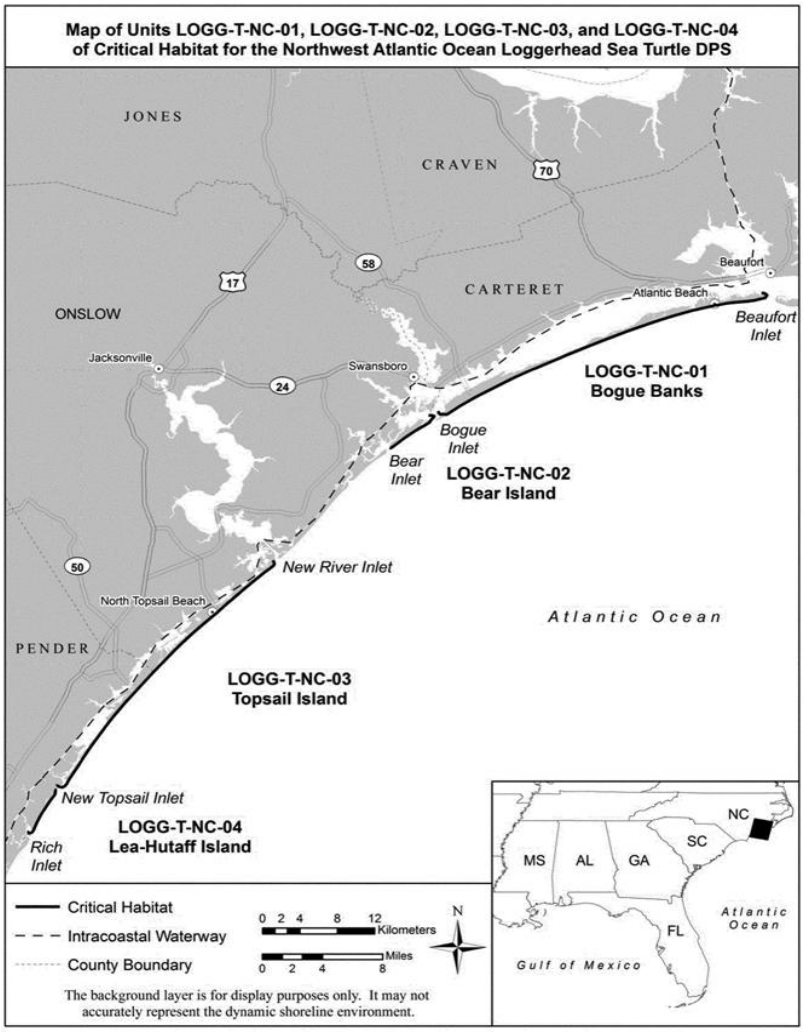
Appendix 9: Sea Turtle Monitoring, Management and Protective Measures

The following document, with minor edits regarding referencing the 2007 Marine Corps Base Camp Lejeune Integrated Natural Resources Management Plan, sent to the USFWS on October 25, 2012, describes measures MCB Camp Lejeune will take to monitor, manage for, and protect sea turtle nests on Onslow Beach. These measures were determined by the USFWS to be sufficient to exempt Onslow Beach from critical habitat designation. This exemption is described in Federal Register document 74 FR 39755 – 39854 of July 10, 2014, "Endangered and Threatened Wildlife and Plants; Designation of Critical Habitat for the Northwest Atlantic Ocean Distinct Population Segment of the Loggerhead Sea Turtle." Browns Island was not considered in the original proposal to designate critical habitat, and is therefore not specifically mentioned in the exemption. However the installation was exempted as a whole, and the mapped critical habitat units do not include Onslow Beach or Browns Island. The map below is taken from 74 FR 39755-39854. MCB Camp Lejeune's two barrier islands are located between New River Inlet and Bear Inlet.



