2018 SECRETARY OF DEFENSE ENVIRONMENTAL AWARD
ENVIRONMENTAL QUALITY – NON-INDUSTRIAL INSTALLATION
MARINE CORPS BASE CAMP SMEDLEY D. BUTLER

INTRODUCTION

Marine Corps Base Camp Smedley D. Butler (MCB Butler) is a dynamic collection of installations and training areas widely distributed throughout Okinawa, Japan. This creates various unique challenges requiring creativity and flexibility to excel as environmental leaders in the Pacific.

The island of Okinawa, Japan is a key training location for the Marine Corps. MCB Butler's innovative soil erosion efforts have been instrumental in protecting this vital coral habitat. *Photo by Maurice Dudley*

As the base support for III Marine Expeditionary Force (III MEF), MCB Butler provides training areas and support for current and future combat readiness. III MEF is a Marine-Air-Ground Task Force, rapidly deployable to conduct operations across the spectrum from humanitarian assistance to amphibious assault and high intensity combat. MCB Butler is also the command support element for Marine Corps Installations Pacific, which encompasses Marine Corps Installations in Hawaii, Japan, and Korea. Supporting more than 32,000 active duty military and civilians and encompassing over 40,000 acres, MCB Butler provides unique training opportunities in various environmental habitats: from the only U.S. Marine Corps Jungle Warfare Training Center (JWTC) to the only U.S.-controlled live fire ranges in Japan. More than 3,000 species of flora and fauna, of which approximately 260 are rare, threatened, or endangered, and hundreds of archeological sites reside throughout MCB Butler. The complex types of training and facilities supported by MCB Butler necessitate a robust environmental program skilled in supporting military readiness while balancing environmental sustainability.

As environmental leaders, it is our mission to support both our units and tenant organizations, and be conscientious stewards of the Japanese lands entrusted to us. As a team, we integrate a customer-oriented attitude into our daily plans, programs, and operations, and motivate our personnel to protect the environment. We support the Marine Corps mission by sustaining an aggressive and innovative environmental program that allows for a collaborative environmental stewardship between the U.S. and Japanese governments.

ENVIRONMENTAL QUALITY ACCOMPLISHMENTS

ENVIRONMENTAL MANAGEMENT

MCB Butler, using in-house staff and resources, maintains a fully implemented Environmental Management System (EMS). We also exceed Department of Defense requirements through the successful integration of a regional EMS incorporating three different countries: Japan, Korea, and the U.S. Our management review board is chaired by our Commanding General (CG) and

attended by senior leaders from all Marine Corps installations within Japan, Korea, and Hawaii. This high level of command support increases the visibility of EMS Objectives and Targets throughout the region and promotes continual improvement through shared challenges, successes, and lessons learned.

EMS Objectives and Targets are developed with the support of a cross-functional team, which includes Major Subordinate Command and tenant representatives, and are approved by the CG. In FY16 and FY17, MCB Butler exceeded EMS Targets to include the diversion of 66% of non-hazardous solid waste; the accurate cradle-to-grave tracking and risk-reducing audit of 1,843 hazardous waste containers; and the improved efficiency of our Qualified Recycling Program.

HAZARDOUS WASTE MANAGEMENT

In FY16 and FY17, our Hazardous Waste Management Program initiated hazardous waste risk reduction audits as part of the annual Environmental Management Systems Objectives & Targets. Our hazardous waste personnel were entrusted by the CG to review, monitor, and verify all hazardous waste released for Treatment Storage and/or Disposal Facility in addition to contractor provided service from Defense Logistics Agency-Hazardous Material Management Center. The completed audit resulted in a total review of 2,457 hazardous waste containers and highlighted numerous discrepancies, which ranged from container mismarking to mixed waste streams and packaging issues. The FY16 and FY17 audits revealed 496 errors and led to the rejection of 123 containers for final disposition, and the subsequent transition from contractor based Hazardous Waste operations to an internally run operation. The successful execution of the risk reduction audits allowed for 3,275 waste containers to be properly identified and marked for final disposition – accounting for $1,071,000 in disposal cost. Additionally, 164 Hazardous Waste Profile Sheets were reviewed, corrected, and approved; pinpointing issues with incorrect waste coding and identification. This auditing system reduced liability to the Marine Corps by ensuring accuracy and complete cradle-to-grave tracking.

