

**BY ORDER OF THE COMMANDER
45TH SPACE WING**

**45TH SPACE WING INSTRUCTION
32-7001**



23 APRIL 2018

Civil Engineering

EXTERIOR LIGHTING MANAGEMENT

COMPLIANCE WITH THIS PUBLICATION IS MANDATORY

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This instruction implements the Endangered Species Act (ESA) of 1973, as amended (16 U.S.C. § 1531 et seq), Air Force Policy Directive (AFPD) 32-70, *Environmental Quality*, Air Force Instruction (AFI) 32-7064, *Integrated Natural Resources Management*, and the United States Fish and Wildlife Service (USFWS) Biological Opinion issued 9 April 1991, updated 2 May 2000, 23 August 2006 and 18 November 2008. The instruction also explains management responsibilities, exterior lighting restrictions and reporting requirements necessary for the 45th Space Wing (45 SW) to remain in compliance with Federal, State and local standards. This publication applies to Patrick AFB, Cape Canaveral AFS, downrange sites and all units assigned to the 45th Space Wing. Ensure that all records created as a result of processes prescribed in this publication are maintained IAW Air Force Manual (AFMAN) 33-363, Management of Records, and disposed of IAW Air Force Records Information Management System (AFRIMS) Records Disposition Schedule (RDS). Refer recommended changes and questions about this publication to the Office of Primary Responsibility (OPR) using the AF Form 847, *Recommendation for Change of Publication*. This publication may not be supplemented or further implemented/extended. Submit requests for waivers through the chain of command to the Publication OPR.

SUMMARY OF CHANGES

This publication has been substantially revised and must be completely reviewed. Major changes include removal of certain fixture types, addition of requirement to obtain fixture approval prior to purchase and installation, specifications for new and retrofitted fixtures' light wavelengths and the use of bollards, or other low mounted luminaries, for pathway lighting.

1. Background. In 1998, the 45 SW and USFWS agreed to develop Light Management Plans (LMPs) in an effort to reduce the amount of exterior lighting visible from the beach. This action was required to reduce sea turtle hatchling mortality caused by disorientation. Disorientation occurs when sea turtles crawl toward inland light sources rather than the ocean. The LMPs identified exterior lights that could be replaced with low-pressure sodium (LPS) lamps, unnecessary lights that could be eliminated and operational constraints for all exterior lights. LPS was the most turtle friendly light technology at the time. Currently, LPS is being phased out and replaced with much more turtle friendly amber Light Emitting Diode (LED) lights. The USFWS has approved additional types of fixtures that may be used when shielded.

2. Concept. This instruction establishes responsibilities and provides guidance for the protection of threatened and endangered sea turtles in accordance with the ESA and the Biological Opinion issued by the USFWS. This instruction applies to all exterior lighting systems/fixtures located within Air Force property boundaries of the 45 SW that may affect sea turtles.

3. Responsibilities.

3.1. Organizations, tenants and residents are responsible for minimizing exterior lighting during the sea turtle nesting season, 1 May through 31 October, between the hours of 2100 and 0600. Exterior lighting that is not mission-, safety- or security-essential will be extinguished during this time frame. All exterior lights will be controlled by either individual or cluster light-specific switches, or an energy management control system.

3.1.1. The standard exterior lighting fixture is a downward-directed full cutoff amber LED. These LEDs must have a wavelength of 560 nanometers or longer, with no more than 1.75% of output shorter than 560 nanometers. All new exterior light fixtures and bulbs, including proposed mounting height, must be approved by 45th Civil Engineer Squadron, Installation Management Flight (45 CES/CEI) prior to purchase or installation, including new bulbs or fixtures anticipated for retrofitting or replacement. If mission, safety or security requirements cannot be met with amber LED lights, a letter of justification with the request for a variance must be submitted to the 45 CES/CEI for approval, along with a cut sheet of the fixture being requested. Existing lights may remain as installed until replacement is required; lights specifically shown to be causing sea turtle disorientation will need to be addressed immediately.

3.1.2. Walkway and/or pathway lighting shall consider the use of amber LED bollards and other low mounted luminaires as viable options and not limit design analyses to pole mount only. Shorter pole height shall also be considered especially in areas closer to the beach. In areas of rare to low vehicular and foot traffic during dark hours, utilization of dimmable luminaires shall also be considered to reduce the sky glow effect (light pollution). The number of bollards, luminaires or poles must be the minimum required to meet the lighting requirements.

3.1.3. Interior lighting that creates an incidental glow visible outside the facility with the potential to cause sea turtle disorientation must be extinguished or shielded to prevent the light from being visible external to the facility. Shielding can consist of baffles/louvers on the fixtures, sufficient tint on the windows that reduces light transmittance and/or curtain/blinds that adequately block the interior lighting. If interior lighting is required

for safety or security reasons and is visible outside the facility, the facility manager must work with the 45 CES/CEI to identify alternative light types and shielding options.

3.1.4. Light Management Plans may be required for new facility construction/operation and/or any operations requiring exterior lighting. The need for a LMP will be determined by the 45 CES/CEI based upon potential impacts to sea turtles. It is the responsibility of the requester/user to complete and submit the LMP to the 45 CES/CEI, who will then submit to the USFWS for approval as required. Installation of lighting cannot commence until the LMP is approved in writing.

3.2. The 45 CES/CEI office will be responsible for monitoring and enforcement of light use restrictions for sea turtle protection on 45 SW installations.

4. Notification and Reporting.

4.1. The 45 CES/CEI office will issue annual notices to all personnel prior to the sea turtle nesting season to remind organizations, tenants and residents of light use constraints and responsibilities.

4.2. Incidents of inappropriate light operation will be reported to the accountable facility managers.

4.3. Questions regarding the requirements of this instruction or concerns related to sea turtles and lighting should be directed to 45 CES/CEI at (321) 853-6822 or (321) 853-0964.

WAYNE R. MONTEITH, Brigadier General, USAF
Commander

Attachment 1**GLOSSARY OF REFERENCES AND SUPPORTING INFORMATION*****References***

16 U.S.C. §1531 et seq, *Endangered Species Act of 1973*

AFPD 32-70, *Environmental Quality*, 20 July 1994

AFI 32-7064, *Integrated Natural Resources Management*, 18 November 2014

AFMAN 33-363, *Management of Records*, 1 March 2008

Light Management Biological Opinion, United States Fish and Wildlife Service, 18 November 2008

Adopted Forms

AF Form 847, *Recommendation for Change of Publication*

Abbreviations and Acronyms

45 SW—45th Space Wing

AFI—Air Force Instruction

AFMAN—Air Force Manual

AFRIMS—Air Force Records Information Management System

CCAFS—Cape Canaveral Air Force Station

DoD—Department of Defense

IAW—In accordance with

LED—Light Emitting Diode

LMP—Light Management Plan

LPS—Low Pressure Sodium

PAFB—Patrick Air Force Base

RDS—Records Disposition Schedule

SWI—Space Wing Instruction

U.S.C—United States Code

USFWS—United States Fish and Wildlife Service