PROTECTION, MONITORING, AND MANAGEMENT OF LOGGERHEAD SEA TURTLES ON ONSLOW BEACH, MARINE CORPS INSTALLATIONS EAST-MARINE CORPS BASE, CAMP LEJEUNE

The purpose of this document is to outline protective measures, monitoring and management actions carried out to promote conservation and recovery of sea turtles on Marine Corps Installations East-Marine Corps Base Camp Lejeune (MCIEAST-MCB CAMLEJ). With the recent designation of the Northwest Atlantic Distinct Population Segment of the loggerhead turtle, and listing as threatened, there is a requirement to designate critical habitat. The National Defense Authorization Act of 2004 allows for military lands to be granted an exemption from the designation of critical habitat for endangered species, provided that there is an Integrated Natural Resources Management Plan (INRMP) in place that provides a sufficient benefit to threatened and endangered species. This document will lay out the measures that MCIEAST-MCB CAMLEJ believe are sufficient to exempt the base from critical habitat designation. As MCIEAST-MCB CAMLEJ begins the process of revising our INRMP, we plan to continue the existing measures for sea turtles described below in the new INRMP.

This document has been organized in a way that addresses specific issues brought up by U.S. Fish and Wildlife Service Sea Turtle Biologist, Anne Marie Lauritsen in e-mails and telephone conversations with MCIEAST-MCB CAMLEJ biologists, Craig Ten Brink. The information below is intended to be a summary of our monitoring and protective measures. For more detailed descriptions of particular aspects of the program, MCIEAST-MCB CAMLEJ can provide the pertinent documents. More detail on the sea turtle protocol can be found in the Handbook for Sea Turtle Volunteers in North Carolina (NRCS, 2006).

Daily Sea Turtle Nest Season Monitoring

Sea turtle nesting has been monitored on Onslow Beach since 1979. The approximately 7 miles of Onslow Beach are monitored on the ground, while approximately 4 miles of Browns Island is monitored by air (Figure 1).

- From mid May through August, Base personnel conduct morning surveys on Onslow Beach every day, including weekends and holidays.
- Surveys begin before sunrise.
- When a crawl is encountered, Base personnel determine whether the crawl is a false crawl, or a nest, and fill out an Individual Crawl Report provided by the North Carolina Sea Turtle Project (Appendix A). Data sheets are submitted online through the North Carolina Sea Turtle Project's page on Seaturtle.org.
- Locations of nests are GPSed, marked, and protected with cages to prevent predation, and increase visibility to people using the beach.

- When military training is to take place on the beach at night, Base personnel will conduct periodic surveys during the duration of the training activity. If a crawl is encountered the same data described above is collected.
- If a nesting female is encountered during night surveys, Base personnel will allow the turtle to nest. Once nesting is in progress (at least 1/3 of eggs deposited) Base personnel will record individual tagging and size data, and allow for immediate protection of sea turtle nests. If the turtle is not tagged, Base personnel will tag the turtle using approved procedures.
- If a nest is laid in the amphibious training beach, below the high tide line, or in an area likely to be frequently inundated or eroded, the nest is relocated to a safe area. Nests found in the amphibious landing beach are relocated north of the recreational beach. Nest relocations are carried out in accordance with existing guidelines adapted from the Handbook for Sea Turtle Volunteers in North Carolina (NRCS, 2006).
- All nests are relocated no later than 9:00 a.m. the morning after eggs are deposited.
- Nests are excavated, and hatchlings are handled in accordance with guidelines in the Handbook for Turtle Volunteers in North Carolina (NRCS, 2006).

