DRAFT

Environmental Assessment

BLUE ORIGIN NEW GLENN CADENCE INCREASE AT SPACE LAUNCH COMPLEX 36

CAPE CANAVERAL SPACE FORCE STATION, FLORIDA

Appendix A.1.1

September 2026

Federal Aviation Administration
Department of the Air Force
United States Coast Guard
National Aeronautics and Space Administration

Unique ID: EAXX-021-12-14Y-1773227485

Federal Aviation Administration

Photo credit Blue Origin

LIST OF APPENDICES

Acronyms and Abbreviations

Acronym	Definition
§/§§	section/sections
ACHP	Advisory Council on Historic Preservation
AHA	Aircraft Hazard Area
APE	Area of Potential Effects
ASEL	A-weighted sound exposure level
BCA	Biological and Conference Assessment
BGEPA	Bald and Golden Eagle Protection Act
Blue Origin	Blue Origin, LLC
CCP	Comprehensive Conservation Plan
CCSFS	Cape Canaveral Space Force Station
CDNL	C-weighted day-night average sound level
CFR	Code of Federal Regulations
CH_4	methane
CMP	Coastal Management Program
CO_2	carbon dioxide
CO_2e	carbon dioxide equivalent
COMDTINST	Commandant Instruction
CZMA	Coastal Zone Management Act
DAF	Department of the Air Force
dB	decibel(s)
dBA	A-weighted decibels
DNL	day-night average sound level
DoD	Department of Defense
DOT	Department of Transportation
DoW	Department of War
EO	Executive Order
EA	Environmental Assessment
EFH	essential fish habitat
EIS	Environmental Impact Statement
ERD	Environmental Resources Document
ERP	Environmental Resource Permit
ESA	Endangered Species Act
FAA	Federal Aviation Administration
FDEP	Florida Department of Environmental Protection
FONSI	Finding of No Significant Impact
HAPC	habitat areas of particular concern
ILV	integrated launch vehicle
INRMP	Integrated Natural Resources Management Plan
IPaC	Information for Planning and Consultation
KSC	Kennedy Space Center
LAA	Limited Access Area
$L_{A,max}$	maximum A-weighted sound level
lbf	million pounds-force
LC	Launch Complex
LH_2	liquid hydrogen
L_{max}	maximum sound level
LNG	liquefied natural gas
LOX	liquid oxygen

Acronym	Definition
MBTA	Migratory Bird Treaty Act
MG	million gallons
MGD	million gallons per day
MINWR	Merritt Island National Wildlife Refuge
MMPA	Marine Mammal Protection Act
MSA	Magnuson-Stevens Fishery Conservation and Management Act
MT/yr	metric tons per year
N_2O	nitrous oxide
NAAQS	National Ambient Air Quality Standards
NAS	National Airspace System
NASA	National Aeronautics and Space Administration
NEI	National Emissions Inventory
NEPA	National Environmental Policy Act
NHPA	National Historic Preservation Act
NMFS	National Marine Fisheries Service
No.	Number
NOTAM	Notice to Airmen
NOTMAR	Notice to Mariners
NO_x	nitrogen oxides
NPDES	National Pollutant Discharge Elimination System
NRHP	National Register of Historic Places
OSHA	Occupational Safety and Health Administration
PDC	project design criteria
PLOC	Programmatic Letter of Concurrence
PM	particulate matter
PM_{10}	particulate matter with a diameter equal to or less than 10 microns
$PM_{2.5}$	particulate matter with a diameter equal to or less than 2.5 microns
PSD	Prevention of Significant Deterioration
psf	pound per square foot
RNA	Regulated Navigation Area
SCCC	Spaceport Command and Control Center
SHPO	State Historic Preservation Officer
SJRWMD	St. Johns River Water Management District
SLC	Space Launch Complex
SLD 45	Space Launch Delta 45
SpaceX	Space Exploration Technologies Corp.
U.S.	United States
U.S.C.	United States Code
USCG	United States Coast Guard
USEPA	United States Environmental Protection Agency
USFWS	United States Fish and Wildlife Service
USSF	United States Space Force
VOL	vehicle operator license

Appendix A Regulatory Consultations

A.1 Endangered Species Act Section 7 Consultation

A.1.1 United States Fish and Wildlife Services Biological and Conference Assessment

FINAL

Biological and Conference Assessment

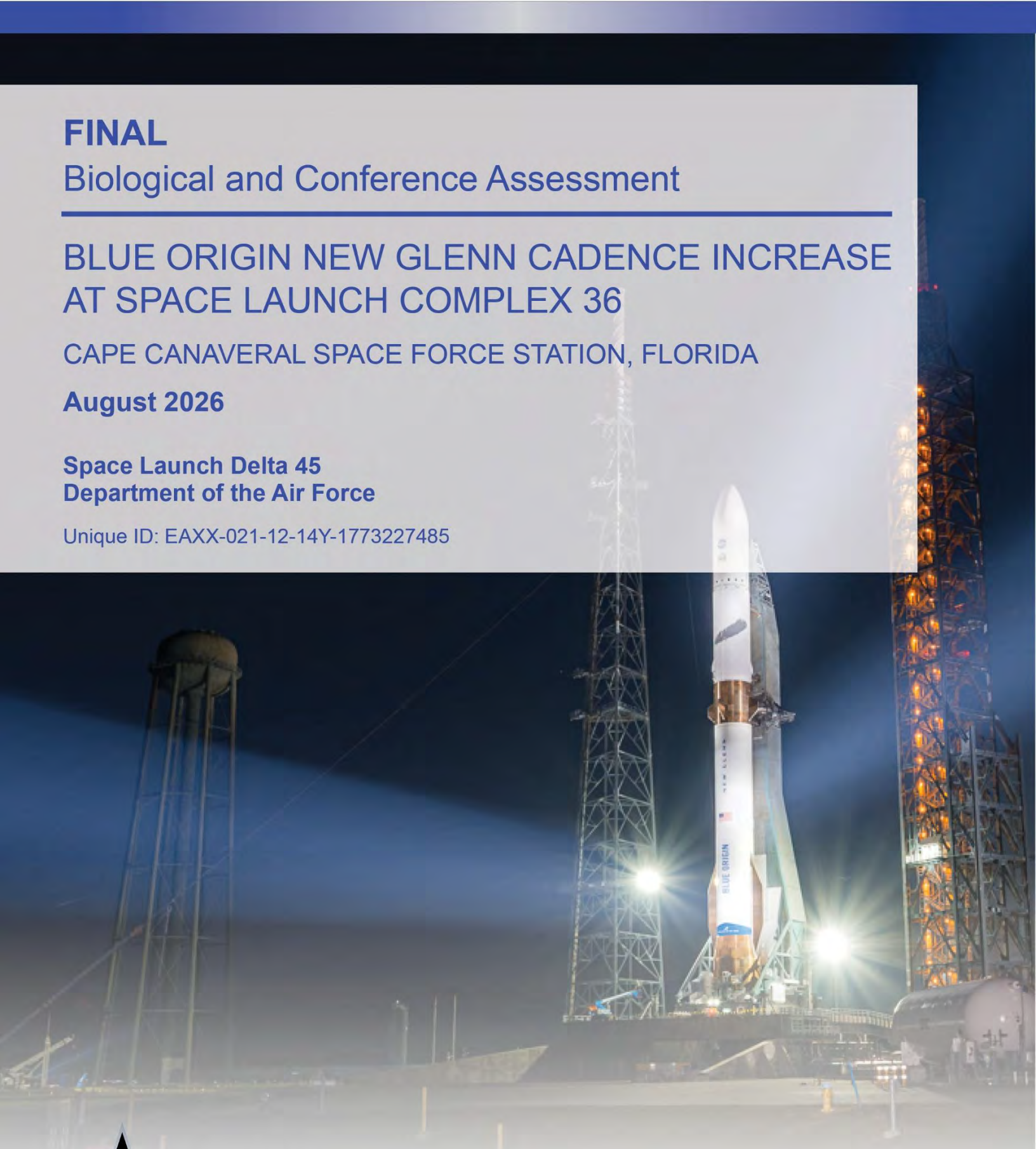
BLUE ORIGIN NEW GLENN CADENCE INCREASE AT SPACE LAUNCH COMPLEX 36

CAPE CANAVERAL SPACE FORCE STATION, FLORIDA

August 2026

Space Launch Delta 45
Department of the Air Force

Unique ID: EAXX-021-12-14Y-1773227485



UNITED STATES
SPACE FORCE

Photo credit Blue Origin

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Acronyms and Abbreviations

Acronym	Definition
°	degrees
§	Section
°F	degrees Fahrenheit
ASEL	A-weighted sound exposure level
BCA	Biological and Conference Assessment
CANA	Canaveral National Seashore
CCSFS	Cape Canaveral Space Force Station
CFR	Code of Federal Regulations
CM	conservation measure
DAF	Department of the Air Force
dB	decibel(s)
dBA	A-weighted decibel(s)
EA	Environmental Assessment
ESA	Endangered Species Act
FAA	Federal Aviation Administration
FWS	United States Fish and Wildlife Service
Hz	hertz
ILV	integrated launch vehicle
INPS	invasive non-native plant species
INRMP	Integrated Natural Resources Management Plan
IPaC	Information for Planning and Consultation
IRL	Indian River Lagoon
kHz	kilohertz
KSC	Kennedy Space Center
lbf	pounds-force
LC	Launch Complex
LH_2	liquid hydrogen
LMP	Light Management Plan
LNG	liquefied natural gas
LOX	liquid oxygen
MG	million gallons
MINWR	Merritt Island National Wildlife Refuge
NASA	National Aeronautics and Space Administration
nm	nautical mile(s)
NMFS	National Marine Fisheries Service
No.	Number
psf	pound(s) per square foot
SEL	sound exposure level
SLC	Space Launch Complex
SLD 45	Space Launch Delta 45
SPCC	Spill Prevention, Control, and Countermeasures
SPL	sound pressure level
TTS	temporary threshold shift
U.S.	United States
USFWS	United States Fish and Wildlife Service

Chapter 1. Introduction

Space Launch Delta 45 (SLD 45), as the lead federal action agency, has prepared this Biological and Conference Assessment (BCA) to evaluate the potential effects of up to 50 Blue Origin New Glenn launches and up to 100 static fire tests (up to 50 integrated launch vehicle [ILV] static fires and up to 50 second-stage static fires—collectively referred to as static fires) per year at Space Launch Complex (SLC)-36 on Cape Canaveral Space Force Station (CCSFS), and up to 50 first-stage downrange barge landings in the Atlantic Ocean, to species and critical habitat protected under the Endangered Species Act (ESA) and certain other species and habitats that are proposed for ESA protection.

1.1 Background

The New Glenn program at CCSFS was first analyzed in the 2016 *Final Environmental Assessment* [EA] *for Blue Origin Orbital Launch Site at Cape Canaveral Air Force Station* (DAF, 2016) (hereafter referred to as the "2016 DAF EA") for an "orbital launch vehicle" (later named New Glenn). The Proposed Action included construction and operation of an orbital launch site at SLC-11 and SLC-36, with major elements such as a launch pad, integration facility, engine test stand, and systems to support recovery and refurbishment of a reusable first stage. The Proposed Action also included engine testing as part of the overall program and assumed a launch rate of up to 12 launches per year, with the first stage returning to an at-sea platform in the Atlantic Ocean and being transported to Port Canaveral for refurbishment and reuse.

During the 2016 ESA Section 7 consultation, SLD 45 determined, and the United States (U.S.) Fish and Wildlife Service (USFWS) concurred that the Proposed Action may affect, and was likely to adversely affect, loggerhead (*Caretta caretta*), green (*Chelonia mydas*), leatherback (*Dermochelys coriacea*), hawksbill (*Eretmochelys imbricata*), and Kemp's ridley (*Lepidochelys kempii*) sea turtles, as well as the southeastern beach mouse (*Peromyscus polionotus niveiventris*), eastern indigo snake (*Drymarchon couperi*), and Florida scrub-jay (*Aphelocoma coerulescens*). The USFWS also concurred with the SLD 45 determination of may affect, not likely to adversely affect, for the manatee (*Trichechus manatus*), red knot (*Calidris canutus rufa*), wood stork (*Mycteria americana*), and piping plover (*Charadrius melodus*). The USFWS *Biological Opinion for Construction of an Orbital Launch Site at Launch Complex (LC) 11 and 36 and Launch of the Blue Origin Orbital Launch Vehicle from LC-36 Area on Cape Canaveral Air Force Station in Brevard County, Florida* ([USFWS] FWS Log [Number] No. 04EF1000-2016-F-0164) was issued on May 27, 2016 (USFWS, 2016).

The Federal Aviation Administration (FAA) issued a vehicle operator license to Blue Origin in December 2024 authorizing up to 12 launches per year for up to 5 years at SLC-36. The Proposed Action now under consideration entails a cadence increase from the currently authorized 12 launches per year to up to 50 launches per year from SLC-36 (and up to 50 downrange landings[1] and payload fairing recoveries), with associated pre-launch testing (stage static fires) described as potentially occurring prior to each launch in current planning assumptions. This shift represents a substantial operational change from the previously evaluated and licensed level (12

[1] Mission objectives may occasionally require expending the first stage in the Atlantic Ocean. If expended, the first stage would break up upon atmospheric reentry. Debris would be expected to sink to the bottom of the ocean.

launches per year) and triggers the need to update the FAA's licensing review and reinitiate ESA Section 7 consultation to ensure that effects to all currently listed and proposed species and critical habitat areas are adequately addressed under the expanded operations envelope.

1.2 Federal Action

The Proposed Action is to increase the New Glenn launch cadence at SLC-36 from the currently authorized 12 launches per year to up to 50 launches per year to support future U.S. Government and commercial launch service needs. This action would require FAA issuance of a modification to the existing Blue Origin launch license (VOL 24-133). The Proposed Action also involves utilization of an updated New Glenn launch vehicle as described in Chapter 2, *Project Description*.

1.3 Documents Incorporated by Reference

Relevant material from previous ESA Section 7 consultations is incorporated by reference into this BCA to reduce document bulk without impeding agency review of the action. Where appropriate, pertinent information is summarized from the following documents regarding baseline/existing conditions and potential effects associated with activities within the Action Area of this BCA.

- *Biological Opinion for Light Management Activities at Cape Canaveral Air Force Station and Patrick Air Force Base, FWS Log No. 41910-2009-F-0087* (USFWS, 2008a)
- *Biological Opinion for Construction of an Orbital Launch Site at Launch Complex (LC) 11 and 36 and Launch of the Blue Origin Orbital Launch Vehicle from the LC-36 Area on Cape Canaveral Air Force Station (FWS Log No. 04EF1000-2016-F-0164)* (USFWS, 2016)
- *Biological Opinion for Relativity Launch Complex-16, at Cape Canaveral Air Force Station (FWS Log* [Number] *#: 04EF1000-2020-F-0399)* (USFWS, 2020a)
- *Programmatic Biological Opinion and Conference Report for Cape Canaveral Space Force Station Range of the Future (FWS Ecosphere Log Number 2023-0048779)* (USFWS, 2023d)
- *Biological Opinion for Reactivation of Space Launch Complex 14 at Cape Canaveral Space Force Station, Florida (FWS Ecosphere Log Number: 2024-0030503)* (USFWS, 2024f)
- *Biological Opinion/Conference Report for Space Launch Complex 40 Launch Cadence Increase and Landing Zone Construction, FWS Ecosphere Log Number: 2024-0070219* (USFWS, 2025a)
- *Biological/Conference Opinion for Starship-Super Heavy Construction and Operations at Space Launch Complex 37, FWS Ecosphere Log Number: 2023-0133990* (USFWS, 2025b) and *Letter of Concurrence for Starship-Super Heavy Construction and Operations at SLC-37* (USFWS, 2025c)
- *Biological/Conference Opinion for Starship-Super Heavy Construction and Operations at LC-39A, FWS Ecosphere Log Number: 2024-0058364* (USFWS, 2025d) and *Letter of Concurrence for Starship-Super Heavy Construction and Operations at LC-39A* (USFWS, 2025e)
- *Biological Opinion/Conference Report for LC-39A Falcon Launch Cadence Alteration and Landing Zone Construction, FWS Ecosphere Log Number: 2025-00092328* (USFWS, 2025f)

Chapter 2. Project Description

2.1 Location

SLC-36 is located on land owned and managed by SLD 45, a unit of the U.S. Space Force, in Brevard County, Florida, near the cities of Titusville and Cape Canaveral (Figure 2-1). SLC-36 is east of the intersection of ICBM Road and Central Control Road, south of SLC-12 and west of the Atlantic Ocean. The Proposed Action is focused only on activities associated with a launch cadence increase from the currently authorized 12 launches per year to up to 50 launches per year from SLC-36 and the expansion of the ocean landing areas (Figure 2-2). No new ground disturbance or facility construction is proposed; operations may require permit modifications for increased deluge water management.

2.2 Increased Operations Activities

The Proposed Action would involve an increase from the currently authorized 12 launches per year from SLC-36 to up to 50 launches per year, as well as the addition of up to 50 static fire tests per stage and up to 50 downrange barge landings in the ocean. The Proposed Action would also include an increase in daily operations at SLC-36 and roadway and marine traffic.

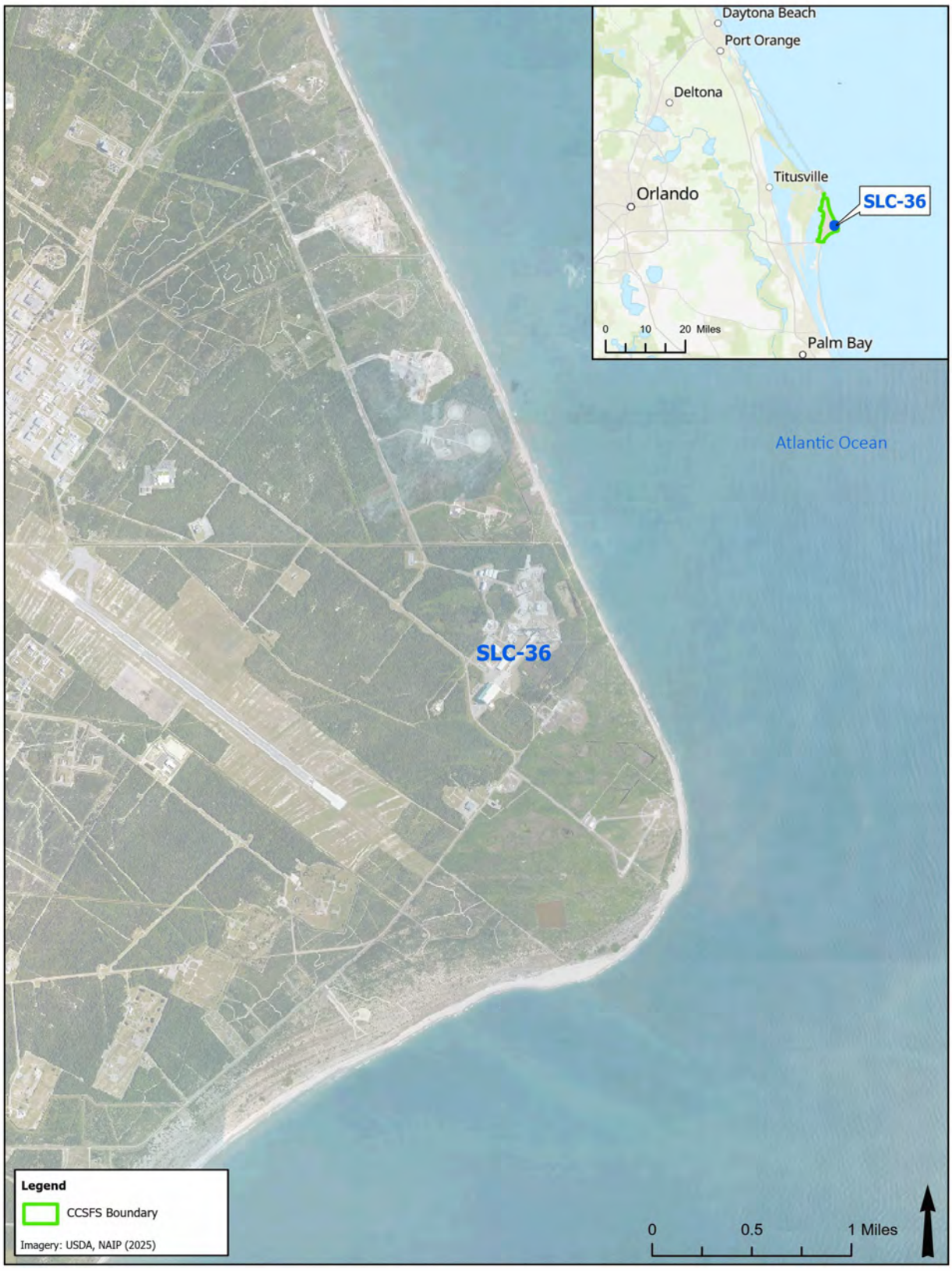

Figure 2-1. Location of SLC-36 at CCSFS

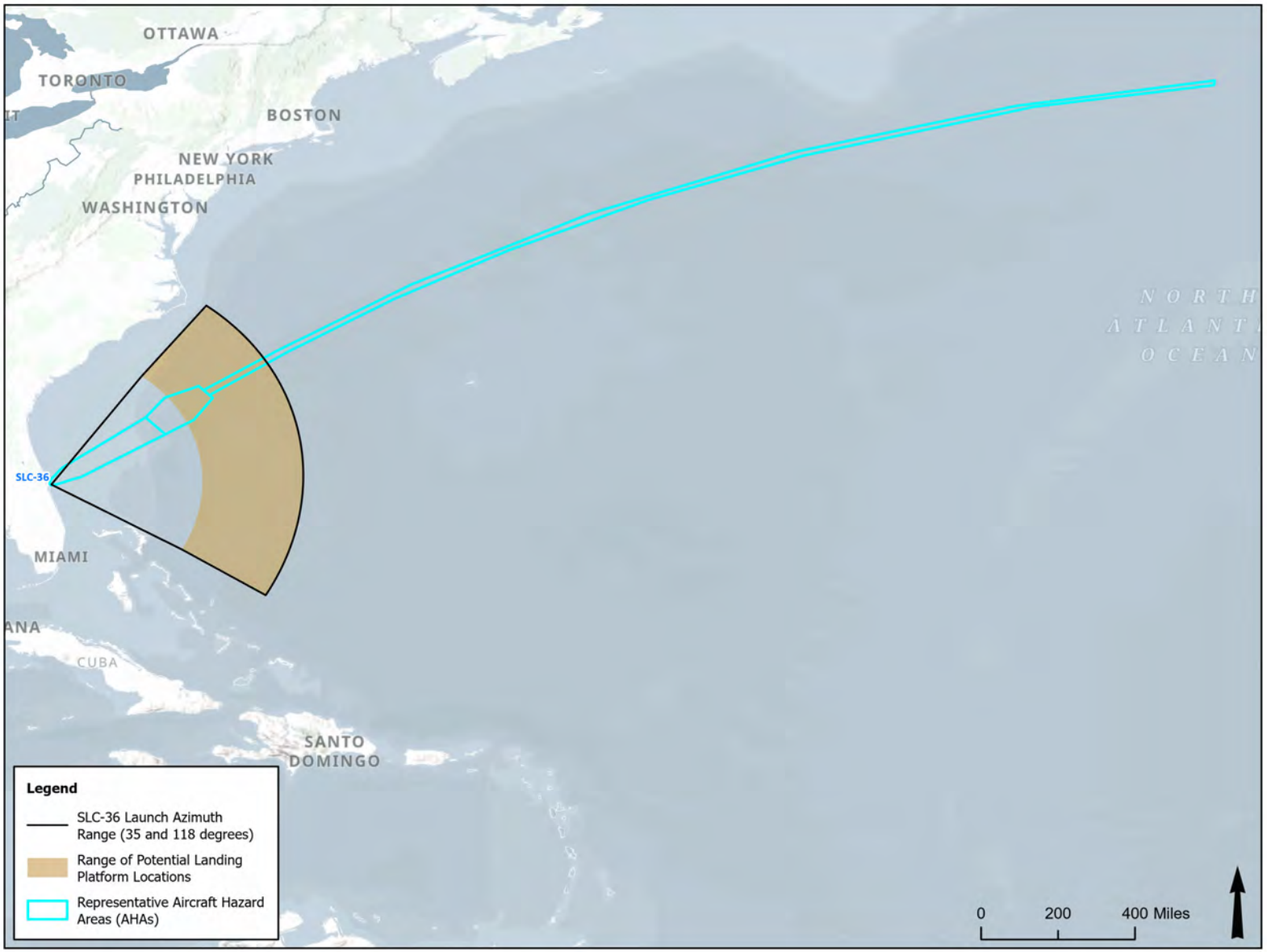

Figure 2-2. Range of Potential Launch Azimuths and Potential Landing Platform Locations

2.2.1 Launch Vehicle

The New Glenn launch vehicle is a two-stage orbital rocket[2] that is approximately 320 feet tall and 23 feet in diameter (Figure 2-3). New Glenn's first stage is powered by seven BE-4 engines using liquid oxygen (LOX) and liquefied natural gas (LNG) as propellants, and the second stage (upper stage) is powered by two BE-3U engines using LOX and liquid hydrogen (LH_2) as propellants. The 2016 Department of the Air Force (DAF) EA previously described the New Glenn launch vehicle as an orbital launch vehicle with approximately 4.5 million pounds-force (lbf) of thrust comprised of Stage 1 (consisting of "an array" of Blue Origin's BE-4 engines) and Stage 2 (consisting of a single BE-4 engine). The primary update to the launch vehicle since the 2016 DAF EA is a slight increase in thrust, generating approximately 4.62 million lbf of thrust at lift-off, as designed.

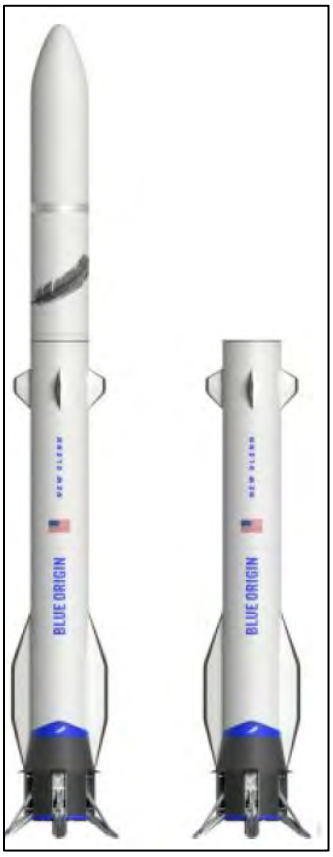

Figure 2-3. New Glenn Launch Vehicle

2.2.2 Launch Operations

New Glenn operations at SLC-36 would consist of a repeating cycle of pre-launch preparations, test events, launches, first-stage landings on a landing platform vessel in the Atlantic Ocean, and payload fairing recovery, followed by inspection and refurbishment activities to support subsequent missions. The operational tempo would include up to 50 launches and first-stage

[2] New Glenn is designed to support an optional third stage. This mission unique element can be added for in-space maneuverability/transportation.

ocean platform landings on a recurring basis. Up to 50 static fire tests of each stage could be conducted as part of the pre-launch process to verify vehicle readiness. For purposes of analysis in this BCA, it is assumed that half of all static fires and launches would occur at acoustic night (between 10:00 p.m. and 7:00 a.m.)[3]. Figure 2-4 shows the concept of operations.

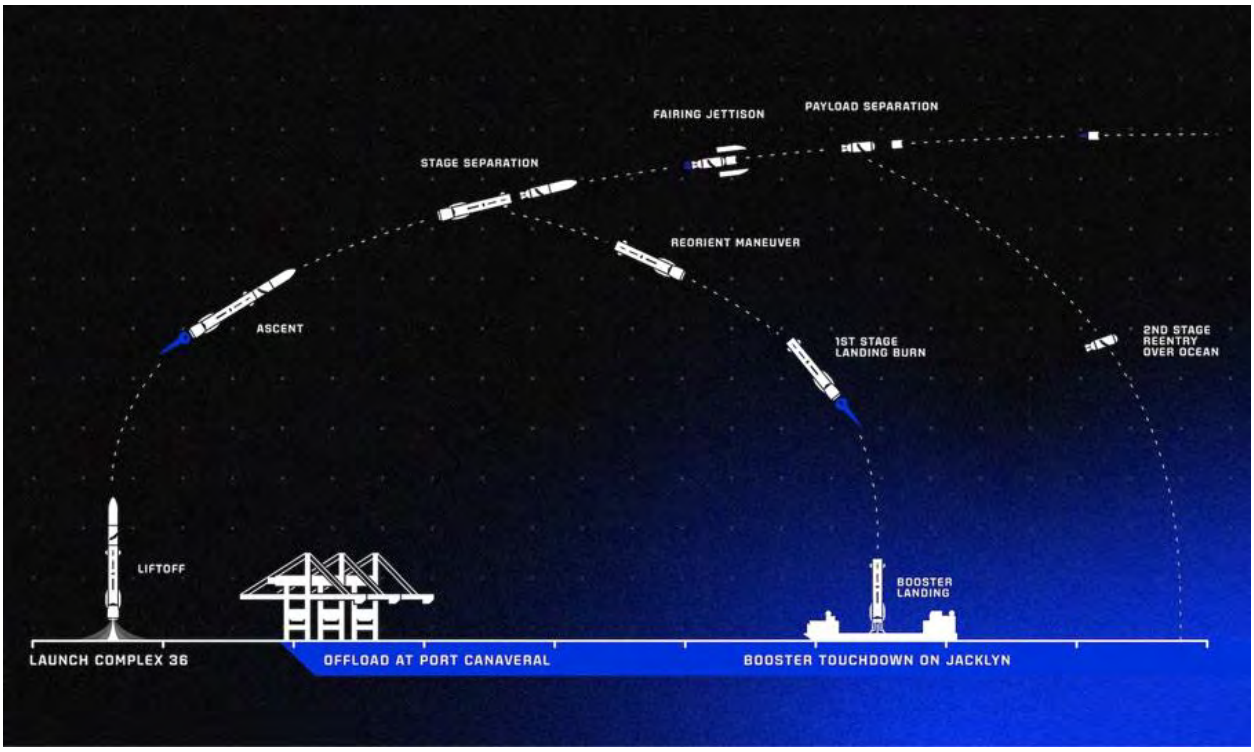

Figure 2-4. SLC-36 New Glenn Operations

Water use is an important supporting element of operations, particularly for reducing heat and noise during certain test and launch activities and pad fire protection. A large onsite water storage and distribution system supports a noise/heat suppression (deluge) function that is used during stage test and launch events, after which the system is refilled for future operations. Deluge water is managed through onsite drainage and is captured in a grass retention pond, with discharges handled in accordance with applicable St. Johns River Water Management District and Florida Department of Environmental Protection permit requirements (including sampling requirements) and operational controls. Deluge water treatment is not conducted or required under the permits. As discussed previously, operations at the launch site would consist of up to 50 launches, up to 50 ILV static fires, and up to 50 second-stage static fires (collectively referred to as static fires). Blue Origin conservatively estimates that SLC-36 launch operations would use/require up to approximately 2.75 million gallons (MG) per ILV hot fire (137.5 MG annually), 2.75 MG per launch (137.5 MG annually), and up to approximately 350,000 gallons per second-stage static fire test (17.5 MG annually) for a total of up to approximately 292.5 MG annually. Some water may be left in the trench after an ILV hot fire to be used during subsequent launch activity, and the number of both ILV hot fires and second-stage static fires would be

[3] The acoustic time of day distribution is used to account for increased sensitivity to noise at night.

anticipated to decline as the program matures; this would serve to reduce water use over time. Further, Blue Origin is evaluating options for reducing water use in the future.

During a typical New Glenn mission, the payload fairing (the protective aero-shell around the payload) would separate into two halves high above Earth once it is no longer needed. Blue Origin is currently pursuing the development of reusable payload fairings. In this concept of operations, after fairing separation, each fairing half's orientation would be controlled by a reaction control system so it stays in a stable configuration as it reenters the atmosphere and descends toward a planned offshore recovery area in the Atlantic Ocean. As the fairing descends, a sequence of parachutes would deploy to further control and decelerate the fairing in a controlled manner. Recovery crews on a support vessel would use small boats to approach the fairing after splashdown, attach recovery lines, and add flotation devices, as needed, to keep it stable. The fairing would then be towed back to the support vessel, lifted onboard, secured on deck, and transported to Port Canaveral and ultimately SLC-36 facilities for inspection and refurbishment for potential reuse. These recovery activities would occur offshore within the mission's designated maritime hazard area and would be short-term (recovery operations are typically hours to a couple of days depending on distance downrange and sea state), involving only the recovery vessel, its small boats, and associated support equipment. The maximum number of fairing recovery operations ultimately would be commensurate with the maximum number of launches.

2.2.3 Trajectories and Downrange Landing and Recovery

The range of potential launch trajectories from SLC-36 is shown in Figure 2-2. Each trajectory is provided in Blue Origin's Flight Safety Data Package and submitted to the FAA and SLD 45 in advance of launch. Downrange landings on landing platforms (Figure 2-5) in the Atlantic Ocean would occur up to 50 times per year and would typically be located between 300 and 500 nautical miles (nm) from the launch point. Vessel support for launch and landing operations includes surveillance and security support vessels (e.g., patrol boats), a tugboat, and a landing platform. An additional support vessel would be utilized to collect floating payload fairing debris and recover intact payload fairing halves. The transit route for the support vessels used in recovery operations to/from the planned landing location would be via the most direct route, with course corrections, as needed, to avoid weather, the Gulf Stream, and other obstacles. The landing platform and tugboat would return to Port Canaveral.

2.2.4 Payloads

New Glenn is expected to carry a mix of commercial, civil, and national security spacecraft, typically packaged as one primary payload (or multiple payloads, depending on mission design) housed inside the payload fairing. Anticipated payloads may include satellites and experimental payloads that include typical spacecraft subsystems and materials such as onboard propulsion systems (often using hypergolic propellants and, in some cases, solid propellants), used for orbit-raising, station-keeping, or maneuvering; standard separation and deployment devices (e.g., small explosive or pyrotechnic components used for stage/payload separation); and batteries and pressurized systems typical of modern spacecraft. Overall, New Glenn payloads are anticipated to be conventional spacecraft payloads processed using established payload processing procedures, with hazardous materials handling consistent with routine spacecraft integration and launch site safety requirements.

Figure 2-5. New Glenn First-Stage Ocean Landing Platform

2.2.5 Ground Support, Transport, and Vehicle Refurbishment

The types of operations and maintenance activities would be similar to those described in the 2016 DAF EA (e.g., launch vehicle integration and fueling, facility and equipment maintenance, vegetation maintenance) (DAF, 2016), but with a general increase in the level of these activities including the amount of truck, equipment, boat, and landing platform traffic.

New Glenn is expected to use LOX, LNG, and LH_2 for launches and static fires. Approximately 15,000 tanker truck trips annually are estimated to support 50 launches and associated static fires. Actual truck trips could be lower or higher because deliveries typically occur to maintain onsite storage tank inventory and may be scheduled over multiple days based on existing tank levels, delivery windows, operational tempo, and boiloff/handling considerations rather than occurring as a fixed "number of trucks per event."

Launch vehicle components would continue to be transported along existing roadways within Kennedy Space Center (KSC) and CCSFS. The rate increase would result in additional transport truck trips to the launch pad from the manufacturing complex on Merritt Island and Port Canaveral and from the launch pad back to the manufacturing complex, estimated to be several transport truck trips for each vehicle component per launch event. The current primary transport route for large hardware (e.g., first stage) coming to the pad from the manufacturing complex is along Kennedy Parkway, Saturn Causeway, and Phillips Parkway. From the port, the first stage travels north on Phillips Parkway. Some additional personal vehicle traffic may also occur; however, this is not anticipated to be substantial.

2.3 Conservation Measures

As defined in the *Endangered Species Consultation Handbook* (USFWS and NMFS, 1998), conservation measures (CMs) "are actions to benefit or promote the recovery of listed species that are included by the federal agency as an integral part of the proposed action. These actions will be taken by the federal agency or applicant and serve to minimize or compensate for project effects on the species under review. These may include actions taken prior to the initiation of consultation, or actions which the federal agency or applicant have committed to complete in a Biological Assessment or similar document."

Blue Origin and SLD 45 will ensure that the following CMs are conducted.