Our coolant recycling system reduces the need for expensive contracts by utilizing in-house personnel and resources.

Our Hazardous Waste Management Program made great strides in reducing the overall amount of hazardous waste requiring disposal. MCB Butler has critical recycling and reuse programs that reduce both waste and its associated disposal costs. During FY16 and FY17, these programs resulted in cost avoidances totaling more than $903,000. In FY16 and FY17, our in-house coolant-recycling program re-formulated 233 drums of coolant for customer reuse resulting in a cost savings of over $185,000 to Marine Corps units. This program significantly reduces off-site transfers, minimizes risks to the environment, and protects local communities.

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The MCB Butler Hawker Battery Reuse Program rejuvenated and returned, free of charge, to units for reuse 508 batteries during FY16 and FY17. This generated a total cost savings of approximately $172,000 through the significant reduction of new battery purchases. The skilled efforts of our waste handling technicians recouped 70% of waste batteries turned-in. The program has been so successful that no conditioned battery has made its way back through the waste disposal process.

MCB Butler's Hawker Battery Reuse Program has significantly reduced the amount of battery waste.

During FY17, MCB Butler awarded new shop-rag and parts washer service contracts. These two new contracts reduce both the exposure to hazardous chemicals and the amount of hazardous wastes generated by both activities. The new shop-rag contract services 105 shops across MCB Butler and recycles over 550,000 rags per month. The new parts washer contract services 85 shops, and replaces their solvent-base parts washers with new bio-remediating parts washers.

NATURAL AND CULTURAL RESOURCES MANAGEMENT

Kuroiwa's Ground Gecko and Great Nawab Butterfly are Natural Monument Species that have been located in the Kushi Watershed area through a flora and fauna survey.

Proper management and protection of Natural and cultural Resources aboard MCB Butler requires a comprehensive inventory of both the plants and animals that inhabit the installation, as well as the culturally significant sites within MCB Butler's many fence lines.

Terrestrial Natural Resource Conservation

The Kushi Watershed, located in the northern portion of Okinawa in Nago City, encompasses an area of approximately 1,880 acres, more than two thirds of which are situated within MCB Butler's Central Training Area (CTA). During FY16 and FY17, the Natural Resources Management Program conducted multiple flora and fauna surveys of the watershed that yielded a total of 415 species of vascular plants and 740 species of terrestrial and aquatic animals. One protected species, the Japanese Wood Pigeon was detected. Three Natural Monument Species, designated by the Okinawa Prefectural Government, were also identified within the study area: Kuroiwa's Ground Gecko, Anderson's Alligator Newt, and the Great Nawab Butterfly. These discoveries within the CTA, coupled with proper mitigation strategies, have provided for mission success with minimal impact to important Host Nation species.

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Soils Management and Erosion Control

Okinawa's intense rainfall, steep slopes, and thin soils make soil erosion a constant challenge. Ongoing military training activities have the potential to reduce the natural vegetation and increase erosion: helicopter landing zones and heavily traveled trails have the potential to increase erosion; live-fire munitions damage the soil and vegetation upon impact. For Okinawa, where terrestrial and coastal zones are in close proximity, prevention of red soil erosion is not only vital for maintaining the training areas, but important for conserving the delicate biodiversity of our coral reef ecosystems.

The failed slope near Classroom 1 at the JWTC was effectively stabilized with the use of soil nailing and vegetation matting.

Okinawa's sub-tropical climate provides the island with a rainy season that runs from late April through June, and a typhoon season that spans May through November. With extensive rainfall and typhoons, the frequent occurrence of natural landslides leads to soil run-off into the adjacent coastal zone. To stabilize the slid slope and prevent erosion, MCB Butler's Natural Resources Program employs the cost effective and environmentally conscious technique of soil nailing with vegetation matting, an alternative to hard-armor erosion control techniques. This technique was applied to projects in the JWTC in the northern part of the Island in FY16 and FY17. Vegetation matting was selected to protect the delicate environment of the JWTC, which provides habitat for many endangered and protected species. This work contributed to maintaining the vitality of these locations in support of the Marine Corps training needs and preserving delicate fauna and flora in Okinawa.