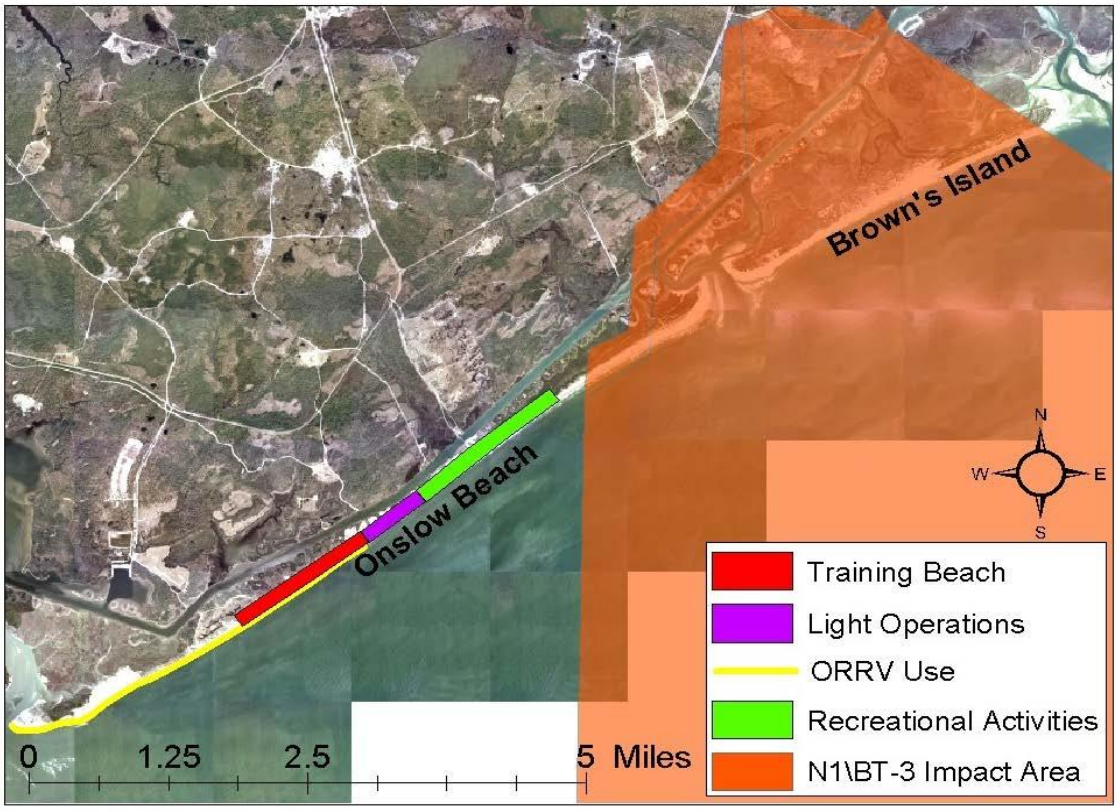


Figure 1. Map of Onslow Beach showing training recreational and special use areas.

Predator Control

Predation of turtle nests has periodically spiked, but in general has not been a major problem for Onslow Beach. In 2012, two nests out of 52 total nests (3.8%) were predated before they were located by Base personnel. A total of 57 eggs were lost; 12 from one nest, and 45 from another No nests were predated after cages were installed.

In our 2007 INRMP, we stated in regards to shorebirds, that MCIEAST-MCB CAMLEJ has "actively removed predators from Onslow Beach, and will do so again as appropriate." Since 2008, MCIEAST-MCB CAMLEJ has trapped every year but 2012 on Onslow Beach. Table 1 shows the predators removed from 2008-2011.

MCIEAST-MCB CAMLEJ maintains a contract with U.S. Department of Agriculture, Animal and Plant Health Inspection Service (USDA-APHIS) in order to control nuisance animals throughout the base. This contract is flexible, and allows wildlife managers to direct trapping efforts where it is needed most, including control of predators on Onslow Beach for the purpose of promoting conservation of sea turtles, shorebirds, and colonial nesting waterbirds.

In her email, Ms. Lauritsen suggested that we describe what would trigger predator control to minimize sea turtle predation, and suggested that we use Action 411 in the 2008 Recovery Plan for the Northwest Atlantic Population of the Loggerhead Sea Turtle as a guide. The goal of this action is to reduce the annual rate of mammalian predation to at or below 10% of sea turtle nests. Until now, mobilizing the trapping effort on Onslow Beach has not been triggered by an absolute number or percentage of nests, but MCIEAST-MCB CAMLEJ will begin using 10% as a trigger and will incorporate this into the revised INRMP.

Table 1. Predators trapped on Onslow Beach from 2008-2011

YEAR	OPOSSUM	RACCOON	BOBCAT	FERAL CAT	GRAY FOX
2008	21	1	0	3	2
2009	22	5	0	1	2
2010	32	8	4	0	0
2011	10	2	0	0	0

Education

Because Onslow Beach is a location for both military use and recreational use, MCIEAST-MCB CAMLEJ has developed educational materials targeted for Marines training in the field and patrons of the recreational beach.

Marine units using the Amphibious Landing portion of Onslow Beach must have a Range Safety Officer (RSO), who has gone through the Base's RSO course. Among other things, the RSO course includes sections on threatened and endangered species, and specifically sea turtles. Range Safety Officers are made aware of the potential presence of sea turtles during the nesting season, and the restrictions that are imposed on training. Training restrictions are based on conservation measures and terms and conditions of the 2002 Biological Opinion on the Effects of Current Use and Modification of Training Areas, Dune Stabilization, and Continued Recreational Use of Onslow Beach. These training restrictions have been incorporated into two MCIEAST-MCB CAMLEJ Orders, which all training units must comply with.