1. Blue Origin will generate/update natural resources training for employees and contractors that will include information below. Blue Origin will conduct natural resources training for all onsite personnel annually and before new personnel are brought onsite.
    - Instruction on implementing the CMs in this BCA and any terms and conditions issued under the associated biological opinion, as well as potential penalties for noncompliance
    - Guidance on wildlife encounters, photos of species and habitats
    - Contact and reporting requirements for listed species observations, injury, or mortality
    - Instructions on minimizing the spread of invasive plant species
    - Notice of posted speed limits, designated parking areas, and road closures
    - Wildfire prevention
    - Proper disposal of litter, garbage, and construction site housekeeping
2. Blue Origin will inform personnel operating vehicles of the potential presence of federally listed or proposed species at CCSFS and along transportation routes on KSC and the requirement to adhere to posted speed limits.
3. Blue Origin will report any known occurrences of ESA-listed species that may conflict with Proposed Action operations to SLD 45 and will not attempt to remove them.
4. Blue Origin will immediately report any distressed, injured, or dead federally listed species to SLD 45. If launch-related mortality of a federally listed species is documented, Blue Origin will report it to the USFWS within 24 hours.
5. In accordance with the Project Design Criteria included in the ESA programmatic consultation with National Marine Fisheries Service (NMFS), watercraft vessels will have a dedicated trained marine mammal and ESA-listed species observer on board, will maintain minimum safety distances from marine mammals and ESA-listed species, and will reduce speeds as required.
6. Blue Origin will update and implement the Spill Prevention, Control, and Countermeasures (SPCC) Plan, which will include regular fuel storage inspections and prompt remediation of any containment failure in accordance with the SPCC Plan.
7. Blue Origin will continue to coordinate with the National Aeronautics and Space Administration (NASA), Merritt Island National Wildlife Refuge (MINWR), and SLD 45 to avoid or reduce burn day impacts due to launch, per the 2025 *Memorandum of Understanding for Prescribed Burning* (SLD 45, USFWS, and KSC, 2025).

8. Blue Origin will work with SLD 45 to confirm that SLD 45 meets existing species monitoring and management requirements for CCSFS, as described in the most recent version of the SLD 45 Integrated Natural Resources Management Plan (INRMP) (e.g., sea turtle monitoring, invasive and nuisance species control). Area closures during pre-launch and launch operations will be coordinated with SLD 45. Details of coordination for closures and existing species monitoring will be determined through further discussions among SLD 45, the USFWS, and Blue Origin.
9. Blue Origin will confirm that all operations adhere to SLC-36 Light Management Plan (LMP) requirements.
10. Noise, heat plume, and vibration effects caused by launches will be monitored to ensure minimal deviations from what is presented during the consultation process. SLD 45 and Blue Origin will work with the USFWS to determine exact requirements and locations.
11. SLD 45 will continue to monitor for and evaluate the effects to sea turtle species from lighting per the 2008 Biological Opinion for Light Management Activities (USFWS, 2008a).
12. SLD 45 will continue educational outreach activities related to the protection and recovery of federally listed species, as described in the most recent version of the SLD 45 INRMP.

2.4 Determination of Action Area

ESA regulations (50 Code of Federal Regulations [CFR] section [§]402.02) define the Action Area as "all areas to be affected directly or indirectly by the federal action and not merely the immediate area involved in the action." The Action Area includes (1) SLC-36 and the area surrounding SLC-36 that would be exposed to traffic, plumes, light, vibrations, and noise from daily operations, static fire tests, and launches and (2) areas in the ocean where first stages and fairings would land and be recovered and debris would land and be expected to sink, as well as the offshore areas affected by propulsion noise and sonic booms (1 pound per square foot [psf] or greater) associated with launches and landings.

The upper stage(s) may reenter Earth's atmosphere and be disposed of or expended in a broad ocean area. That aspect of the action is not analyzed in this BCA because it would have no effect on species or critical habitat under USFWS jurisdiction. Potential effects to ESA-listed species and critical habitat under NMFS jurisdiction from upper stage reentry are addressed in the ESA programmatic consultation with NMFS.

The following sections discuss the factors considered in determination of each portion of the Action Area.

2.4.1 SLC-36 and Propulsion/Engine Noise Contours

Noise disturbances are expected from daily operations and the various stages of launch operations. Different organisms are typically most sensitive to sounds within a limited frequency range and hence perceive sounds with different frequency spectra differently, even if the sound levels are identical. Noise studies tailored to human health and safety typically weight noise intensities to the human hearing spectrum in a process known as A-weighting. A-weighted decibel (dBA) values are not necessarily appropriate for analysis of wildlife effects, given that species perceive noise differently; for example, high-frequency echolocating bats have drastically different frequency sensitivities than humans. However, most noise monitoring and studies are

geared toward the human environment and are reported in dBA. It may be difficult to find comparative metrics in unweighted decibels (dB). Humans and many species of terrestrial wildlife also do not perceive very low frequency sound, which is a substantial component of launch noise. Therefore, use of unweighted estimates could potentially inflate the analysis of effects beyond those that would realistically occur.

A noise descriptor/metric for noise effects on wildlife has not been universally adopted, but some research indicates sound exposure level (SEL)[4] is the most useful predictor of responses (FRA, 2012). Much of the research has lacked systematic documentation of the source noise event. Many studies report "sound levels" without specifying the frequency spectrum or duration. A notable exception is a study sponsored by the DAF that identifies SEL as the best descriptor for response of domestic turkey poults to low-altitude aircraft overflights (Bradley et al., 1990). This study identifies a threshold of response for disturbance of domestic turkeys (100 percent rate of crowding) as an A-weighted SEL (ASEL) of 100 dB. Another report questions whether an A-weighted sound level used in the SEL for aircraft overflights is appropriate for animals since their hearing differs from humans (Manci et al., 1988). However, because no weighting has been established for representing the hearing characteristics of wild animals, the A-weighted sound level continues to be used.

Based on the above, SLD 45 delineated the portion of the Action Area surrounding SLC-36 as the combination of the outermost predicted (modeled) ASEL 100 dB contour for engine noise (including static fires and launches) (Figure 2-6). This area encompasses all areas expected to be affected by daily operations, heat and vapor plumes, lighting, vehicle traffic, nearshore boat/landing platform traffic, and activities with smaller noise footprints.

2.4.2 Atlantic Ocean Landing Area and Sonic Boom Contours

Sonic booms are thunder-like noises that people and animals hear when launch vehicles travel faster than the speed of sound. These high amplitude, impulsive noises are typically quantified in terms of their overpressure, or increase in pressure over atmospheric conditions, as traditional noise metrics do not adequately capture the full array of energetic effects of sonic booms.

An overpressure of 1 psf has been perceived as similar to a clap of thunder (Rylander, 1974). An overpressure of 1 psf is equivalent to a C-weighted[5] SEL of 102 C-weighted dB. Most sonic boom studies on animals were conducted between 1960 and 1990 due to interest in commercial supersonic travel and generally focused on 1 to 2 psf sonic booms, which are typical of aircraft. The scant available information suggests that sonic booms below 1 psf elicit little to no noticeable startle reaction from receptor species (Epsmark, 1972). More pronounced startle reactions have been observed at the 1 psf threshold in some species of birds (Ellis et al., 1991) and mammals (Rylander, 1974), although it is important to note that reactions vary widely based on the species in question.

[4] SEL values represent the total sound energy of a noise event in terms of an equivalent event that only lasts 1 second, providing a consistent comparison basis for sound events of differing durations.

[5] C-weighting is a frequency weighting that measures the impact of loud noises on the human ear. C-weighting is used for peak sound pressure measurements, such as measuring impulse noise.

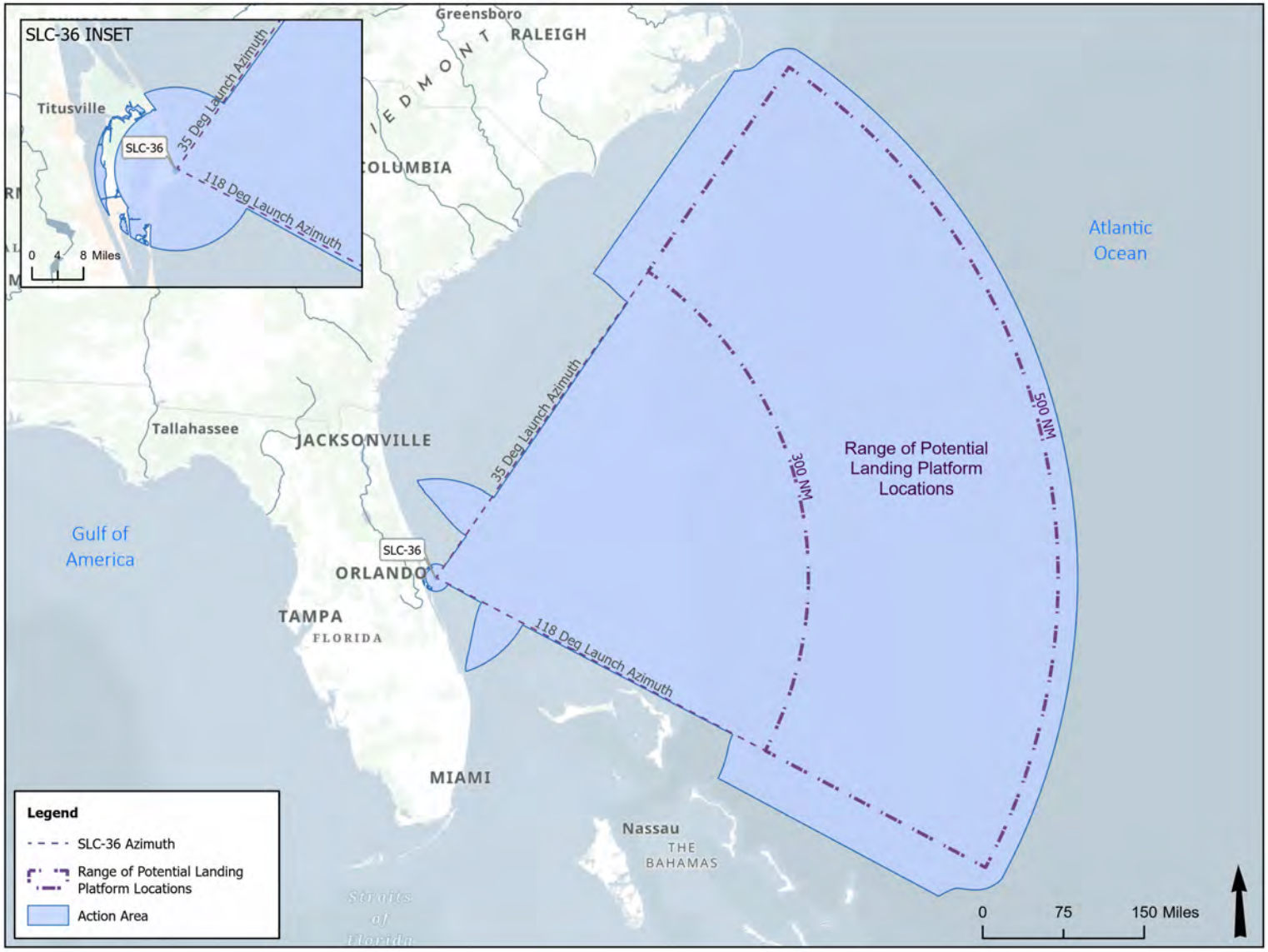

Figure 2-6. Action Area for SLC-36 Launches and Landings of First Stages and Fairings, Including Areas Affected by 100 dB ASEL or 1 psf

SLD 45 delineated the Atlantic Ocean Action Area as the area between the 35^0 azimuth and 118^0 azimuth for launches/landings from SLC-36 to 500 nm downrange from SLC-36, plus the combination of the outermost predicted (modeled) 1 psf contours for overpressure events from launches and landings (Figure 2-6). This area encompasses the portions of the Atlantic expected to be affected by offshore boat/landing platform traffic, heat and vapor plumes, lighting, noise, and sonic booms associated with first-stage landings on landing platforms and fairing water landings and recovery, as well as sonic booms associated with launches.

2.5 Environmental Setting

SLC-36, a Blue Origin-leased launch site located on CCSFS, contains the infrastructure to support New Glenn launches, including a launch pad, commodity tanks, utilities, roads, support structures, buildings, stormwater ponds, and shallow freshwater retention ditches. Undeveloped portions of SLC-36 are maintained either by mowing or light trimming as needed.

Much of the Action Area around SLC-36 is under federal management, including KSC (NASA), CCSFS (DAF), MINWR (USFWS), and Canaveral National Seashore (CANA) (National Park Service). KSC is collocated with MINWR, which is managed by the USFWS and includes all areas located outside of the KSC operational zones. The Action Area overlays portions of the Indian River Lagoon (IRL) system and Atlantic Ocean, as well as developed areas to the south of these federal lands (Figure 2-6). The portion of CCSFS's land area that is actively used to support space mission operations includes developed facility sites, roads, lawns, maintained rights-of-way, and undeveloped operational areas that are dedicated safety zones around existing facilities or are held in reserve for planned and future expansion. The remaining acreage at CCSFS is either undeveloped area outside of the operational areas, submerged lands, or wetlands. Land uses at neighboring KSC are similar to those at CCSFS.

Wetlands are prevalent at KSC, MINWR, and CCSFS, including freshwater marshes, hardwood and mixed swamps, maritime hammocks, estuarine and palustrine scrub-shrub wetlands, saltwater marshes, and mangrove swamps. There are also interspersed ditches, canals, and impoundments. The predominant upland communities are oak-palmetto scrub and pine flatwoods, with mowed ruderal herbaceous areas around developed areas and rights-of-way. Past fire exclusion, orange grove drainage systems, and invasive non-native plant species (INPS) have altered vegetative and aquatic communities. The IRL system, consisting of the Mosquito Lagoon, Banana River, and Indian River, makes up a large portion of the area within the 100 dB ASEL contour. Most of the non-federal lands along the shorelines of the IRL system and the Atlantic Ocean are residential and commercial development. Additional information on the environmental setting within the Action Area is available in the KSC Environmental Resources Document, SLD 45 INRMP, MINWR Comprehensive Conservation Plan, and the CANA Final General Management Plan/Environmental Impact Statement (NASA, 2020; USFWS, 2008b; National Park Service, 2014; DAF, 2025).

Marine habitats consist of the entire water column, seafloor, and various structured habitats. The marine portion of the Action Area includes nearshore waters and offshore areas where first-stage landings on landing platforms and fairing recovery operations would occur, where

their sonic booms and noise may extend, and where debris may land and sink. Seabirds, which forage on or in the open ocean, may occur throughout the ocean landing and disposal areas but are typically more abundant near ocean features that concentrate prey (e.g., upwelling zones). Refer to the *Atlantic Fleet Training and Testing Final Supplemental Environmental Impact Statement/Overseas Environmental Impact Statement* for additional information on marine environments (DoN, 2025).

The primary activities within the Action Area with the potential to affect listed species and habitats are land clearing; construction; launch, static fire test, and landing operations; artificial lighting; boat and vehicle traffic; discharges to surface water; and natural resources management. Based on CCSFS and KSC National Environmental Policy Act and planning documents, the Eastern Range accommodates approximately 100 or more launches (and associated engine testing) per year from both government (e.g., NASA) and commercial providers, including Blue Origin, Space Exploration Technologies Corp. (SpaceX), United Launch Alliance, and Relativity. Since 2011, the number of launches from the Eastern Range has increased by more than 1,500 percent and continues to increase (NASA, 2026). SLD 45 expects, and is planning towards, approximately 500 launches per year from CCSFS and KSC by 2030, which would include multiple launches per day (Albon, 2026; USSF, 2024). Prescribed fire, INPS control, nuisance species control, habitat restoration, and implementation of LMPs have improved habitat conditions and reduced effects to federally listed species and habitats within the Action Area, especially the Florida scrub-jay, eastern indigo snake, southeastern beach mouse, and nesting sea turtles. Additional information on natural resources management activities within the Action Area is available in the KSC Environmental Resources Document, SLD 45 INRMP, MINWR Comprehensive Conservation Plan, and the CANA Final General Management Plan/Environmental Impact Statement (NASA, 2020; USFWS, 2008b; National Park Service, 2014; DAF, 2025).

Chapter 3. Species and Critical Habitats Considered

The USFWS's Information for Planning and Consultation (IPaC) system was queried on May 19, 2026, for the Action Area, resulting in official species and critical habitat lists, as summarized in Table 3-1 (Appendix A, *Information for Planning and Consultation (IPaC) Reports*). Table 3-1 includes the ESA-listed and proposed species under USFWS jurisdiction that may occur within the Action Area, as well as designated and proposed critical habitat, broken out by the ASEL 100 dB contour and the Atlantic Ocean landing area. Note that listed sea turtle species are addressed in this BCA only when on the beach where they are under the jurisdiction of the USFWS. Listed sea turtles in the marine environment are under NMFS jurisdiction and considered separately.

Table 3-1. Species and Critical Habitats Noted in IPaC Lists for Action Area

Common Name (Scientific Name)	Federal Status	Launch and Static Fire Test Noise (ASEL 100 dB)	Atlantic Ocean Landing Area (includes 1 psf contours)
Birds			
Audubon's crested caracara (*Caracara plancus audubonii*) [Florida DPS]	Threatened	X	-
Black-capped petrel (*Pterodroma hasitata*)	Endangered	-	X
Bermuda petrel (*Pterodroma cahow)*	Endangered	-	X
Eastern black rail (*Laterallus jamaicensis jamaicensis*)	Threatened	X	-
Everglade snail kite (*Rostrhamus sociabilis plumbeus*)	Endangered	X	-
Florida scrub-jay (*Aphelocoma coerulescens*)	Threatened	X	-
Piping plover (*Charadrius melodus*)	Threatened	X	-
Roseate tern (*Sterna dougallii dougallii*)	Endangered	-	X
Rufa red knot (*Calidris canutus rufa*)	Threatened	X	-
Insects			
Monarch butterfly (*Danaus plexippus*)	Proposed Threatened	X	-
Mammals			
Southeastern beach mouse (*Peromyscus polionotus niveiventris*)	Threatened	X	-
Tricolored bat (*Perimyotis sublavus*)	Proposed Endangered	X	-
West Indian manatee (*Trichechus manatus*)	Threatened	X	-
Plants			
Carter's mustard (*Warea carteri*)	Endangered	X	-
Lewton's polygala (*Polygala lewtonii*)	Endangered	X	-
Reptiles			
Atlantic salt marsh snake (*Nerodia clarkia taeniata*)	Threatened	X	-
Eastern indigo snake (*Drymarchon couperi*)	Threatened	X	-
Green sea turtle (*Chelonia mydas*) [North Atlantic Ocean DPS]	Threatened	X	-
Hawksbill sea turtle (*Eretmochelys imbricata*)	Endangered	X	-
Kemp's ridley sea turtle (*Lepidochelys kempii*)	Endangered	X	-
Leatherback sea turtle (*Dermochelys coriacea*)	Endangered	X	-
Loggerhead sea turtle (*Caretta caretta*) [Northwest Atlantic Ocean DPS]	Threatened	X	-

Table 3-1. Species and Critical Habitats Noted in IPaC Lists for Action Area

Common Name (Scientific Name)	Federal Status	Launch and Static Fire Test Noise (ASEL 100 dB)	Atlantic Ocean Landing Area (includes 1 psf contours)
Critical Habitat			
Rufa red knot	Proposed	X	-
West Indian manatee	Final and Proposed	X	-
Green sea turtle	Proposed	X	-
Loggerhead sea turtle	Final	X	-

Notes: - = not listed in IPaC report for this area (either not anticipated to occur or not under USFWS jurisdiction in this area); ASEL = A-weighted sound exposure level; dB = decibel(s); DPS = distinct population segment; IPaC = Information for Planning and Consultation; psf = pound(s) per square foot; USFWS = United States Fish and Wildlife Service.
Source: See Appendix A, *Information for Planning and Consultation (IPaC) Reports.*

In consideration of the best available science, SLD 45 has determined that there would be no effect to certain species and critical habitats listed in the IPaC species lists due to one of the following reasons: (1) species either does not or is not expected to occur in the Action Area; (2) species would not be exposed to effects of the action due to the type of habitat that they occupy; or (3) the physical and biological features for the critical habitat would not be affected by the Proposed Action. These species and critical habitats are not carried forward for additional discussion (Table 3-2).

Table 3-2. Species and Critical Habitats Eliminated from Detailed Analysis Due to No Effect

Common Name	Rationale for No Effect Determination
Animal Species	
Atlantic salt marsh snake	Although the status of this snake is unknown, it appears to be restricted to coastal portions of Volusia County, Florida (USFWS, 2019a), which is outside of the Action Area. The Proposed Action would have no effect on this species.
Plant Species	
Carter's mustard	Currently known distribution is limited to the Central Florida Ridge; populations of Carter's mustard previously documented in Brevard County are now considered extirpated (USFWS, 2021a), which is outside of the Action Area. The Proposed Action would have no effect on this species.
Lewton's polygala	Currently known distribution is limited to the Central Florida Ridge (USFWS, 2021b), which is outside of the Action Area. The Proposed Action would have no effect on this species.
Critical Habitat	
Rufa red knot critical habitat (proposed)	The PBFs listed for rufa red knot proposed critical habitat include beaches and tidal flats for foraging; upper beach areas for roosting, preening, resting, and sheltering; ephemeral and dynamic coastal features, ocean vegetation deposit or surf-cast wrack, intertidal peat banks, and features landward of the beach that support foraging or roosting; and artificial habitat mimicking natural conditions or maintaining the six PBFs listed previously (86 Federal Register 37410, 88 Federal Register 22530). A small area of proposed critical habitat for red knots on KSC is within the 100 dB ASEL contour (over 5 miles from SLC-36). Thus, there would be no effect to red knot proposed critical habitat from plumes. Noise and lighting would have no effect on the PBFs of red knot proposed critical habitat.
Manatee critical habitat	When critical habitat was designated for the West Indian manatee in 1977, the listing did not specify PBFs essential to the conservation of the species, just geographic areas (42 Federal Register 47840–47845). The 2024 proposed revision of manatee critical habitat (89 Federal Register 78134) includes updated proposed areas of critical habitat,

Table 3-2. Species and Critical Habitats Eliminated from Detailed Analysis Due to No Effect

Common Name	Rationale for No Effect Determination
	and specifies the following PBFs for the Florida manatee subspecies of the West Indian manatee: (1) areas of water warmed by natural processes (e.g., spring discharges, passive thermal basins) that have either reliable thermal quality throughout the winter (i.e., having at least a medium thermal quality as defined by the *Florida Manatee Warm-Water Habitat Action Plan*) or that have established manatee use throughout the winter each year (see the *Florida Manatee Warm-Water Habitat Action Plan*); and (2) areas supporting emergent, submerged, or floating aquatic vegetation within 18.6 miles of the natural warm-water sources described previously or another established winter manatee aggregation areas (i.e., power plants with established manatee use). Current critical habitat for the manatee includes most of the waters in the IRL system, as well as some of the nearshore Atlantic Ocean waters of the Action Area. The proposed revision of critical habitat for the Florida manatee includes most of the waters in the IRL system but no longer includes nearshore waters in the Atlantic Ocean. The footprint of the plume would not overlap critical habitat. The Proposed Action would implement requirements for operations, such as spill prevention/containment procedures, and deluge water and stormwater would be contained onsite. Vessel operations would occur in the ocean and the docking areas of Port Canaveral, where thermal refuges and aquatic vegetation would not be present. Overall, daily operations, launch operations, and vessel operations would have no effect on current designated manatee critical habitat or the PBFs of revised proposed critical habitat.
Loggerhead sea turtle critical habitat, green sea turtle proposed critical habitat	No sea turtle nesting critical habitat has been designated or proposed at CCSFS due to the exemption for DOW properties that manage their resources under an INRMP. The closest locations for designated loggerhead nesting and green nesting proposed critical habitat are 6.9 miles north of SLC-36 and 18.2 miles south of SLC-36. One of the PBFs of these critical habitats is a beach that is sufficiently dark so that nesting turtles are not deterred from emerging, and post-nesting turtles and hatchlings orient to the sea. Due to the distance from SLC-36, limited lighting from the Proposed Action is expected to reach the designated and proposed critical habitat for loggerhead sea turtles and green sea turtles due to attenuation. Additionally, multiple LCs, SLCs, and LZs are closer to the critical habitat areas, so those beaches are already exposed to the operational activities that occur there. Blue Origin will follow the SLC-36 LMP to minimize lighting effects to the greatest extent practicable. The increase in activity associated with operations at SLC-36 is not expected to affect the PBFs of the designated and proposed critical habitats, as the light from the Proposed Action (1) would represent a relatively minor addition to the level of activity to which the critical habitats are currently exposed, (2) would attenuate with distance from the Project Area, and (3) cannot be reliably parsed out from the other activities occurring as part of the baseline condition. Thus, SLD 45 has made the determination that lighting from daily operations, launch-related security and safety lighting, and light from the launches and static fires themselves would have no effect on loggerhead sea turtle critical habitat or green sea turtle proposed critical habitat under USFWS jurisdiction.

Notes: ASEL = A-weighted sound exposure level; CCSFS = Cape Canaveral Space Force Station; dB = decibel(s); DOW = Department of War; INRMP = Integrated Natural Resources Management Plan; IPaC = Information for Planning and Consultation; IRL = Indian River Lagoon; KSC = Kennedy Space Center; LC = Launch Complex; LMP = Light Management Plan; LZ = Landing Zone; PBF = physical and biological feature; SLC = Space Launch Complex; SLD 45 = Space Launch Delta 45; USFWS = United States Fish and Wildlife Service.

Chapter 4. Species Information

This section provides information on the biology and habitats of the federally listed and proposed listed species potentially affected by the Proposed Action, as well as information on their occurrence within the Action Area. For more information regarding these species and the factors affecting their conservation status, please refer to proposed and final listing determinations, recovery plans, status of the species assessments, and 5-year reviews available at https://ecos.fws.gov/ecp/ (Environmental Conservation Online System). Maps showing select species locations and habitat are provided in section 5.3, *Effects to Species.*

4.1 Audubon's Crested Caracara

Biology and Habitat

The threatened Audubon's crested caracara occurs in south-central Florida, the southwestern United States, and Central America. The species prefers wet prairies with cabbage palms but may also utilize wooded areas with saw palmetto, scrub oaks, cypress, and pastures. Caracaras are nonmigratory, occupying home ranges year-round. This large raptor primarily feeds on carrion, reptiles, amphibians, mammals, eggs, and other birds. In Florida, eggs have been found from September to April, with breeding season peaking around January to March (FWC, 2024a). The Audubon's crested caracara is 1 of 68 species included in the *South Florida Multi-Species Recovery Plan* (USFWS, 1999). The 5-year review (USFWS, 2009) indicates that population trends are not available, but that declines are likely based on habitat effects. The primary threat to this species is habitat loss, degradation, and fragmentation.

Occurrence Within the Action Area

Crested caracaras are present in Florida in relatively small, isolated populations. Brevard County is the northern limit for the Audubon's crested caracara (FWC, 2024a). The crested caracara has been observed on CCSFS several times in recent years, with most sightings around the airfield and on the northern portion of CCSFS near SLC-40 and SLC-41 (DAF, 2025). In May 2021, a pair of crested caracaras was spotted on a restored dune east of KSC LC-39 (Costa, 2021). These birds have high site fidelity, so the presence of adults likely indicates a breeding territory; however, nesting has not been confirmed. The caracara's preferred habitat of wet prairies with cabbage palms is not present close to SLC-36, but the caracara is expected to occur in the wider Action Area affected by rocket noise.

4.2 Bermuda Petrel

Biology and Habitat

The endangered Bermuda petrel is a seabird species that nests in burrows on a few islets of Bermuda from October to June (Cornell University, 2025). Outside of the breeding season, individuals may forage over large areas of the North Atlantic Ocean, from areas offshore of the eastern United States (South Carolina to Maine) and Canada to western Europe. Bermuda petrels feed on small fish, squid, and other marine invertebrates near the ocean surface. The species, once thought to have been hunted to extinction, currently has an estimated total population of 425 to 450 birds (USFWS, 2024a). Known and potential threats to the species include flooding

that may damage or destroy the few nesting areas, nest predation by non-native species, toxic substances (e.g., pesticides), human disturbance, artificial lighting, plastic ingestion, and offshore wind and oil/gas development.

Occurrence Within the Action Area

The Bermuda petrel may be seen within the portion of the Action Area where deeper Atlantic Ocean waters occur.

4.3 Black-Capped Petrel

Biology and Habitat

This endangered pelagic seabird uses terrestrial habitats only for nesting, which occurs on only one island in the Caribbean, Hispaniola. These petrels spend most of their lives over the open sea, traveling long distances to foraging areas in the western Atlantic Ocean, southern Caribbean basin, and the northern Gulf of America. As described in the Species Status Assessment (USFWS, 2023a), primary offshore habitat is mostly, but not exclusively, over water with depths of 900 to 6,562 feet. Most known offshore occurrences are near Caribbean islands and along the western edge of the Gulf Stream (southern Florida to the U.S. mid-Atlantic region). Off Florida, petrels occur over shallower waters and nearer to shore than in the mid-Atlantic region. The offshore region from southern Florida to North Carolina is the only marine area where regular and sizable concentrations of the species occur, making this area important for their survival. Black-capped petrels forage primarily at night and during early morning hours, and mostly in flocks, consuming baitfish and invertebrates. The primary threat to this species is nesting habitat loss and degradation. Other threats include human predation at nesting sites, invasive animal species, and artificial lighting (petrels use moonlight and starlight for nocturnal navigation). The current overall status of the species is considered “fairly low” (USFWS, 2023a).

Occurrence Within the Action Area

The black-capped petrel may be seen within the portion of the Action Area where deeper Atlantic Ocean waters occur and may be a transient visitor to nearshore portions of the Action Area. However, no observations of the black-capped petrel have been made at KSC, MINWR, or CCSFS.

4.4 Eastern Black Rail

Biology and Habitat

The threatened eastern black rail is a small, cryptic marsh bird that occurs in salt, brackish, and freshwater wetlands, preferring areas of dense herbaceous vegetation for cover. Plant structure (vegetative cover that allows movement under the canopy) is more important than plant species composition. This bird rarely is spotted in flight, instead running for short distances along the ground. Individuals forage among marsh vegetation for invertebrates and seeds of aquatic plants. In Florida, nesting season typically extends from May to September, with nests established on the ground in clumps of vegetation where water levels are lower than nest height (USFWS, 2019b). The primary threat to this species is habitat fragmentation, alteration, and conversion. Additional threats include altered hydrology, land management issues, pollutants, disease, altered food webs and predation, and human disturbance (USFWS, 2025g). Results of the Species

Status Assessment indicate an overall declining population trend for the eastern black rail, with future extirpation from some currently occupied areas likely (USFWS, 2019b). The *Recovery Outline for the Eastern Black Rail* was published in 2021 (USFWS, 2021c).

Occurrence Within the Action Area

Available records from 2011 to 2016 indicate no eastern black rail breeding was observed in Brevard County (USFWS, 2019b), but black rail breeding has been documented at the St. Johns National Wildlife Refuge in recent years. The eastern black rail has not been documented on CCSFS (DAF, 2025). Breeding season call surveys conducted at KSC/MINWR in 2022 detected black rails in the Black Point area (15 miles from SLC-36) and near Buck Creek on the west shore of the Banana River (over 5 miles from SLC-36) (NASA, 2023a). The small number of detections during the 2022 survey at KSC and MINWR did not allow for a detailed analysis of population density or habitat use.

4.5 Everglade Snail Kite

Biology and Habitat

The endangered Everglade snail kite feeds almost exclusively on apple snails found in sparsely vegetated lake shores or marshes (FWC, 2024b). Peak nesting for this mid-sized raptor occurs between February and July, but they may nest throughout the year. A recovery plan was prepared in 1999 and amended in 2019 (USFWS, 2019c). The 5-year review (USFWS, 2023b) states that from the 1960s to the 1980s, distribution in Florida was mostly limited to the Everglades. However, abundance has since increased and snail kites have expanded to northern Florida (e.g., Paynes Prairie State Park near Gainesville). Little information on population status is available outside of Florida.

Occurrence Within the Action Area

The Everglade snail kite has not been observed on CCSFS (DAF, 2025) but it has been observed in the vicinity, including MINWR. Due to its limited diet consisting primarily of apple snails (*Pomacea maculate*) found in sparsely vegetated lake shores or marshes, which are not common in the Action Area, the kite would only be incidentally present within the Action Area.

4.6 Florida Scrub-Jay

Biology and Habitat

The threatened Florida scrub-jay, the only bird species endemic to Florida, inhabits sand pine and xeric oak scrub and scrubby flatwoods interspersed with patches of bare sand or light herbaceous vegetation. Frequent fire is an important element in maintaining appropriate Florida scrub-jay habitat by reducing shrub height and increasing these open spaces. This type of patchy habitat allows the Florida scrub-jay to survey a large area for predators, while also providing refuge and forage resources. The Florida scrub-jay forages mostly on or near the ground, primarily consuming insects but also plant food such as acorns. These birds are nonmigratory and permanently territorial, with nesting occurring from March through June (USFWS, 2019d). Territory size averages about 25 acres, and territory availability is apparently a limiting factor in population growth. Although Florida scrub-jays may use the same territory and nest site in consecutive years, they may also build a new nest or modify the existing one from year to year

based on factors such as the condition of the previous nest, changes in vegetation, and other environmental considerations. Most juveniles remain in their natal territory for at least 1 year (and sometimes up to 6 years) as helpers before dispersing to become breeders. The primary threat to this species is habitat loss, degradation, and fragmentation. Strike mortality is also a threat along high-speed roads because these birds may forage on road shoulders and rights-of-way. Florida scrub-jays have declined to less than 10 percent of their historical numbers and are considered extirpated from several counties. The Florida scrub-jay 5-year review (USFWS, 2025h) concluded that some populations have continued to decline since listing under the ESA, but the species remains secure on many conservation-managed lands. The USFWS has prepared a recovery plan (USFWS, 2019d) and Species Status Assessment (USFWS, 2019e) for the Florida scrub-jay.

Occurrence Within the Action Area

The Action Area contains the second largest contiguous population of Florida scrub-jays in the species' range. Together, CCSFS, KSC, CANA, and MINWR are estimated to have more than 20,000 acres of potentially suitable scrub-jay habitat; however, numbers have declined by more than 50 percent since 1987, and the population continues to decline (NASA, 2024). Although specific numbers are uncertain, in 2024, it was determined that CCSFS contained 112 family groups, with another approximately 225 family groups at KSC/MINWR, totaling 337 family groups (DAF, 2025); this is a drop from the 404 family groups estimated in 2019 (USFWS, 2025h).

At CCSFS, there are approximately 8,400 acres of scrub habitat potentially suitable for Florida scrub-jays based on estimated acreages for oak scrub, disturbed oak scrub, coastal strand, and disturbed coastal strand habitats. A land acquisition permit with KSC added 292 acres of scrub habitat north of SLC-40 that is being managed by SLD 45. The scrub acreage is divided into three categories: good, fair, and poor (DAF, 2025). CCSFS has conducted annual monitoring of scrub-jay numbers and distribution since 1995, but detailed monitoring of specific groups is no longer conducted unless required by the USFWS in a project-specific biological opinion (see the SLD 45 INRMP for Florida scrub-jay census numbers from 1995 to 2024 for CCSFS) (DAF, 2025). The data are used to assess minimum habitat size, basic biology, and distribution of the Florida scrub-jay on CCSFS and to evaluate and support management recovery efforts. The 2024 census on CCSFS documented 294 adult birds and 147 juveniles from 112 family groups (DAF, 2025).

KSC has a potential population size of 700 breeding pairs, but the population is currently less than half this number (NASA, 2024). At KSC, the core habitat zone represents the habitat of greatest importance to the scrub-jay population; the support habitat zone has lesser importance, although it is necessary for connecting population cores and providing a population with high persistence probabilities. Auxiliary habitat is of lower quality regardless of management history. Annual scrub-jay surveys at specific monitoring sites at KSC have occurred since 1995 but data from these surveys do not accurately represent population estimates because the monitoring effort has increased over time as additional monitoring sites have been added to the study. Further, KSC scrub-jay observations are not representative of property-wide populations estimates because the observations are only made from specific study sites. In 2024, 165 scrub-jay groups were observed at the KSC study sites, with a total of 650 individuals.

