MARINE CORPS AIR STATION BEAUFORT

Nomination Narrative for
Secretary of Defense /Secretary of the Navy
2017 Environmental Awards
Natural Resources Conservation (Large Installation)

INTRODUCTION

Marine Corps Air Station (MCAS) Beaufort, South Carolina, is home to and base of operations for Fleet Marine Force units of the Second Marine Aircraft Wing (2nd MAW) and the Second Force Service Support Group. Marine Aircraft Group 31 (MAG-31), composed of six operational F/A-18 squadrons, is the principal tenant at MCAS Beaufort. The base has a population of more than 700 Marines and Sailors. These Marines and Sailors share the base with 600 civilian personnel and 3400 MAG-31 personnel. A training squadron of the F-35B Lightning Joint Strike Fighter is also assigned to the Air Station.

The mission of MCAS Beaufort is to maintain and operate facilities in supfort of flight operations and to provide services and material to support MAG-31, associated 2n MAW units, and other activities and units as designated by the Commandant of the Marine Corps, in order to set the conditions for the enduring success of our supported commands and their missions.

Townsend Bombing Range (TBR), Georgia, is a large federal property owned by MCAS Beaufort, located within the local flying area of MAG-31. It is the primary air-to-ground training range for aviation units stationed at MCAS Beaufort, as well as other aviation units in the Marine Corps, Air Force, Army, Navy, and the Air National Guard.

The Air Station and its outlying properties are situated in the Lowcountry area of South Carolina and Georgia. These areas are recognized for their pristine marshes and estuaries, expansive pine forests and hardwood drains, each providing important habitats for various upland, lowland, and aquatic species. Of particular importance are the presence of the federally-listed pondberry *(Lindera melissafolia)* at MCAS Beaufort and the frosted flatwoods salamander *(Ambystoma cingulatum)* at TBR. To better support the military missions while protecting and preserving these valuable ecosystems, MCAS Beaufort has developed and implemented separate Integrated Natural Resources Management Plans (INRMP) for each property.

At MCAS Beaufort, approximately 7200 acres are managed under an INRMP. The managed property is divided into three sections: the 5400-acre Main Station, the 970-acre Laurel Bay Housing Area, and the 800-acre Air Installations Compatible Use Zone (AICUZ). The Main Station contains 2900 acres of unimproved forest lands and 200 acres of wetlands, with the remainder of the property being maintained. The Laurel Bay Housing Area has 300 acres of forest land, containing 45 acres of wetlands. The remainder of the Housing Area is managed. The AICUZ property is all unimproved with the majority being managed as forest land;

approximately 150 acres of the property is in the process of becoming a wetlands mitigation bank.

At TBR, 5200 acres are managed under an INRMP. A 380-acre tract of land has been cleared for the target area and compound. Managed forest lands cover 4820 acres of the property. Within the forest land, there are 1400 acres of wetlands.

BACKGROUND

The MCAS Beaufort Natural Resources and Environmental Affairs Officer (NREAO) is responsible for overseeing the natural resources programs at the Air Station and TBR. Implementation of these INRMPs is primarily carried out by two natural resources employees and two USDA Wildlife Services employees. The ideals of the INRMP are embraced by the other environmental staff as well, and all work together to promote responsible management of the ecosystems present on MCAS Beaufort and TBR. The natural resources personnel work closely with the Environmental Management System (EMS) Program Manager to incorporate all the appropriate elements of the INRMP.

Natural resources management at MCAS Beaufort and TBR are guided by INRMPs, most recently revised in 2013 and 2016, respectively. The conservation metrics for both INRMPs are updated annually, with the most recent assessment taking place in November 2016. In addition, annual meetings are held with representatives from the US Fish & Wildlife Service and the State Wildlife Agencies to discuss the activities that occurred on both bases. The discussion entails how well each INRMP was implemented during the fiscal year and also allows those stake holders to suggest improvements in management. Other consultations with these stakeholders are conducted as necessary, generally as required by specific projects. By keeping an open line of communication, a strong bond has been formed between all the parties and everyone has a sense of ownership in the natural resources management of the Marine Corps properties.

Over the period of performance, examples of the natural resources program which speak to its management objectives and the success of implementing the projects that further those objectives are provided. The specific project highlights are for work at MCAS Beaufort and TBR to protect the military mission and sustain the natural resources present at both locations.