For recreational users of Onslow Beach, educational materials on sea turtles are provided in each of the beach rental units, and posters are hanging at each of the three "pavilions" on the beach. The pavilions house rest rooms, vending machines and covered picnic areas.

Predator proof trash receptacles

Predator-proof trash receptacles are not currently being used on Onslow Beach. However if use of this type of receptacle is necessary to meet the requirements of exemption from critical habitat designation, MCIEAST-MCB CAMLEJ will implement their use before next nesting season.

Lighting

MCIEAST-MCB CAMLEJ is committed to reducing and keeping lighting on Onslow Beach to acceptable levels for sea turtles. The 2002 Biological Opinion included a term and condition stating that "Exterior lights on all beach housing units will be converted to canister down lights or other system that reduce ambient light to acceptable levels. In addition, the 2002 Biological Assessment included the following conservation measure:

"Lighting on all new structures built on Onslow Beach will conform to guidelines contained in the Florida Marine Research Institute's Technical Reports on Understanding, Assessing and Resolving Light Pollution Problems on Sea Turtle Nesting Beaches (Witherington and Martin, 2000). Existing structures on Onslow Beach, as well as Risley Pier, will be evaluated for compliance with these standards within six months of receipt of a biological opinion."

Since receiving the 2002 Biological Opinion, MCIEAST-MCB CAMLEJ has converted all lighting on beach housing units to canister lights (Figure 2). In addition, all street lights on Onslow Beach have been converted to low-pressure sodium fixtures, which emit a wavelength that is less attractive to loggerheads. This action went beyond the requirements of the Biological Opinion. As discussed with Ms. Lauritsen, MCIEAST-MCB CAMLEJ will conduct a nighttime survey to determine if any of the street light bulbs are visible from the beach. If so, MCIEAST-MCB CAMLEJ will submit a plan for USFWS approval that addresses the remaining problem lights. Finally, the demolition of Risley Pier has undoubtedly improved the lighting situation for sea turtles on Onslow Beach.

For future facilities, projects are directed to the attention of the Threatened and Endangered Species Program Manager through the National Environmental Policy Act (NEPA) environmental review process. Any new facilities will be required to conform to the Witherington and Martin (2000) guidelines. The Threatened and Endangered Species Program Manager takes an active role working with project proponents to come up with a lighting system that meets the needs of the project, but is sea turtle friendly.

Figure 2. Onslow Beach housing unit showing canister lighting.

Recreational Driving

At the time of the 2002 Biological Opinion, MCIEAST-MCB CAMLEJ allowed off-road recreational driving on Onslow Beach from the former Risley Pier location southwest to the New River Inlet year round, with a prohibition on night driving during the sea turtle nesting season (May 15 - October 31).

In 2005 the base order addressing driving on Onslow Beach was revised to further restrict recreational driving on Onslow Beach. The revised base order restricts driving during the sea turtle nesting season to only training beach during daylight hours, when training is not scheduled. The rationale behind this decision was that sea turtle nests are already being relocated from the training beach, and therefore, recreational driving in this area would not threaten nests or hatchlings. The restriction to daylight hours ensures that Base personnel can find nests in the training beach before recreational users arrive on the beach. Figure 3 shows the different beach sections and when (if) recreational driving is allowed in each.

Conclusion

Based on the information above, we believe it is clear that Onslow Beach is, and will continue to be a high quality nesting beach for the loggerhead sea turtle. In addition to doing what is legally required, MCIEAST-MCB CAMLEJ has sought out ways to improve nesting habitat on Onslow Beach. Several of the measures described above, including conversion of street lights to low-pressure sodium, restriction of recreational driving to the training beach only during the sea turtle nesting season, and the predator trapping efforts go above and beyond the requirements of past

biological opinions, but were seen as good ways to improve stewardship in support of the military mission. In addition to these measures, MCIEAST-MCB CAMLEJ will conduct a nighttime survey of streetlights and submit a plan to the USFWS to address any lights where the bulb is visible from the beach.

It is essential to the military training mission of MCIEAST-MCB CAMLEJ that Onslow Beach is not designated as critical habitat for the loggerhead sea turtle. We believe that the measures described above, and which will be incorporated into the revision of our INRMP offer sufficient protection to the loggerhead to justify exempting Onslow Beach from critical habitat designation, and we seek USFWS concurrence on this matter.