4.7 Piping Plover

Biology and Habitat

The piping plover, listed as threatened under the ESA, migrates seasonally between breeding habitat in the central and eastern United States and Canada and nonbreeding (winter) habitat along the U.S. Gulf and Atlantic Coasts (July to May). Most winter sightings occur near or within designated winter critical habitat. Overwintering piping plovers forage for invertebrates in exposed, wet sand in beach and estuarine shoreline areas such as wash zones, intertidal ocean beachfronts, wrack lines, washover passes, mud and sand flats, ephemeral ponds, and salt marshes. Plovers also use adjacent areas in dunes, debris, and sparse vegetation for sheltering (USFWS, 2020b). Threats to this species include habitat loss and degradation, human disturbance (particularly at breeding sites), predation, and mortality from wind turbines. The USFWS published a recovery plan for the Atlantic Coast population of the piping plover in 1996 (USFWS, 1996). The most recent 5-year review (USFWS, 2024b) indicates that, for individuals of the breeding range of the Atlantic Coast population, population growth has occurred overall but none of the recovery criteria have yet been met.

Occurrence Within the Action Area

Overwintering piping plover may occur in shoreline areas of the Action Area, including portions of MINWR, KSC, and CCSFS. There were no observations of piping plovers on CCSFS during annual shorebird surveys from 1992 through 2024; however, piping plovers have been documented on CCSFS through anecdotal observations over the years, and the 2025 winter shorebird surveys detected two piping plovers on the beach adjacent to SLC-37. In 1999, a few piping plovers were documented at KSC along a stretch of beach north of CCSFS (Stolen, 1999). No piping plover habitat is within SLC-36, but there is potential piping plover overwintering habitat located 0.3 miles from the SLC-36 launch pad, so piping plovers may seasonally occur within the Action Area.

4.8 Roseate Tern

Biology and Habitat

The federally endangered northeastern North American population of the roseate tern tends to forage over coastal waters within 3 to 15 miles of their breeding colonies, but some breeding and post-breeding roseate terns may forage greater distances offshore. Roseate terns may travel over 30 miles during chick provisioning flights to feeding areas and have been documented up to 60 miles offshore (USFWS, 2020c). The USFWS has prepared recovery plans for the northeastern population (USFWS, 1998) and Caribbean population (USFWS, 1993a). Threats to this species include habitat destruction and modification, predation, food availability, and disturbance. The most recent 5-year review (USFWS, 2022) indicates that abundance estimates for the Caribbean population (which breeds from Florida to the West Indies) are unknown, although the number of breeding pairs has decreased in some areas.

Occurrence Within the Action Area

During 2010 shorebird surveys on CCSFS, one roseate tern was observed. Since this observation, the species has not been observed on CCSFS. There is no information on local population levels

within the Action Area for this species. They are more likely to be seen within the landing platform range of the Action Area, as roseate terns primarily utilize offshore areas off the coast of North Carolina and South Carolina.

4.9 Rufa Red Knot

Biology and Habitat

The federally threatened rufa red knot nests mostly above the Arctic Circle during summer and migrates south in winter (September to May). Although many individuals migrate to South America, some winter in coastal areas of the southern United States, including areas along Florida's Atlantic and Gulf Coasts. The U.S. Atlantic Coast from Florida to North Carolina is a well-known stopover area, particularly during northward migration. Coastal habitats generally include exposed ocean-front and bay-front intertidal sediments, including dynamic features such as sand spits, islets, shoals, and sandbars. Typical nonbreeding foraging habitat consists of coastal mudflats, tidal zones, open sandy beaches, and mangrove-dominated shorelines, where these shorebirds are usually found feeding on invertebrates near the water's edge. Red knots roost near their foraging areas in supratidal areas with open vistas (USFWS, 2023c). The Species Status Assessment report identifies primary threats to the rufa red knot as loss of breeding and nonbreeding habitat, predation on breeding grounds, reduced prey availability throughout the nonbreeding range, and increasing frequency of mismatches in the timing of the annual migratory cycle relative to favorable food and weather conditions (USFWS, 2020d). The Species Status Assessment report (USFWS, 2020d) and latest 5-year review (USFWS, 2021d) indicate the wintering population in the southeastern United States is stable but not increasing.

Occurrence Within the Action Area

Overwintering red knots may occur in shoreline areas of the Action Area, including portions of MINWR, KSC, and CCSFS. Rufa red knots have been observed during shorebird surveys conducted along the CCSFS beaches (DAF, 2025). No red knot habitat is within SLC-36, but there is potential red knot overwintering habitat located 0.3 miles from the launch pad, so red knots may seasonally occur within the Action Area.

4.10 Monarch Butterfly

Biology and Habitat

The monarch butterfly was proposed for listing as a threatened species in December of 2024 (89 Federal Register 100662–100716). At the southern end of their breeding range in North America (i.e., parts of Florida, the Gulf Coast, California), nonmigratory monarchs remain year-round. The eastern and western North American populations migrate long distances to their respective overwintering sites in Mexico and California. During breeding and migration (spring through fall), adults require a diversity of blooming nectar resources. They specifically require milkweed for oviposition and larval feeding. The temperature range within which monarchs can develop is 53 degrees Fahrenheit (°F) to 91°F (USFWS, 2024c). The monarch Species Status Assessment (USFWS, 2024c) identifies primary threats as habitat changes, and insecticide use. Although North American migratory populations fluctuate naturally, available data suggest overall population declines in overwintering sites.

Occurrence Within the Action Area

There is no information on monarch butterfly abundance within the Action Area, but they have been sighted at CCSFS and KSC so they may occur at SLC-36. These may be monarchs from eastern North America that appear to migrate through Florida to Cuba and the Yucatán Peninsula. The nonmigratory populations of monarchs in Florida are assumed to be further south than the Action Area.

4.11 Southeastern Beach Mouse

Biology and Habitat

The federally threatened southeastern beach mouse has a restricted range along the Atlantic Coast, currently occurring on CCSFS, KSC/MINWR, and CANA, with relict populations at Sebastian Inlet State Recreation Area and New Smyrna dunes. The Canaveral Complex population (which contains several subpopulations) is considered the core population. The southeastern beach mouse occupies primary and secondary frontal sand dunes vegetated by sea oats and other salt-tolerant species of vines and grasses, as well as scrub dunes and interior scrub environments. They utilize the scrub adjacent to these dunes for digging their burrows, which are generally found on the sloping side of a dune at the base of vegetation and are used for refuge, nesting, and food storage (USFWS, 2019f). Periodic fires help to maintain optimal scrub habitat. The southeastern beach mouse feeds at night on seeds (dune and scrub plants) and invertebrates. Foraging activity decreases with increasing light levels (moonlight or artificial lights). Breeding typically peaks in fall and winter but may occur year-round. Reproduction and mortality rates are high for this species. The primary threat to the southeastern beach mouse is habitat loss and fragmentation. Other identified threats include shoreline armoring, artificial lighting, vehicular/foot traffic, and free-roaming cat predation. The most recent 5-year review indicates the species' status is stable (USFWS, 2019f). The USFWS initiated a 5-year status review for multiple species, including the southeastern beach mouse, in June 2024 (89 Federal Register 48437). The USFWS published the *Recovery Plan for the Anastasia Island Beach Mouse and Southeastern Beach Mouse* in 1993 (USFWS, 1993b).

Occurrence Within the Action Area

The 2025 *Population Viability Analysis for the Southeastern Beach Mouse* (Traylor-Holzer & Lacy, 2025) includes information on the known extant southeastern beach mouse populations. The Canaveral Complex population extends 45 miles from the Port Canaveral entrance channel north to the northern reaches of CANA. The availability of inland habitat varies along this stretch, with substantial suitable connected inland habitat at CCSFS (southern 18.6 miles), some suitable inland habitat at KSC (central 6.2 miles), and little to no suitable inland habitat at CANA (northern 18.6 miles). Traylor-Holzer and Lacy (2025) cited recent work on CANA and KSC that documented a seasonal pattern of higher beach mouse densities in spring and winter, with a high density in dune habitat of approximately 3.6 mice/acre and estimated at approximately 1.2 mice/acre in inland habitat.

Studies and surveys have been done on the southeastern beach mouse population at CCSFS and KSC since the 1970s. Populations appear to have remained stable over the years, likely due to the continuity of the habitat (CANA/KSC/MINWR/CCSFS) that allows recolonization when subpopulations are extirpated by natural events such as hurricanes and other storms. In a study conducted on KSC between 2003 and 2005, capture rates of beach mice in coastal dune areas were good, but they were less than those experienced further south on CCSFS where the expanse of suitable habitat is much wider. On CCSFS, southeastern beach mice occur from the coastal dunes inland to the west side of Samuel C. Phillips Parkway; most of CCSFS is considered potential beach mouse habitat. Medium- to high-quality habitat is available for the southeastern beach mouse within the coastal dune/strand areas of CCSFS, as well as in interior oak scrub sites and in buildings. Near Land Management Unit 40 at CCSFS, there is a large and healthy population of the southeastern beach mouse residing in coastal dune/strand and disturbed oak scrub communities (DAF, 2025).

Most of the area within and around SLC-36 is overgrown and not likely to support beach mice. However, the 2016 Blue Origin Biological Opinion noted that two southeastern beach mice were captured during December 2015 surveys of potential beach mouse habitat that would be impacted at SLC-11 and SLC-36, and that an earlier study had documented southeastern beach mice in the coastal area adjacent to SLC-11 and SLC-36 (USFWS, 2016). While the habitat and nature of the area would not appear to be well suited for the southeastern beach mouse, the species has historically been present in the area.

4.12 Tricolored Bat

Biology and Habitat

The tricolored bat is proposed for listing by the USFWS as endangered throughout its range, which covers much of the central and eastern portion of the United States, including all of Florida. Massive population declines throughout this species' range have been mainly attributable to a fungus that causes white-nose syndrome, though the fungus has not been found in Florida. This species forages at night on small insects over waterways and forest edges, typically around treetop level. Tricolored bats form small maternity colonies during the summer in tree foliage or man-made structures, giving birth in May or June. During the winter, they hibernate in caves and mines; however, in the south where caves are less common, they may also overwinter in culverts, tree cavities, and other abandoned artificial structures (USFWS, 2021e). The Species Status Assessment identifies white-nose syndrome as the primary threat to this species (USFWS, 2021e). Additional threats include direct contact with wind energy turbines and habitat loss.

Occurrence Within the Action Area

Acoustic surveys conducted on CCSFS in 2019 detected tricolored bats at 31 locations out of 77 survey points (40 percent occurrence rate), with three detections within the vicinity of SLC-36 (DAF, 2025). Roost locations on KSC, MINWR, and CCSFS are unknown, but the species is expected to roost within the Action Area that may be affected by noise.

4.13 West Indian Manatee

Biology and Habitat

West Indian manatees utilize estuarine, marine, and freshwater habitats, typically seeking out areas with warm water during cold periods (i.e., deep water areas, springs, industrial plant discharge water). Manatees use a wide variety of freshwater, estuarine, and marine habitats for feeding, drinking, traveling, resting, thermoregulation, and other behaviors. Individuals typically travel along the edges of vegetation beds in or near channels, and sometimes along coastal beaches. Manatees are often found in canals, creeks, embayments, and lagoons, especially near the mouths of rivers. While manatees may migrate over a large area during the spring and summer, they return to these warm-water sites for the fall and winter. Distribution in Florida is therefore mostly limited to the Florida peninsula during cold months. Calving is typically highest in the spring; however, mating activity and calving may occur at any time of year. Calves remain with the mother for 2 to 3 years, maturing at 3 to 5 years old. Manatees feed on submerged, emergent, and floating vegetation (i.e., sea grasses) within freshwater, estuarine, and marine habitats (USFWS, 2024d).

In January 2025, the USFWS proposed to list the two subspecies of the West Indian manatee under the ESA: the Florida manatee (*Trichechus manatus latirostris*) as threatened and the Antillean manatee (*Trichechus manatus manatus*) as endangered (90 Federal Register 3131). Associated revisions to critical habitat were proposed in 2024 (89 Federal Register 78134). The 2001 recovery plan (USFWS, 2001) identified vessel strikes as the most significant threat to the species. Additional threats include habitat loss and alteration (e.g., loss of seagrass and other vegetation), direct mortality from water control structures, harmful algal blooms, and entanglement in debris. Unusually cold water temperature is also a cause of manatee mortality. The population has increased significantly in Florida over the past 30 years but has declined in most of the proposed Antillean subspecies' range (USFWS, 2025i). Although neither a 5-year review nor a Species Status Assessment has been prepared for the manatee, the information in the Federal Register notices regarding subspecies listing and critical habitat revision may be considered to represent a 5-year review.

Occurrence Within the Action Area

Manatees are present in the Action Area year-round, except for periods of cold weather. During the spring each year, as much as 25 percent of the total U.S. manatee population can be found within the waters immediately surrounding KSC, MINWR, and CCSFS property (NASA, 2020). Aerial surveys indicate use of all areas of the Banana River, from the Port Canaveral Locks north into the MINWR and KSC manatee sanctuary, which is managed by NASA and MINWR and is closed to the public for safety and security measures (NASA, 2025). This is an area of particular emphasis for cautious boat operations; all motorized boat traffic, except for mission-essential activities, is precluded from entering the sanctuary.

Seagrass is the major source of forage for manatees. Between 2009 and 2019, several large, persistent algal blooms reduced water clarity and quality in the IRL, negatively impacting seagrass growth and distribution. The acreage of seagrasses in the KSC portion of the Banana River

dropped from over 12,000 acres in 2009 to less than 400 acres in 2019 (NASA, 2023b). The 2023 KSC seagrass transect surveys documented a marked increase in seagrass occurrence and percent cover in the KSC portions of the Banana River and Mosquito Lagoon compared to the limited presence of submerged aquatic vegetation since 2016. Reductions in bloom activity and clearer water due to water quality improvements are likely responsible for the increases in seagrasses.

In the early 1990s, on average fewer than 100 manatees were documented per flight in the Banana River, but numbers were steadily increasing into the hundreds until 2016, when numbers dropped to under 200. In 2018, manatee abundance in the Banana River reached a 28-year low (average of 81 manatees per flight). During this period, manatee mortality rates in the IRL were the highest documented in decades; hundreds of manatees died of apparent starvation. Since 2023, manatees have begun returning to the Banana River to levels observed prior to the seagrass die-off in 2015 and 2016. This increase is most likely related to the increase in seagrass in both areas (NASA, 2025). Manatee habitat in the Banana River is located 3.2 miles from the SLC-36 launch pad. Manatees may also occur in nearshore waters of the Atlantic Ocean along the eastern boundary of CCSFS (0.33 miles from SLC-36 launch pad). Boat and landing platform traffic between Port Canaveral and Atlantic Ocean operations areas would traverse nearshore and estuarine habitats where manatees may occur.

4.14 Eastern Indigo Snake

Biology and Habitat

The threatened eastern indigo snake is found within the southeastern portion of the United States, often in association with areas where gopher tortoises occur. This large snake uses a wide variety of upland and wetland habitats; usage can vary seasonally. Indigo snakes move long distances and have very large home ranges, ranging from several hundred to several thousand acres. Indigo snakes utilize below-ground shelter sites for refuge, feeding, breeding, and nesting. During the winter, indigo snakes may be found occupying gopher tortoise burrows (USFWS, 2019g). The primary threat to the species is habitat destruction, modification, and fragmentation. Additional threats include direct mortality from people, predation, and vehicle strikes. The most recent 5-year review was published in 2024 (USFWS, 2024e), and the USFWS published a revised *Recovery Plan for the Eastern Indigo Snake* in 2019 (USFWS, 2019h). The eastern indigo snake is rare throughout its range and populations are considered extirpated in numerous areas. The 2019 Status Assessment Report indicates the overall current population resiliency is medium to low (USFWS, 2019g).

Occurrence Within the Action Area

Suitable habitat for the indigo snake does occur within the Action Area, and CCSFS contains an estimated 10,351 acres of potential eastern indigo snake habitat. The Peninsular Florida average male home range is 369 acres and 121 acres for females (Bauder et al., 2016). The last confirmed observation of an eastern indigo snake on CCSFS was in 2004, but an unconfirmed, yet reliable, observation was made in 2024 at the end of Camera Road Alpha near the beach crossover (DAF, 2025). A 2017 herpetological survey did not result in any observations, but a roadkill eastern indigo snake was observed that year approximately 0.5 miles north of the KSC-CCSFS boundary

(DAF, 2025). From 1998 to 2002, in a study funded by a private wildlife foundation with support from NASA and the USFWS, more than 70 eastern indigo snakes were captured from throughout Brevard County (Breininger et al., 2011). These documented observations support the assertion that it is reasonably certain that indigo snakes occur within the Action Area; however, there are no data on the size of the population on CCSFS and KSC.

4.15 Sea Turtles

Biology and Habitat

Sea turtles inhabit tropical and temperate regions of the Atlantic, Pacific, and Indian Oceans. They make long migrations between foraging areas and nesting beaches, where they typically nest between the high tide line and the dune front (NMFS and USFWS, 2023) (81 Federal Register 20058). Most sea turtle species nest at night; however, the Kemp's ridley usually nests during the day. Hatchlings of all species emerge from their nests almost exclusively at night. They use light cues to find the ocean; ambient light from the open sky creates a relatively bright horizon compared to the dark silhouette of the dune and vegetation landward of the nest (in the absence of artificial inland lighting). Substrate characteristics that are thought to be important for embryonic development and survival consist of moderate slope, modest temperature fluctuation, and adequate humidity. The green, loggerhead, and leatherback sea turtles nest regularly on Atlantic Coast beaches of Florida. Most nests are deposited from June to September (green turtle), May to August (loggerhead turtle), and April to June (leatherback turtle). Kemp's ridley sea turtles primarily nest along the Gulf of America coast. Hawksbill sea turtle nesting in the continental United States is restricted to Southeast Florida and, therefore, does not coincide with the Action Area. Threats to sea turtle species in general include fisheries bycatch, loss and degradation of nesting and foraging habitats, harvest of turtles and eggs for consumption (in some areas of the world), entanglement in marine debris, and vessel strikes (NOAA Fisheries, 2025). Status and recovery documents for each species are listed below.

Green sea turtle. Separate recovery plans have been prepared for Atlantic and Pacific Ocean populations of the green sea turtle. NMFS and the USFWS published the recovery plan for Atlantic populations in 1991 (NMFS and USFWS, 1991). The most recent 5-year review, published in 2007 (NMFS and USFWS, 2007), indicated that populations in the western Atlantic Ocean were stable or increasing.

Hawksbill sea turtle. Separate recovery plans have been prepared for the U.S. Pacific Ocean population and populations in all other U.S. waters. NMFS and the USFWS published the recovery plan for the U.S. Caribbean Sea, Atlantic Ocean, and Gulf of America in 1993 (NMFS and USFWS, 1993). The most recent 5-year review, published in 2013 (NMFS and USFWS, 2013a), indicated that various populations were increasing, decreasing, or stable at that time. However, population trends were not provided for Florida beaches.

Kemp's ridley sea turtle. NMFS and the USFWS published the *Bi-National Recovery Plan for the Kemp's Ridley Sea Turtle* in 2011 (NMFS and USFWS, 2011). The most recent 5-year review was

published in 2015 (NMFS and USFWS, 2015); NMFS and the USFWS initiated an updated 5-year status review for the Kemp's ridley turtle in 2021 (86 Federal Register 34228).

Leatherback sea turtle. Separate recovery plans have been prepared for the U.S. Pacific Ocean population and populations in all other U.S. waters. NMFS and the USFWS published the recovery plan for the U.S. Caribbean Sea, Atlantic Ocean, and Gulf of America in 1992 (NMFS and USFWS, 1992). The most recent 5-year review, published in 2013 (NMFS and USFWS, 2013b), indicated that most populations in the Atlantic Ocean were stable or increasing, and that nesting along Florida beaches specifically was increasing.

Loggerhead sea turtle. Separate recovery plans have been prepared for U.S. Pacific Ocean and Northwest Atlantic Ocean populations. NMFS and the USFWS published the *Recovery Plan for the Northwest Atlantic Population of the Loggerhead Sea Turtle* in 2008 (NMFS and USFWS, 2008). The most recent 5-year review, published in 2023 (NMFS and USFWS, 2023), indicates that the Northwest Atlantic Ocean distinct population segment is stable.

Occurrence Within the Action Area

The Florida Fish and Wildlife Conservation Commission's Fish and Wildlife Research Institute coordinates sea turtle nesting beach survey programs around Florida. The beaches of the Action Area are part of Brevard County, where the annual number of loggerhead nests recorded has ranged from a low of 22,554 to a high of 33,434 during the period of 2021 to 2025 (FWC Fish and Wildlife Research Institute, 2026a) (Table 4-1). During this same period, the annual number of green sea turtle nests recorded has varied a great deal from year to year, from a low of 6,312 to a high of 37,920 (FWC Fish and Wildlife Research Institute, 2026b). Leatherback nesting has been relatively consistent in Brevard County over the past 5 years, ranging from 88 to 143 nests a year (FWC Fish and Wildlife Research Institute, 2026d). Kemp's ridley nesting is uncommon in Brevard County but has been increasing, with 2 nests recorded in 2022 and 14 nests in 2025 (FWC Fish and Wildlife Research Institute, 2026c) (Table 4-1).

Table 4-1. Loggerhead, Green, and Leatherback Sea Turtle Nests, Brevard County, Florida (2021–2025)

Species	2021	2022	2023	2024	2025
Loggerhead sea turtle	22,554	31,623	33,434	26,671	22,716
Green sea turtle	15,281	17,464	37,920	6,312	30,431
Leatherback sea turtle	95	143	88	128	130
Kemp's ridley sea turtle	8	2	5	9	14

Sources: (FWC Fish and Wildlife Research Institute, 2026a; FWC Fish and Wildlife Research Institute, 2026c; FWC Fish and Wildlife Research Institute, 2026b; FWC Fish and Wildlife Research Institute, 2026d)

CCSFS, KSC, and CANA beaches support high densities of sea turtle nests during the nesting season (May 1 through October 31), providing 47.6 miles of continuous federally owned nesting beaches. Green, leatherback, loggerhead, and Kemp's ridley sea turtles nest on the beaches within the Action Area. The hawksbill sea turtle has not been documented nesting on any of the beaches within the Action Area.

Based on nest surveys at CCSFS from 1986 through 2024, the number of loggerhead turtle nests recorded has ranged from 1,442 (1986) to a record number of 4,275 (2023). The 6-year (2019 to 2024) average number of loggerhead nests deposited on CCSFS is 3,380 nests annually (DAF,

2025). From 1986 to 2024, the number of green sea turtle nests deposited on CCSFS beaches ranged from 4 to 1,282 (2023), with a 6-year (2019 to 2024) average of 530 green sea turtle nests annually (DAF, 2025). From 1986 to 2024, the highest number of leatherback nests observed in any given year on CCSFS was 15 (2019); however, many years there are no leatherback nests and only 178 leatherback nests have been documented on CCSFS since surveys began. The hawksbill sea turtle has not been documented nesting on CCSFS (DAF, 2025). In 2015, two Kemp's ridley nests were recorded at CCSFS, both by the same female. In 2023, two more Kemp's ridley nests were identified on CCSFS, with a combined average hatch success of 74.4 percent. These two nests were part of only 15 Kemp's ridley nests confirmed in Florida in 2023. In 2024, an additional Kemp's ridley nest on CCSFS had a 94 percent hatch success (DAF, 2025). See the SLD 45 INRMP for historic sea turtle nesting activity at CCSFS from 1986 to 2024 (DAF, 2025).

KSC has conducted annual sea turtle surveys since 1983, with a 6-year (2019 to 2024) average of 2,216 nests per year. Loggerhead nesting within the 6.2 miles of KSC Security Beach has shown large year-to-year variability since monitoring began in 1983, with an overall increasing trend. Green sea turtle nesting typically alternates low and high nesting numbers from one year to the next (NASA, 2020). Leatherback nests are found in relatively low numbers each year, with rare nesting by Kemp's ridley sea turtles. The 6-year (2019 to 2024) average number of loggerhead nests deposited annually on KSC is 1,385, ranging from 895 nests in 2021 to 1,899 nests in 2023. The 6-year (2019 to 2024) average number of green nests deposited annually on KSC is 826, ranging from 169 nests in 2024 to 2,176 nests in 2023.

Chapter 5. Effects of the Action

5.1 Analysis Approach

This section analyzes potential effects to federally listed and proposed species and critical habitat resulting from the Proposed Action, including the consequences of other activities that are not part of the Proposed Action but are caused by the action. Per 50 CFR §402.02, a consequence is caused by the proposed action "if it would not occur but for the proposed action and it is reasonably certain to occur." Some effects of the action may occur later in time or may include consequences occurring outside the immediate area involved in the action.

Effect determinations were based on the following definitions:

- **May Affect, Not Likely to Adversely Affect** – the appropriate determination when effects on the species are expected to be insignificant, discountable, or completely beneficial. Discountable effects are those that are extremely unlikely to occur. Based on best judgment, a person would not expect discountable effects to occur. Insignificant effects are those where, based on best judgment, a person would not be able to meaningfully measure, detect, or evaluate insignificant effects. Insignificant effects should never reach the level where take occurs. Beneficial effects are contemporaneous positive effects without any adverse effects (even short-term) to the species.
- **May Affect, Likely to Adversely Affect** – the appropriate determination when an effect is not discountable, insignificant, or beneficial.

The ESA and associated regulations define take, harm, and harass as follows:

- **Take** means "to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect or attempt to engage in any such conduct" (ESA §3(19)).
- **Harm** is defined as "an act which actually kills or injures wildlife. Such act may include significant habitat modification or degradation where it actually kills or injures wildlife by significantly impairing essential behavioral patterns, including breeding, feeding or sheltering" (50 CFR §17.3).
- **Harass** is defined as "an intentional or negligent act or omission which creates the likelihood of injury to wildlife by annoying it to such an extent as to significantly disrupt normal behavioral patterns which include, but are not limited to, breeding, feeding or sheltering" (50 CFR §17.3).

SLD 45 identified potential stressors associated with proposed operations based on previous consultations and various species recovery plans. Effects analyses utilized species survey and monitoring data, scientific articles, and data collected in association with launch operations at Starbase in Boca Chica, Texas; Vandenberg Space Force Base in California; Wallops Flight Facility in Virginia; and KSC and CCSFS in Florida. Effects from proposed activities within the Action Area were evaluated based upon (1) an understanding of the vehicles, methods, and equipment that would be used during operations, (2) knowledge of the potential for such vehicles, methods, and equipment to disturb listed species and their habitats, and (3) awareness of the types of effects that have resulted from similar actions in the past. Section 5.2, *Stressors Associated with the*

Proposed Action, provides an overview of these stressors, and section 5.3, *Effects to Species*, discusses the effects analysis and determinations for ESA-listed species and critical habitat within the Action Area.

5.2 Stressors Associated with the Proposed Action

Table 5-1 provides an overview of the stressors associated with the Proposed Action and the species potentially affected. Table 5-2 provides an overview of the frequency, duration, and timing of activities associated with the Proposed Action. Note that the assumptions in Table 5-2 for the timing of launches (i.e., half at night, half May to October) and the number of boats are for analysis purposes only.

Table 5-1. Stressors Associated with the Proposed Action and Species Potentially Affected

Stressor	Source and Spatial Extent of Impact	Species Potentially Affected
Noise, Sonic Booms, and Visual Stimuli	• Vehicles, equipment, and personnel: within and around SLC-36, and along roads • Facilities operation: within and around SLC-36 • Static fire tests: varies by species • Launches: varies by species • Landings at sea: varies by species	Terrestrial bird species[1] Seabird species[2] Manatee Southeastern beach mouse Tricolored bat Indigo snake Sea turtle species[3]
Vibrations	• Vehicles, equipment, and personnel: within and around SLC-36 • Facilities operation: within and around SLC-36 • Static fire tests: currently unknown • Launches: currently unknown	Terrestrial bird species[1] Manatee Southeastern beach mouse Tricolored bat Indigo snake Sea turtle species[3]
Strikes/ Collisions	• Supply and commodities trucks: SLC-36, roads to SLC-36 • Transport trucks: roads between Port Canaveral and SLC-36, roads between SLC-36 and manufacturing complex • Daily vehicle traffic: SLC-36, roads to SLC-36 • Launches: launch trajectory • Landing platform/boats: offshore, nearshore, ports	Terrestrial bird species[1] Monarch butterfly Manatee Southeastern beach mouse Tricolored bat Indigo snake
Deluge Water, Plume Heat and Vapor	• Launches: within SLC-36 • Static Fire Tests: within SLC-36 • Landings at sea: immediate vicinity of landing platform	Terrestrial bird species[1] Southeastern beach mouse Seabird species[2] Tricolored bat
Artificial Lighting	• Facilities operation: within and around SLC-36 • Static fire tests: varies by species • Launches: varies by species • Landings at sea on landing platform: varies by species	Terrestrial bird species[1] Seabird species[2] Southeastern beach mouse Tricolored bat Sea turtle species[3]
Hazardous Materials	• Landing platform/boats: offshore, nearshore, ports	Manatee

Table 5-1. Stressors Associated with the Proposed Action and Species Potentially Affected

Stressor	Source and Spatial Extent of Impact	Species Potentially Affected
Restricted Access for Management and Monitoring	• Static fire tests: varies by event • Launches: varies by event	Florida scrub-jay Southeastern beach mouse Indigo snake Sea turtle species[3]

Note: SLC = Space Launch Complex.

[1] Terrestrial bird species include the Audubon's crested caracara, eastern black rail, Everglade snail kite, Florida scrub-jay, piping plover, and rufa red knot.

[2] Seabird species include the Bermuda petrel, black-capped petrel, and roseate tern.

[3] Sea turtle species include nesting loggerhead, green, Kemp's ridley, leatherback, and hawksbill sea turtles.

Table 5-2. Frequency, Duration, and Timing of Proposed Activities

Activity	Frequency	Duration	Timing
Vehicles, equipment, and personnel (daily operations/maintenance)	Daily	Noise: Low levels up to 24 hours/day, 7 days a week Lighting: some permanent lighting year-round; temporary work lighting[1] may be required at night for indeterminate periods of time	Primarily daytime (7:00 a.m.–10:00 p.m.), with intermittent periods of increased nighttime (10:00 p.m.–7:00 a.m.) activity.
Launch preparations and post-flight processing at SLC-36	Up to 50 times a year	Noise: Increased levels 3–4 days around a launch Lighting: temporary increased lighting[1] may be required 24 hours/day for security/safety for indeterminate periods of time	Primarily daytime, but with periods of increased nighttime activity. Assume half of launch events occur May to October[2] (sea turtle season).
Static fire test (first stage)	Up to 50 times a year	Flame light: 30 seconds Noise: 30 seconds Plume: a couple to a few minutes	Assume half occur at night. Assume half occur May to October[2].
Static fire test (second stage)	Up to 50 times a year	Flame light: 30 seconds Noise: 30 seconds Plume: a couple to a few minutes	Assume half occur at night. Assume half occur May to October[2].
New Glenn launch	Up to 50 times a year	Flame light: less than 1 minute Noise: 1–2 minutes Sonic boom (at sea): less than 1 second Plume: a couple to a few minutes	Assume half occur at night. Assume half occur May to October[2].
At-sea landing of first stage on platform and fairings in the sea (then recovered onto boat)	Up to 50 times a year	Flame light: less than 1 minute Noise: 1 minute Sonic boom: less than 1 second Plume: a couple to a few minutes	Assume half occur at night. Assume half occur May to October[2].
Transit to/from port of the landing platform, tugboat, and boat for fairing recovery	Up to 50 times a year	Varies based on distance to landing location	Assume half occur at night. Assume half occur May to October[2].

Table 5-2. Frequency, Duration, and Timing of Proposed Activities

Activity	Frequency	Duration	Timing
Safety clearance and location of fairings by boat/aircraft	Up to 50 times a year	Safety clearance: a few hours Location of fairing: varies (hours to a day)	Assume half occur at night. Assume half occur May to October[2].
Assume 5 boats for nearshore security, surveillance	Up to 100 times a year	Typically 3 to 3.5 hours per ILV static fire test and launch (not required for second-stage static fire test)	Assume half occur at night. Assume half occur May to October[2].

Notes: ILV = integrated launch vehicle; SLC = Space Launch Complex.

[1] Temporary lighting may include the use of mobile light towers or temporary use of permanent lighting fixtures.

[2] Assumption that half of launches would occur May to October is for analysis purposes only.

5.2.1 Noise, Sonic Booms, and Visual Stimuli

The Proposed Action would expose species to the noise and visual disturbance of daily operations and periodic static fire tests, launches, and downrange platform landings in the ocean. Animal species are expected to exhibit a wide variety of responses to the noise and visual stimuli associated with these activities. The degree of disturbance can be affected by the type of noise generated, the proximity to the noise source, duration of the sound, frequency of events, the species, and the history of exposure to noise events by individuals of a species. Because some species are more sensitive than others and vary in their responses, it can be difficult to generalize or to draw conclusions across species. Often the effects of noise are mixed with other variables (e.g., predators, weather, ground-based disturbance), making it challenging to determine actual noise effects on population size or population growth (Bowles, 1995) or as an ultimate factor in limiting productivity of a certain nest, area, or region (Smith et al., 1988).

Noise effects on wildlife are classified in three ways. First, effects can be direct, such as the masking of biologically relevant sounds or, in rare cases, physiological changes to the auditory system. Eardrum rupture and temporary or long-term hearing loss are direct physiological changes to the auditory system that are generally only associated with noises of long duration or extremely high intensity. The risk of hearing loss also depends on the species' hearing sensitivities and the intensity of the noise at various frequencies. Second, noise effects may include nonauditory effects such as stress and hypertension; behavioral changes; interference with mating or reproduction; and impaired ability to obtain adequate food, cover, or water. The third type of effects are the result of other effects and include population decline and habitat loss.

As many animal species use sound to communicate, detect prey, and avoid predation, increased noise levels can reduce the distance and area over which animals can perceive important acoustic signals. Such secondary effects of noise vary widely with species; environmental variables; and the types, durations, and sources of noise (Manci et al., 1988). The potential for external noise to mask these important signals is of greater concern for continuous noise sources (e.g., compressors, busy highways) than for intermittent, brief noise exposures such as that resulting from launches, landings, and tests. However, even brief activities can mask signals and may cause certain individuals to cease communication temporarily.

A general reaction in animals from exposure to loud noise or sudden movement in their field of vision is the startle response. A startle response can include behavioral responses (e.g., flying

away) and physiological changes (e.g., elevated heart rate). The intensity and duration of the startle response appear to depend on the species, whether it is a group or an individual, and whether there have been previous exposures (Erbe & Thomas, 2002). Factors that can affect the type and degree of wildlife responses to operations noise include the proximity, speed, size, and noise level of the equipment/rocket; wind direction, speed, and local air turbulence; landscape structures (e.g., vegetative cover); and whether the animals are in the breeding or nesting phase.

The startle reaction is a natural response that helps animals avoid predators; however, if the behavioral component of the startle is uncontrolled, this panic response can result in injury (e.g., breaking of limbs) or death. Responses can range from flight, trampling, stampeding, jumping, or running to simply alerting or moving the head in the apparent direction of the noise source. Startle effects are most likely to occur from a visible activity close to the animal that involves the sudden onset of a high level of noise. The literature indicates the intensity and duration of the startle response typically decreases with the number and frequency of exposures (DAF, 1994), but individuals that do not acclimate may startle upon each exposure. Wildlife habituation to intermittent sounds can be gradual and possibly more limited than to regular exposures.

Isolated noise events have the potential to result in nest abandonment and reduced reproductive success for some animals, including both migratory and resident species. Manci and others reported a reduction in reproductive success in some songbirds after exposure to low-altitude jet overflights (Manci et al., 1988). According to a recent study, some species exhibit an increase in sensitivity to overflights during harsh weather conditions (van der Kolk et al., 2020). Models of shorebird fitness effects from raptor and human disturbance found that the birds could be disturbed up to 1 to 1.5 times per hour before their fitness was reduced in winters with abundant food and mild weather, but they could be disturbed only up to 0.2 to 0.5 times per hour when food was scarce and the weather was severe (Goss-Custard et al., 2006).

While the duration of tests, launches, and landings is relatively brief, the combination of the visual and auditory effects could cause physiological responses due to fear or panic in addition to the behavioral responses. Examples of physiological responses to noise include increased hormonal production and increased heart rate. Increased heart rates, which are an indicator of excitement or stress, occur naturally as a response to predation. Thus, each test, launch, or landing may not, in and of itself, be detrimental. However, the threshold for the frequency at which harmful effects may occur would vary by species. Although the relationship between physiological effects and species interactions with their environments has not been thoroughly studied, the limited literature suggests the degree of physiological response in wildlife species may lessen over time with repeated exposure to noise.

