



Stacey Zee

United States Department of the Interior FISH AND WILDLIFE SERVICE

Texas Coastal Ecological Services Field Office
4444 Corona Drive, Suite 215
Corpus Christi, Texas 78411
361/994-9004 / (FAX) 361/994-8262



In Reply Refer To:
02ETCC00-2012-F-0186-R001

May 31, 2023

"Stacey Zee" appears above DOI logo?

Stacey Zee
Office of Commercial Space Transportation
Federal Aviation Administration
800 Independence Ave, SW
Washington, DC 20591

Subject: SpaceX Starship/SuperHeavy Launch Vehicle Program at the SpaceX Boca Chica
Launch Site, Cameron County, Texas

Dear Ms. Zee:

On May 12, 2022, the U.S. Fish and Wildlife Service (Service) issued a final biological and conference opinion (BCO) to the Federal Aviation Administration (FAA). The BCO addressed potential effects to the endangered northern aplomado falcon (*Falco femoralis septentrionalis*), Gulf Coast jaguarundi (*Herpailurus yagouaroundi cacomitli*), ocelot (*Leopardus pardalis*), Kemp's ridley sea turtle (*Lepidochelys kempii*), hawksbill sea turtle (*Eretmochelys imbricata*), leatherback sea turtle (*Dermochelys coriacea*), South Texas ambrosia (*Ambrosia cheiranthifolia*), Texas ayenia (*Ayenia limitaris*), threatened piping plover (*Charadrius melodus*) and piping plover critical habitat, red knot (*Calidris canutus rufa*) and proposed red knot critical habitat, loggerhead sea turtle (*Caretta caretta*), green sea turtle (*Chelonia mydas*) and West Indian manatee (*Trichechus manatus*) from the issuance an experimental permit and/or a vehicle operator license to SpaceX to launch Starship/Super Heavy at the Boca Chica Launch site, Cameron County, Texas.

Commented [PC1]: Not documented since the 1980s!

Commented [PC2]: These two plants do not occur within the action area?

On April 20, 2023, SpaceX launched its first Starship SuperHeavy rocket from its facility in Boca Chica, Texas. ~~an anomaly occurred~~ an anomaly occurred resulting in the destruction of the rocket and extensive launch pad impacts. Staff from the Service and Texas Parks and Wildlife Department (TPWD) participated in a site visit 48 hours after the incident. Initial surveys revealed debris consisting of chunks of concrete, (large and small in size) had fallen on SpaceX private holdings and Boca Chica State Park. Debris also included a white powdery dust that settled onto the tidal mudflats just northwest of the launch site which we believe was pulverized concrete material from the launch pad. The debris ~~was distributed across~~ fell onto the tidal flats, beach, and waters of the Gulf of Mexico. Debris was not documented on Refuge property at the time of the survey. ~~There was also~~ Additionally ~~P~~ pulverized concrete ~~was~~ deposited as far away as Port Isabel, 6.5 miles to the northwest of the pad site. Additionally, As a result of the launch, A 3.585-acre fire started south of the pad. Sound levels and ambient temperature during the

Stacey Zee

2

launch appeared to be within predicted levels; ~~However,~~ this still needs to be confirmed. No dead birds were reported during the site visit.

In reviewing the preliminary TPWD data, it appears some debris may have gone outside the northern and southern 700-acre debris field boundary depicted on Figure 27 of the BCO. There were four concrete chunks documented to the south and the pulverized concrete to the north. Impacts to listed species and their habitat and/or designated critical habitat, outside the boundary have not been analyzed and nor has incidental take been issued.

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~~As provided in 50 CFR §402.16, reinitiation of consultation is required where discretionary Federal agency involvement or control over the action has been retained (or is authorized by law) and if: (1) the amount or extent of incidental take is exceeded; (2) new information reveals effects of the agency action that may affect listed species or critical habitat in a manner or to an extent not considered in the opinion; (3) the agency action is subsequently modified in a manner that causes an effect to the listed species or critical habitat not considered in the BCO or written concurrence; or (4) a new species is listed or critical habitat designated that may be affected by the action. In instances where the amount or extent of incidental take is exceeded, any operations causing such take must cease pending reinitiation.~~

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The Service would like to meet with FAA to discuss noise, temperature, and vibration levels associated with the launch, and ~~the~~ potentially ~~to~~ ~~reducing~~ the number of launches in the future thereby reducing the ~~amount~~ number of potential mishaps or anomalies. We would also like to discuss ~~any new activities or new launch pad infrastructure (additional night lighting, launch pad redesign) that might not have been covered under the original BCO, that could result from this launch that might not have been covered under the original BCO. The Service would also like work to work with FAA and SpaceX to, coordinate in~~ identify ~~ing~~ the least damaging cleanup methods, ~~and increasing "take" if necessary.~~

Commented [ACC5]: Not sure we mention this at this point that would be a result of a reinitiation of the consultation

We are aware FAA has opened a "mishap" investigation. It is our understanding that this type of investigation is designed to further enhance public safety. The investigation will determine the cause of the event and identify corrective actions the operator must implement to avoid a recurrence of the event. We have the following questions:

- Following the mishap SpaceX is charged with preserving data and physical evidence for a later investigation and must file a preliminary written report to the FAA's Office of Commercial Space Transportation within five (5) days of the event. Has that report been ~~filed~~filed, and may the Service receive a copy of it once completed?
- FAA may choose to conduct the investigation or authorize the operator to perform the investigation under FAA's oversight in accordance with an approved mishap plan or anomaly plan as described in the BCO. Is the FAA conducting the investigation or has it been delegated to SpaceX?
- The investigation may be completed in a few ~~weeks~~weeks, or it may take months. What type of activity is SpaceX allowed to proceed with during this time? Will SpaceX be allowed to proceed with repairs to the launch site during the investigation or attempt another launch or test prior to the completion of that investigation?
- Should cleanup efforts be delayed until FAA completes that investigation?

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Stacey Zee

3

After the investigation is complete and recommendations are made that may affect SpaceX operations, if there are any changes that fall outside of the current BCO reinitiation of the consultation may be warranted. As provided in 50 CFR §402.16, reinitiation of consultation is required where discretionary Federal agency involvement or control over the action has been retained (or is authorized by law) and if: (1) the amount or extent of incidental take is exceeded; (2) new information reveals effects of the agency action that may affect listed species or critical habitat in a manner or to an extent not considered in the opinion; (3) the agency action is subsequently modified in a manner that causes an effect to the listed species or critical habitat not considered in the BCO or written concurrence; or (4) a new species is listed or critical habitat designated that may be affected by the action. In instances where the amount or extent of incidental take is exceeded, any operations causing such take must cease pending reinitiation

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Commented [ACC7]: Seems like this goes here better but needs a lead in sentence.

Refuge and Ecological Services staff has beenThe Service has been steadily coordinating with FAA and SpaceX and would like to continue that effort. If you have any questions, please contact Mary Orms at 281-271-2162 or via email at mary_orms@fws.gov. You may also contact Dawn Gardiner at 261-533-6765 or dawn_gardiner@fws.gov.

Sincerely,

Charles Ardizzone
Field Supervisor

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cc Matthew Thompson, SpaceX
Chris Perez, LRGVNW