PROJECT HIGHLIGHTS

Shoreline Restoration

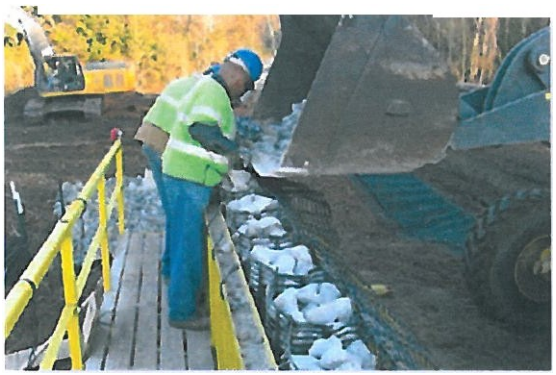
Salt marshes, creeks, and beaches are essential elements of the ecosystem that is the Lowcountry. Two creek restoration projects and one beach restoration endeavor illustrate the Air Station's commitment to the ecology of its environs, while furthering its mission. Creekside restoration along Mulligan Creek is shoring up where erosion threatens the recently constructed Landing Helicopter Dock (LHD), and another creekside restoration along a tributary of Albergottie Creek has used a unique means of applying stone to the shoreline to mitigate erosion that threatened an old landfill area. Additionally, shoreline restoration activities by the Air Station are not limited to the Air Station property alone. There has also been an over-two-decade history of support to the Hunting Island State Park, on the Atlantic coast of Beaufort. This partnership has allowed Marines from MCAS Beaufort an opportunity to train in a different environment, all the while fostering a positive relationship with the local community.

In accordance with the INRMP, these restoration activities help sustain the mission by restoring and strengthening the shorelines in areas that could compromise the training activities aboard

MCAS Beaufort. Utilizing Marines for public outreach demonstrates the commitment to the local community.

Albergottie Creek- SWMU 3

Solid waste management unit (SWMU) 3 is an old landfill located off Geiger Boulevard in the southern portion of the Air Station. The western edge of the landfill consists of a steep creek bank that terminates into a salt marsh fed by a tributary of Albergottie Creek. SWMU 3 was originally a borrow pit that was filled in, between 1957 and 1958, with a variety of waste and debris. Over the many years since landfill operations ended, erosion of the creek bank has exposed waste materials along the bank. The exposure of these materials and their potential to affect the marsh and stream prompted the development of a shoreline stabilization project.



The shoreline stabilization effort was implemented under a corrective-action, interim-measures provision of the Air Station's RCRA Hazardous Waste Permit. The interim measures provision was utilized due to the imminent threat of waste debris affecting the marsh. The stabilization effort was conducted expeditiously, under a relatively tight time schedule, through effective cooperative efforts between NAVFAC Mid-LANT, Tetra Tech, CB&I Federal Consultants, Resolution Consultants, USACE, South Carolina Department of Health and Environmental Control's (SC DHEC's) Ocean and Coastal Resource Management, and the Air Station.

An access roadway was surfaced with crushed rock to accommodate the heavy equipment and rock delivered to the site. The site was cleared of 65 tons of vegetative matter and 4.7 tons of metal, which was recycled. This allowed better definition of the landfill site and the areas impacted by the tidal action along the tributary of Albergottie Creek.

The debris and vegetation removal facilitated the re-grading of the creek bank to closely match the surrounding topography. Re-grading required about 196 tons of clean fill material that was imported to augment those materials available from the site itself. The re-grading was necessary for the installation of the shoreline erosion mitigation. The project proceeded quickly with the use of innovative marine mattresses, that is, plastic mesh frames (5-ft x 24-ft) that were filled with rock, placed along the bank atop a geotextile material, and anchored into place with soil anchors installed through the mattresses and underlying geotextile. A steel frame was used to support the mesh when filling each of the mattresses with a front end loader. The mattresses were placed, utilizing heavy equipment, so the toe of the mattress was at 4-ft elevation and the head was at about 12-ft elevation. More than 850 tons of Class A riprap was used to fill the 110 marine mattresses needed to protect the 500 feet of shoreline.

Once in place, the voids within the mattresses are expected to fill with sand and soil from tidal action and natural storm water runoff. Filling of the voids with sediment will encourage the growth of natural rushes and marsh grasses, adding to the mechanical anchors in securing the mattresses in place. The topside of the project was graded and seeded with native grasses.

Two challenges emerged during the execution of the project that required attention. The first challenge was the observation, at low tide, of landfill debris protruding from a small section of the creek bank underwater. The second challenge was the discovery that the landfill was larger than originally known and an additional 300 feet of shoreline stabilization would be required.