Although transmission of in-air sound into water is typically limited, in-water noise can cause behavioral responses and if it reaches a sufficient level, it can cause temporary or permanent threshold shifts in hearing. Transmission of in-air sound into water is highly dependent on the altitude of the source and the angle at which the sound encounters the water surface (DoN, 2025). Sound is transmitted into water primarily within a narrow area (cone of about 13 degrees [°] from vertical) below the source. At greater angles, the water surface acts as a reflector and allows very little sound to enter the water column. At low altitudes, sound levels reaching the water surface are higher, but the transmission area is smaller. As the sound source gains altitude,

sound reaching the water surface diminishes, but the transmission area increases. During the brief periods that certain aquatic species are at the surface, they would be more vulnerable to effects from in-air noise. When exposed to in-air noise, aquatic species typically show a slight startle response at most (Manci et al., 1988).

A sonic boom is the sound associated with the shock waves created by a vehicle traveling through the air faster than the speed of sound. Overpressure is the force left after a sonic boom. A sonic boom trace is an impulsive event that lasts for less than 1 second. Due to the typical co-occurrence of noise and sonic boom overpressures, it can be difficult to separate effects, but startle or flight responses by birds have been documented (Manci et al., 1988).

Daily Operations Noise from Proposed Action

The types of noise associated with daily operations would be the same as those described in the 2016 Blue Origin Biological Opinion (USFWS, 2016); they would just occur more frequently as operations increase. Animals within and near SLC-36 may be disturbed more often by the additional noise. See the beginning of this section for additional information on potential effects.

Rocket Engine Noise from the Proposed Action

The 2025 *Noise Study for Blue Origin New Glenn Operations at CCSFS SLC-36*, hereafter "Noise Study," contains detailed explanations of noise metrics and maps showing modeled noise contours (Appendix C, *Noise Report*, of the New Glenn Cadence Increase EA currently under development). RUMBLE 4.1 (Blue Ridge Research and Consulting's Rocket Noise and Emissions Model) was used to estimate the noise contours for static fire tests, launches, and first-stage descent/landings (Figure 12 to Figure 15 in the Noise Study). Static fire engine tests typically occur 1 to 3 days prior to launch and last up to 30 seconds per event; noise in excess of 100 dB ASEL from these events would be limited primarily to CCSFS, the Banana River, and the Atlantic Ocean. Engine noise produced during launches would last a few minutes at most at a single location, with the highest noise levels occurring for less than a minute; launch noise in excess of 100 dB ASEL would be generated across CCSFS and portions of KSC, MINWR, the Atlantic Ocean, IRL, and surrounding lands. Landing noise exceeding 100 dB ASEL would extend about 5 miles in each direction around the landing platform in the Atlantic Ocean (Noise Study in Appendix C, *Noise Report*, of the New Glenn Cadence Increase EA).

Sonic Booms from the Proposed Action

Estimates of sonic booms (overpressure of high-energy impulsive sound) produced during launches from SLC-36 and landings on landing platforms in the Atlantic Ocean were modeled using PCBoom; static fire tests do not produce sonic booms. The Noise Study contains explanations of the sonic boom modeling and maps showing modeled overpressure contours. The launch and landing sonic boom contours greater than 1 psf are modeled (using an average annual atmospheric profile without winds) to occur entirely over the Atlantic Ocean, although low-level sonic booms of less than 1 psf are modeled to reach land for the most northern and southern launch azimuths. For launches, the 1 psf contour begins approximately 47 miles downrange from SLC-36 over the Atlantic Ocean and is 128 miles wide (Figure 30 and Figure 31 in the Noise Study). The modeled maximum peak overpressures (up to 10 psf) occur within this

focal region and are highly dependent on the mission trajectory and the atmospheric profile at the time of launch.

For first-stage landings on landing platforms in the Atlantic Ocean (with a due-east launch), the 1 psf contour begins approximately 33 miles up-range from the landing platform and is approximately 81 miles wide. Figure 30 in the Noise Study presents the peak overpressure contours up to 8 psf, although higher peak overpressure levels up to 14 psf are modeled to occur over smaller areas within the 8 psf contour.

Figure 31 in the Noise Study illustrates the launch and landing sonic boom contours at the extents of the launch azimuth range (35° to 118°) and range of potential landing platform locations in the Atlantic Ocean (300 to 500 nm downrange). Although Figure 31 in the Noise Study shows the area potentially exposed to peak overpressures greater than 0.25 psf from New Glenn launch and landing operations within these ranges, the Action Area for this BCA is defined by areas affected by greater than 1 psf from launches and landings, which is a much smaller area.

Sonic booms produced by New Glenn operations would be highly dependent on atmospheric conditions at the time of flight. To illustrate the potential variability due to atmospheric conditions that differ from those assumed for the discussion above (average annual atmospheric profile without winds), sonic boom contours were modeled for the northernmost landing and southernmost launch using up to 24 atmospheric scenarios (12 monthly average profiles, each with mean and high wind speeds). Figure 32 and Figure 33 of the Noise Study show 1 psf peak overpressure contour comparisons between annual average and monthly average atmospheric profiles. The results illustrate that, over the modeled range of conditions, peak overpressure levels on the mainland are predicted to be less than 1 psf.

5.2.2 Vibrations

Some energy from launches, static fire tests, and maintenance equipment would manifest as vibrations. The vibrations associated with static fire tests would last only a few seconds, and less than a minute for launches, but they can add to species disturbance. Species reactions would vary depending on their proximity to the operation activity. Animals may startle, freeze, or temporarily avoid the area, and some individuals may permanently abandon nests, roosting sites, and foraging areas. Depending on frequency and duration, vibrations also may cause physiological effects for certain species.

5.2.3 Strikes/Collisions

Vehicle and equipment strikes are possible at SLC-36 and along the transportation corridors to the site, killing or injuring wildlife, particularly small and less mobile species. Most animals would likely avoid the roadways and the SLC-36 area due to the noise and disturbance associated with traffic, daily operations, and launch preparations. Additionally, most of the traffic from operations would occur during daylight hours. The types of personnel and equipment traffic would be similar to those described in the 2016 Blue Origin Biological Opinion (USFWS, 2016) but with an increase in tanker truck traffic to approximately 15,000 trips per year and several transport truck trips for each vehicle component per launch event.

Strikes from launch vehicles are possible in the vicinity of SLC-36, potentially injuring or killing affected animals. However, given the amount of noise and human activity in the vicinity of SLC-36

during launch preparations, most animals would be expected to avoid the area until the level of disturbance decreased after operations were completed, minimizing the chances of a strike.

Potential manatee strikes are also of concern due to increased boat/landing platform traffic associated with security patrols and transport of launch vehicles back to Port Canaveral after ocean landings. Observation of standard manatee protection measures and boat speed limit requirements would serve to limit the potential for manatee strikes.

5.2.4 Artificial Lighting

Artificial lighting sources would include lighting from buildings and equipment used during daily operations; safety, security, and work lighting during launch preparations; boat/landing platform lighting; and engine ignitions. Launch operations require additional lighting to ensure the protection and safety of personnel and hardware. Leading up to a launch, spotlighting may illuminate the launch vehicle at SLC-36 for several days. Additional lighting would also be employed during landings on landing platforms in the ocean. Under non-launch conditions, brighter lights (typically metal halide) would be turned off or reduced. During standard (non-launch) ground support operations, daily operations would require varying levels of artificial lighting 7 days a week, throughout the year; however, these routine operations do not require engine ignition or bright spotlighting.

Artificial lighting at night has the potential to disturb or disorient sea turtle, bird, beach mouse, and bat species. Artificial lighting may cause temporary or permanent abandonment of nesting, roosting, and foraging areas. Some species may suffer from increased predation from this lighting, while others may be able to more easily locate their prey. Tower lighting has the potential to disorient birds and bats, causing them to circle the lights to exhaustion or to fly into the lights. Depending on the time of year, night lighting could affect light-based cues used by hatching sea turtles. Newly hatched sea turtles orient toward light sources when crawling to the sea. Consequently, if there are man-made light sources coming from inland sources, they may mistakenly crawl landward instead of toward the sea, resulting in mortalities from predation or desiccation. Man-made lighting can also disturb nesting adult sea turtles.

5.2.5 Deluge Water and Plume Heat and Vapor

The New Glenn flame trench directs the deluge water and plume to the northeast. Deluge water would be used up to 150 times per year (50 launches and 100 static fire tests) and a plume would be generated up to 200 times per year (50 launches, 100 static fire tests, and 50 landings at sea). Approximately half of the launch, static fire tests, and at-sea landing events would occur during the daytime (7:00 a.m. to 10:00 p.m.) and half during nighttime (10:00 p.m. to 7:00 a.m.). Modeled or actual data pertaining to the extent of the plume generated by New Glenn static fire tests and launches is not available, but water blown out of the flame trench during engine ignition may temporarily knock down vegetation in the area directly outside the flame trench (east of the pad) within Blue Origin's lease boundary. The vegetation in this area is dominated by the invasive non-native Brazilian pepper, which is degrading palmetto scrub habitat. Any animals located within the area where deluge water or exhaust may extend during launches, static fire tests, or at-sea landings may be injured or killed due to thermal stress. However, most animals would

likely avoid the area due to the noise and disturbance associated with human activity, both during the day and at night.

5.2.6 Hazardous Materials

Hazardous materials used during operations would include, but not be limited to, diesel fuel, gasoline, and propane to fuel equipment; hydraulic fluids, oils, and lubricants; welding gases; paints; solvents; adhesives; and batteries. An accidental release of hazardous materials (e.g., equipment fuel spill) could affect individual ESA-listed species if they were exposed to the contaminant, which could cause injury, sickness, or death. However, hazardous materials handling management procedures would be required during operations; thus, releases should be rare and limited in scope. Because the engines of the New Glenn use LOX, LNG, and LH_2, plants and animals would not be exposed to contaminants in the vapor cloud.

Operations would require the use and storage of hazardous materials for launches as well as for routine maintenance and flight support activities. Most of these materials would be stored as near to their point of use as possible to minimize the potential for accidental spills to occur. The hazardous materials storage tanks for commodities requiring containment per National Fire Protection Association standards would be located within secondary containment designed to hold at least 110 percent of the tank's maximum volume. Blue Origin's SPCC Plan would be revised in accordance with the Clean Water Act requirements included in 40 CFR part 112 to outline proper management and spill response procedures for any changes in the oils and fuels stored at the site. Hazardous waste would be managed onsite in accordance with applicable federal, state, and local regulations.

5.2.7 Restricted Access for Management and Monitoring

Launch-related closures limit access to certain areas on a periodic basis. If such closures prevent required monitoring or limit necessary natural resources management activities, ESA-listed species may be negatively affected. The primary species of concern for continued monitoring at CCSFS, KSC, and MINWR are Florida scrub-jays and sea turtles. Other species that are monitored at varying frequencies include manatees, eastern black rails, red knots, piping plovers, and southeastern beach mice. Updates to the 2025 *Memorandum of Understanding for Prescribed Burning* (SLD 45, USFWS, and KSC, 2025) removed prescribed burn restrictions related to noncritical payload transport or mating operations and reduced the burn buffer around smoke-sensitive facilities to 0.5 miles; these updates greatly increase the opportunity to burn certain ecologically sensitive units to meet regulatory burn requirements. Blue Origin understands it is its responsibility to protect payloads/space flight hardware from smoke associated with prescribed burning or wildfires and to properly maintain and operate clean rooms and processing facilities in accordance with established industry clean room standards to allow for prescribed burns to be conducted.

5.3 Effects to Species

Within the Action Area, zones of impact for individual species were determined by considering each species' sensitivity to all aspects of the Proposed Action based on existing data and studies on the effects of noise, sonic booms, vibrations, and vapor plumes on the species and their habitats. Existing species monitoring data, survey reports, and databases were reviewed to assess

the potential occurrence, distribution, and habitat use of federally listed species within the broader Action Area. On land, noise is the most widespread stressor, followed by artificial lighting. In marine environments, sonic booms and noise affect the largest areas, with artificial light affecting a much smaller footprint close to the landing platform.

5.3.1 Audubon's Crested Caracara

Small numbers of Audubon's crested caracara have been documented foraging but not nesting within the Action Area, which is just north of their expected northern range. As discussed in section 5.2.1, *Noise, Sonic Booms, and Visual Stimuli*, noise and visual disturbances associated with operations may startle birds or cause them to avoid the area. The effort required for a bird disturbed by noise or vibrations to fly to another area to forage or rest would be minimal, and any effects associated with dispersing are expected to be insignificant. Additionally, it is extremely unlikely that a caracara would be present during the limited window for launch activities, so effects from plumes or launch vehicle strikes are considered discountable. Thus, SLD 45 has made the determination of **may affect, not likely to adversely affect**, for the Proposed Action with respect to the caracara.

5.3.2 Seabirds in the Atlantic

Black-capped petrels, Bermuda petrels, and roseate terns forage in the Atlantic Ocean, where they could be affected by propulsion noise, sonic booms, heat/vapor plume, and artificial light from first-stage landings. Since they typically remain over 20 miles offshore, terrestrial-based activities at SLC-36 would have no effect on these species.

Petrels have been shown to be attracted to lights on ships and platforms at sea as they forage at night (Troy et al., 2013). However, the number of birds attracted to the light is expected to be low, given the distance that the landing platform would be stationed offshore and the fact that most observed fallout from light occurs on land, near populated areas (Troy et al., 2013). During the day, it is not expected that the lights would have any effect on seabirds; however, birds may still forage or rest on or around ships or platforms, as they are known to do around offshore oil and gas platforms (Rodriguez et al., 2019). Due to the low concentration of seabirds within the possible areas for landing and the ability of the birds to move away from the area of impact, the potential for adverse effects from a strike or from the heat plume during a landing is considered discountable. Although noise and sonic booms from first-stage landings would likely cause seabirds to flush, noise and sonic boom effects are considered insignificant, as the birds would move to another area and continue to forage. Seabirds are adapted to flying long distances, so these individuals would not be expected to encounter any long-term adverse effects induced by infrequent flushing from landing events.

It is unlikely that strikes or plumes from first-stage or fairing landings would affect a listed seabird or that the occasional and short-duration introduction of noise or sonic booms would adversely affect the life, foraging behavior, or fitness of the black-capped petrel, Bermuda petrel, or roseate tern; these types of effects are considered discountable. Thus, SLD 45 has made the determination of **may affect, not likely to adversely affect**, for the Proposed Action with respect to the black-capped petrel, Bermuda petrel, and roseate tern.

5.3.3 Eastern Black Rail

Eastern black rails are rarely seen within the Action Area, with the closest documented sighting over 5 miles from SLC-36, on the west shore of the Banana River. There is a lack of suitable black rail habitat at and near the launch area, so the potential for black rails to be affected by plume heat or strikes is very low and considered discountable. Although individuals could be disturbed by noise and vibrations from static fire tests or launches, the effort required for a disturbed bird to fly to another area to forage or rest would be minimal and is considered insignificant. SLD 45 has made the determination of **may affect, not likely to adversely affect**, for the Proposed Action with respect to the eastern black rail.

5.3.4 Everglade Snail Kite

The portion of the Action Area around SLC-36 is outside of the Everglade snail kite's normal range, which is primarily Central and South Florida (FWC, 2024b). The snail kite is not known to roost or breed within the Action Area around SLC-36, and it is unlikely to be transiting the area during the short duration of a launch or static fire test when a strike or exposure to the heat plume could occur; such effects are considered discountable. Additionally, the effort required for a bird disturbed by noise or vibrations from a launch or static fire test to fly to another area to forage or rest would be minimal and any effects associated with dispersing are expected to be insignificant. Thus, SLD 45 has made the determination of **may affect, not likely to adversely affect**, for the Proposed Action with respect to the Everglade snail kite.

5.3.5 Florida Scrub-Jay

As discussed in section 5.2.1, *Noise, Sonic Booms, and Visual Stimuli*, and section 5.2.2, *Vibrations*, the noise and vibrations associated with static fire tests and launches may affect foraging, vocal communication, reproductive success, and behaviors (e.g., unpredicted fright-flight responses, avoidance responses), as well as interfere with the ability to hear predators and other important sounds, and prompt stress responses (Kight et al., 2012; Ortega, 2012). Such disturbances could cause a Florida scrub-jay to flush from the nest, leaving eggs or young vulnerable to predation or dehydration. Adults might damage eggs during their startle response, and individuals that flush from a protected or concealed area may be more vulnerable to predation. Avian species have abandoned sites at sound levels as low as 72.2 dBA (Wright et al., 2010). Assuming even distribution of operations over the year (for analysis purposes), approximately 33 percent of operations may occur during the 122-day Florida scrub-jay breeding season (March 1 to June 30); this would result in exposure to approximately 17 launches, 17 ILV static fire tests (ILV entails a short-duration engine burn of the first stage), and 17 second-stage static fire tests each year during breeding season. Noise and vibration may also cause elevated stress levels. Stress responses may cause effects such as suppression of the immune system (Slabbekoorn et al., 2018). Acute exposure of 10 to 20 seconds to 97 dB sound at a frequency of 430 to 470 hertz (Hz) has produced a stress response in laboratory birds (Corbani et al., 2021). This is within the typical frequency range produced by a rocket when launched but lower in amplitude and duration than is expected during peak launch activities. Thus, stress responses may be greater than observed in this study. A study exposed budgerigars to four 169 dB sound pressure level (SPL) impulses within

20 meters, resulting in temporary auditory threshold shifts between 1 and 4 kilohertz (kHz) and permanent auditory threshold shifts at 500 Hz 40 days after exposure (Hashino et al., 1988). Avian species typically regenerate auditory hair cells over the course of a few weeks and can recover from hearing loss over this time (Sato et al., 2024).

In the recent *Biological Opinion/Conference Report for LC-39A Falcon Launch Cadence Alteration and Landing Zone Construction*, the USFWS anticipated effects associated with noise from launches and static fire tests to be insignificant for the Florida scrub-jay when the maximum noise level was less than 140 dB ASEL (USFWS, 2025f). The maximum noise level of New Glenn launches and static fire tests is expected to be 129 dB ASEL. Noise levels of greater than 100 dB ASEL would be almost entirely limited to within the boundaries of CCSFS and KSC (Figure 5-1, Figure 5-2, and Figure 5-3). The closest scrub-jay territories to the SLC-36 launch pad are located approximately 3,575 feet to the south and 8,600 feet to the north. The Florida scrub-jay territory to the south would be exposed to noise levels of approximately 120 dB ASEL, 105 dB ASEL, and 100 dB ASEL from up to 50 launches, 50 ILV hot fire tests, and 50 second-stage static fire tests per year, respectively. The Florida scrub-jay territory to the north would be exposed to noise levels of approximately 115 dB ASEL, 110 dB ASEL, and 105 dB ASEL from launches, ILV hot fire tests, and second-stage static fire tests, respectively. Based on the above information regarding startle responses, stress responses, and permanent and temporary auditory threshold shifts, as well the most recent USFWS determination, effects from noise associated with the Proposed Action on Florida scrub-jays are expected to be insignificant.

Increased traffic along the roadway routes for large hardware and commodities would increase the potential for vehicle strikes of Florida scrub-jays. Injury and death of Florida scrub-jays due to vehicle strikes have been documented at CCSFS, KSC, and CANA (Angy Chambers, personal communication, May 19, 2026). With an increase to approximately 15,000 tanker truck trips annually and several transport truck trips for each vehicle component per launch event, the traffic on the roadways between SLC-36 and Port Canaveral, the manufacturing complex on Merritt Island, and offsite would more than double the current levels associated with Blue Origin operations. On the current primary routes, vehicles would travel through areas with Florida scrub-jay territories within several hundred feet of the roadway; however, these routes may vary in the future (Figure 5-1). Florida scrub-jays are known to forage along roadsides and rights-of-way within the Action Area, and at times may traverse roadways, putting them at risk for strikes. To minimize the potential for strikes, Blue Origin and SLD 45 have committed to the CMs in section 2.3, *Conservation Measures*, of this BCA for vehicular traffic. However, due to the high volume of truck traffic through known Florida scrub-jay habitat, strikes may occur.

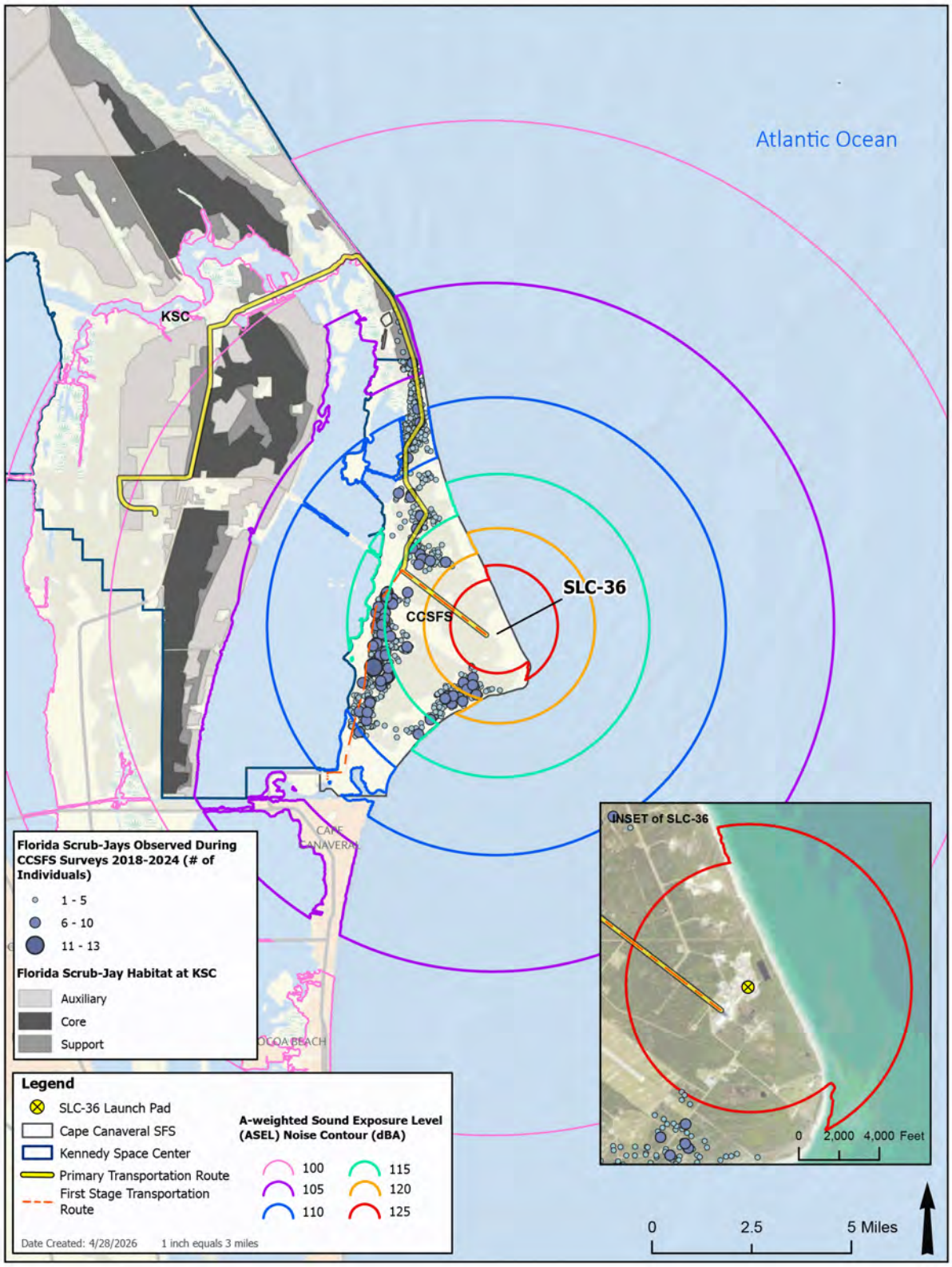

Figure 5-1. Florida Scrub-Jay Groups, Habitat, Launch Noise Contours, and Primary Transportation Routes

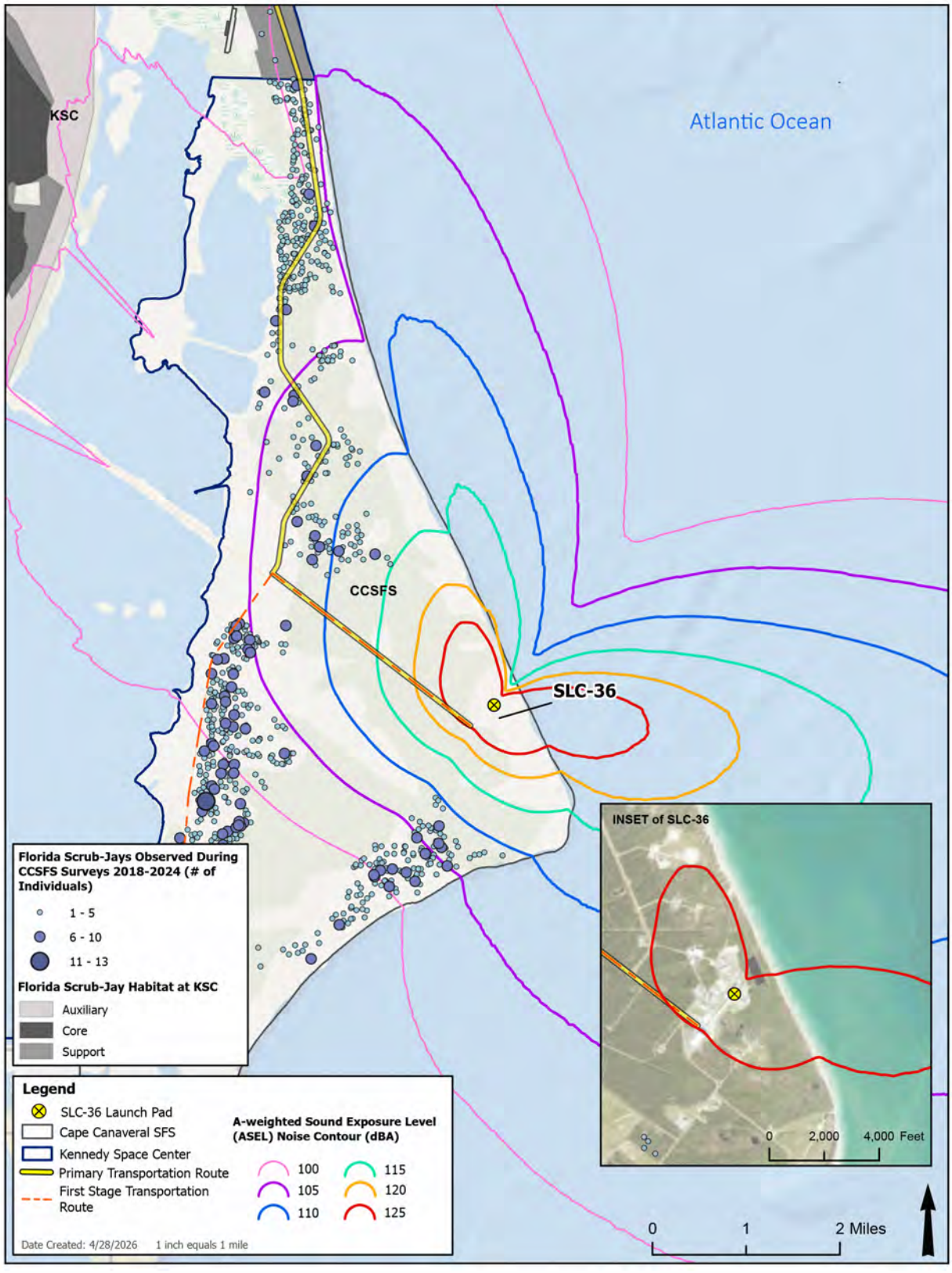

Figure 5-2. Florida Scrub-Jay Groups, Habitat, and ILV Static Fire Noise Contours

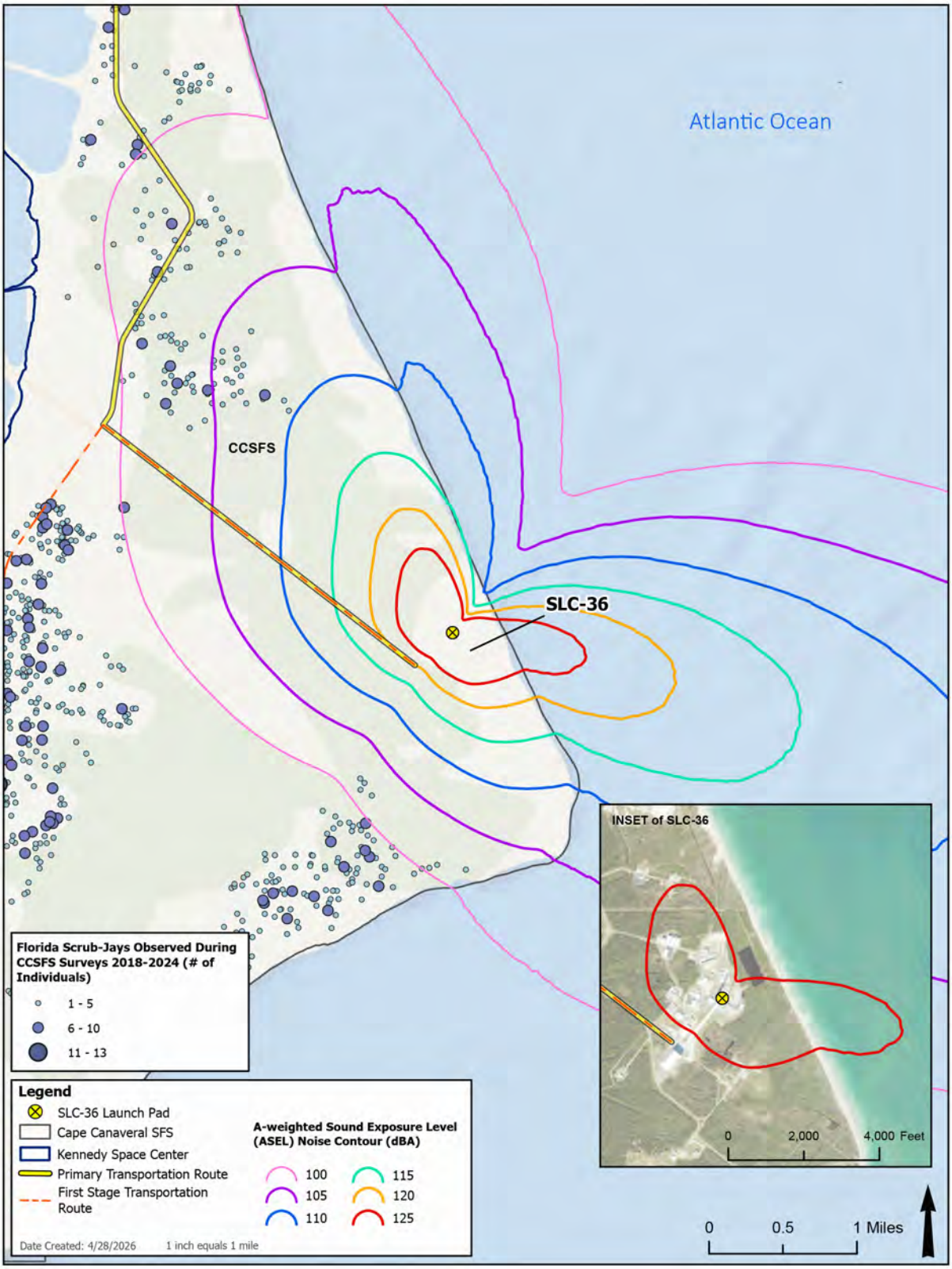

Figure 5-3. Florida Scrub-Jay Groups and Second-Stage Static Fire Noise Contours

Any decreases in the ability to burn the fire-dependent habitat used by the Florida scrub-jay, especially in the population cores, would negatively affect the viability of these birds, particularly foraging and breeding activities. Launch-related closures also have the potential to affect the ability to conduct monitoring for Florida scrub-jays. To minimize such effects, closures would be limited to the smallest area possible and for the shortest time possible while still maintaining safety. While there may be limited access to certain areas on a periodic basis, there would be periods between closures that would allow burning and monitoring to occur. If burn conditions are right, burns on static fire and launch days may be possible. Similarly, once safety closure areas are open, monitoring could occur immediately. Additionally, the CCSFS INRMP shows that the habitats for at least a 1-mile radius around SLC-36 are either not scrub or are poor quality scrub (DAF, 2025), so Florida scrub-jays are unlikely to be present in the area that would most frequently be affected by closures. Effects on Florida scrub-jays from altered management and monitoring due to restricted access are expected to be insignificant.

Lighting associated with nighttime launches and static fire tests would be focused on the vehicle or other components within SLC-36 but would extend into areas that would otherwise be dark. Light produced by launch and static fire plumes may be visible at night in some areas of Florida scrub-jay habitat. However, due to their territorial nature and their requirements for specific habitat conditions, Florida scrub-jays are less prone to relocate in response to non-vegetation disturbing effects, such as intermittent increases in lighting, noise, and vibrations. Thus, lighting effects on Florida scrub-jays from the Proposed Action are expected to be insignificant.

The breeding, feeding, or sheltering behaviors of individual Florida scrub-jays may be temporarily altered by noise, vibrations, and lighting, but overall effects from these stressors are expected to be insignificant. Based on a history of known vehicle strikes to Florida scrub-jays at SLD 45 and adjacent properties, as well as previous consultation with the USFWS for similar levels of anticipated truck trips through known Florida scrub-jay habitat, the increase in roadway traffic associated with the Proposed Action is anticipated to increase the potential for injury or death of Florida scrub-jays from vehicle strikes. Thus, SLD 45 has made the determination of **may affect, likely to adversely affect**, for the Proposed Action with respect to the Florida scrub-jay.

5.3.6 Piping Plover

Piping plovers may overwinter in small numbers in the shoreline portions of the Action Area, but no critical habitat is present and plovers do not breed in Florida. The closest piping plover potential habitat is 0.3 miles to the east of the SLC-36 launch pad. The probability is low that a piping plover would transit the launch pad area at the time of a launch or static fire test when a strike or exposure to the heat plume could occur, so such effects are considered discountable. Any individuals in the vicinity may exhibit a startle response (i.e., take flight) due to disturbance associated with static fire tests and launches (e.g., noise, vibrations), with brief alterations in feeding and sheltering, but returning to normal behavior shortly afterwards; such effects are considered insignificant. Thus, SLD 45 has made the determination of **may affect, not likely to adversely affect**, for the Proposed Action with respect to the piping plover.

5.3.7 Rufa Red Knot

Rufa red knots may overwinter in small numbers in the shoreline portions of the Action Area, but they do not breed in Florida. The closest red knot potential habitat is 0.3 miles to the east of the SLC-36 launch pad, while proposed critical habitat is over 8.3 miles away. Any individuals in the vicinity may exhibit a startle response (i.e., take flight) due to disturbance associated with static fire tests and launches (e.g., noise, vibrations). Temporary alterations in feeding and sheltering would not represent a significant disruption of normal red knot behavioral patterns; such effects are considered insignificant. Red knots have the potential for strikes and exposure heat plumes only if present close to the launch pad during a launch or static fire event. Due to their transitory nature, red knots are not likely to be in the area during the brief periods of launches and static fires, so the probability of strikes or exposure to heat plumes is low and considered discountable. Thus, SLD 45 has made the determination of **may affect, not likely to adversely affect**, for the Proposed Action with respect to the rufa red knot.

5.3.8 Monarch Butterfly

The probability that a monarch butterfly, a species proposed for federal listing as threatened, would be present near the launch pad during the brief period when it could be affected by elevated plume temperatures is very low and considered discountable. Potential lighting and vibration effects to butterflies are unknown, but activity in their proximity may cause them to temporarily move to other areas for feeding, breeding, or sheltering; such effects would be considered insignificant.

The USFWS issued a Conference Opinion (USFWS Reference: 2025-0024332) for the Department of War's 7(a)(1) *Conservation Strategy for the Monarch Butterfly (Danaus plexippus) for Mission and Sustainment Operations within the Continental United States*. This opinion concluded that installations operating under an INRMP, which CCSFS does, would not jeopardize the continued existence of the monarch butterfly. Thus, the Proposed Action is **not expected to jeopardize** the continued existence of the proposed monarch butterfly.

