monitored closely by MCB Camp Lejeune staff and researchers. Working with State biologists, MCB Camp Lejeune placed a cage over the nest to protect it from predators, while still allowing the birds access to and from the nest. The piping plover nest produced one successful fledgling.

Joint Logistics Over-the-Shore (JLOTS) exercise. The JLOTS Training Exercise was conducted jointly by the Navy and Army during FY09. Because this event took place during a critical time for nesting sea turtles and shore birds, it was necessary to consult with the U.S. Fish and Wildlife Service (USFWS) on potential impacts to threatened and endangered species. In order to avoid take to threatened and endangered species, and thereby expedite the consultation process, the MCB CamLej's Environmental Conservation staff worked closely with Army and Navy to come up with conservation measures that would minimize impacts to listed species, while meeting the training goals of the exercise. This collaboration resulted in a successful training mission and concurrence from the USFWS that the activity was not likely to adversely affect threatened or endangered species.

Conservation Volunteer Program. Volunteers provide direct support to natural resources management efforts and INRMP implementation. Through volunteerism, MCB CamLej was able to meet or exceed INRMP objectives during the reporting period. Volunteers were active during FY09/10 assisting in planting 20,000 sea oat plants annually for dune stabilization and officially participating in the Audubon Christmas Bird Count. The combined volunteer effort provided many hours of quality outdoor environmental education and hands on experience for volunteers interested in natural resource management and good land stewardship.

Forest Management and Wildland Fire Programs. During FY09/10, MCB CamLej restored longleaf pine on 516 acres and improved red-cockaded woodpecker (RCW) habitat through commercial timber harvest operations on 1,268 acres of upland pine by removing hardwoods. 1,355 acres of understory vegetation management was completed utilizing commercial mowing machines. Thinning to improve ecosystem habitat was initiated on 3,351 acres which include 1,762 acres in the Greater Sandy Run Training Area. The reclamation of a former seven acre degraded landing zone was accomplished by planting approximately 10,000 wiregrass plugs and 4,000 containerized longleaf pine seedlings. Habitat maintenance and restoration is also accomplished through a comprehensive wildland fire management program. In fiscal years 2009 and 2010 ECON staff accomplished over 29,800 acres of prescribed burning, 52% of which occurred during the growing season. The very nature of the training mission of MCB CamLej results in a significant number of wildland fires each year. Uncontrolled wildfire is a threat to natural resources and a personal threat to Marines training in the field. Historically, forestry personnel have responded to an average of 150 wildland fires each year. In FY09/10, forestry personnel responded to 244 wildfires which burned a total of 7,300 acres.

Environmental M2R2 Program. MCB CamLej continues to very successfully utilize the HQMC centrally-managed M2R2 Environmental Program funding to implement the INRMP, and manage DOD lands for natural resources. During FY09/10 MCB CamLej invested \$1.21M to implement three projects to; repair eroded sites in training areas, control erosion in tactical landing zones, and repair eroded tactical roads. The project programmed to perform erosion control in Tactical Landing Zones (TLZ) included

repair of TLZ Albatross as well as repairs to eroded tactical vehicle trails in that training area. These repairs supported training and natural resources management plans. The project resulted in a vegetated tactical landing zone, the protection of forested wildlife habitat and prevented wetlands and water quality impacts due to erosion. The project to repair erosion in LF Training area stopped erosion of Poachers Road, which was leading to the formation of entrenched road beds and subsequently serious wetland and water quality impacts. Erosion repairs to Ragged Point Road, Old Wilmington Road, and Tear Down Road prevented wetland and water quality impacts due to erosion and protected adjacent forested wildlife habitat from off-road vehicle traffic.

Regional Conservation Initiatives - Addressing Encroachment with Conservation Partnerships. MCB CamLej continues to make great strides in addressing encroachment on the training mission stemming from adjacent land use and ecological isolation. Installations and Environment at MCB CamLej, together with other Base departments, pursued regional conservation initiatives with the aim of curbing encroachment on the training mission while fostering good land stewardship. During FY09/10, three new Encroachment Partnering Projects totaling 2241 acres were proposed, approved, and funded. Execution is planned for FY11. These three projects will be the first to be part of the MCB CamLej Red-cockaded Woodpecker Recovery Credit Program as well as providing compatible land use buffers for the base and associated airspace,

### **Planning Tools for Natural Resources Sustainability.**

Ecosystem Management Model (EMM). Completed in FY10, the EMM offers natural resources managers the ability to evaluate forest management strategies with regards to the flow of revenue and the impact on the Red-Cockaded Woodpecker (RCW) habitat over the planning period. The EMM is a custom Geographic Information System (GIS) application that models RCW habitat and forest products revenue over time into the future. This tool enables managers to simulate management strategies and predict the effects on endangered species habitat and timber income before committing resources to a long-term strategy.

Forest Inventory Management System (FIMS). MCB CamLej utilizes forest inventory data to manage the resource to its maximum potential, therefore optimizing its diverse uses. The FIMS application is a user friendly web-based inventory system that was completed in FY10. It is used to input and store past and current forest inventory data and produces reports that characterize the past, current, and future status of the forest resource on MCB CamLej.

Annual Habitat Enhancement and Sustainability Plan (AHESP). During FY09/10 the AHESP was fully integrated into the natural resources planning process. The AHESP is a comprehensive management plan for RCW habitat improvement, which includes recommendations for timber management, prescribed fire and hardwood midstory control. This plan relies on data from several sources, including timber stand data, GIS and field surveys in order to target RCW habitat management where it is needed most. In the past, timber was managed by compartments on a 10-year rotation, regardless of RCW habitat needs. The AHESP represents a shift in management priorities to focus on the most pressing RCW habitat needs, regardless of the compartment, or when an area last received management. The RCW AHESP will allow MCB CamLej to plan effectively for future growth of RCW while maintaining high quality in occupied habitat.

## **Research Support.**

The Defense Coastal/Estuarine Research Program (DCERP). DCERP embarked on its third and fourth year of research and monitoring at MCB CamLej during 2009 and 2010. DCERP is designed to help ensure that MCB CamLej sustains and enhances military training and testing activities using an adaptive ecosystem-based management approach.

Managing Declining Pine Stands for the Restoration of Red-Cockaded Woodpecker Habitat (RC-1474). A Strategic Environmental Research Development Program (SERDP) funded research project initiated to study the effects of various silvicultural methods on the response of planted longleaf pine seedlings, residual loblolly pine canopy trees, and ground layer vegetation continued during FY09/10. The objective of this project is to develop protocols for restoring Longleaf Pines (LLP) to stands currently occupied by declining Loblolly Pines (LBP), while retaining a canopy component.

Shoreline Evolution and Coastal Resiliency at Three Military Installations: Investigating the Potential for and Impacts of Loss of Protecting Barriers (RC1702) SERDP awarded this project to the Woods Hole Oceanographic Institution. Work will begin at MCB CamLej in summer 2011 and will project the geomorphic response to various climate change induced sea-level rise scenarios and examine how these changes alter the susceptibility of the installation to storm-induced impacts.

Wildland Fire Research. Researchers from various Universities, Federal and State fire management agencies and NGO's are studying the effects of prescribed burning on the soil, air, vegetation and micro and macro fauna to characterize both short and midterm impacts and model longer term impacts.