The first challenge was met promptly, after coordination with SC DHEC and USACE, through the installation of 176 tons of Class B riprap, below the 4-ft elevation (previously below the allowable working elevation), along a 100-ft section of mattresses on the southern end of the restoration area: A geotextile fabric was laid down and held in place, upon which a 2-ft thick layer of riprap was installed that extended about 15 feet from the toe of the mattress down into the creek, effectively covering the waste and stabilizing the area.

The second challenge could not be met so quickly due to permitting and logistical issues. A modified permit was issued on 3 November 2016. The additional 300 feet of shoreline stabilization is underway and expected to be completed by February 2017.

Restoring the shoreline located in close proximity to SWMU 3 addresses one of the goals of MCAS Beaufort INRMP: "Manage the installation to maintain biodiversity using the principles of ecosystem management". Restoring the shoreline negates the possibility of pollution reaching the salt marsh and impacting the environment. In addition, the innovative use of mattresses during the project will provide a habitat for the growth of natural rushes and marsh grasses.

Over the past few years, the Air Station has embarked on infrastructure upgrades and construction to accommodate the advent of the F-35B Lightning Joint Strike Fighter, with Beaufort being the principal training base for this elite aircraft. Part of those upgrades include a new LHD to simulate ship-board short-field landing and take-off; the LHD is located on the northeastern comer of the airfield, just north of the eastern portion of the main runway. This important training area is adjacent to the Mulligan Creek canal, a tidal creek, which also drains the northern portion of the Air Station. Over time, tidal action and drainage have led to erosion along both sides of this canal, which unfortunately also abuts the LHD operational area. Necessary removal of vegetation along the canal further threatened the stability of the canal banks as well. To protect the LHD, stop the erosion, and preserve water quality, MCAS Beaufort has undertaken another shoreline restoration project on this canal to restore an estimated 1,500 feet along each side for a total of 3,000 feet. The project was implemented in two parts, with work occurring simultaneously to expedite the process.

As a project involved with the coastal waterway, work along this canal proceeded only after permit approval by USACE. An infiltration trench has been installed at the LHD (within this

project area) to manage storm water from the LHD; although not anticipated, if there are damages to this infiltration trench, repairs will be made at the completion of canal restoration.

Clearing of existing trees and vegetation was one of the initial steps. Salable timber from this clearing was removed from the site, and sold with other government-owned timber. Other refuse has been removed for disposal. Like all projects aboard the Air Station, usable materials from the project are re-used to the extent possible, with a goal to re-use at least 50 percent of waste materials. Such materials (mostly concrete) are programmed for other construction projects underway at the Air Station which benefits the construction program and reduces the total amount of material sent to landfill.

As the project proceeds, a silt curtain running from the bank and along the centerline of the canal for 500 feet is being relocated as necessary to protect sediment from filling the canal. As the canal shoreline is restructured and rebuilt, plantings will be used to provide complete restoration. As with the other shoreline restoration projects, plantings are indigenous species that will be a natural part of the environment. In this case, planting mitigation is accomplished through the application of *Spartina patens* or *Borrichia frutescens* in every other cell of the StrataWeb used to solidify the canal shore.

Once completed, erosion of the edge of Mulligan Creek near the new LHD will no longer threaten the full use of that facility. With implementation of this particular mitigation strategy, long years of use of the LHD will be ensured. Additionally, in accordance with the INRMP, the natural tidal flow of Mulligan Creek (and the associated canal) can continue unchanged, water quality will be maintained, and erosion will be held to a minimum.

Hunting Island Beach

In February 2015, Marines with Marine Wing Support Squadron (MWSS) 273, known as the Sweathogs, deployed from the Air Station to Hunting Island to exercise their skills with land-moving equipment in the beautification of the beach associated with the park there. Each year the constant action of the ocean moves about 15 feet of sand. While there could be no stopping the erosion that may well result in moving the historic lighthouse situated there, the Marines provided clearing and support to a re-nourishing project that enhances the park, which attracts over a million visitors each year from all over the globe.

More than 30 Sweathogs mobilized heavy equipment at their disposal, such as backhoe loaders, multi-terrain loaders, chainsaws, and shovels. Mirroring an actual military deployment the Sweathogs geared up and moved equipment and supplies miles away to Hunting Island Beach,

St. Helena Island. There, over a 4-day period, they cleared dead trees, cleaned up debris, and dug out rotting stumps from the south beach, north beach, and campgrounds.