5.3.9 Southeastern Beach Mouse

Noise, vibrations, and lighting associated with operations have the potential to disturb or displace individual southeastern beach mice and, in some cases, may make them more vulnerable to predation. Although retreating to their burrows may reduce exposure to most stressors, such retreat may reduce breeding success, foraging efficiency, and rest and feeding time, particularly when the disturbances are at night, since the southeastern beach mouse is nocturnal. Individuals are expected to exhibit varying degrees of temporary alterations in feeding, sheltering, and breeding.

Studies focused on noise stimuli and southeastern beach mice are absent from scientific literature; therefore, studies on other rodent species must be used as surrogates. Short-duration, episodic, high-intensity sound exposure studies are largely lacking, particularly with field studies that evaluated behavioral responses in rodents. Rats exposed to 104 dB showed evidence of change in the area of the brain where much of the processing of auditory information occurs (Szczepaniak & Møller, 1996). Stimulation of this part of the brain is associated with tinnitus (i.e., ringing sound), which may increase susceptibility to predation, as hearing is important for

small-mammal predator avoidance. In another study, rats exposed to noise at 104 dB showed evidence of altered response in a certain type of neuron involved in spatial thought (Goble et al., 2009). Mice exposed to noise of 123 dB in a laboratory setting experienced hearing loss and impaired spatial learning and memory (Liu et al., 2016). When rats in a laboratory setting were exposed to 80 dB SPL to 104 dB SPL over 5 weeks and frequencies ranging from 1 to 20 kHz, noise-induced hearing loss reached a permanent threshold shift when exposure lasted 18 to 24 hours (Chen et al., 2014). When briefly exposed to noises at 146 dB SPL, mice were found to experience temporary threshold shifts (TTSs), recovering from threshold shifts over several weeks after exposure (Gratias et al., 2021). In the recent *Biological Opinion/Conference Report for LC-39A Falcon Launch Cadence Alteration and Landing Zone Construction*, the USFWS estimated that southeastern beach mice exposed on a recurring basis to sounds greater than 140 dB ASEL would experience TTSs in hearing (USFWS, 2025f). The maximum noise level of New Glenn launches and static fire tests is expected to be 129 dB ASEL. Based on the above information regarding startle responses, stress responses, and permanent and temporary auditory threshold shifts, as well the most recent USFWS determination, effects from noise associated with the Proposed Action on southeastern beach mice are expected to be insignificant.

There are currently no studies on substrate vibration and potential burrow collapse specifically for the southeastern beach mouse. One vibration study for the San Bernardino kangaroo rat (*Dipodomys merriami parvus*) involved constructing artificial burrows 5 to 10 feet from haul roads and measuring sand and soil collapse in the burrows. The study found that vibrations induced by truck haul traffic do not pose risks to the stability of San Bernardino kangaroo rat burrows at distances of 5 to 10 feet from the edge of the road (Barneich, 2004). Studies related to oil and gas exploration have documented burrow collapse for kangaroo rats and pygmy rabbits as a result of vibrations (Wilson, 2011; Cypher et al., 2012). It is expected that southeastern beach mice inhabiting areas near the launch pad may be exposed to vibrations produced by launch and static fire activities and that burrow collapse is possible from the vibrations, although the potential for collapse is unknown. The effect of burrow collapse on the beach mouse could range from minor energetic cost in rebuilding the burrow to increased exposure to avian predators to suffocation of young buried below the soil. In addition, mice in general (particularly pregnant mice) may be physiologically affected by substrate vibration (Carman et al., 2008; Reynolds et al., 2018). However, as it is not known how vibrational forces may affect southeastern beach mice or their burrows, it is hard to conclude adverse effects to beach mice when exposed to unknown vibrational forces. Thus, at this time, vibrational effects to southeastern beach mice are deemed insignificant.

Lighting associated with nighttime launches and static fire tests would be focused on the vehicle or other components within SLC-36 but would also extend into areas that would otherwise be dark. The nocturnal southeastern beach mouse relies on darkness to forage and avoid predation. Previous research indicates that beach mice tend to shift their behavior and forage less during times of full moon or when exposed to artificial lighting (Bird et al., 2004; Falcy & Danielson, 2013). Light reaching ground level would be partially blocked by vegetation, and beach mouse pups would be in below-ground burrows where they would not be exposed to increased lighting. While individual southeastern beach mice in proximity to SLC-36 may be exposed to additional

lighting, they would likely move to adjacent areas temporarily and continue normal activities. Lighting would have an insignificant effect on southeastern beach mice.

The nocturnal southeastern beach mouse is not expected to be active during the day when most vehicular traffic would occur. Additionally, SLD 45 is not aware of any vehicle strikes to southeastern beach mice resulting in injury or death at CCSFS or KSC. Thus, effects related to increases in vehicle traffic due to operations from the Proposed Action are anticipated to be discountable.

The breeding, feeding, and sheltering behaviors of individual southeastern beach mice may be temporarily altered by noise, vibrations, and lighting. The increase in roadway traffic associated with the Proposed Action would occur primarily during daylight hours and is not anticipated to increase the potential for injury or death of the nocturnal southeastern beach mouse. Thus, SLD 45 has made the determination of **may affect, not likely to adversely affect**, for the Proposed Action with respect to the southeastern beach mouse.

5.3.10 Tricolored Bat

Recent surveys on CCSFS for the tricolored bat, a species proposed for federal listing as endangered, have detected their calls in the vicinity of SLC-36. Most insect-eating bat species in Florida generally forage from near treetop level to within a few feet of the ground surface or water surface, so the insectivorous tricolored bat is not anticipated to occur regularly within the open areas around the SLC-36 launch pad. Additionally, bats tend to avoid lit areas, further reducing the probability of tricolored bats occurrence close to the launch area, so strikes or heat effects to these bats during launches and static fire tests are extremely unlikely to occur and are considered discountable. Bats are primarily active between dusk and dawn, thus the potential for noise effects to affect tricolored bat behaviors, cause stress responses, and mask acoustic signals is greater at night. Although individuals present at the time of static fire tests, launches, or landings could be disturbed by noise, vibrations, and lighting, any temporarily alterations in feeding, breeding, and sheltering would not significantly disrupt normal tricolored bat behavioral patterns. Thus, the Proposed Action is **not expected to jeopardize** the continued existence of the proposed tricolored bat.

5.3.11 West Indian Manatee

Launches and static fire tests would generate noise and vibrations with the potential to affect the West Indian manatee. However, acoustic energy from in-air noise does not effectively cross the air-water interface, with most noise reflected off the water surface. Additionally, underwater SPLs from in-air noise are not expected to reach or exceed threshold levels for injury to any marine species. Manatees spend most of their time underwater, so the probability would be low of a manatee with its head out of the water at the time of a launch or static fire test when it would be exposed to high noise levels. Such exposures would be occasional and temporary, lasting only a few minutes at most. Any related temporary alterations in feeding, breeding, or sheltering (e.g., startling resulting in returning underwater prematurely) are expected to be minimal and insignificant.

There is potential for the landing platform, tugboat, and other boats transiting between the Atlantic Ocean and Port Canaveral to strike manatees. However, the boats and landing platforms

associated with the Proposed Action would represent a very minor increase in vessel traffic compared to the amount associated with cruise ship operations and public recreation. Per launch, there would be a landing platform, tug boat, and support boat to bring back first stages and fairings to Port Canaveral, as well as up to four surveillance boats. These vessels would follow the CMs identified in section 2.3, *Conservation Measures*, including the presence of manatee observers. Potential effects to manatees from the landing platform, tugboat, surveillance boats, and recreational boats present in the Action Area during a launch event would additionally be minimized by the required speed limits within potential manatee habitat.

With implementation of CMs for landing platform and boat traffic (e.g., speed limits, observers), strike potential would be discountable. As manatees spend most of their time underwater, effects to manatees from noise and vibrations from the Proposed Action would be minimal and insignificant. Thus, SLD 45 has made the determination of **may affect, not likely to adversely affect**, for the Proposed Action with respect to the manatee.

5.3.12 Eastern Indigo Snake

The increase in the annual number of launches and static fire tests at SLC-36 would result in more frequent occurrences of related traffic, noise, lighting, and vibrations. The Species Status Assessment for the eastern indigo snake (USFWS, 2019g) does not identify noise, light, or vibration as a stressor for this species. SLC-36 is currently an active LC for New Glenn static fire tests and launches, which require periodic night lighting for security and safety. The increase in night lighting is not anticipated to adversely affect the diurnal indigo snake, which typically would not be active at night. There have been no known adverse effects on indigo snakes from noise or vibrations associated with rocket operations; however, no studies have been conducted on this to date. It is expected that indigo snakes would startle and seek shelter during static fire tests and launches, but that they would resume movement and foraging activities shortly afterwards. While indigo snakes could experience elevated stress responses and immunosuppression from this increase in anthropogenic disturbance (Bogan, et al., 2024), such effects would be short-term and intermittent. Any alterations in foraging, breeding, and sheltering from noise, lighting, and vibrations are expected to be insignificant.

Sightings of eastern indigo snakes within the Action Area are rare. However, vehicle strikes of indigo snakes have occurred within the Action Area, as mentioned in section 4.14, *Species Information, Eastern Indigo Snake*, and the species is reasonably certain to occur within the Action Area. With an increase to approximately 15,000 tanker truck trips annually and several transport truck trips for each vehicle component per launch event, the traffic on the roadways between SLC-36 and Port Canaveral, the manufacturing complex on Merritt Island, and offsite would more than double the current levels associated with Blue Origin operations. These roadways traverse potential indigo snake habitat and most of the traffic is expected to occur during daylight hours when indigo snakes are likely to be mobile, so injury or death of an indigo snake from vehicle traffic associated with the Proposed Action is possible. To minimize such potential, personnel and contractors would be informed of the potential for encountering indigo snakes on roadways, as well as instructed to allow these animals to move away from the road or area before resuming activities (see section 2.3, *Conservation Measures*).

With the combination of the developed condition of the area around the SLC-36 launch pad and the general noise associated with daily operations, the likelihood that an indigo snake would occur close enough to be affected by the heat plume is discountable. As previously discussed, effects from noise, lighting, and vibrations associated with operations are anticipated to be insignificant. Although indigo snake sightings within the Action Area are rare, they have been documented at CCSFS and KSC, including road kills. Thus, SLD 45 has made the determination of **may affect, likely to adversely affect**, for the Proposed Action with respect to the eastern indigo snake.

5.3.13 Sea Turtles

The increased number of launches and static fire tests would result in more frequent occurrences of related activity, noise, vibrations, and lighting at SLC-36. Almost all sea turtle nesting and hatching occur at night, so nighttime operations from May through October (i.e., sea turtle nesting and hatching season) are the primary concerns for effects to sea turtles within the Action Area. Under the Proposed Action, there would annually be up to 50 nighttime static fire tests and up to 25 nighttime launches. Since sea turtle season is limited to May to October, it can be assumed that the numbers above can be divided in half to represent potential exposure rates for sea turtles. Neither the launch nor static fire plumes reach the sea turtle nesting beach habitat located 0.3 miles to the east of the SLC-36 launch pad, so no sea turtles or sea turtle habitat would be affected by heat or vapor.

Nighttime lighting, noise, and vibrations may deter females from nesting (i.e., false crawls) or interrupt nesting, and artificial lighting may result in the disorientation of hatchlings. These disturbances may reduce nesting success and hatchling survival due to exhaustion, predation, desiccation, or other causes. While the effects to sea turtle nests and eggs from vibrations are unknown, such effects are unlikely to be greater than those of washovers from fluctuating tides, which is a common occurrence, particularly during the hurricane season. During static fire tests and launches, sea turtle habitat at CCSFS would be exposed to noise levels of up to 129 dB ASEL from up to 24 nighttime static fire tests and 12 nighttime launches each year during sea turtle season (May to October). As stated previously, there would be more frequent occurrences of noise and vibrations, but the intensity of these per event is expected to be the same or similar to what currently occurs at SLC-36.

SLC-36 has been listed as a potential light source for multiple occurrences of sea turtle disorientation (DAF, 2026). Under the Proposed Action, there would be brief but intense light from additional nighttime static fire tests and nighttime launches during sea turtle season (May to October). Additionally, necessary safety and security lighting while the New Glenn is on the launch pad would increase during sea turtle season. Dunes and vegetation located between SLC-36 and the beach do block some of the light, but lighting from multiple tall structures, as well as other exterior lighting, can reach the beach. Blue Origin would decrease the potential for lighting effects on sea turtles by updating the existing LMP at SLC-36 and implementing measures in the plan such as sea turtle friendly lighting. Exterior lighting measures have been identified previously in the CCSFS INRMP (DAF, 2025), SLD 45 Instruction 32-7001 (*Exterior Lighting Management*), and a 2008 Biological Opinion that addresses lighting effects at CCSFS (USFWS, 2008a).

The beach is monitored during nesting season to identify nests and disorientation events. Any restrictions preventing early morning sea turtle patrol monitoring during nesting season would prevent required monitoring of disorientation events for both hatchling and adult sea turtles. Any adults that crawl behind the dune and become lost or stranded would be unable to be rescued and returned to the ocean. Missed monitoring due to access restrictions may also result in missed nests and associated future protections. This also would affect long-term monitoring data accuracy. Disorientation data are communicated to environmental managers at CCSFS to ensure compliance with existing incidental take authorizations from the USFWS, such as the 2008 Light Management Biological Opinion (USFWS, 2008a). Note that effects from the Proposed Action and any associated take are being considered independently from the 2008 Light Management Biological Opinion (USFWS, 2008a).

Given the close proximity of sea turtle nesting habitat to the launch pad, and past documentation of SLC-36 as a potential light source for sea turtle disorientation, the increasing frequency of launch events increases the probability that a sea turtle may be deterred, disturbed, or disoriented due to associated lighting, thereby reducing sea turtle nesting success and hatchling survival. Thus, SLD 45 has determined that the Proposed Action **may affect, and is likely to adversely affect**, loggerhead, green, leatherback, hawksbill, and Kemp's ridley sea turtles.

5.4 Cumulative Effects

Cumulative effects are defined in 50 CFR §402.02 as "those effects of future State or private activities, not involving Federal activities, that are reasonably certain to occur within the Action Area of the Federal action subject to consultation." As previously discussed, much of the land within the Action Area consists of federal properties; future projects on these federal properties and other projects requiring federal permits would require separate consultation pursuant to Section 7 of the ESA and, thus, are not included in this cumulative effects analysis.

A thorough review of publicly available databases and planning documents was made of the Action Area to identify future state and private activities that, when combined with the Proposed Action, may result in cumulative effects to the listed species addressed in this BCA with **likely to adversely affect** determinations.

No projects were identified that meet the criteria of being both reasonably foreseeable and exclusively a state or private activity that did not require any type of federal permit. Therefore, according to the definition of cumulative effects in 50 CFR §402.02, there would be no cumulative effects to the Florida scrub-jay, eastern indigo snake, or any sea turtle species within the Action Area beyond those analyzed in this BCA.

6.1 Effect Determinations for Species

Table 6-1 lists the DAF's overall effect determinations for federally listed and proposed species resulting from the Proposed Action. "No effect" determinations are listed in Table 3-2.

Table 6-1. Effect Determinations for Federally Listed and Proposed Species[1]

Species	Effect Determinations
Audubon's crested caracara	May Affect, Not Likely to Adversely Affect
Bermuda petrel	May Affect, Not Likely to Adversely Affect
Black-capped petrel	May Affect, Not Likely to Adversely Affect
Eastern black rail	May Affect, Not Likely to Adversely Affect
Everglade snail kite	May Affect, Not Likely to Adversely Affect
Florida scrub-jay	May Affect, Likely to Adversely Affect
Piping plover	May Affect, Not Likely to Adversely Affect
Roseate tern	May Affect, Not Likely to Adversely Affect
Rufa red knot	May Affect, Not Likely to Adversely Affect
Monarch butterfly (proposed threatened)	Not Expected to Jeopardize
Southeastern beach mouse	May Affect, Not Likely to Adversely Affect
Tricolored bat (proposed endangered)	Not Expected to Jeopardize
West Indian manatee	May Affect, Not Likely to Adversely Affect
Eastern indigo snake	May Affect, Likely to Adversely Affect
Green sea turtle	May Affect, Likely to Adversely Affect
Hawksbill sea turtle	May Affect, Likely to Adversely Affect
Kemp's ridley sea turtle	May Affect, Likely to Adversely Affect
Leatherback sea turtle	May Affect, Likely to Adversely Affect
Loggerhead sea turtle	May Affect, Likely to Adversely Affect

Notes: ESA = Endangered Species Act; SLD 45 = Space Launch Delta 45; USFWS = United States Fish and Wildlife Service.

[1] Proposed species are not protected by the ESA and do not trigger ESA Section 7 consultation. However, SLD 45 has evaluated the effects of the action on the proposed tricolored bat and monarch butterfly and seeks USFWS concurrence with these determinations through a voluntary informal conference process. If the species becomes listed in the future, reinitiation of consultation may be required.

6.2 Conclusion

SLD 45 will notify the USFWS if any of the actions considered in this BCA are modified or if additional information on listed species becomes available, as a reinitiation of consultation may be required. If effects to listed species occur beyond what has been considered in this assessment, the USFWS will be notified immediately to determine further actions, including reinitiation of consultation.

Chapter 7. References

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Appendix A Information for Planning and Consultation (IPaC) Reports

United States Department of the Interior

FISH AND WILDLIFE SERVICE
Florida Ecological Services Field Office
777 37th St
Suite D-101
Vero Beach, FL 32960-3559
Phone: (352) 448-9151 Fax: (772) 562-4288
Email Address: fw4flesregs@fws.gov

In Reply Refer To: 05/19/2026 22:03:40 UTC
Project Code: 2026-0092377
Project Name: Blue Origin New Glenn Increase-100 dB ASEL

Subject: List of threatened and endangered species that may occur in your proposed project location or may be affected by your proposed project

To Whom It May Concern:

The enclosed species list identifies threatened, endangered, proposed and candidate species, as well as proposed and final designated critical habitat, that may occur within the boundary of your proposed project and/or may be affected by your proposed project. The species list fulfills the requirements of the U.S. Fish and Wildlife Service (Service) under section 7(c) of the Endangered Species Act (Act) of 1973, as amended (16 U.S.C. 1531 *et seq.*).

New information based on updated surveys, changes in the abundance and distribution of species, changed habitat conditions, or other factors could change this list. Feel free to contact us if you need more current information or assistance regarding the potential impacts to federally proposed, listed, and candidate species and federally designated and proposed critical habitat. **Please include your Project Code, listed at the top of this letter, in all subsequent correspondence regarding this project.** Please note that under 50 CFR 402.12(e) of the regulations implementing section 7 of the Act, the accuracy of this species list should be verified after 90 days. This verification can be completed formally or informally as desired. The Service recommends that verification be completed by visiting the IPaC website at regular intervals during project planning and implementation for updates to species lists and information. An updated list may be requested through the IPaC system by completing the same process used to receive the enclosed list.

The purpose of the Act is to provide a means whereby threatened and endangered species and the ecosystems upon which they depend may be conserved. Under sections 7(a)(1) and 7(a)(2) of the Act and its implementing regulations (50 CFR 402 *et seq.*), Federal agencies are required to utilize their authorities to carry out programs for the conservation of threatened and endangered species and to determine whether projects may affect threatened and endangered species and/or designated critical habitat.

A Biological Assessment is required for construction projects (or other undertakings having similar physical impacts) that are major Federal actions significantly affecting the quality of the human environment as defined in the National Environmental Policy Act (42 U.S.C. 4332(2)(c)). For projects other than major construction activities, the Service suggests that a biological evaluation similar to a Biological Assessment be prepared to determine whether the project may affect listed or proposed species and/or designated or proposed critical habitat. Recommended contents of a Biological Assessment are described at 50 CFR 402.12.

If a Federal agency determines, based on the Biological Assessment or biological evaluation, that listed species and/or designated critical habitat may be affected by the proposed project, the agency is required to consult with the Service pursuant to 50 CFR 402. In addition, the Service recommends that candidate species, proposed species and proposed critical habitat be addressed within the consultation. More information on the regulations and procedures for section 7 consultation, including the role of permit or license applicants, can be found in the "Endangered Species Consultation Handbook" at:

https://www.fws.gov/sites/default/files/documents/endangered-species-consultation-handbook.pdf

Florida bonneted bat: If the Florida bonneted bat or Florida bonneted bat Critical Habitat is on your Official Species List, please make sure you are using the 2024 Florida Bonneted Bat Guidelines and Key and submitting acoustic survey data to NABat if acoustic surveys are conducted.

Migratory Birds: In addition to responsibilities to protect threatened and endangered species under the Endangered Species Act (ESA), there are additional responsibilities under the Migratory Bird Treaty Act (MBTA) and the Bald and Golden Eagle Protection Act (BGEPA) to protect native birds from project-related impacts. Any activity resulting in take of migratory birds, including eagles, is prohibited unless otherwise permitted by the U.S. Fish and Wildlife Service (50 C.F.R. Sec. 10.12 and 16 U.S.C. Sec. 668(a)). For more information regarding these Acts see https://www.fws.gov/program/migratory-bird-permits/what-we-do.

It is the responsibility of the project proponent to comply with these Acts by identifying potential impacts to migratory birds and eagles within applicable NEPA documents (when there is a federal nexus) or a Bird/Eagle Conservation Plan (when there is no federal nexus). Proponents should implement conservation measures to avoid or minimize the production of project-related stressors or minimize the exposure of birds and their resources to the project-related stressors. For more information on avian stressors and recommended conservation measures see https://www.fws.gov/library/collections/threats-birds.

In addition to MBTA and BGEPA, Executive Order 13186: *Responsibilities of Federal Agencies to Protect Migratory Birds*, obligates all Federal agencies that engage in or authorize activities that might affect migratory birds, to minimize those effects and encourage conservation measures that will improve bird populations. Executive Order 13186 provides for the protection of both migratory birds and migratory bird habitat. For information regarding the implementation of Executive Order 13186, please visit https://www.fws.gov/partner/council-conservation-migratory-birds.

We appreciate your concern for threatened and endangered species. The Service encourages Federal agencies to include conservation of threatened and endangered species into their project planning to further the purposes of the Act. Please include the Consultation Code in the header of this letter with any request for consultation or correspondence about your project that you submit to our office.

Attachment(s):

- Official Species List
- USFWS National Wildlife Refuges and Fish Hatcheries
- Bald & Golden Eagles
- Migratory Birds
- Marine Mammals
- Coastal Barriers
- Wetlands

OFFICIAL SPECIES LIST

This list is provided pursuant to Section 7 of the Endangered Species Act, and fulfills the requirement for Federal agencies to "request of the Secretary of the Interior information whether any species which is listed or proposed to be listed may be present in the area of a proposed action".

This species list is provided by:

Florida Ecological Services Field Office
777 37th St
Suite D-101
Vero Beach, FL 32960-3559
(352) 448-9151

PROJECT SUMMARY

Project Code: 2026-0092377
Project Name: Blue Origin New Glenn Increase-100 dB ASEL
Project Type: Airport - Maintenance/Modification
Project Description: The Proposed Action would involve an increase from the currently authorized 12 launches per year from SLC-36 on Cape Canaveral Space Force Station (CCSFS) to up to 50 launches per year, as well as the addition of up to 50 static fire tests per stage (total of up to 100) and up to 50 landings in the Atlantic Ocean. The Proposed Action also would include an increase in daily operations at SLC-36 and roadway and marine traffic. No new ground disturbance or facility construction is proposed. Launches, static fire tests, and landings may occur during daylight or nighttime hours at any time of the year.

Project Location:

The approximate location of the project can be viewed in Google Maps: https://www.google.com/maps/@28.4712483,-80.51550319525198,14z

Counties: Brevard County, Florida

ENDANGERED SPECIES ACT SPECIES

There is a total of 19 threatened, endangered, or candidate species on this species list.

Species on this list should be considered in an effects analysis for your project and could include species that exist in another geographic area. For example, certain fish may appear on the species list because a project could affect downstream species.

IPaC does not display listed species or critical habitats under the sole jurisdiction of NOAA Fisheries[1], as USFWS does not have the authority to speak on behalf of NOAA and the Department of Commerce.

See the "Critical habitats" section below for those critical habitats that lie wholly or partially within your project area under this office's jurisdiction. Please contact the designated FWS office if you have questions.

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1. NOAA Fisheries, also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

MAMMALS

NAME	STATUS
Southeastern Beach Mouse *Peromyscus polionotus niveiventris* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/3951	Threatened
Tricolored Bat *Perimyotis subflavus* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/10515	Proposed Endangered
West Indian Manatee *Trichechus manatus* There is **final** critical habitat for this species. Your location overlaps the critical habitat. ***This species is also protected by the Marine Mammal Protection Act, and may have additional consultation requirements.*** Species profile: https://ecos.fws.gov/ecp/species/4469 General project design guidelines: https://ipac.ecosphere.fws.gov/project/N5DXWC5WPBGGVMWXCZLMLRNNIM/documents/generated/7281.pdf	Threatened

BIRDS

NAME	STATUS
Crested Caracara (audubon's) [fl Dps] *Caracara plancus audubonii* Population: FL DPS No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/8250	Threatened
Eastern Black Rail *Laterallus jamaicensis jamaicensis* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/10477	Threatened
Everglade Snail Kite *Rostrhamus sociabilis plumbeus* There is **final** critical habitat for this species. Your location does not overlap the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/7713	Endangered
Florida Scrub-jay *Aphelocoma coerulescens* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/6174	Threatened
Piping Plover *Charadrius melodus* Population: [Atlantic Coast and Northern Great Plains populations] - Wherever found, except those areas where listed as endangered. There is **final** critical habitat for this species. Your location does not overlap the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/6039	Threatened
Rufa Red Knot *Calidris canutus rufa* There is **proposed** critical habitat for this species. Your location overlaps the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/1864	Threatened

REPTILES

NAME	STATUS
Atlantic Salt Marsh Snake *Nerodia clarkii taeniata* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/7729	Threatened
Eastern Indigo Snake *Drymarchon couperi* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/646	Threatened
Green Sea Turtle *Chelonia mydas* Population: North Atlantic DPS There is **proposed** critical habitat for this species. Your location overlaps the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/6199	Threatened
Hawksbill Sea Turtle *Eretmochelys imbricata* There is **final** critical habitat for this species. Your location does not overlap the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/3656	Endangered
Kemp's Ridley Sea Turtle *Lepidochelys kempii* There is **proposed** critical habitat for this species. Species profile: https://ecos.fws.gov/ecp/species/5523	Endangered
Leatherback Sea Turtle *Dermochelys coriacea* There is **final** critical habitat for this species. Your location does not overlap the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/1493	Endangered
Loggerhead Sea Turtle *Caretta caretta* Population: Northwest Atlantic Ocean DPS There is **final** critical habitat for this species. Your location overlaps the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/1110	Threatened

INSECTS

NAME	STATUS
Monarch Butterfly *Danaus plexippus* There is **proposed** critical habitat for this species. Your location does not overlap the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/9743	Proposed Threatened

FLOWERING PLANTS

NAME	STATUS
Carter's Mustard *Warea carteri* Population: No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/5583	Endangered
Lewton's Polygala *Polygala lewtonii* Population: No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/6688	Endangered

CRITICAL HABITATS

There are 3 critical habitats wholly or partially within your project area under this office's jurisdiction.

NAME	STATUS
Green Sea Turtle *Chelonia mydas* https://ecos.fws.gov/ecp/species/6199#crithab	Proposed
Loggerhead Sea Turtle *Caretta caretta* https://ecos.fws.gov/ecp/species/1110#crithab	Final
Rufa Red Knot *Calidris canutus rufa* https://ecos.fws.gov/ecp/species/1864#crithab	Proposed

You should contact the local field office to determine whether critical habitat for the following species should be considered:

NAME	STATUS
West Indian Manatee *Trichechus manatus* https://ecos.fws.gov/ecp/species/4469#crithab	Final

USFWS NATIONAL WILDLIFE REFUGE LANDS AND FISH HATCHERIES

Any activity proposed on lands managed by the National Wildlife Refuge system must undergo a 'Compatibility Determination' conducted by the Refuge. Please contact the individual Refuges to discuss any questions or concerns.

The following FWS National Wildlife Refuge Lands and Fish Hatcheries lie fully or partially within your project area:

FACILITY NAME	ACRES
MERRITT ISLAND NATIONAL WILDLIFE REFUGE https://www.fws.gov/our-facilities?Skeywords="%5C%22MERRITT+ISLAND+NATIONAL+WILDLIFE+REFUGE%5C%22"	129,084.668

BALD & GOLDEN EAGLES

Bald and Golden Eagles are protected under the Bald and Golden Eagle Protection Act [2] and the Migratory Bird Treaty Act (MBTA) [1]. Any person or organization who plans or conducts activities that may result in impacts to Bald or Golden Eagles, or their habitats, should follow appropriate regulations and consider implementing appropriate avoidance and minimization measures, as described in the various links on this page.

1. The Bald and Golden Eagle Protection Act of 1940.
2. The Migratory Birds Treaty Act of 1918.
3. 50 C.F.R. Sec. 10.12 and 16 U.S.C. Sec. 668(a)

There are Bald Eagles and/or Golden Eagles in your project area.

Measures for Proactively Minimizing Eagle Impacts
For information on how to best avoid and minimize disturbance to nesting bald eagles, please review the National Bald Eagle Management Guidelines. You may employ the timing and activity-specific distance recommendations in this document when designing your project/ activity to avoid and minimize eagle impacts. For bald eagle information specific to Alaska, please refer to Bald Eagle Nesting and Sensitivity to Human Activity.

The FWS does not currently have guidelines for avoiding and minimizing disturbance to nesting Golden Eagles. For site-specific recommendations regarding nesting Golden Eagles, please consult with the appropriate Regional Migratory Bird Office or Ecological Services Field Office.

If disturbance or take of eagles cannot be avoided, an incidental take permit may be available to authorize any take that results from, but is not the purpose of, an otherwise lawful activity. For assistance making this determination for Bald Eagles, visit the Do I Need A Permit Tool. For assistance making this determination for golden eagles, please consult with the appropriate Regional Migratory Bird Office or Ecological Services Field Office.

Ensure Your Eagle List is Accurate and Complete
If your project area is in a poorly surveyed area in IPaC, your list may not be complete and you may need to rely on other resources to determine what species may be present (e.g. your local FWS field office, state surveys, your own surveys). Please review the Supplemental Information on Migratory Birds and Eagles, to help you properly interpret the report for your specified location, including determining if there is sufficient data to ensure your list is accurate.

For guidance on when to schedule activities or implement avoidance and minimization measures to reduce impacts to bald or golden eagles on your list, see the "Probability of Presence Summary" below to see when these bald or golden eagles are most likely to be present and breeding in your project area.

NAME	BREEDING SEASON
Bald Eagle *Haliaeetus leucocephalus* This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities. https://ecos.fws.gov/ecp/species/1626	Breeds Sep 1 to Jul 31

PROBABILITY OF PRESENCE SUMMARY

The graphs below provide our best understanding of when birds of concern are most likely to be present in your project area. This information can be used to tailor and schedule your project

activities to avoid or minimize impacts to birds. Please make sure you read "Supplemental Information on Migratory Birds and Eagles", specifically the FAQ section titled "Proper Interpretation and Use of Your Migratory Bird Report" before using or attempting to interpret this report.

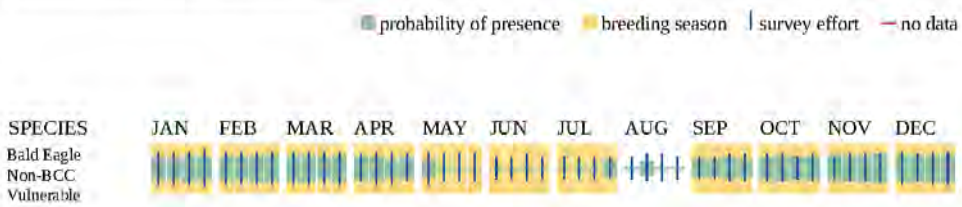
Probability of Presence (▪)

Green bars; the bird's relative probability of presence in the 10km grid cell(s) your project overlaps during that week of the year.

Breeding Season (▪)
Yellow bars; liberal estimate of the timeframe inside which the bird breeds across its entire range.

Survey Effort (|)
Vertical black lines; the number of surveys performed for that species in the 10km grid cell(s) your project area overlaps.

No Data (–)
A week is marked as having no data if there were no survey events for that week.



Additional information can be found using the following links:

- Eagle Management https://www.fws.gov/program/eagle-management
- Measures for avoiding and minimizing impacts to birds https://www.fws.gov/library/collections/avoiding-and-minimizing-incidental-take-migratory-birds
- Nationwide avoidance and minimization measures for birds https://www.fws.gov/sites/default/files/documents/nationwide-standard-conservation-measures.pdf
- Supplemental Information for Migratory Birds and Eagles in IPaC https://www.fws.gov/media/supplemental-information-migratory-birds-and-bald-and-golden-eagles-may-occur-project-action

MIGRATORY BIRDS

The Migratory Bird Treaty Act (MBTA) [1] prohibits the take (including killing, capturing, selling, trading, and transport) of protected migratory bird species without prior authorization by the Department of Interior U.S. Fish and Wildlife Service (Service).

1. The Migratory Birds Treaty Act of 1918.
2. The Bald and Golden Eagle Protection Act of 1940.
3. 50 C.F.R. Sec. 10.12 and 16 U.S.C. Sec. 668(a)

For guidance on when to schedule activities or implement avoidance and minimization measures to reduce impacts to migratory birds on your list, see the "Probability of Presence Summary" below to see when these birds are most likely to be present and breeding in your project area.