The location of this isolated pool, known as "Toshingumui" in historical records, was verified during the Sannumata Watershed

Cultural Resource Preservation

During FY16 and FY17, the Cultural Resources Program conducted extensive surveys to inventory the cultural resources under its stewardship and maximize efficiency in the management of those resources.

As a follow-up to the 2015 archival research of the Jungle Warfare Training Center (JWTC), a 2,600-acre inventory and field verification survey was initiated for the Haramata Watershed in February of 2016. The first large-scale archaeological survey to take place in the JWTC, the objective of this project was to locate sites previously identified in historic maps and documents and uncover unknown features to be considered for future protection. In the course

of this survey, more than 89 cultural sites were visited and recorded. These sites included an early 20th century indigo fabric-dying complex, structural remains of an historic lumber camp, and a vast network of historic trails crisscrossing high, forested mountains and steep, rugged valleys.

In February 2017, the survey at JWTC was expanded to include an additional 2,300 acres in the Sannumata Watershed. This survey resulted in the discovery of 44 sites of cultural significance, including a large camphor processing area and a charcoal kiln complex, as well as dwellings and fields associated with historic agriculture. The survey also verified the locations of traditional named places such as Toshingumui, an isolated pool identified in historic records. Taken together, the Haramata and Sannumata Watershed surveys have added significantly to the body of knowledge regarding past activities in northern Okinawa, and laid the groundwork for future surveys at JWTC

ENVIRONMENTAL STEWARDSHIP

Earth Week

In FY16 and FY17, MCB Butler hosted numerous activities throughout Earth Week at the various camps, which were open to active duty, families, and members of the local community. Activities ranged from beach and community clean-ups to energy and water conservation.

Hosted by Camp Hansen, approximately 100 active duty Marines and Sailors, as well as local children from Kagei Pre-school in Kin Town, participated in the annual Okukubi River clean-up and the Nature Mirai Kan eco-tourism park mangrove planting.

Marines and Sailors at Camp Schwab assisted the Henoko Senior Citizen's Association with the clean-up of Matsuda-No-Hama beach. This annual cleanup focused on removing all trash and debris deposited on the beach over the past year. Following the beach clean-up, the Marines and Sailors assisted in clearing the senior citizen's recreation field of weeds and brush. The clean-up, held in preparation for the Henoko Dragon Boat race, showcases that MCB Butler not only cares about the environment on Okinawa, but also the local traditions.

Top: Local children and U.S. military planted mangrove species as part of Earth Week.
Bottom: Marines and Sailors assisted the Henoko Senior Citizen's Association in the annual clean-up of Matsuda-No-Hama.

At the southern end of the island, military members and the local community gathered to clean-up Ginowan's Tropical Beach and Park. This event led to the removal of 200 pounds of debris and brought together approximately 150 military and local community members, giving them a shared purpose and allowing them to create new relationships. Overall, the various Earth Week activities foster positive interactions between the military community and Okinawan citizens through collaborative environmental stewardship efforts.

HOST NATION COORDINATION

The annual Environmental Forum brings together resource managers, scientists, and engineers from the Okinawa Prefectural Government, Department of Environmental Affairs (OPG) and the MCB Camp Butler Environmental Affairs Branch. The forum consists of two parts – an informational exchange on environmental projects and site visits to areas throughout Okinawa, including on the Installation.

Members of OPG gathered at Chibuga Spring on Camp Foster to learn about how MCB Butler is preserving critical Okinawan cultural assets.