Such events give the Marines of MWSS 273 a real-world opportunity to train and prepare for future deployments while serving the local community with the tools and skills of the group. Quoted in the local newspaper, Sgt. Michael Alfaro, combat engineer with MWSS 273, noted that "It shows the community that MWSS-273 is here to serve the United States and South Carolina... [W]e are here to make a difference everywhere we go." And indeed, they have been making a difference at Hunting Island for nearly 20 years. Daniel Gambrell, Hunting Island State Park manager, stated "With the help of Marines from the Air Station, we are able to make Hunting Island a better and safer place for our natives, military and visitors."

Conservation Partnering

The Air Station owns TBR in Georgia, where technical operations are managed by the Georgia Air National Guard and natural resources are managed by the Air Station. In addition to the many partnerships with regulatory agencies and local counties and communities, MCAS Beaufort joined, as a charter member, the consortium of groups including Fort Stewart, US Fish & Wildlife Service, Natural Resources Conservation Service, Georgia Department of Natural Resources (GA DNR), Georgia Forestry Commission, The Nature Conservancy (TNC), The Georgia Land Trust, Georgia Power Company, International Forest Company, The Conservation Fund, and The Longleaf Alliance in the Fort Stewart/Altamaha River Longleaf Conservation Area.

This 5 million-acre conservation area fosters and promotes the maintenance and propagation of longleaf flatwoods, and indigenous wildlife species, including some threatened species. Many of these groups manage large properties in this conservation area, having individual programs for proper stewardship of the forests. By joining as a consortium, those individual efforts can be leveraged into a more cohesive program and prevent duplication of effort, thus conserving financial and manpower resources as well as natural resources. The partnership also benefits the military installations, especially TBR, by preventing encroachment and incompatible use of adajcent lands, which all preserves the TBR mission and makes its operations more sustainable.

Additional partnerships have been made with a smaller number of stakeholders to prevent incompatible land usage. During the period of performance, approximately 4000 acres known as the Altama Tract were closed upon. A significant feature of this arrangement was that approxirnatley 70% of the funding was provided by the partners. The MCAS Beaufort natural resources staff, in concert with the other partners, had to develop a management plan for the gopher tortoise and its supporting ecosystem. GA DNR has the ultmate responsibility of implementing the plan, but the entities are linked together with the common initiative to develop appropriate conservation and communication strategies, to develope and participate in joint land management activities, to continue developing adaptive management methodologies to sustain populations of rare and endangered species (like the gopher tortoise), and, to educate the general public, local governments, and other audiences

These programs are designed to meet goals stated in the INRMP, specifically protecting and maintaining natural resources within TBR through the continuation and enhancement of ecologically appropriate and beneficial land use and management practices.

Airfield Improvements

Natural resource conservation at the Air Station often targets clearing space for airfield operations, or managing the surrounding forests. During this period of performance, those activities continued with some specific activities of note.

Wildlife and Habitat Management

With the arrival of the Joint Strike Fighter, the Air Station has had additional construction and enhanced security, the latter in the form of new fencing around the entire airfield. Unfortunately, for natural resource conservation, the two factors have reduced dramatically the area available to indigenous wildlife; for example, over 50% of available hunting area aboard the Air Station has been.lost. With the new security fencing, a wildlife preserve could exist on the airfield, creating an impediment to airfield operations and mission.

Before completing the fencing, forest understory was removed to eliminate habitat in places that posed the highest risk. This effort was coordinated with completion of the fence to ensure that wildlife remained outside the completed fencing. Next, efforts were made to improve areas outside the security fence to enhance that habitat. Wildlife openings and travel corridors were created through stands of mature hardwoods that were overgrown with Chinese privet to make them more habitable for wildlife. Removing the invasive species gave native species the opportunity to return. Also, larger areas were cleared for food-plots to be installed.

Although not originally envisioned as a habitat management project, this forestry management project was tailored to meet this important goal of mission preservation. Prescribed bums are essential to proper forestry management, but become more difficult each year, limited mostly by opportunities between airfield operations. Mulching has become an alternate to prescribed burns and was undertaken for the forests surrounding the airfield. This technique allowed the creation of the wildlife openings and travel corridors noted above.

Thus, with the completion of this project, the Air Station has seen multiple benefits from an activity conducted as part of the routine maintenance at the Air Station under its INRMP. Those areas inside the security fence are now less habitable for wildlife, which means less of a BASH risk. The areas have less of a fuel load, which means less of a chance of an unwanted fire; and the desirable trees that remain have less competition so that they can grow unimpeded and one day be harvested. Finally, the areas outside the fence are now much more suitable for wildlife; they are much more accessible for hunting; and the level of infestation by the privet is significantly less.