NAME	BREEDING SEASON
American Kestrel *Falco sparverius paulus* This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA https://ecos.fws.gov/ecp/species/9587	Breeds Apr 1 to Aug 31
American Oystercatcher *Haematopus palliatus* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/8935	Breeds Apr 15 to Aug 31
Audubon's Shearwater *Puffinus lherminieri* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/9635	Breeds Mar 1 to Aug 5
Bachman's Sparrow *Peucaea aestivalis* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/6177	Breeds May 1 to Sep 30
Bald Eagle *Haliaeetus leucocephalus* This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities. https://ecos.fws.gov/ecp/species/1626	Breeds Sep 1 to Jul 31
Black Scoter *Melanitta nigra* This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities. https://ecos.fws.gov/ecp/species/10413	Breeds elsewhere
Black Skimmer *Rynchops niger* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/5234	Breeds May 20 to Sep 15

NAME	BREEDING SEASON
Black-legged Kittiwake *Rissa tridactyla* This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities. https://ecos.fws.gov/ecp/species/10459	Breeds elsewhere
Brown Pelican *Pelecanus occidentalis* This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities. https://ecos.fws.gov/ecp/species/6034	Breeds Jan 15 to Sep 30
Chimney Swift *Chaetura pelagica* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/9406	Breeds Mar 15 to Aug 25
Common Eider *Somateria mollissima* This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities. https://ecos.fws.gov/ecp/species/10457	Breeds Jun 1 to Sep 30
Common Loon *gavia immer* This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities. https://ecos.fws.gov/ecp/species/4464	Breeds Apr 15 to Oct 31
Cory's Shearwater *Calonectris diomedea* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/10452	Breeds elsewhere
Double-crested Cormorant *phalacrocorax auritus* This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities. https://ecos.fws.gov/ecp/species/3478	Breeds Apr 20 to Aug 31
Great Blue Heron *Ardea herodias occidentalis* This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA https://ecos.fws.gov/ecp/species/10590	Breeds Jan 1 to Dec 31
Great Shearwater *Puffinus gravis* This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities. https://ecos.fws.gov/ecp/species/9634	Breeds elsewhere

NAME	BREEDING SEASON
Gull-billed Tern *Gelochelidon nilotica* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/9501	Breeds May 1 to Jul 31
King Rail *Rallus elegans* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/8936	Breeds May 1 to Sep 5
Least Tern *Sternula antillarum antillarum* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/11919	Breeds Apr 25 to Sep 5
Lesser Yellowlegs *Tringa flavipes* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/9679	Breeds elsewhere
Long-tailed Duck *Clangula hyemalis* This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities. https://ecos.fws.gov/ecp/species/7238	Breeds elsewhere
Magnificent Frigatebird *Fregata magnificens* This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA https://ecos.fws.gov/ecp/species/9588	Breeds Oct 1 to Apr 30
Painted Bunting *Passerina ciris* This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA https://ecos.fws.gov/ecp/species/9511	Breeds Apr 25 to Aug 15
Pectoral Sandpiper *Calidris melanotos* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/9561	Breeds elsewhere
Pomarine Jaeger *Stercorarius pomarinus* This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities. https://ecos.fws.gov/ecp/species/10458	Breeds elsewhere
Prairie Warbler *Setophaga discolor* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/9513	Breeds May 1 to Jul 31

NAME	BREEDING SEASON
Razorbill *Alca torda* This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities. https://ecos.fws.gov/ecp/species/10461	Breeds Jun 15 to Sep 10
Red Phalarope *Phalaropus fulicarius* This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities. https://ecos.fws.gov/ecp/species/10469	Breeds elsewhere
Red-breasted Merganser *Mergus serrator* This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities. https://ecos.fws.gov/ecp/species/10693	Breeds elsewhere
Red-headed Woodpecker *Melanerpes erythrocephalus* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/9398	Breeds May 10 to Sep 10
Red-necked Phalarope *Phalaropus lobatus* This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities. https://ecos.fws.gov/ecp/species/10467	Breeds elsewhere
Red-throated Loon *Gavia stellata* This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities. https://ecos.fws.gov/ecp/species/9589	Breeds elsewhere
Reddish Egret *Egretta rufescens* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/7617	Breeds Mar 1 to Sep 15
Ring-billed Gull *Larus delawarensis* This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities. https://ecos.fws.gov/ecp/species/10468	Breeds elsewhere
Roseate Tern *Sterna dougallii* This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities. https://ecos.fws.gov/ecp/species/10661	Breeds May 10 to Aug 31

NAME	BREEDING SEASON
Royal Tern *Thalasseus maximus* This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities. https://ecos.fws.gov/ecp/species/10471	Breeds Apr 15 to Aug 31
Ruddy Turnstone *Arenaria interpres morinella* This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA https://ecos.fws.gov/ecp/species/10633	Breeds elsewhere
Saltmarsh Sparrow *Ammospiza caudacuta* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/9719	Breeds May 15 to Sep 5
Semipalmated Sandpiper *Calidris pusilla* This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA https://ecos.fws.gov/ecp/species/9603	Breeds elsewhere
Short-billed Dowitcher *Limnodromus griseus* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/9480	Breeds elsewhere
Sooty Shearwater *Ardenna grisea* This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities. https://ecos.fws.gov/ecp/species/10417	Breeds elsewhere
Sooty Tern *Onychoprion fuscatus* This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities. https://ecos.fws.gov/ecp/species/10695	Breeds Mar 10 to Jul 31
Surf Scoter *Melanitta perspicillata* This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities. https://ecos.fws.gov/ecp/species/10463	Breeds elsewhere
Swallow-tailed Kite *Elanoides forficatus* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/8938	Breeds Mar 10 to Jun 30

NAME	BREEDING SEASON
Thick-billed Murre *Uria lomvia* This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities. https://ecos.fws.gov/ecp/species/10700	Breeds Apr 15 to Aug 15
Whimbrel *Numenius phaeopus hudsonicus* This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA https://ecos.fws.gov/ecp/species/11991	Breeds elsewhere
White-winged Scoter *Melanitta fusca* This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities. https://ecos.fws.gov/ecp/species/10462	Breeds elsewhere
Willet *Tringa semipalmata* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/10669	Breeds Apr 20 to Aug 5
Wilson's Plover *Charadrius wilsonia* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/9722	Breeds Apr 1 to Aug 20
Wilson's Storm-petrel *Oceanites oceanicus* This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities. https://ecos.fws.gov/ecp/species/10416	Breeds elsewhere
Worthington's Marsh Wren *Cistothorus palustris griseus* This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA https://ecos.fws.gov/ecp/species/9560	Breeds Apr 10 to Aug 31

PROBABILITY OF PRESENCE SUMMARY

The graphs below provide our best understanding of when birds of concern are most likely to be present in your project area. This information can be used to tailor and schedule your project activities to avoid or minimize impacts to birds. Please make sure you read "Supplemental Information on Migratory Birds and Eagles", specifically the FAQ section titled "Proper Interpretation and Use of Your Migratory Bird Report" before using or attempting to interpret this report.

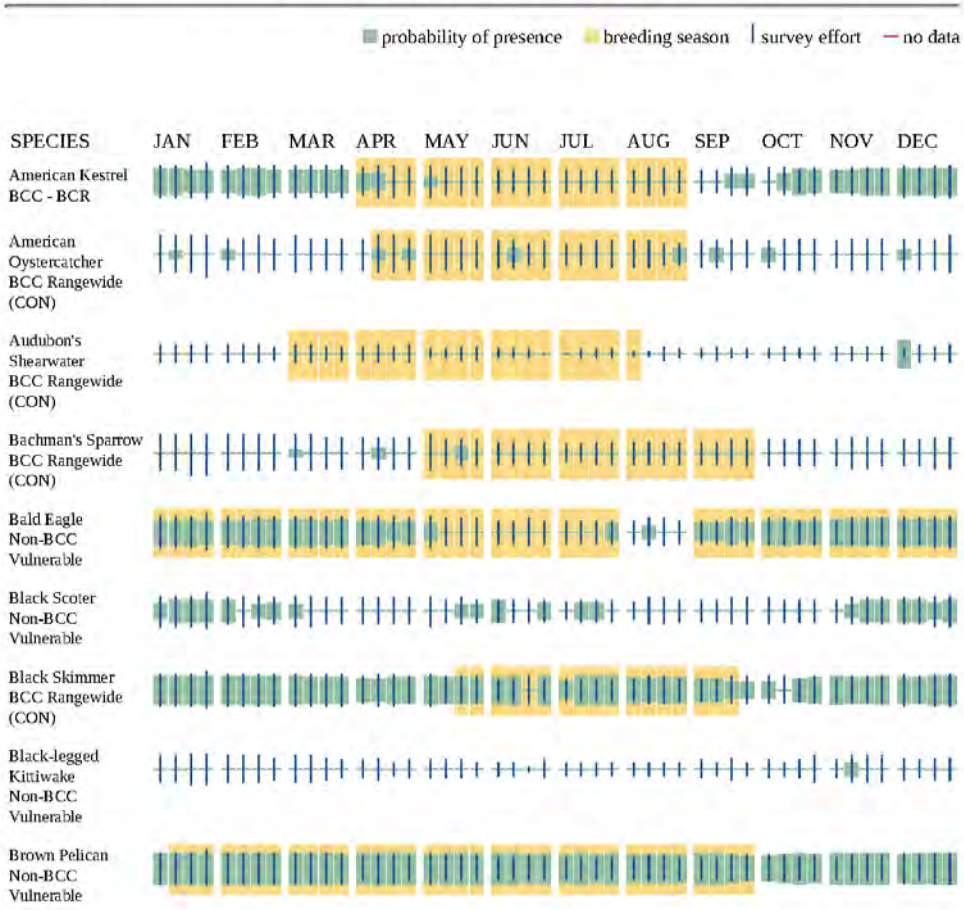
Probability of Presence (■)

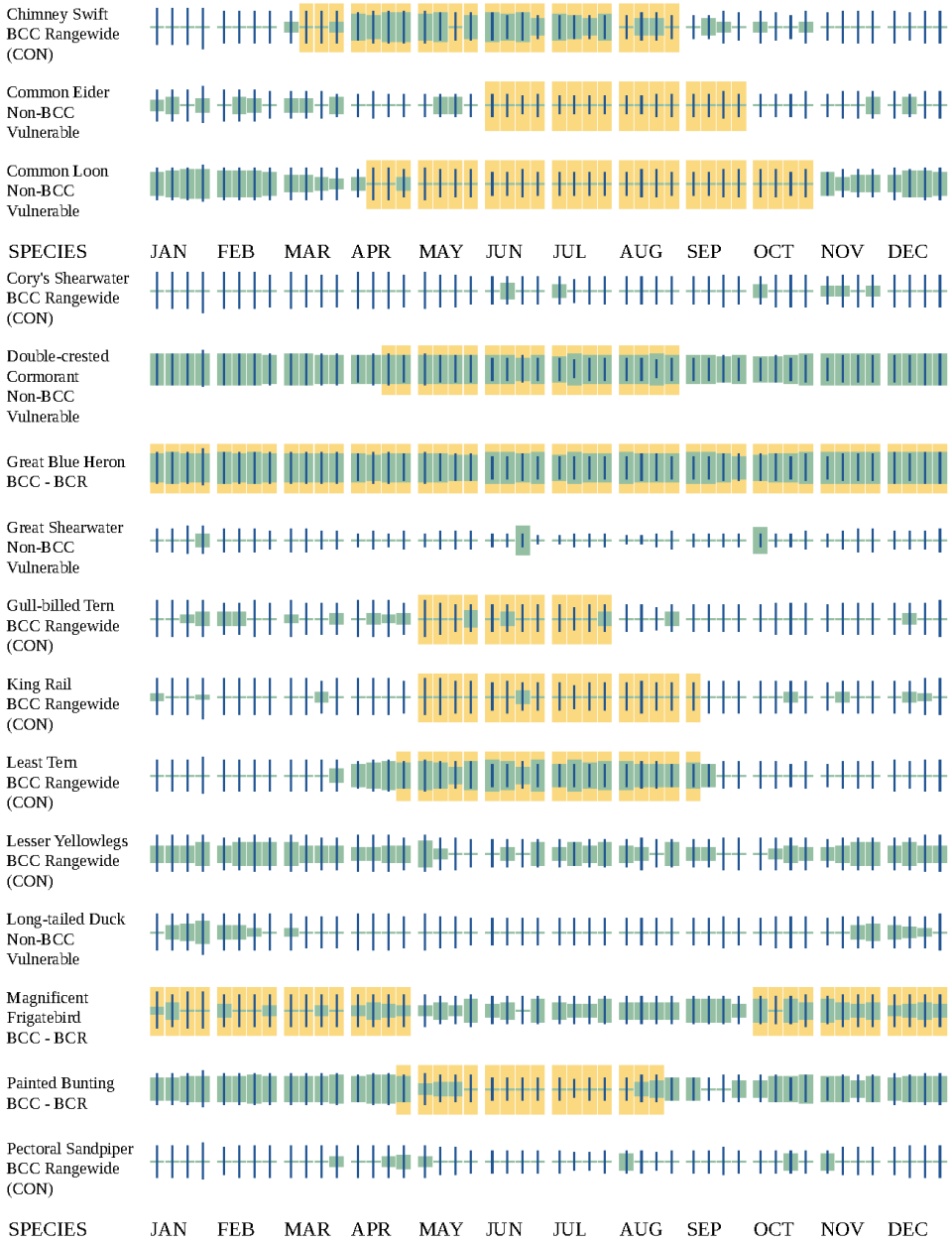
Green bars; the bird's relative probability of presence in the 10km grid cell(s) your project overlaps during that week of the year.

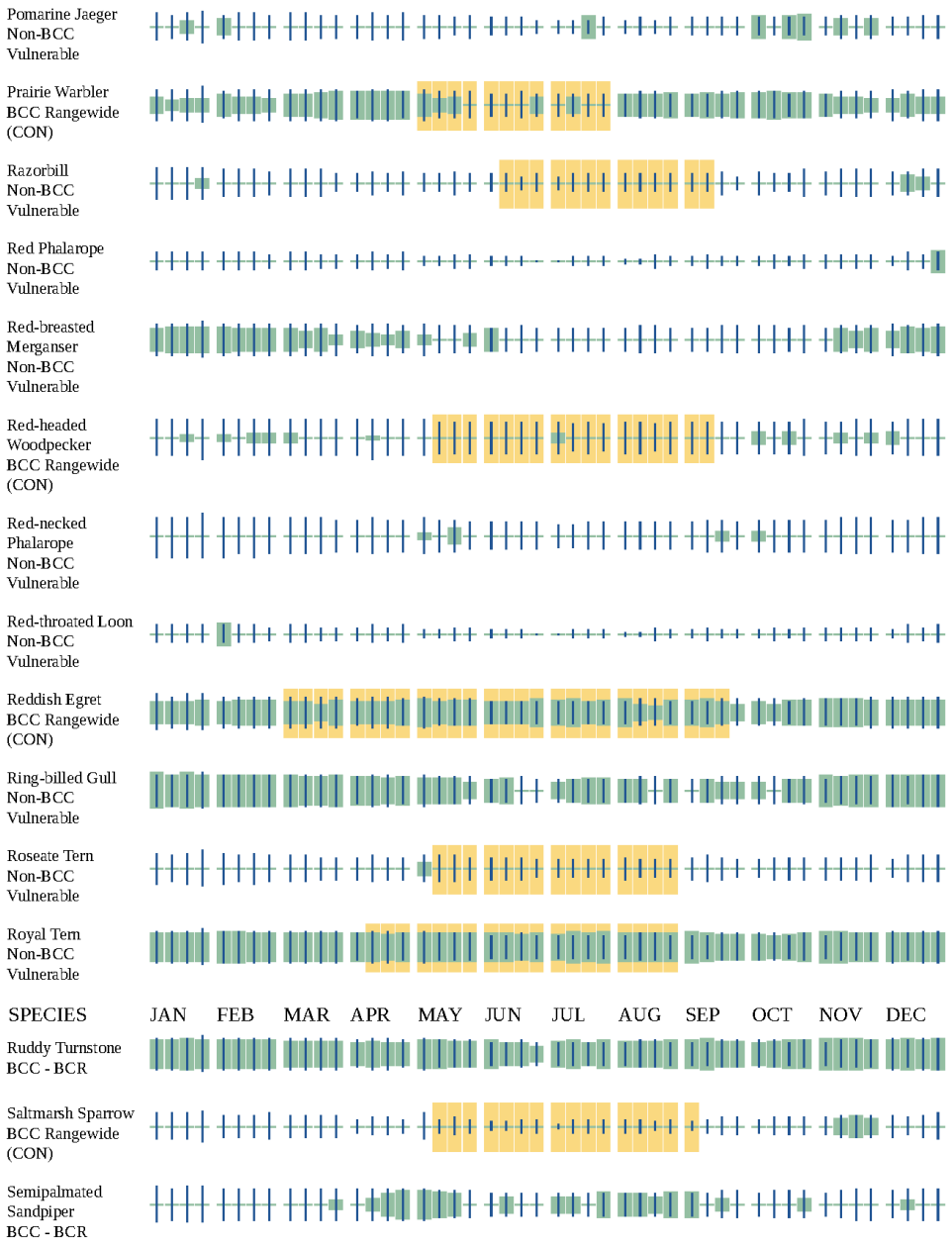
Breeding Season (▪)
Yellow bars; liberal estimate of the timeframe inside which the bird breeds across its entire range.

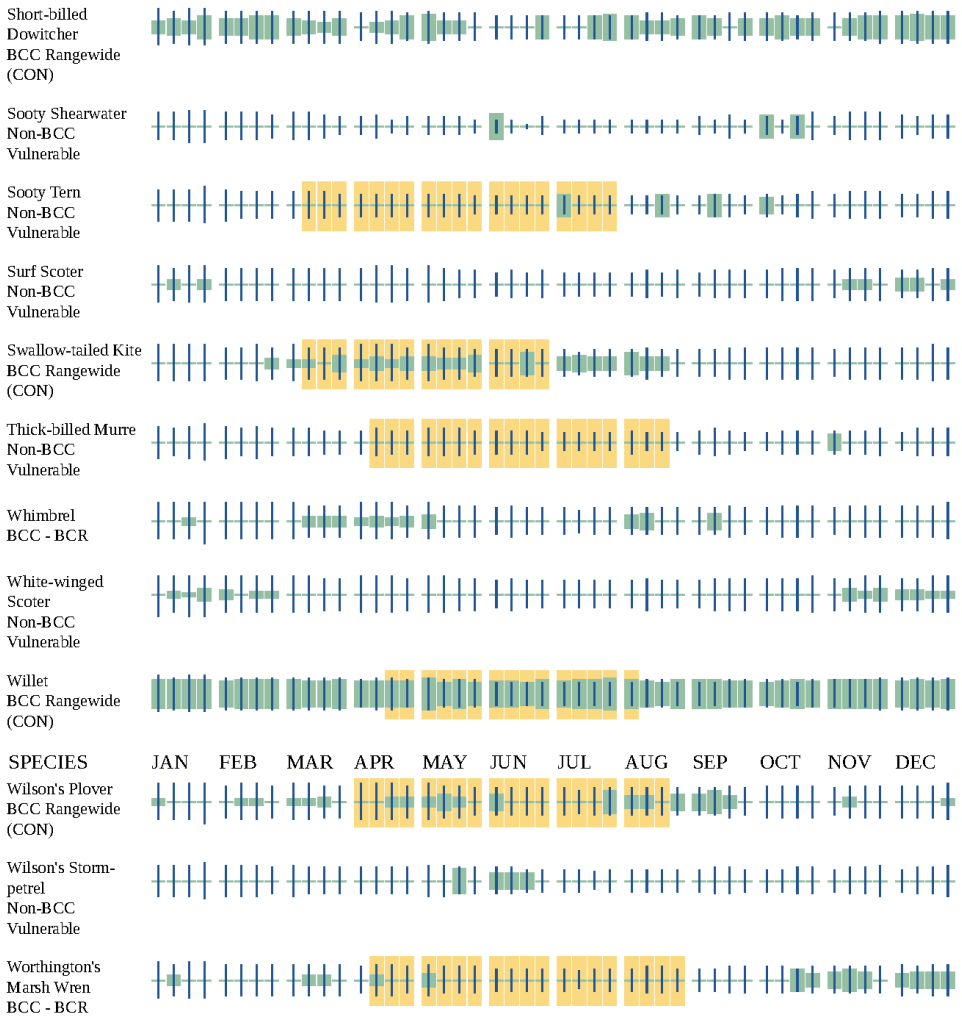
Survey Effort (|)
Vertical black lines; the number of surveys performed for that species in the 10km grid cell(s) your project area overlaps.

No Data (–)
A week is marked as having no data if there were no survey events for that week.




Chimney Swift
BCC Rangewide
(CON)
Common Eider
Non-BCC
Vulnerable
Common Loon
Non-BCC
Vulnerable
SPECIES JAN FEB MAR APR MAY JUN JUL AUG SEP OCT NOV DEC
Cory's Shearwater
BCC Rangewide
(CON)
Double-crested
Cormorant
Non-BCC
Vulnerable
Great Blue Heron
BCC - BCR
Great Shearwater
Non-BCC
Vulnerable
Gull-billed Tern
BCC Rangewide
(CON)
King Rail
BCC Rangewide
(CON)
Least Tern
BCC Rangewide
(CON)
Lesser Yellowlegs
BCC Rangewide
(CON)
Long-tailed Duck
Non-BCC
Vulnerable
Magnificent
Frigatebird
BCC - BCR
Painted Bunting
BCC - BCR
Pectoral Sandpiper
BCC Rangewide
(CON)
SPECIES JAN FEB MAR APR MAY JUN JUL AUG SEP OCT NOV DEC


Pomarine Jaeger
Non-BCC
Vulnerable
Prairie Warbler
BCC Rangewide
(CON)
Razorbill
Non-BCC
Vulnerable
Red Phalarope
Non-BCC
Vulnerable
Red-breasted
Merganser
Non-BCC
Vulnerable
Red-headed
Woodpecker
BCC Rangewide
(CON)
Red-necked
Phalarope
Non-BCC
Vulnerable
Red-throated Loon
Non-BCC
Vulnerable
Reddish Egret
BCC Rangewide
(CON)
Ring-billed Gull
Non-BCC
Vulnerable
Roseate Tern
Non-BCC
Vulnerable
Royal Tern
Non-BCC
Vulnerable
SPECIES
JAN
FEB
MAR
APR
MAY
JUN
JUL
AUG
SEP
OCT
NOV
DEC
Ruddy Turnstone
BCC - BCR
Saltmarsh Sparrow
BCC Rangewide
(CON)
Semipalmated
Sandpiper
BCC - BCR



Additional information can be found using the following links:

- Eagle Management https://www.fws.gov/program/eagle-management
- Measures for avoiding and minimizing impacts to birds https://www.fws.gov/library/collections/avoiding-and-minimizing-incidental-take-migratory-birds
- Nationwide avoidance and minimization measures for birds

- Supplemental Information for Migratory Birds and Eagles in IPaC https://www.fws.gov/media/supplemental-information-migratory-birds-and-bald-and-golden-eagles-may-occur-project-action

COASTAL BARRIERS

Projects within the John H. Chafee Coastal Barrier Resources System (CBRS) may be subject to the restrictions on Federal expenditures and financial assistance and the consultation requirements of the Coastal Barrier Resources Act (CBRA) (16 U.S.C. 3501 et seq.). For more information, please contact the local Ecological Services Field Office or visit the CBRA Consultations website. The CBRA website provides tools such as a flow chart to help determine whether consultation is required and a template to facilitate the consultation process.

UNIT	NAME	TYPE	SYSTEM UNIT ESTABLISHMENT DATE	FLOOD INSURANCE PROHIBITION DATE
FL-07P	Canaveral	UNKNOWN	N/A	11/16/1991

MARINE MAMMALS

Marine mammals are protected under the Marine Mammal Protection Act. Some are also protected under the Endangered Species Act[1] and the Convention on International Trade in Endangered Species of Wild Fauna and Flora[2].

The responsibilities for the protection, conservation, and management of marine mammals are shared by the U.S. Fish and Wildlife Service [responsible for otters, walruses, polar bears, manatees, and dugongs] and NOAA Fisheries[3] [responsible for seals, sea lions, whales, dolphins, and porpoises]. Marine mammals under the responsibility of NOAA Fisheries are **not** shown on this list; for additional information on those species please visit the Marine Mammals page of the NOAA Fisheries website.

The Marine Mammal Protection Act prohibits the take of marine mammals and further coordination may be necessary for project evaluation. Please contact the U.S. Fish and Wildlife Service Field Office shown.

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1. The Endangered Species Act (ESA) of 1973.
2. The Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) is a treaty to ensure that international trade in plants and animals does not threaten their survival in the wild.
3. NOAA Fisheries, also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

NAME

West Indian Manatee *Trichechus manatus*
Species profile: https://ecos.fws.gov/ecp/species/4469

WETLANDS

Impacts to NWI wetlands and other aquatic habitats may be subject to regulation under Section 404 of the Clean Water Act, or other State/Federal statutes.

For more information please contact the Regulatory Program of the local U.S. Army Corps of Engineers District.

Please note that the NWI data being shown may be out of date. We are currently working to update our NWI data set. We recommend you verify these results with a site visit to determine the actual extent of wetlands on site.

WETLAND INFORMATION WAS NOT AVAILABLE WHEN THIS SPECIES LIST WAS GENERATED. PLEASE VISIT IITTPS://WWW.FWS.GOV/WETLANDS/DATA/MAPPER.IITML OR CONTACT THE FIELD OFFICE FOR FURTHER INFORMATION.

United States Department of the Interior

FISH AND WILDLIFE SERVICE
Florida Ecological Services Field Office
777 37th St
Suite D-101
Vero Beach, FL 32960-3559
Phone: (352) 448-9151 Fax: (772) 562-4288
Email Address: fw4flesregs@fws.gov

In Reply Refer To: 05/19/2026 21:49:43 UTC
Project Code: 2026-0092375
Project Name: Blue Origin New Glenn Increase--Launch 1 psf

Subject: List of threatened and endangered species that may occur in your proposed project location or may be affected by your proposed project

To Whom It May Concern:

The enclosed species list identifies threatened, endangered, proposed and candidate species, as well as proposed and final designated critical habitat, that may occur within the boundary of your proposed project and/or may be affected by your proposed project. The species list fulfills the requirements of the U.S. Fish and Wildlife Service (Service) under section 7(c) of the Endangered Species Act (Act) of 1973, as amended (16 U.S.C. 1531 *et seq.*).

New information based on updated surveys, changes in the abundance and distribution of species, changed habitat conditions, or other factors could change this list. Feel free to contact us if you need more current information or assistance regarding the potential impacts to federally proposed, listed, and candidate species and federally designated and proposed critical habitat. **Please include your Project Code, listed at the top of this letter, in all subsequent correspondence regarding this project.** Please note that under 50 CFR 402.12(e) of the regulations implementing section 7 of the Act, the accuracy of this species list should be verified after 90 days. This verification can be completed formally or informally as desired. The Service recommends that verification be completed by visiting the IPaC website at regular intervals during project planning and implementation for updates to species lists and information. An updated list may be requested through the IPaC system by completing the same process used to receive the enclosed list.

The purpose of the Act is to provide a means whereby threatened and endangered species and the ecosystems upon which they depend may be conserved. Under sections 7(a)(1) and 7(a)(2) of the Act and its implementing regulations (50 CFR 402 *et seq.*), Federal agencies are required to utilize their authorities to carry out programs for the conservation of threatened and endangered species and to determine whether projects may affect threatened and endangered species and/or designated critical habitat.

A Biological Assessment is required for construction projects (or other undertakings having similar physical impacts) that are major Federal actions significantly affecting the quality of the human environment as defined in the National Environmental Policy Act (42 U.S.C. 4332(2)(c)). For projects other than major construction activities, the Service suggests that a biological evaluation similar to a Biological Assessment be prepared to determine whether the project may affect listed or proposed species and/or designated or proposed critical habitat. Recommended contents of a Biological Assessment are described at 50 CFR 402.12.

If a Federal agency determines, based on the Biological Assessment or biological evaluation, that listed species and/or designated critical habitat may be affected by the proposed project, the agency is required to consult with the Service pursuant to 50 CFR 402. In addition, the Service recommends that candidate species, proposed species and proposed critical habitat be addressed within the consultation. More information on the regulations and procedures for section 7 consultation, including the role of permit or license applicants, can be found in the "Endangered Species Consultation Handbook" at:

https://www.fws.gov/sites/default/files/documents/endangered-species-consultation-handbook.pdf

Florida bonneted bat: If the Florida bonneted bat or Florida bonneted bat Critical Habitat is on your Official Species List, please make sure you are using the 2024 Florida Bonneted Bat Guidelines and Key and submitting acoustic survey data to NABat if acoustic surveys are conducted.

Migratory Birds: In addition to responsibilities to protect threatened and endangered species under the Endangered Species Act (ESA), there are additional responsibilities under the Migratory Bird Treaty Act (MBTA) and the Bald and Golden Eagle Protection Act (BGEPA) to protect native birds from project-related impacts. Any activity resulting in take of migratory birds, including eagles, is prohibited unless otherwise permitted by the U.S. Fish and Wildlife Service (50 C.F.R. Sec. 10.12 and 16 U.S.C. Sec. 668(a)). For more information regarding these Acts see https://www.fws.gov/program/migratory-bird-permits/what-we-do.

It is the responsibility of the project proponent to comply with these Acts by identifying potential impacts to migratory birds and eagles within applicable NEPA documents (when there is a federal nexus) or a Bird/Eagle Conservation Plan (when there is no federal nexus). Proponents should implement conservation measures to avoid or minimize the production of project-related stressors or minimize the exposure of birds and their resources to the project-related stressors. For more information on avian stressors and recommended conservation measures see https://www.fws.gov/library/collections/threats-birds.

In addition to MBTA and BGEPA, Executive Order 13186: *Responsibilities of Federal Agencies to Protect Migratory Birds*, obligates all Federal agencies that engage in or authorize activities that might affect migratory birds, to minimize those effects and encourage conservation measures that will improve bird populations. Executive Order 13186 provides for the protection of both migratory birds and migratory bird habitat. For information regarding the implementation of Executive Order 13186, please visit https://www.fws.gov/partner/council-conservation-migratory-birds.

We appreciate your concern for threatened and endangered species. The Service encourages Federal agencies to include conservation of threatened and endangered species into their project planning to further the purposes of the Act. Please include the Consultation Code in the header of this letter with any request for consultation or correspondence about your project that you submit to our office.

Attachment(s):

- Official Species List
- USFWS National Wildlife Refuges and Fish Hatcheries
- Bald & Golden Eagles
- Migratory Birds
- Marine Mammals
- Wetlands

OFFICIAL SPECIES LIST

This list is provided pursuant to Section 7 of the Endangered Species Act, and fulfills the requirement for Federal agencies to "request of the Secretary of the Interior information whether any species which is listed or proposed to be listed may be present in the area of a proposed action".

This species list is provided by:

Florida Ecological Services Field Office
777 37th St
Suite D-101
Vero Beach, FL 32960-3559
(352) 448-9151

PROJECT SUMMARY

Project Code: 2026-0092375
Project Name: Blue Origin New Glenn Increase--Launch 1 psf
Project Type: Airport - Maintenance/Modification
Project Description: The Proposed Action would involve an increase from the currently authorized 12 launches per year from SLC-36 on Cape Canaveral Space Force Station (CCSFS) to up to 50 launches per year, as well as the addition of up to 50 static fire tests per stage (total of up to 100) and up to 50 landings in the Atlantic Ocean. The Proposed Action also would include an increase in daily operations at SLC-36 and roadway and marine traffic. No new ground disturbance or facility construction is proposed. Launches, static fire tests, and landings may occur during daylight or nighttime hours at any time of the year.

Project Location:

The approximate location of the project can be viewed in Google Maps: https://www.google.com/maps/@28.5031003,-79.39366400269242,14z

Counties:

ENDANGERED SPECIES ACT SPECIES

There is a total of 2 threatened, endangered, or candidate species on this species list.

Species on this list should be considered in an effects analysis for your project and could include species that exist in another geographic area. For example, certain fish may appear on the species list because a project could affect downstream species.

IPaC does not display listed species or critical habitats under the sole jurisdiction of NOAA Fisheries[1], as USFWS does not have the authority to speak on behalf of NOAA and the Department of Commerce.

See the "Critical habitats" section below for those critical habitats that lie wholly or partially within your project area under this office's jurisdiction. Please contact the designated FWS office if you have questions.

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1. NOAA Fisheries, also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

MAMMALS

NAME	STATUS
West Indian Manatee *Trichechus manatus*	Threatened

There is **final** critical habitat for this species. Your location does not overlap the critical habitat.
This species is also protected by the Marine Mammal Protection Act, and may have additional consultation requirements.
Species profile: https://ecos.fws.gov/ecp/species/4469
General project design guidelines:
https://ipac.ecosphere.fws.gov/project/AZRHQWZTNBAZTMWREUQHCDWTUU/documents/generated/7281.pdf

BIRDS

NAME	STATUS
Black-capped Petrel *Pterodroma hasitata*	Endangered

No critical habitat has been designated for this species.
Species profile: https://ecos.fws.gov/ecp/species/4748

CRITICAL HABITATS

THERE ARE NO CRITICAL HABITATS WITHIN YOUR PROJECT AREA UNDER THIS OFFICE'S JURISDICTION.

YOU ARE STILL REQUIRED TO DETERMINE IF YOUR PROJECT(S) MAY HAVE EFFECTS ON ALL ABOVE LISTED SPECIES.

USFWS NATIONAL WILDLIFE REFUGE LANDS AND FISH HATCHERIES

Any activity proposed on lands managed by the National Wildlife Refuge system must undergo a 'Compatibility Determination' conducted by the Refuge. Please contact the individual Refuges to discuss any questions or concerns.

THERE ARE NO REFUGE LANDS OR FISH HATCHERIES WITHIN YOUR PROJECT AREA.

BALD & GOLDEN EAGLES

Bald and Golden Eagles are protected under the Bald and Golden Eagle Protection Act [2] and the Migratory Bird Treaty Act (MBTA) [1]. Any person or organization who plans or conducts activities that may result in impacts to Bald or Golden Eagles, or their habitats, should follow appropriate regulations and consider implementing appropriate avoidance and minimization measures, as described in the various links on this page.

1. The Bald and Golden Eagle Protection Act of 1940.
2. The Migratory Birds Treaty Act of 1918.

3. 50 C.F.R. Sec. 10.12 and 16 U.S.C. Sec. 668(a)

Bald and Golden Eagles are protected under the Bald and Golden Eagle Protection Act and the Migratory Bird Treaty Act (MBTA). Any person or organization who plans or conducts activities that may result in impacts to Bald or Golden Eagles, or their nests, should follow appropriate regulations and implement required avoidance and minimization measures, as described in the various links on this page.

The data in this location indicates that no eagles have been observed in this area. This does not mean eagles are not present in your project area, especially if the area is difficult to survey. Please review the 'Steps to Take When No Results Are Returned' section of the Supplemental Information on Migratory Birds and Eagles document to determine if your project is in a poorly surveyed area. If it is, you may need to rely on other resources to determine if eagles may be present (e.g. your local FWS field office, state surveys, your own surveys).

Any person or organization who plans or conducts activities that may result in impacts to bald or golden eagles, or their habitats, should follow appropriate regulations and consider implementing appropriate conservation measures, as described in the links below. Specifically, please review the "Supplemental Information on Migratory Birds and Eagles".

MIGRATORY BIRDS

The Migratory Bird Treaty Act (MBTA) [1] prohibits the take (including killing, capturing, selling, trading, and transport) of protected migratory bird species without prior authorization by the Department of Interior U.S. Fish and Wildlife Service (Service).

1. The Migratory Birds Treaty Act of 1918.
2. The Bald and Golden Eagle Protection Act of 1940.
3. 50 C.F.R. Sec. 10.12 and 16 U.S.C. Sec. 668(a)

For guidance on when to schedule activities or implement avoidance and minimization measures to reduce impacts to migratory birds on your list, see the "Probability of Presence Summary" below to see when these birds are most likely to be present and breeding in your project area.

NAME	BREEDING SEASON
Audubon's Shearwater *Puffinus lherminieri* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/9635	Breeds Mar 1 to Aug 5

NAME	BREEDING SEASON
Band-rumped Storm-petrel *Hydrobates castro* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/1226	Breeds elsewhere
Black Scoter *Melanitta nigra* This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities. https://ecos.fws.gov/ecp/species/10413	Breeds elsewhere
Black-capped Petrel *Pterodroma hasitata* This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities. https://ecos.fws.gov/ecp/species/4748	Breeds elsewhere
Black-legged Kittiwake *Rissa tridactyla* This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities. https://ecos.fws.gov/ecp/species/10459	Breeds elsewhere
Brown Pelican *Pelecanus occidentalis* This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities. https://ecos.fws.gov/ecp/species/6034	Breeds Jan 15 to Sep 30
Common Eider *Somateria mollissima* This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities. https://ecos.fws.gov/ecp/species/10457	Breeds Jun 1 to Sep 30
Common Loon *gavia immer* This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities. https://ecos.fws.gov/ecp/species/4464	Breeds Apr 15 to Oct 31
Cory's Shearwater *Calonectris diomedea* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/10452	Breeds elsewhere
Double-crested Cormorant *phalacrocorax auritus* This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities. https://ecos.fws.gov/ecp/species/3478	Breeds Apr 20 to Aug 31

NAME	BREEDING SEASON
Great Shearwater *Puffinus gravis* This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities. https://ecos.fws.gov/ecp/species/9634	Breeds elsewhere
Manx Shearwater *Puffinus puffinus* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/10465	Breeds Apr 15 to Oct 31
Pomarine Jaeger *Stercorarius pomarinus* This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities. https://ecos.fws.gov/ecp/species/10458	Breeds elsewhere
Razorbill *Alca torda* This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities. https://ecos.fws.gov/ecp/species/10461	Breeds Jun 15 to Sep 10
Red Phalarope *Phalaropus fulicarius* This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities. https://ecos.fws.gov/ecp/species/10469	Breeds elsewhere
Red-breasted Merganser *Mergus serrator* This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities. https://ecos.fws.gov/ecp/species/10693	Breeds elsewhere
Red-necked Phalarope *Phalaropus lobatus* This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities. https://ecos.fws.gov/ecp/species/10467	Breeds elsewhere
Ring-billed Gull *Larus delawarensis* This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities. https://ecos.fws.gov/ecp/species/10468	Breeds elsewhere

NAME	BREEDING SEASON
Royal Tern *Thalasseus maximus* This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities. https://ecos.fws.gov/ecp/species/10471	Breeds Apr 15 to Aug 31
Sooty Tern *Onychoprion fuscatus* This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities. https://ecos.fws.gov/ecp/species/10695	Breeds Mar 10 to Jul 31
Surf Scoter *Melanitta perspicillata* This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities. https://ecos.fws.gov/ecp/species/10463	Breeds elsewhere
White-winged Scoter *Melanitta fusca* This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities. https://ecos.fws.gov/ecp/species/10462	Breeds elsewhere
Wilson's Storm-petrel *Oceanites oceanicus* This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities. https://ecos.fws.gov/ecp/species/10416	Breeds elsewhere

PROBABILITY OF PRESENCE SUMMARY

The graphs below provide our best understanding of when birds of concern are most likely to be present in your project area. This information can be used to tailor and schedule your project activities to avoid or minimize impacts to birds. Please make sure you read "Supplemental Information on Migratory Birds and Eagles", specifically the FAQ section titled "Proper Interpretation and Use of Your Migratory Bird Report" before using or attempting to interpret this report.