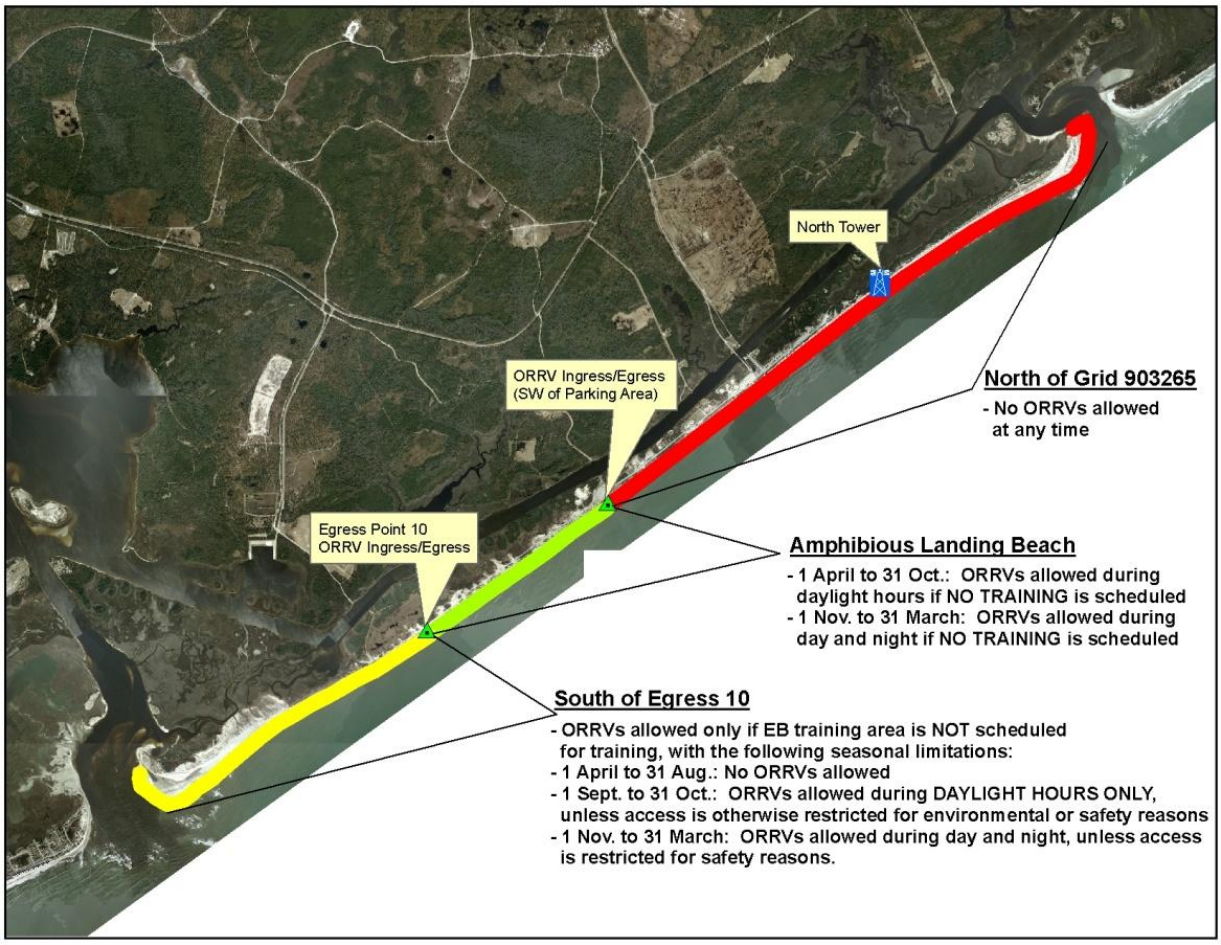


Figure 3. Schedule and locations for recreational driving on Onslow Beach.

References

North Carolina Wildlife Resources Commission (NCWRC). March, 2006. Handbook for Sea Turtle Volunteers in North Carolina. Coastal Faunal Diversity Program, Raleigh, North Carolina. Available at: http://www.seaturtle.org/PDF/NCWRCNorthCarolinaWildlifeResourcesCommission_2006_HandbookforseaturtlevolunteersinNor.pdf.