In both FY16 and FY17, OPG was provided a tour of our recycle facility and visited noteworthy cultural sites located on Camp Foster. The FY16 Environmental Forum Site Visit marked the first time OPG had the opportunity to see first-hand how MCB Butler is working towards protecting the environment on Okinawa. One of the cultural sites visited, Chibuga Spring, is recognized as a local folklore cultural property by Chatan Town. Dating back to the 16th century, Chibuga Spring is a significant cultural center for Tamayose Old Village. For centuries, Chibuga Spring supplied surrounding villages with fresh drinking water and irrigation for farming, and it is an important part of sacred ceremonies. In 2004, MCB Butler, supported by funds from the Department of Defense Legacy Program, joined the Tamayose Residential Community Group and the Chatan Town Board of Education in a project to restore the spring to its original state. Today, the spring appears much as it did 200 years ago, and remains a place of deep cultural significance for local citizens. The Environmental Forum continues to be a great success and serves as an example of the Marine Corps' commitment to continued environmental stewardship and support of the U.S.-Japan alliance.

Collaborative Partnerships

MCB Butler has forged numerous collaborative partnerships with various local and government agencies. Because the boundaries of MCB Butler cross into several local municipalities, our Cultural Resources Management Team coordinates with twelve individual Boards of Education, which oversee municipal cultural resources and assets.

Throughout FY16 and FY17, the Cultural Resources Management Team conducted five separate Board of Education consultations on four different projects where significant cultural resources exist. During one coordination effort, MCB Butler's Cultural Resources Management Team worked closely with the Ie Shima Board of Education during a cultural asset survey at the Ie Shima Training Facility. We also coordinated with local archaeologists from the Ginowan City Board of Education and members of the Aragusuku Hometown Association for access to the West Futenma Housing area of Camp Foster as part of a land return to the Government of Japan. Close coordination with the local Boards of Education ensures Host Nation concerns are

addressed early in the project planning process and adds to the greater body of archaeological surveys and knowledge for Okinawa.

Our Natural Resources Program Manager also maintains valuable relationships with the local government and non-government organizations, such as the Naha Environment Conservation Office of the Ministry of the Environment, OPG, municipal governments, and Conservation and Animal Welfare Trust. Regular meetings on mongoose eradication, Okinawa Rail conservation, and invasive species management were attended throughout FY16 and FY17. These meetings share lessons learned in control and conservation efforts, as well as new methods and techniques to be applied inside and outside of the military fence line.

RADON MANAGEMENT

MCB Camp Butler continues its efforts to minimize exposure of military and civilian personnel to radon through its sampling and mitigation program. In FY17, we developed a standard operating procedure (SOP) to ensure incorporation of radon resistant new construction into all new building designs. We continue to inspect and maintain more than 500 radon mitigation systems on Marine Corps Bases in Okinawa once every six months. In FY16, we performed radon testing for 84 rooms in 14 buildings and mitigated radon in 13 buildings on MCB Camp Butler and MCAS Futenma. In FY17, we performed radon testing for more than 3700 rooms in 213 buildings and mitigated radon in 5 buildings on MCB Camp Butler and MCAS Futenma. MCB Butler has become a test-bed for Oakridge National Labs and are using results from MCB Butler to shape the radon testing and mitigation industry.

AIR MANAGEMENT

MCB Camp Butler continues to minimize air emissions through testing and environmental management practices. In FY17, we developed an SOP so the refrigeration shops could properly manage leak monitoring and repairs for refrigerant-containing equipment. In FY16 and FY17, we performed semi-annual air emissions monitoring for approximately 50 boilers on MCB Camp Butler, MCAS Futenma, and CATC Fuji. In addition, annual VOC monitoring was conducted for one paint facility on MCB Camp Butler.

CONCLUSION

Despite the challenges of being in a remote overseas location with a unique environmental and political climate, MCB Butler continues to be a leader in enhancing environmental quality while sustaining the Marine Corps' ability to effectively train and maintain readiness. Our outstanding waste minimization efforts are especially important because of our isolated location and limited landfill space. The success of our Hazardous Waste Management Program has resulted in significant cost savings to the Marine Corps and demonstrates our dedication to protecting the environment entrusted to us. We continuously strive to ensure that our program supports military readiness through our extensive Natural and Cultural Resources Management Programs, which are critical to effective training. The success of stakeholder interactions is reflected in MCB Butler's numerous partnerships and collaborations with local municipalities and agencies, continually improving relations between the people of Okinawa and the Marine Corps, and supporting the U.S. – Japan alliance.