Probability of Presence (■)

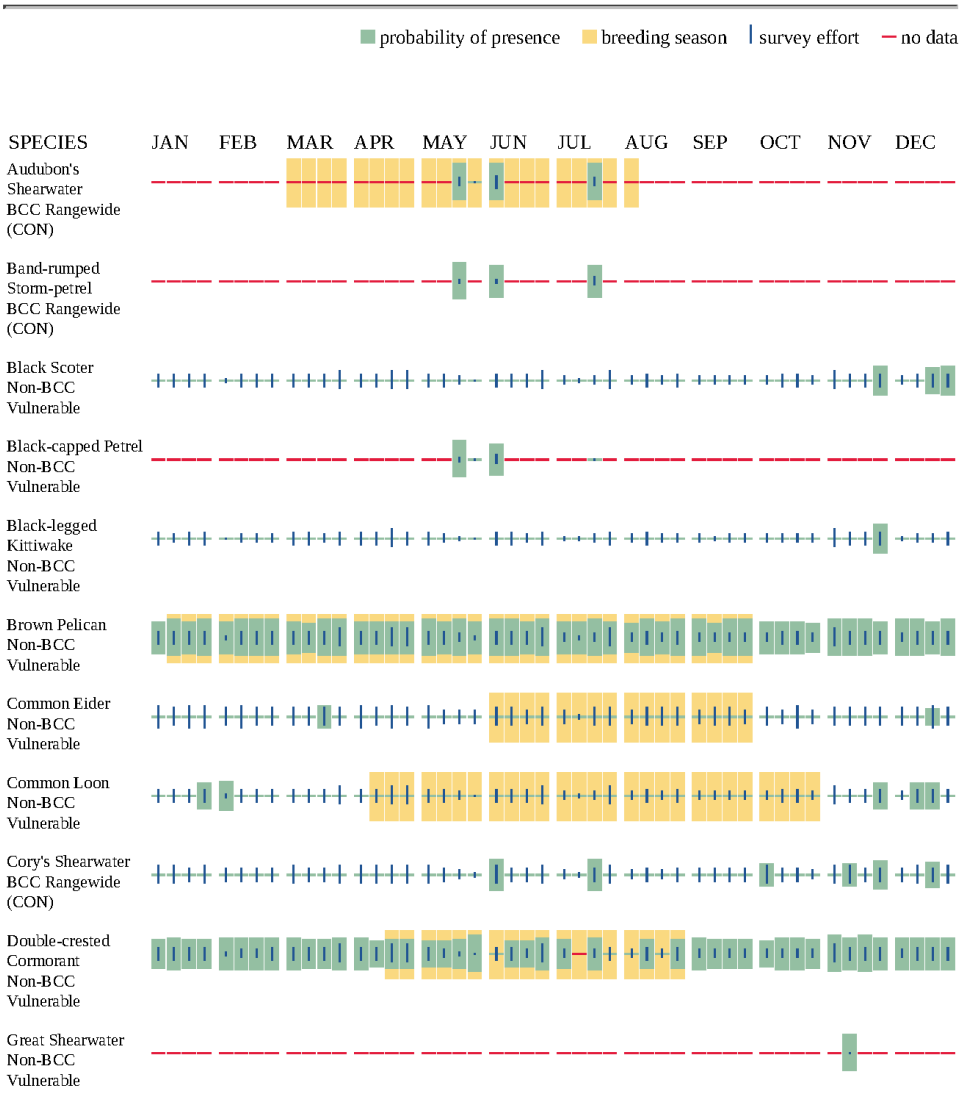
Green bars; the bird's relative probability of presence in the 10km grid cell(s) your project overlaps during that week of the year.

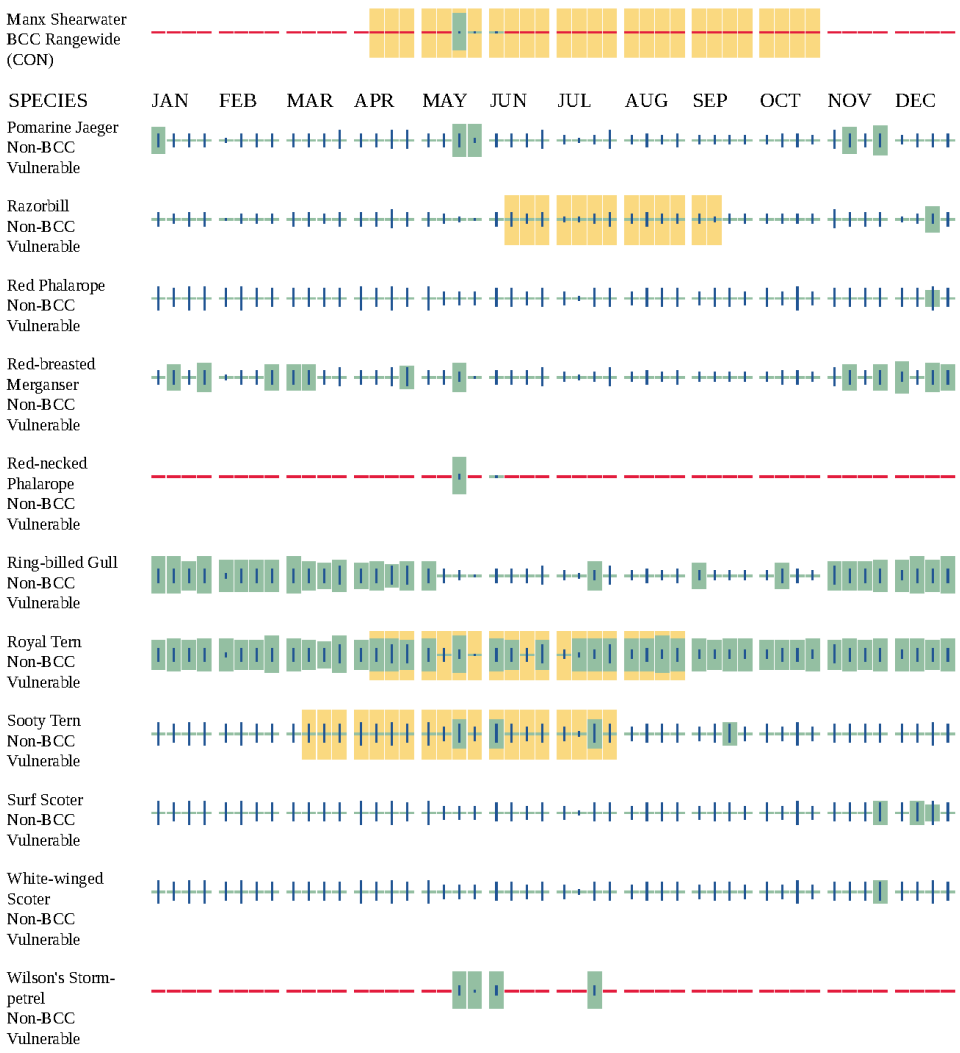
Breeding Season (■)
Yellow bars; liberal estimate of the timeframe inside which the bird breeds across its entire range.

Survey Effort (|)

Vertical black lines; the number of surveys performed for that species in the 10km grid cell(s) your project area overlaps.

No Data (–)
A week is marked as having no data if there were no survey events for that week.





Additional information can be found using the following links:

- Eagle Management https://www.fws.gov/program/eagle-management
- Measures for avoiding and minimizing impacts to birds https://www.fws.gov/library/collections/avoiding-and-minimizing-incidental-take-migratory-birds
- Nationwide avoidance and minimization measures for birds

- Supplemental Information for Migratory Birds and Eagles in IPaC https://www.fws.gov/media/supplemental-information-migratory-birds-and-bald-and-golden-eagles-may-occur-project-action

MARINE MAMMALS

Marine mammals are protected under the Marine Mammal Protection Act. Some are also protected under the Endangered Species Act[1] and the Convention on International Trade in Endangered Species of Wild Fauna and Flora[2].

The responsibilities for the protection, conservation, and management of marine mammals are shared by the U.S. Fish and Wildlife Service [responsible for otters, walruses, polar bears, manatees, and dugongs] and NOAA Fisheries[3] [responsible for seals, sea lions, whales, dolphins, and porpoises]. Marine mammals under the responsibility of NOAA Fisheries are **not** shown on this list; for additional information on those species please visit the Marine Mammals page of the NOAA Fisheries website.

The Marine Mammal Protection Act prohibits the take of marine mammals and further coordination may be necessary for project evaluation. Please contact the U.S. Fish and Wildlife Service Field Office shown.

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1. The Endangered Species Act (ESA) of 1973.
2. The Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) is a treaty to ensure that international trade in plants and animals does not threaten their survival in the wild.
3. NOAA Fisheries, also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

NAME

West Indian Manatee *Trichechus manatus*
Species profile: https://ecos.fws.gov/ecp/species/4469

WETLANDS

Impacts to NWI wetlands and other aquatic habitats may be subject to regulation under Section 404 of the Clean Water Act, or other State/Federal statutes.

For more information please contact the Regulatory Program of the local U.S. Army Corps of Engineers District.

Please note that the NWI data being shown may be out of date. We are currently working to update our NWI data set. We recommend you verify these results with a site visit to determine the actual extent of wetlands on site.

THERE ARE NO WETLANDS WITHIN YOUR PROJECT AREA.

United States Department of the Interior

FISH AND WILDLIFE SERVICE
Raleigh Ecological Services Field Office
3916 Sunset Ridge Rd
Raleigh, NC 27607
Phone: (919) 856-4520 Fax: (919) 856-4556

In Reply Refer To: 05/19/2026 22:27:29 UTC
Project Code: 2026-0092385
Project Name: Blue Origin New Glenn Increase-Landing 1psf

Subject: List of threatened and endangered species that may occur in your proposed project location or may be affected by your proposed project

To Whom It May Concern:

The enclosed species list identifies threatened, endangered, proposed and candidate species, as well as proposed and final designated critical habitat, that may occur within the boundary of your proposed project and/or may be affected by your proposed project. The species list fulfills the requirements of the U.S. Fish and Wildlife Service (Service) under section 7(c) of the Endangered Species Act (Act) of 1973, as amended (16 U.S.C. 1531 *et seq.*). If your project area contains suitable habitat for any of the federally-listed species on this species list, the proposed action has the potential to adversely affect those species. If suitable habitat is present, surveys should be conducted to determine the species' presence or absence within the project area. The use of this species list and/or North Carolina Natural Heritage program data should not be substituted for actual field surveys.

New information based on updated surveys, changes in the abundance and distribution of species, changed habitat conditions, or other factors could change this list. Please feel free to contact us if you need more current information or assistance regarding the potential impacts to federally proposed, listed, and candidate species and federally designated and proposed critical habitat. Please note that under 50 CFR 402.12(e) of the regulations implementing section 7 of the Act, the accuracy of this species list should be verified after 90 days. This verification can be completed formally or informally as desired. The Service recommends that verification be completed by visiting the IPaC website at regular intervals during project planning and implementation for updates to species lists and information. An updated list may be requested through the IPaC system by completing the same process used to receive the enclosed list.

The purpose of the Act is to provide a means whereby threatened and endangered species and the ecosystems upon which they depend may be conserved. Under sections 7(a)(1) and 7(a)(2) of the Act and its implementing regulations (50 CFR 402 *et seq.*), Federal agencies are required to utilize their authorities to carry out programs for the conservation of threatened and endangered

species and to determine whether projects may affect threatened and endangered species and/or designated critical habitat.

A Biological Assessment is required for construction projects (or other undertakings having similar physical impacts) that are major Federal actions significantly affecting the quality of the human environment as defined in the National Environmental Policy Act (42 U.S.C. 4332(2)(c)). For projects other than major construction activities, the Service suggests that a biological evaluation similar to a Biological Assessment be prepared to determine whether the project may affect listed or proposed species and/or designated or proposed critical habitat. Recommended contents of a Biological Assessment are described at 50 CFR 402.12.

If a Federal agency determines, based on the Biological Assessment or biological evaluation, that listed species and/or designated critical habitat may be affected by the proposed project, the agency is required to consult with the Service pursuant to 50 CFR 402. In addition, the Service recommends that candidate species, proposed species and proposed critical habitat be addressed within the consultation. More information on the regulations and procedures for section 7 consultation, including the role of permit or license applicants, can be found in the "Endangered Species Consultation Handbook" at:

https://www.fws.gov/sites/default/files/documents/endangered-species-consultation-handbook.pdf

Migratory Birds: In addition to responsibilities to protect threatened and endangered species under the Endangered Species Act (ESA), there are additional responsibilities under the Migratory Bird Treaty Act (MBTA) and the Bald and Golden Eagle Protection Act (BGEPA) to protect native birds from project-related impacts. Any activity resulting in take of migratory birds, including eagles, is prohibited unless otherwise permitted by the U.S. Fish and Wildlife Service (50 C.F.R. Sec. 10.12 and 16 U.S.C. Sec. 668(a)). For more information regarding these Acts, see https://www.fws.gov/program/migratory-bird-permit/what-we-do.

It is the responsibility of the project proponent to comply with these Acts by identifying potential impacts to migratory birds and eagles within applicable NEPA documents (when there is a federal nexus) or a Bird/Eagle Conservation Plan (when there is no federal nexus). Proponents should implement conservation measures to avoid or minimize the production of project-related stressors or minimize the exposure of birds and their resources to the project-related stressors. For more information on avian stressors and recommended conservation measures, see https://www.fws.gov/library/collections/threats-birds.

In addition to MBTA and BGEPA, Executive Order 13186: *Responsibilities of Federal Agencies to Protect Migratory Birds*, obligates all Federal agencies that engage in or authorize activities that might affect migratory birds, to minimize those effects and encourage conservation measures that will improve bird populations. Executive Order 13186 provides for the protection of both migratory birds and migratory bird habitat. For information regarding the implementation of Executive Order 13186, please visit https://www.fws.gov/partner/council-conservation-migratory-birds.

We appreciate your concern for threatened and endangered species. The Service encourages Federal agencies to include conservation of threatened and endangered species into their project planning to further the purposes of the Act. Please include the Consultation Code in the header of this letter with any request for consultation or correspondence about your project that you submit to our office.

Note: IPaC has provided all available attachments because this project is in multiple field office jurisdictions.

Attachment(s):

- Official Species List
- USFWS National Wildlife Refuges and Fish Hatcheries
- Bald & Golden Eagles
- Migratory Birds
- Marine Mammals
- Coastal Barriers
- Wetlands

OFFICIAL SPECIES LIST

This list is provided pursuant to Section 7 of the Endangered Species Act, and fulfills the requirement for Federal agencies to "request of the Secretary of the Interior information whether any species which is listed or proposed to be listed may be present in the area of a proposed action".

This species list is provided by:

Raleigh Ecological Services Field Office
3916 Sunset Ridge Rd
Raleigh, NC 27607
(919) 856-4520

This project's location is within the jurisdiction of multiple offices. However, only one species list document will be provided for all offices. The species and critical habitats in this document reflect the aggregation of those that fall in each of the affiliated office's jurisdiction. Other offices affiliated with the project:

South Carolina Ecological Services
176 Croghan Spur Road, Suite 200
Charleston, SC 29407-7558
(843) 727-4707

PROJECT SUMMARY

Project Code: 2026-0092385
Project Name: Blue Origin New Glenn Increase-Landing 1psf
Project Type: Airport - Maintenance/Modification
Project Description: The Proposed Action would involve an increase from the currently authorized 12 launches per year from SLC-36 on Cape Canaveral Space Force Station (CCSFS) to up to 50 launches per year, as well as the addition of up to 50 static fire tests per stage (total of up to 100) and up to 50 landings in the Atlantic Ocean. The Proposed Action also would include an increase in daily operations at SLC-36 and roadway and marine traffic. No new ground disturbance or facility construction is proposed. Launches, static fire tests, and landings may occur during daylight or nighttime hours at any time of the year.

Project Location:

The approximate location of the project can be viewed in Google Maps: https://www.google.com/maps/@29.69461175,-73.20739200371167,14z

Counties: Dare County, North Carolina

ENDANGERED SPECIES ACT SPECIES

There is a total of 12 threatened, endangered, or candidate species on this species list.

Species on this list should be considered in an effects analysis for your project and could include species that exist in another geographic area. For example, certain fish may appear on the species list because a project could affect downstream species.

IPaC does not display listed species or critical habitats under the sole jurisdiction of NOAA Fisheries[1], as USFWS does not have the authority to speak on behalf of NOAA and the Department of Commerce.

See the "Critical habitats" section below for those critical habitats that lie wholly or partially within your project area under this office's jurisdiction. Please contact the designated FWS office if you have questions.

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1. NOAA Fisheries, also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

MAMMALS

NAME	STATUS
Red Wolf *Canis rufus* Population: Wherever found, except where listed as an experimental population No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/37	Endangered
Red Wolf *Canis rufus* Population: U.S.A. (portions of NC and TN) No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/37	Experimental Population, Non-Essential
West Indian Manatee *Trichechus manatus* There is **final** critical habitat for this species. Your location does not overlap the critical habitat. ***This species is also protected by the Marine Mammal Protection Act, and may have additional consultation requirements.*** Species profile: https://ecos.fws.gov/ecp/species/4469 General project design guidelines: https://ipac.ecosphere.fws.gov/project/UJAXL73FYVG2RKCDWZ4GRLNVT4/documents/generated/11601.pdf	Threatened

BIRDS

NAME	STATUS
Bermuda Petrel *Pterodroma cahow* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/3507	Endangered
Black-capped Petrel *Pterodroma hasitata* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/4748	Endangered
Piping Plover *Charadrius melodus* Population: [Atlantic Coast and Northern Great Plains populations] - Wherever found, except those areas where listed as endangered. There is **final** critical habitat for this species. Your location does not overlap the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/6039	Threatened
Roseate Tern *Sterna dougallii dougallii* Population: Northeast U.S. nesting population No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/2083	Endangered
Rufa Red Knot *Calidris canutus rufa* There is **proposed** critical habitat for this species. Your location does not overlap the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/1864	Threatened

REPTILES

NAME	STATUS
American Alligator *Alligator mississippiensis* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/776	Similarity of Appearance (Threatened)
Green Sea Turtle *Chelonia mydas* Population: North Atlantic DPS There is **proposed** critical habitat for this species. Your location does not overlap the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/6199	Threatened
Hawksbill Sea Turtle *Eretmochelys imbricata* There is **final** critical habitat for this species. Your location does not overlap the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/3656	Endangered

INSECTS

NAME	STATUS
Monarch Butterfly *Danaus plexippus* There is **proposed** critical habitat for this species. Your location does not overlap the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/9743 General project design guidelines: https://ipac.ecosphere.fws.gov/project/UJAXL73FYVG2RKCDWZ4GRLNVT4/documents/generated/11602.pdf	Proposed Threatened

CRITICAL HABITATS

THERE ARE NO CRITICAL HABITATS WITHIN YOUR PROJECT AREA UNDER THIS OFFICE'S JURISDICTION.

YOU ARE STILL REQUIRED TO DETERMINE IF YOUR PROJECT(S) MAY HAVE EFFECTS ON ALL ABOVE LISTED SPECIES.

USFWS NATIONAL WILDLIFE REFUGE LANDS AND FISH HATCHERIES

Any activity proposed on lands managed by the National Wildlife Refuge system must undergo a 'Compatibility Determination' conducted by the Refuge. Please contact the individual Refuges to discuss any questions or concerns.

THERE ARE NO REFUGE LANDS OR FISH HATCHERIES WITHIN YOUR PROJECT AREA.

BALD & GOLDEN EAGLES

Bald and Golden Eagles are protected under the Bald and Golden Eagle Protection Act [2] and the Migratory Bird Treaty Act (MBTA) [1]. Any person or organization who plans or conducts activities that may result in impacts to Bald or Golden Eagles, or their habitats, should follow

appropriate regulations and consider implementing appropriate avoidance and minimization measures, as described in the various links on this page.

1. The Bald and Golden Eagle Protection Act of 1940.
2. The Migratory Birds Treaty Act of 1918.
3. 50 C.F.R. Sec. 10.12 and 16 U.S.C. Sec. 668(a)

Bald and Golden Eagles are protected under the Bald and Golden Eagle Protection Act and the Migratory Bird Treaty Act (MBTA). Any person or organization who plans or conducts activities that may result in impacts to Bald or Golden Eagles, or their nests, should follow appropriate regulations and implement required avoidance and minimization measures, as described in the various links on this page.

The data in this location indicates that no eagles have been observed in this area. This does not mean eagles are not present in your project area, especially if the area is difficult to survey. Please review the 'Steps to Take When No Results Are Returned' section of the Supplemental Information on Migratory Birds and Eagles document to determine if your project is in a poorly surveyed area. If it is, you may need to rely on other resources to determine if eagles may be present (e.g. your local FWS field office, state surveys, your own surveys).

Any person or organization who plans or conducts activities that may result in impacts to bald or golden eagles, or their habitats, should follow appropriate regulations and consider implementing appropriate conservation measures, as described in the links below. Specifically, please review the "Supplemental Information on Migratory Birds and Eagles".

MIGRATORY BIRDS

The Migratory Bird Treaty Act (MBTA) [1] prohibits the take (including killing, capturing, selling, trading, and transport) of protected migratory bird species without prior authorization by the Department of Interior U.S. Fish and Wildlife Service (Service).

1. The Migratory Birds Treaty Act of 1918.
2. The Bald and Golden Eagle Protection Act of 1940.
3. 50 C.F.R. Sec. 10.12 and 16 U.S.C. Sec. 668(a)

For guidance on when to schedule activities or implement avoidance and minimization measures to reduce impacts to migratory birds on your list, see the "Probability of Presence Summary" below to see when these birds are most likely to be present and breeding in your project area.

NAME	BREEDING SEASON
Atlantic Puffin *Fratercula arctica* This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities. https://ecos.fws.gov/ecp/species/8943	Breeds Apr 15 to Aug 15
Audubon's Shearwater *Puffinus lherminieri* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/9635	Breeds Mar 1 to Aug 5
Band-rumped Storm-petrel *Hydrobates castro* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/1226	Breeds elsewhere
Black Scoter *Melanitta nigra* This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities. https://ecos.fws.gov/ecp/species/10413	Breeds elsewhere
Black-capped Petrel *Pterodroma hasitata* This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities. https://ecos.fws.gov/ecp/species/4748	Breeds elsewhere
Black-legged Kittiwake *Rissa tridactyla* This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities. https://ecos.fws.gov/ecp/species/10459	Breeds elsewhere
Brown Pelican *Pelecanus occidentalis* This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities. https://ecos.fws.gov/ecp/species/6034	Breeds Jan 15 to Sep 30
Common Eider *Somateria mollissima* This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities. https://ecos.fws.gov/ecp/species/10457	Breeds Jun 1 to Sep 30
Common Loon *gavia immer* This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities. https://ecos.fws.gov/ecp/species/4464	Breeds Apr 15 to Oct 31

NAME	BREEDING SEASON
Cory's Shearwater *Calonectris diomedea* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/10452	Breeds elsewhere
Double-crested Cormorant *phalacrocorax auritus* This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities. https://ecos.fws.gov/ecp/species/3478	Breeds Apr 20 to Aug 31
Dovekie *Alle alle* This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities. https://ecos.fws.gov/ecp/species/6041	Breeds elsewhere
Great Shearwater *Puffinus gravis* This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities. https://ecos.fws.gov/ecp/species/9634	Breeds elsewhere
Great Skua *Stercorarius skua* This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities. https://ecos.fws.gov/ecp/species/10697	Breeds elsewhere
Long-tailed Duck *Clangula hyemalis* This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities. https://ecos.fws.gov/ecp/species/7238	Breeds elsewhere
Manx Shearwater *Puffinus puffinus* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/10465	Breeds Apr 15 to Oct 31
Pomarine Jaeger *Stercorarius pomarinus* This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities. https://ecos.fws.gov/ecp/species/10458	Breeds elsewhere
Razorbill *Alca torda* This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities. https://ecos.fws.gov/ecp/species/10461	Breeds Jun 15 to Sep 10

NAME	BREEDING SEASON
Red Phalarope *Phalaropus fulicarius* This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities. https://ecos.fws.gov/ecp/species/10469	Breeds elsewhere
Red-breasted Merganser *Mergus serrator* This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities. https://ecos.fws.gov/ecp/species/10693	Breeds elsewhere
Red-necked Phalarope *Phalaropus lobatus* This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities. https://ecos.fws.gov/ecp/species/10467	Breeds elsewhere
Red-throated Loon *Gavia stellata* This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities. https://ecos.fws.gov/ecp/species/9589	Breeds elsewhere
Ring-billed Gull *Larus delawarensis* This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities. https://ecos.fws.gov/ecp/species/10468	Breeds elsewhere
Roseate Tern *Sterna dougallii* This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities. https://ecos.fws.gov/ecp/species/10661	Breeds May 10 to Aug 31
Royal Tern *Thalasseus maximus* This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities. https://ecos.fws.gov/ecp/species/10471	Breeds Apr 15 to Aug 31
Sooty Shearwater *Ardenna grisea* This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities. https://ecos.fws.gov/ecp/species/10417	Breeds elsewhere

NAME	BREEDING SEASON
Sooty Tern *Onychoprion fuscatus* This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities. https://ecos.fws.gov/ecp/species/10695	Breeds Mar 10 to Jul 31
South Polar Skua *Stercorarius maccormicki* This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities. https://ecos.fws.gov/ecp/species/10699	Breeds elsewhere
Surf Scoter *Melanitta perspicillata* This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities. https://ecos.fws.gov/ecp/species/10463	Breeds elsewhere
White-winged Scoter *Melanitta fusca* This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities. https://ecos.fws.gov/ecp/species/10462	Breeds elsewhere
Wilson's Storm-petrel *Oceanites oceanicus* This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities. https://ecos.fws.gov/ecp/species/10416	Breeds elsewhere

PROBABILITY OF PRESENCE SUMMARY

The graphs below provide our best understanding of when birds of concern are most likely to be present in your project area. This information can be used to tailor and schedule your project activities to avoid or minimize impacts to birds. Please make sure you read "Supplemental Information on Migratory Birds and Eagles", specifically the FAQ section titled "Proper Interpretation and Use of Your Migratory Bird Report" before using or attempting to interpret this report.

Probability of Presence (■)

Green bars; the bird's relative probability of presence in the 10km grid cell(s) your project overlaps during that week of the year.

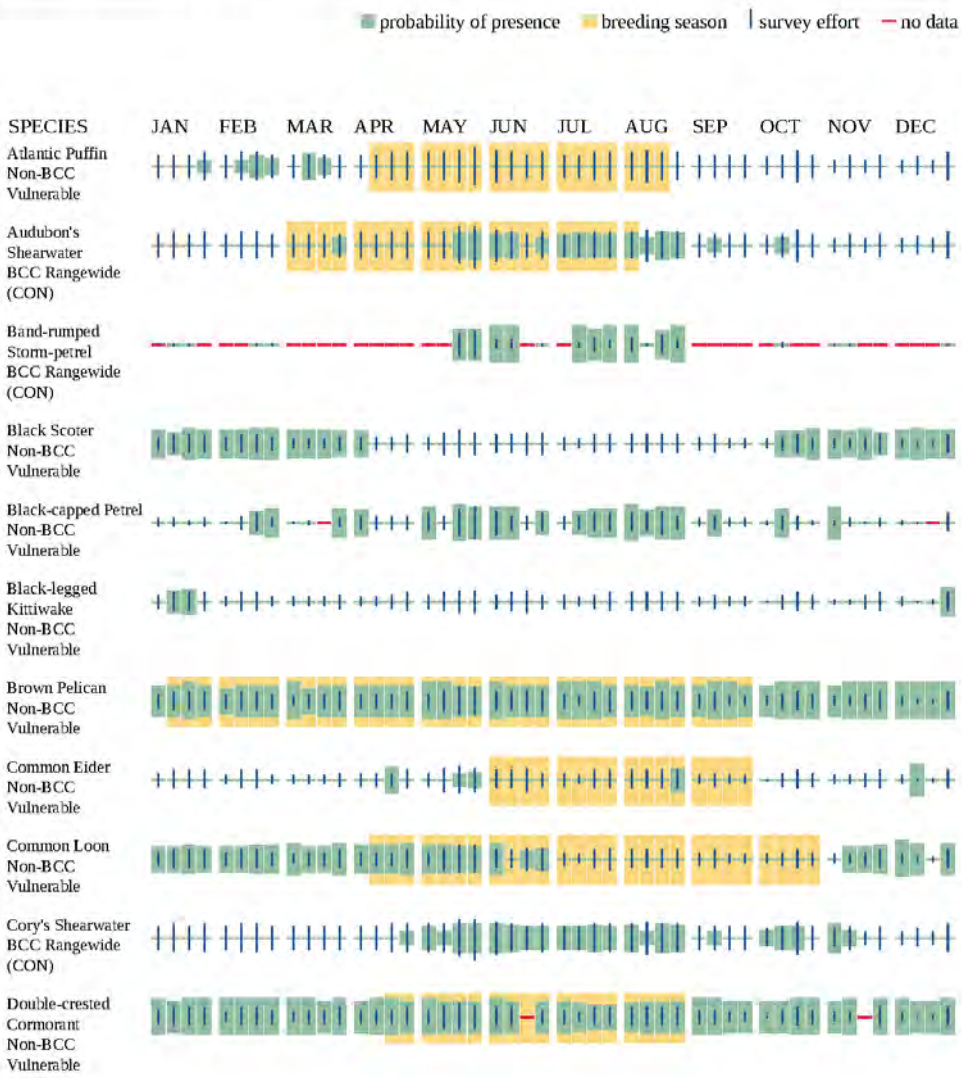
Breeding Season (■)

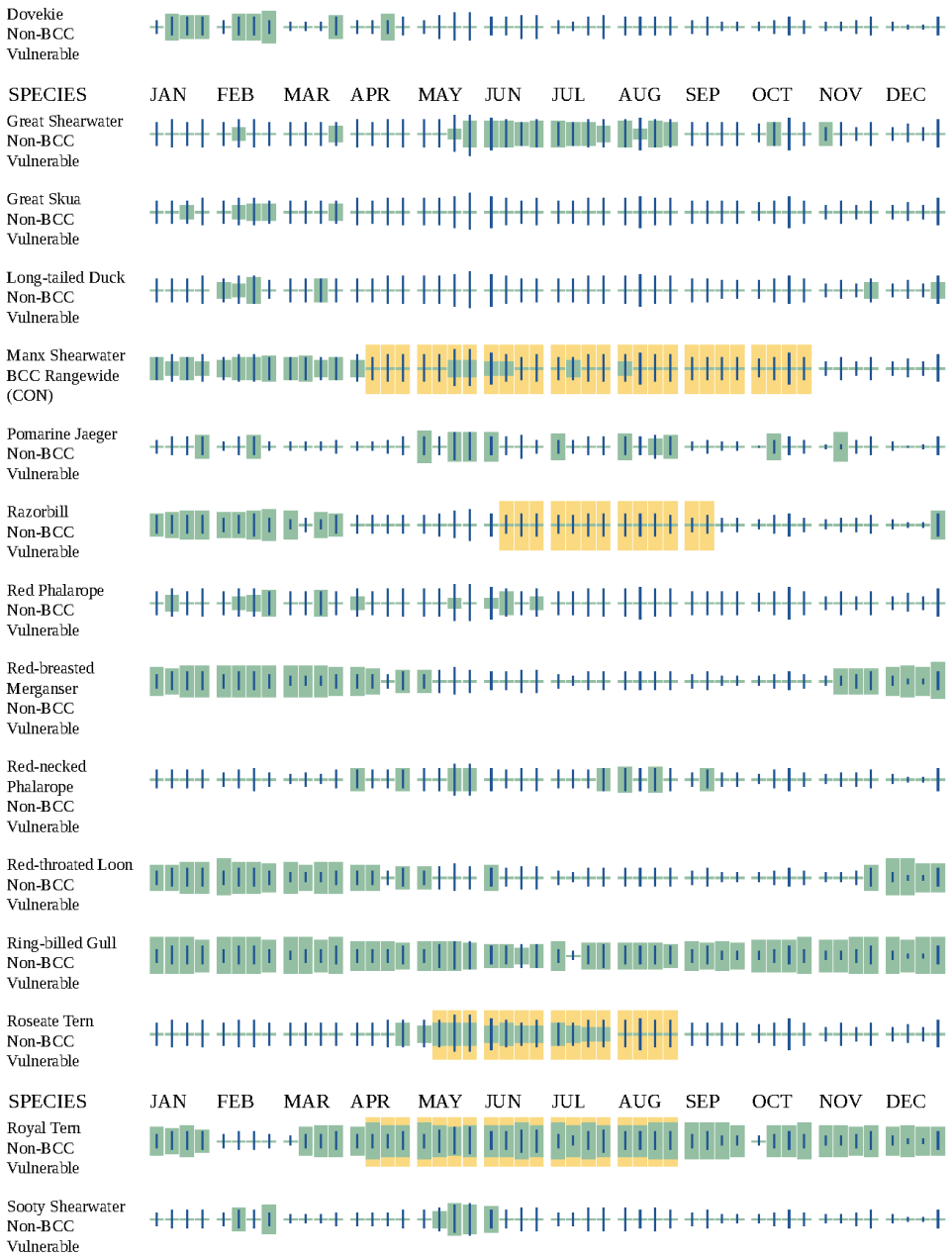
Yellow bars; liberal estimate of the timeframe inside which the bird breeds across its entire range.

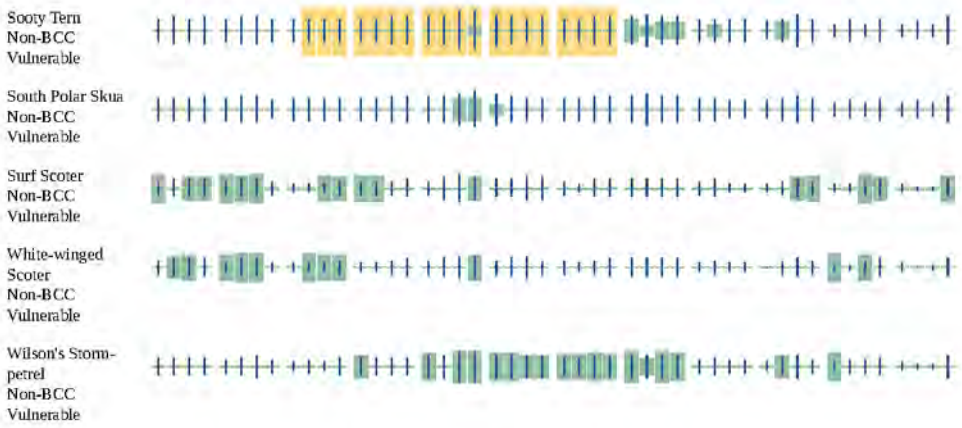
Survey Effort (|)

Vertical black lines; the number of surveys performed for that species in the 10km grid cell(s) your project area overlaps.

No Data (–)
A week is marked as having no data if there were no survey events for that week.




Dovekie
Non-BCC
Vulnerable
SPECIES
JAN FEB MAR APR MAY JUN JUL AUG SEP OCT NOV DEC
Great Shearwater
Non-BCC
Vulnerable
Great Skua
Non-BCC
Vulnerable
Long-tailed Duck
Non-BCC
Vulnerable
Manx Shearwater
BCC Rangewide
(CON)
Pomarine Jaeger
Non-BCC
Vulnerable
Razorbill
Non-BCC
Vulnerable
Red Phalarope
Non-BCC
Vulnerable
Red-breasted
Merganser
Non-BCC
Vulnerable
Red-necked
Phalarope
Non-BCC
Vulnerable
Red-throated Loon
Non-BCC
Vulnerable
Ring-billed Gull
Non-BCC
Vulnerable
Roseate Tern
Non-BCC
Vulnerable
SPECIES
JAN FEB MAR APR MAY JUN JUL AUG SEP OCT NOV DEC
Royal Tern
Non-BCC
Vulnerable
Sooty Shearwater
Non-BCC
Vulnerable



Additional information can be found using the following links:

- Eagle Management https://www.fws.gov/program/eagle-management
- Measures for avoiding and minimizing impacts to birds https://www.fws.gov/library/collections/avoiding-and-minimizing-incidental-take-migratory-birds
- Nationwide avoidance and minimization measures for birds
- Supplemental Information for Migratory Birds and Eagles in IPaC https://www.fws.gov/media/supplemental-information-migratory-birds-and-bald-and-golden-eagles-may-occur-project-action

COASTAL BARRIERS

Projects within the John H. Chafee Coastal Barrier Resources System (CBRS) may be subject to the restrictions on Federal expenditures and financial assistance and the consultation requirements of the Coastal Barrier Resources Act (CBRA) (16 U.S.C. 3501 et seq.). For more information, please contact the local Ecological Services Field Office or visit the CBRA Consultations website. The CBRA website provides tools such as a flow chart to help determine whether consultation is required and a template to facilitate the consultation process.

UNIT	NAME	TYPE	SYSTEM UNIT ESTABLISHMENT DATE	FLOOD INSURANCE PROHIBITION DATE
NC-03P	Cape Hatteras	UNKNOWN	N/A	11/16/1991

MARINE MAMMALS

Marine mammals are protected under the Marine Mammal Protection Act. Some are also protected under the Endangered Species Act[1] and the Convention on International Trade in Endangered Species of Wild Fauna and Flora[2].

The responsibilities for the protection, conservation, and management of marine mammals are shared by the U.S. Fish and Wildlife Service [responsible for otters, walruses, polar bears, manatees, and dugongs] and NOAA Fisheries[3] [responsible for seals, sea lions, whales, dolphins, and porpoises]. Marine mammals under the responsibility of NOAA Fisheries are **not** shown on this list; for additional information on those species please visit the Marine Mammals page of the NOAA Fisheries website.

The Marine Mammal Protection Act prohibits the take of marine mammals and further coordination may be necessary for project evaluation. Please contact the U.S. Fish and Wildlife Service Field Office shown.

1. The Endangered Species Act (ESA) of 1973.
2. The Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) is a treaty to ensure that international trade in plants and animals does not threaten their survival in the wild.
3. NOAA Fisheries, also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

NAME

West Indian Manatee *Trichechus manatus*
Species profile: https://ecos.fws.gov/ecp/species/4469

WETLANDS

Impacts to NWI wetlands and other aquatic habitats may be subject to regulation under Section 404 of the Clean Water Act, or other State/Federal statutes.

For more information please contact the Regulatory Program of the local U.S. Army Corps of Engineers District.

Please note that the NWI data being shown may be out of date. We are currently working to update our NWI data set. We recommend you verify these results with a site visit to determine the actual extent of wetlands on site.

ESTUARINE AND MARINE DEEPWATER

- M1UBL

United States Department of the Interior

FISH AND WILDLIFE SERVICE
Florida Ecological Services Field Office
777 37th St
Suite D-101
Vero Beach, FL 32960-3559
Phone: (352) 448-9151 Fax: (772) 562-4288
Email Address: fw4flesregs@fws.gov

In Reply Refer To: 05/19/2026 22:34:11 UTC
Project Code: 2026-0092394
Project Name: Blue Origin New Glenn Increase-Atl Ocean

Subject: List of threatened and endangered species that may occur in your proposed project location or may be affected by your proposed project

To Whom It May Concern:

The enclosed species list identifies threatened, endangered, proposed and candidate species, as well as proposed and final designated critical habitat, that may occur within the boundary of your proposed project and/or may be affected by your proposed project. The species list fulfills the requirements of the U.S. Fish and Wildlife Service (Service) under section 7(c) of the Endangered Species Act (Act) of 1973, as amended (16 U.S.C. 1531 *et seq.*).

New information based on updated surveys, changes in the abundance and distribution of species, changed habitat conditions, or other factors could change this list. Feel free to contact us if you need more current information or assistance regarding the potential impacts to federally proposed, listed, and candidate species and federally designated and proposed critical habitat. **Please include your Project Code, listed at the top of this letter, in all subsequent correspondence regarding this project.** Please note that under 50 CFR 402.12(e) of the regulations implementing section 7 of the Act, the accuracy of this species list should be verified after 90 days. This verification can be completed formally or informally as desired. The Service recommends that verification be completed by visiting the IPaC website at regular intervals during project planning and implementation for updates to species lists and information. An updated list may be requested through the IPaC system by completing the same process used to receive the enclosed list.

The purpose of the Act is to provide a means whereby threatened and endangered species and the ecosystems upon which they depend may be conserved. Under sections 7(a)(1) and 7(a)(2) of the Act and its implementing regulations (50 CFR 402 *et seq.*), Federal agencies are required to utilize their authorities to carry out programs for the conservation of threatened and endangered species and to determine whether projects may affect threatened and endangered species and/or designated critical habitat.

A Biological Assessment is required for construction projects (or other undertakings having similar physical impacts) that are major Federal actions significantly affecting the quality of the human environment as defined in the National Environmental Policy Act (42 U.S.C. 4332(2)(c)). For projects other than major construction activities, the Service suggests that a biological evaluation similar to a Biological Assessment be prepared to determine whether the project may affect listed or proposed species and/or designated or proposed critical habitat. Recommended contents of a Biological Assessment are described at 50 CFR 402.12.

If a Federal agency determines, based on the Biological Assessment or biological evaluation, that listed species and/or designated critical habitat may be affected by the proposed project, the agency is required to consult with the Service pursuant to 50 CFR 402. In addition, the Service recommends that candidate species, proposed species and proposed critical habitat be addressed within the consultation. More information on the regulations and procedures for section 7 consultation, including the role of permit or license applicants, can be found in the "Endangered Species Consultation Handbook" at:

https://www.fws.gov/sites/default/files/documents/endangered-species-consultation-handbook.pdf

Florida bonneted bat: If the Florida bonneted bat or Florida bonneted bat Critical Habitat is on your Official Species List, please make sure you are using the 2024 Florida Bonneted Bat Guidelines and Key and submitting acoustic survey data to NABat if acoustic surveys are conducted.

Migratory Birds: In addition to responsibilities to protect threatened and endangered species under the Endangered Species Act (ESA), there are additional responsibilities under the Migratory Bird Treaty Act (MBTA) and the Bald and Golden Eagle Protection Act (BGEPA) to protect native birds from project-related impacts. Any activity resulting in take of migratory birds, including eagles, is prohibited unless otherwise permitted by the U.S. Fish and Wildlife Service (50 C.F.R. Sec. 10.12 and 16 U.S.C. Sec. 668(a)). For more information regarding these Acts see https://www.fws.gov/program/migratory-bird-permits/what-we-do.

It is the responsibility of the project proponent to comply with these Acts by identifying potential impacts to migratory birds and eagles within applicable NEPA documents (when there is a federal nexus) or a Bird/Eagle Conservation Plan (when there is no federal nexus). Proponents should implement conservation measures to avoid or minimize the production of project-related stressors or minimize the exposure of birds and their resources to the project-related stressors. For more information on avian stressors and recommended conservation measures see https://www.fws.gov/library/collections/threats-birds.

In addition to MBTA and BGEPA, Executive Order 13186: *Responsibilities of Federal Agencies to Protect Migratory Birds*, obligates all Federal agencies that engage in or authorize activities that might affect migratory birds, to minimize those effects and encourage conservation measures that will improve bird populations. Executive Order 13186 provides for the protection of both migratory birds and migratory bird habitat. For information regarding the implementation of Executive Order 13186, please visit https://www.fws.gov/partner/council-conservation-migratory-birds.

We appreciate your concern for threatened and endangered species. The Service encourages Federal agencies to include conservation of threatened and endangered species into their project planning to further the purposes of the Act. Please include the Consultation Code in the header of this letter with any request for consultation or correspondence about your project that you submit to our office.

Note: IPaC has provided all available attachments because this project is in multiple field office jurisdictions.

Attachment(s):

- Official Species List
- USFWS National Wildlife Refuges and Fish Hatcheries
- Bald & Golden Eagles
- Migratory Birds
- Marine Mammals
- Wetlands

OFFICIAL SPECIES LIST

This list is provided pursuant to Section 7 of the Endangered Species Act, and fulfills the requirement for Federal agencies to "request of the Secretary of the Interior information whether any species which is listed or proposed to be listed may be present in the area of a proposed action".

This species list is provided by:

Florida Ecological Services Field Office
777 37th St
Suite D-101
Vero Beach, FL 32960-3559
(352) 448-9151

This project's location is within the jurisdiction of multiple offices. However, only one species list document will be provided for all offices. The species and critical habitats in this document reflect the aggregation of those that fall in each of the affiliated office's jurisdiction. Other offices affiliated with the project:

Georgia Ecological Services Field Office
355 East Hancock Avenue
Room 320
Athens, GA 30601-2523
(706) 613-9493

Raleigh Ecological Services Field Office
3916 Sunset Ridge Rd
Raleigh, NC 27607
(919) 856-4520

South Carolina Ecological Services
176 Croghan Spur Road, Suite 200
Charleston, SC 29407-7558
(843) 727-4707

PROJECT SUMMARY

Project Code: 2026-0092394
Project Name: Blue Origin New Glenn Increase-Atl Ocean
Project Type: Airport - Maintenance/Modification
Project Description: The Proposed Action would involve an increase from the currently authorized 12 launches per year from SLC-36 on Cape Canaveral Space Force Station (CCSFS) to up to 50 launches per year, as well as the addition of up to 50 static fire tests per stage (total of up to 100) and up to 50 landings in the Atlantic Ocean. The Proposed Action also would include an increase in daily operations at SLC-36 and roadway and marine traffic. No new ground disturbance or facility construction is proposed. Launches, static fire tests, and landings may occur during daylight or nighttime hours at any time of the year.

Project Location:

The approximate location of the project can be viewed in Google Maps: https://www.google.com/maps/@29.19223545,-77.37292558379247,14z

Counties: Brevard County, Florida

ENDANGERED SPECIES ACT SPECIES

There is a total of 19 threatened, endangered, or candidate species on this species list.

Species on this list should be considered in an effects analysis for your project and could include species that exist in another geographic area. For example, certain fish may appear on the species list because a project could affect downstream species.

IPaC does not display listed species or critical habitats under the sole jurisdiction of NOAA Fisheries[1], as USFWS does not have the authority to speak on behalf of NOAA and the Department of Commerce.

See the "Critical habitats" section below for those critical habitats that lie wholly or partially within your project area under this office's jurisdiction. Please contact the designated FWS office if you have questions.

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1. NOAA Fisheries, also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

MAMMALS

NAME	STATUS
Southeastern Beach Mouse *Peromyscus polionotus niveiventris* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/3951	Threatened
West Indian Manatee *Trichechus manatus* There is **final** critical habitat for this species. Your location does not overlap the critical habitat. ***This species is also protected by the Marine Mammal Protection Act, and may have additional consultation requirements.*** Species profile: https://ecos.fws.gov/ecp/species/4469 General project design guidelines: https://ipac.ecosphere.fws.gov/project/4PFVL6RWRBB75ML2RNMFQP33RY/documents/generated/7281.11601.pdf	Threatened

BIRDS

NAME	STATUS
Bermuda Petrel *Pterodroma cahow* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/3507	Endangered
Black-capped Petrel *Pterodroma hasitata* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/4748	Endangered
Crested Caracara (audubon's) [fl Dps] *Caracara plancus audubonii* Population: FL DPS No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/8250	Threatened
Eastern Black Rail *Laterallus jamaicensis jamaicensis* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/10477 General project design guidelines: https://ipac.ecosphere.fws.gov/project/4PFVL6RWRBB75ML2RNMFQP33RY/documents/generated/9786.pdf	Threatened
Everglade Snail Kite *Rostrhamus sociabilis plumbeus* There is **final** critical habitat for this species. Your location does not overlap the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/7713	Endangered
Florida Scrub-jay *Aphelocoma coerulescens* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/6174	Threatened
Roseate Tern *Sterna dougallii dougallii* Population: Northeast U.S. nesting population No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/2083	Endangered

NAME	STATUS
Rufa Red Knot *Calidris canutus rufa* There is **proposed** critical habitat for this species. Your location does not overlap the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/1864	Threatened

REPTILES

NAME	STATUS
Eastern Indigo Snake *Drymarchon couperi* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/646	Threatened
Green Sea Turtle *Chelonia mydas* Population: North Atlantic DPS There is **proposed** critical habitat for this species. Your location does not overlap the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/6199	Threatened
Hawksbill Sea Turtle *Eretmochelys imbricata* There is **final** critical habitat for this species. Your location does not overlap the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/3656	Endangered
Kemp's Ridley Sea Turtle *Lepidochelys kempii* There is **proposed** critical habitat for this species. Species profile: https://ecos.fws.gov/ecp/species/5523	Endangered
Leatherback Sea Turtle *Dermochelys coriacea* There is **final** critical habitat for this species. Your location does not overlap the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/1493	Endangered
Loggerhead Sea Turtle *Caretta caretta* Population: Northwest Atlantic Ocean DPS There is **final** critical habitat for this species. Your location does not overlap the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/1110	Threatened

INSECTS

NAME	STATUS
Monarch Butterfly *Danaus plexippus* There is **proposed** critical habitat for this species. Your location does not overlap the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/9743 General project design guidelines: https://ipac.ecosphere.fws.gov/project/4PFVL6RWRBB75ML2RNMFQP33RY/documents/generated/11602.pdf	Proposed Threatened

FLOWERING PLANTS

NAME	STATUS
Carter's Mustard *Warea carteri*	Endangered

NAME	STATUS
Population: No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/5583	
Lewton's Polygala *Polygala lewtonii* Population: No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/6688	Endangered

CRITICAL HABITATS

THERE ARE NO CRITICAL HABITATS WITHIN YOUR PROJECT AREA UNDER THIS OFFICE'S JURISDICTION.

YOU ARE STILL REQUIRED TO DETERMINE IF YOUR PROJECT(S) MAY HAVE EFFECTS ON ALL ABOVE LISTED SPECIES.

USFWS NATIONAL WILDLIFE REFUGE LANDS AND FISH HATCHERIES

Any activity proposed on lands managed by the National Wildlife Refuge system must undergo a 'Compatibility Determination' conducted by the Refuge. Please contact the individual Refuges to discuss any questions or concerns.

THERE ARE NO REFUGE LANDS OR FISH HATCHERIES WITHIN YOUR PROJECT AREA.

BALD & GOLDEN EAGLES

Bald and Golden Eagles are protected under the Bald and Golden Eagle Protection Act [2] and the Migratory Bird Treaty Act (MBTA) [1]. Any person or organization who plans or conducts activities that may result in impacts to Bald or Golden Eagles, or their habitats, should follow appropriate regulations and consider implementing appropriate avoidance and minimization measures, as described in the various links on this page.

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1. The Bald and Golden Eagle Protection Act of 1940.
2. The Migratory Birds Treaty Act of 1918.
3. 50 C.F.R. Sec. 10.12 and 16 U.S.C. Sec. 668(a)

There are Bald Eagles and/or Golden Eagles in your project area.

Measures for Proactively Minimizing Eagle Impacts

For information on how to best avoid and minimize disturbance to nesting bald eagles, please review the National Bald Eagle Management Guidelines. You may employ the timing and activity-specific distance recommendations in this document when designing your project/

activity to avoid and minimize eagle impacts. For bald eagle information specific to Alaska, please refer to Bald Eagle Nesting and Sensitivity to Human Activity.

The FWS does not currently have guidelines for avoiding and minimizing disturbance to nesting Golden Eagles. For site-specific recommendations regarding nesting Golden Eagles, please consult with the appropriate Regional Migratory Bird Office or Ecological Services Field Office.

If disturbance or take of eagles cannot be avoided, an incidental take permit may be available to authorize any take that results from, but is not the purpose of, an otherwise lawful activity. For assistance making this determination for Bald Eagles, visit the Do I Need A Permit Tool. For assistance making this determination for golden eagles, please consult with the appropriate Regional Migratory Bird Office or Ecological Services Field Office.

Ensure Your Eagle List is Accurate and Complete
If your project area is in a poorly surveyed area in IPaC, your list may not be complete and you may need to rely on other resources to determine what species may be present (e.g. your local FWS field office, state surveys, your own surveys). Please review the Supplemental Information on Migratory Birds and Eagles, to help you properly interpret the report for your specified location, including determining if there is sufficient data to ensure your list is accurate.

For guidance on when to schedule activities or implement avoidance and minimization measures to reduce impacts to bald or golden eagles on your list, see the "Probability of Presence Summary" below to see when these bald or golden eagles are most likely to be present and breeding in your project area.

NAME	BREEDING SEASON
Bald Eagle *Haliaeetus leucocephalus* This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities. https://ecos.fws.gov/ecp/species/1626	Breeds Sep 1 to Jul 31

PROBABILITY OF PRESENCE SUMMARY

The graphs below provide our best understanding of when birds of concern are most likely to be present in your project area. This information can be used to tailor and schedule your project activities to avoid or minimize impacts to birds. Please make sure you read "Supplemental Information on Migratory Birds and Eagles", specifically the FAQ section titled "Proper Interpretation and Use of Your Migratory Bird Report" before using or attempting to interpret this report.

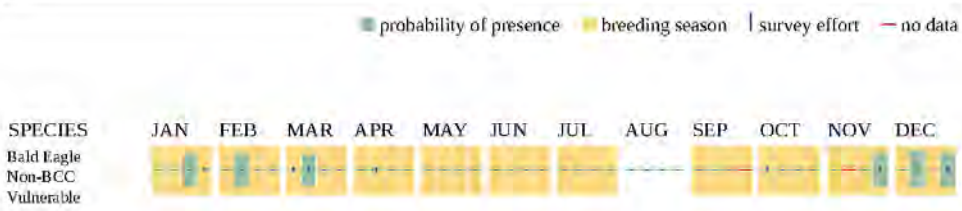
Probability of Presence (■)

Green bars; the bird's relative probability of presence in the 10km grid cell(s) your project overlaps during that week of the year.

Breeding Season (■)
Yellow bars; liberal estimate of the timeframe inside which the bird breeds across its entire range.

Survey Effort (|)
Vertical black lines; the number of surveys performed for that species in the 10km grid cell(s) your project area overlaps.

No Data (–)
A week is marked as having no data if there were no survey events for that week.



Additional information can be found using the following links:

- Eagle Management https://www.fws.gov/program/eagle-management
- Measures for avoiding and minimizing impacts to birds https://www.fws.gov/library/collections/avoiding-and-minimizing-incidental-take-migratory-birds
- Nationwide avoidance and minimization measures for birds https://www.fws.gov/sites/default/files/documents/nationwide-standard-conservation-measures.pdf
- Supplemental Information for Migratory Birds and Eagles in IPaC https://www.fws.gov/media/supplemental-information-migratory-birds-and-bald-and-golden-eagles-may-occur-project-action

MIGRATORY BIRDS

The Migratory Bird Treaty Act (MBTA) [1] prohibits the take (including killing, capturing, selling, trading, and transport) of protected migratory bird species without prior authorization by the Department of Interior U.S. Fish and Wildlife Service (Service).

1. The Migratory Birds Treaty Act of 1918.
2. The Bald and Golden Eagle Protection Act of 1940.
3. 50 C.F.R. Sec. 10.12 and 16 U.S.C. Sec. 668(a)

For guidance on when to schedule activities or implement avoidance and minimization measures to reduce impacts to migratory birds on your list, see the "Probability of Presence Summary" below to see when these birds are most likely to be present and breeding in your project area.

NAME	BREEDING SEASON
American Kestrel *Falco sparverius paulus* This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA https://ecos.fws.gov/ecp/species/9587	Breeds Apr 1 to Aug 31
Audubon's Shearwater *Puffinus lherminieri* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/9635	Breeds Mar 1 to Aug 5
Bald Eagle *Haliaeetus leucocephalus* This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities. https://ecos.fws.gov/ecp/species/1626	Breeds Sep 1 to Jul 31
Band-rumped Storm-petrel *Hydrobates castro* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/1226	Breeds elsewhere
Black Scoter *Melanitta nigra* This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities. https://ecos.fws.gov/ecp/species/10413	Breeds elsewhere
Black Skimmer *Rynchops niger* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/5234	Breeds May 20 to Sep 15
Black-capped Petrel *Pterodroma hasitata* This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities. https://ecos.fws.gov/ecp/species/4748	Breeds elsewhere
Brown Pelican *Pelecanus occidentalis* This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities. https://ecos.fws.gov/ecp/species/6034	Breeds Jan 15 to Sep 30
Common Eider *Somateria mollissima* This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities. https://ecos.fws.gov/ecp/species/10457	Breeds Jun 1 to Sep 30

NAME	BREEDING SEASON
Common Loon *gavia immer* This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities. https://ecos.fws.gov/ecp/species/4464	Breeds Apr 15 to Oct 31
Cory's Shearwater *Calonectris diomedea* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/10452	Breeds elsewhere
Double-crested Cormorant *phalacrocorax auritus* This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities. https://ecos.fws.gov/ecp/species/3478	Breeds Apr 20 to Aug 31
Great Blue Heron *Ardea herodias occidentalis* This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA https://ecos.fws.gov/ecp/species/10590	Breeds Jan 1 to Dec 31
Great Shearwater *Puffinus gravis* This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities. https://ecos.fws.gov/ecp/species/9634	Breeds elsewhere
Least Tern *Sternula antillarum antillarum* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/11919	Breeds Apr 25 to Sep 5
Lesser Yellowlegs *Tringa flavipes* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/9679	Breeds elsewhere
Magnificent Frigatebird *Fregata magnificens* This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA https://ecos.fws.gov/ecp/species/9588	Breeds Oct 1 to Apr 30
Manx Shearwater *Puffinus puffinus* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/10465	Breeds Apr 15 to Oct 31

NAME	BREEDING SEASON
Painted Bunting *Passerina ciris* This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA https://ecos.fws.gov/ecp/species/9511	Breeds Apr 25 to Aug 15
Pomarine Jaeger *Stercorarius pomarinus* This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities. https://ecos.fws.gov/ecp/species/10458	Breeds elsewhere
Razorbill *Alca torda* This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities. https://ecos.fws.gov/ecp/species/10461	Breeds Jun 15 to Sep 10
Red-breasted Merganser *Mergus serrator* This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities. https://ecos.fws.gov/ecp/species/10693	Breeds elsewhere
Red-necked Phalarope *Phalaropus lobatus* This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities. https://ecos.fws.gov/ecp/species/10467	Breeds elsewhere
Reddish Egret *Egretta rufescens* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/7617	Breeds Mar 1 to Sep 15
Ring-billed Gull *Larus delawarensis* This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities. https://ecos.fws.gov/ecp/species/10468	Breeds elsewhere
Royal Tern *Thalasseus maximus* This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities. https://ecos.fws.gov/ecp/species/10471	Breeds Apr 15 to Aug 31
Ruddy Turnstone *Arenaria interpres morinella* This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA https://ecos.fws.gov/ecp/species/10633	Breeds elsewhere

NAME	BREEDING SEASON
Semipalmated Sandpiper *Calidris pusilla* This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA https://ecos.fws.gov/ecp/species/9603	Breeds elsewhere
Short-billed Dowitcher *Limnodromus griseus* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/9480	Breeds elsewhere
Sooty Shearwater *Ardenna grisea* This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities. https://ecos.fws.gov/ecp/species/10417	Breeds elsewhere
Sooty Tern *Onychoprion fuscatus* This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities. https://ecos.fws.gov/ecp/species/10695	Breeds Mar 10 to Jul 31
Swallow-tailed Kite *Elanoides forficatus* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/8938	Breeds Mar 10 to Jun 30
Whimbrel *Numenius phaeopus hudsonicus* This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA https://ecos.fws.gov/ecp/species/11991	Breeds elsewhere
Willet *Tringa semipalmata* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/10669	Breeds Apr 20 to Aug 5
Wilson's Plover *Charadrius wilsonia* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/9722	Breeds Apr 1 to Aug 20
Wilson's Storm-petrel *Oceanites oceanicus* This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities. https://ecos.fws.gov/ecp/species/10416	Breeds elsewhere

PROBABILITY OF PRESENCE SUMMARY

The graphs below provide our best understanding of when birds of concern are most likely to be present in your project area. This information can be used to tailor and schedule your project activities to avoid or minimize impacts to birds. Please make sure you read "Supplemental Information on Migratory Birds and Eagles", specifically the FAQ section titled "Proper Interpretation and Use of Your Migratory Bird Report" before using or attempting to interpret this report.

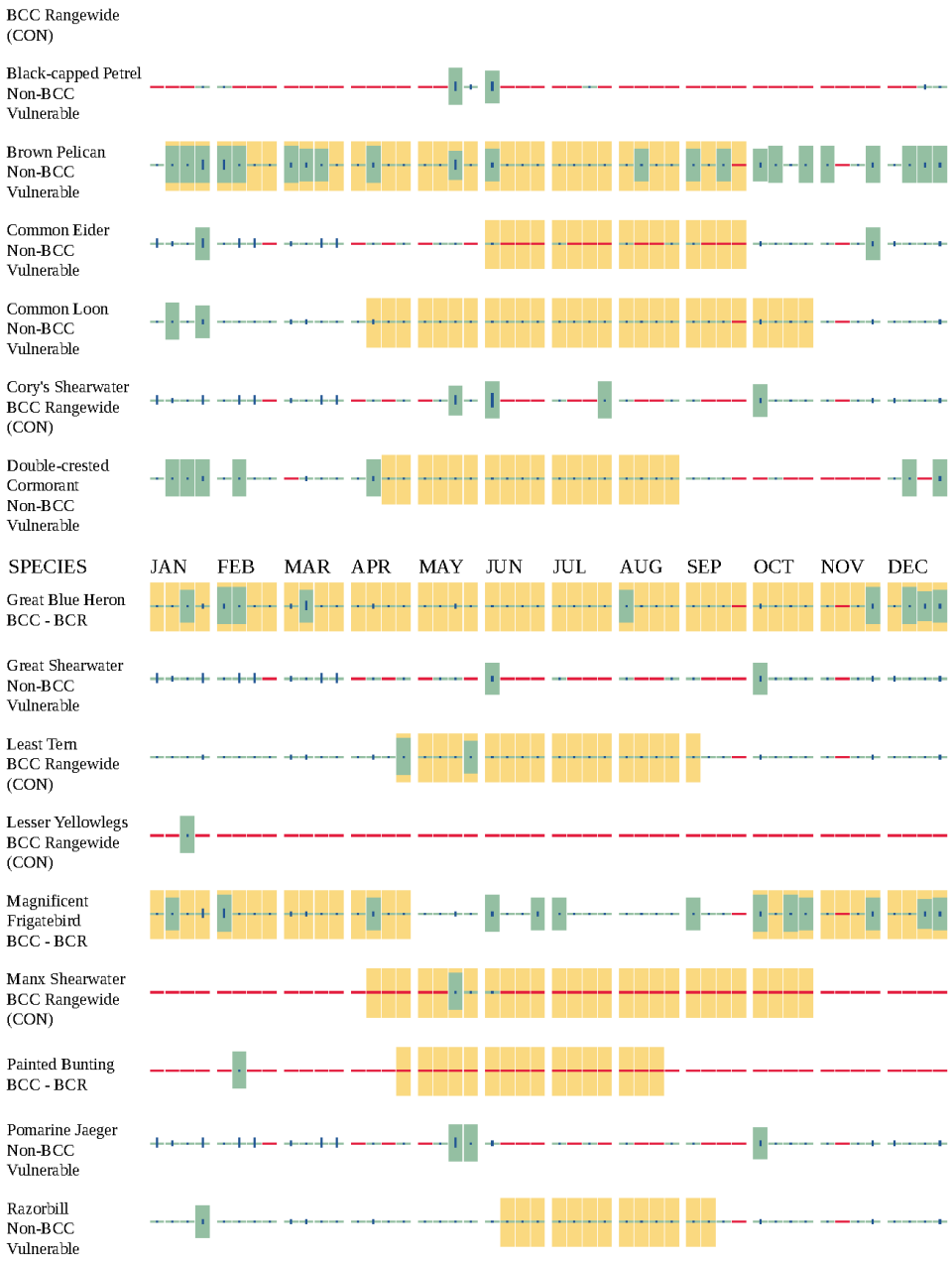
Probability of Presence (▪)

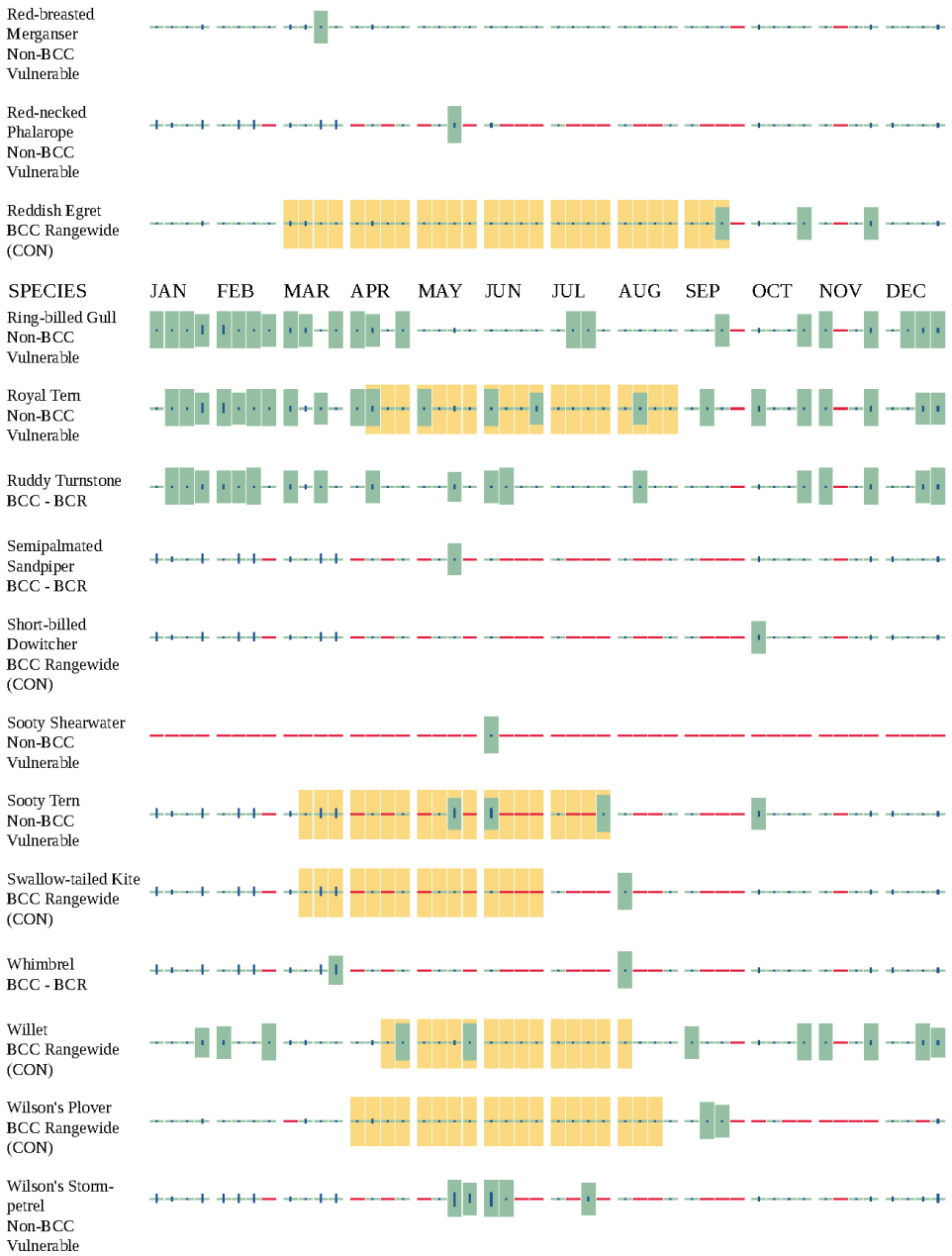
Green bars; the bird's relative probability of presence in the 10km grid cell(s) your project overlaps during that week of the year.

Breeding Season (▪)
Yellow bars; liberal estimate of the timeframe inside which the bird breeds across its entire range.

Survey Effort (|)
Vertical black lines; the number of surveys performed for that species in the 10km grid cell(s) your project area overlaps.

No Data (–)
A week is marked as having no data if there were no survey events for that week.


BCC Rangewide (CON)
Black-capped Petrel Non-BCC Vulnerable
Brown Pelican Non-BCC Vulnerable
Common Eider Non-BCC Vulnerable
Common Loon Non-BCC Vulnerable
Cory's Shearwater BCC Rangewide (CON)
Double-crested Cormorant Non-BCC Vulnerable
SPECIES
JAN FEB MAR APR MAY JUN JUL AUG SEP OCT NOV DEC
Great Blue Heron BCC - BCR
Great Shearwater Non-BCC Vulnerable
Least Tern BCC Rangewide (CON)
Lesser Yellowlegs BCC Rangewide (CON)
Magnificent Frigatebird BCC - BCR
Manx Shearwater BCC Rangewide (CON)
Painted Bunting BCC - BCR
Pomarine Jaeger Non-BCC Vulnerable
Razorbill Non-BCC Vulnerable


Red-breasted Merganser Non-BCC Vulnerable
Red-necked Phalarope Non-BCC Vulnerable
Reddish Egret BCC Rangewide (CON)
SPECIES
JAN FEB MAR APR MAY JUN JUL AUG SEP OCT NOV DEC
Ring-billed Gull Non-BCC Vulnerable
Royal Tern Non-BCC Vulnerable
Ruddy Turnstone BCC - BCR
Semipalmated Sandpiper BCC - BCR
Short-billed Dowitcher BCC Rangewide (CON)
Sooty Shearwater Non-BCC Vulnerable
Sooty Tern Non-BCC Vulnerable
Swallow-tailed Kite BCC Rangewide (CON)
Whimbrel BCC - BCR
Willet BCC Rangewide (CON)
Wilson's Plover BCC Rangewide (CON)
Wilson's Storm-petrel Non-BCC Vulnerable

Additional information can be found using the following links:

- Eagle Management https://www.fws.gov/program/eagle-management
- Measures for avoiding and minimizing impacts to birds https://www.fws.gov/library/collections/avoiding-and-minimizing-incidental-take-migratory-birds
- Nationwide avoidance and minimization measures for birds
- Supplemental Information for Migratory Birds and Eagles in IPaC https://www.fws.gov/media/supplemental-information-migratory-birds-and-bald-and-golden-eagles-may-occur-project-action

MARINE MAMMALS

Marine mammals are protected under the Marine Mammal Protection Act. Some are also protected under the Endangered Species Act[1] and the Convention on International Trade in Endangered Species of Wild Fauna and Flora[2].

The responsibilities for the protection, conservation, and management of marine mammals are shared by the U.S. Fish and Wildlife Service [responsible for otters, walruses, polar bears, manatees, and dugongs] and NOAA Fisheries[3] [responsible for seals, sea lions, whales, dolphins, and porpoises]. Marine mammals under the responsibility of NOAA Fisheries are **not** shown on this list; for additional information on those species please visit the Marine Mammals page of the NOAA Fisheries website.

The Marine Mammal Protection Act prohibits the take of marine mammals and further coordination may be necessary for project evaluation. Please contact the U.S. Fish and Wildlife Service Field Office shown.

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1. The Endangered Species Act (ESA) of 1973.
2. The Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) is a treaty to ensure that international trade in plants and animals does not threaten their survival in the wild.
3. NOAA Fisheries, also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

NAME

West Indian Manatee *Trichechus manatus*
Species profile: https://ecos.fws.gov/ecp/species/4469

WETLANDS

Impacts to NWI wetlands and other aquatic habitats may be subject to regulation under Section 404 of the Clean Water Act, or other State/Federal statutes.

For more information please contact the Regulatory Program of the local U.S. Army Corps of Engineers District.

Please note that the NWI data being shown may be out of date. We are currently working to update our NWI data set. We recommend you verify these results with a site visit to determine the actual extent of wetlands on site.

WETLAND INFORMATION WAS NOT AVAILABLE WHEN THIS SPECIES LIST WAS GENERATED. PLEASE VISIT HTTPS://WWW.FWS.GOV/WETLANDS/DATA/MAPPER.HTML OR CONTACT THE FIELD OFFICE FOR FURTHER INFORMATION.