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Memorandum

Date February 6, 2024
To John Weres, P.E. (Gresham Smith)
From Ryan Horstman, Senior Environmental Scientist
Subject Shark Channel FKOHT Bridge Rehabilitation - Roosting Bat Field Survey Summary

Background

The Florida Department of Environmental Protection (FDEP) is proposing to rehabilitate the historic Shark Channel Bridge carrying the Florida Keys Overseas Heritage Trail (FKOHT) over Shark Channel connecting the Gulf of Mexico and Atlantic Ocean between Shark Key and Saddlebunch Keys in the Lower Keys. The bridge was previously augmented with concrete cantilever decks supported by steel brackets. The steel brackets have rusted significantly and to the point of failure in multiple areas due to the extremely corrosive environment; resulting in multiple sections of collapsed cantilevers (see attached field photos).

ESA has extensive experience inspecting bridges for roosting bat presence and, subsequently, performing bat exclusion efforts prior to construction projects. Given the potential for crevices, cracks, and voids resulting from the bridge damage, potential existed that bats could take up residence in those areas. No evidence of bat presence or absence was known for the bridge.

Bats are known to occupy buildings in the Keys as documented in First Record of *Molossus Molossus Tropicodrychus* Gray (1839) From the United States (Frank, 1997). ESA inquired with Laura Seckbach Finn (Director of Fly By Night, Inc. (FBN) – a nonprofit bat conservation organization) regarding her knowledge of bat roosting in bridges in the Florida Keys. By email, she stated that FBN surveyed random bridges in the Keys about 20 years ago and found no evidence of roosting bats but added that there is a “good potential for *Molossus* to roost in bridges and they are known to use structures in the area”. In addition, ESA inquired with Florida Fish and Wildlife Conservation Commission (FWC) bat biologists Nick Jennings and Ricardo Zambrano whether FWC has knowledge or data regarding bats roosting in Florida Keys bridges. Ricardo stated via email that he is not aware of any bat roosts on bridges in the Keys.

Roosting bats are protected in Florida under Rules 68A-4.001 and 68A-9.010 of the Florida Administrative Code (FAC). The protection designates it illegal to evict or exclude bats during the maternity season (April 16 – August 14), and attempts to harm or harass bats with lights, sounds, or toxic substances are not allowed. Although bat exclusion from the deteriorated bridge would be unsafe and infeasible, measures could be taken to minimize the potential for harm during the maternity season if bats were confirmed to be roosting in the affected bridge portions.

Methodology

To sufficiently complete a survey of the potential bat roosting areas, a visual survey from under the bridge is required. Since the bridge is over water and there is no land-based option for completing an inspection, the visual survey was conducted using a shallow water 22-foot skiff. Given the precarious condition of the bridge cantilevers, inspection must be completed from outside the bridge footprint and there is one identified under bridge crossing that is identified (with paint) for transit under the bridge.

To complete the survey, the boat traversed along one side of the bridge and then the other. One ESA scientist operated the boat while the second ESA scientist inspected the bridge with a naked eye and using binoculars while also capturing representative photographs. Specific attention was directed at areas where damage would have the highest likelihood of creating roosting cavities.

While no work is proposed for the existing US 1 vehicular bridge, visual inspection was completed while the boat was operated under the bridge to document any bat presence.

Results

The roosting bat survey was conducted by ESA's Ryan Horstman, Senior Environmental Scientist, and Mike Poniatowski, Environmental Scientist, on January 31, 2024. Mike and Ryan have completed multiple roosting bat surveys of bridges for Florida Department of Transportation (FDOT) projects throughout the state. In addition, Gresham Smith's Project Manager and Structural Engineer, John Weres, accompanied ESA staff on the boat to inspect structural conditions of the bridge.

The survey commenced at 3:30 PM during a strong and high outgoing tide, which made maneuvering around the bridge efficient and effective. The temperature was 67° with clear skies and a 12-15 mph wind. The southeast side of the bridge was traversed from south to north followed by the northwest side of the bridge from south to north.

The bridge areas where potential bat roosting cavities were expected, around rusted beams and broken concrete deck, appeared to be either cleanly broken or still sealed. The anticipated gap between the concrete deck overlay and original bridge showed a clean break with direct sun exposure. Other than scattered small ledges, cracks, crevices, and cavities were not observed. In addition, there was no observation of guano stains or droppings indicating bat presence. Likewise, no signs of bat presence were observed on the US 1 vehicular bridge during the survey.

Based on the survey observations, there is no apparent evidence that bats are roosting or using the Shark Channel FKOHT Bridge.

Conclusion

While the potential for bats to roost within bridges in the Florida Keys remains, the Shark Channel FKOHT Bridge does not appear to be used by bats. Other Keys bridges constructed of different materials, by other means, and/or in other locations may be suitable for bat use. Given the lack of evidence of bat use, it is anticipated that the proposed bridge rehabilitation activities will not harm or harass bats. Additionally, there is no need for bat exclusion activities to be conducted prior to construction.



Photo 1. Southeast side of bridge with intact deck and steel beam supports.

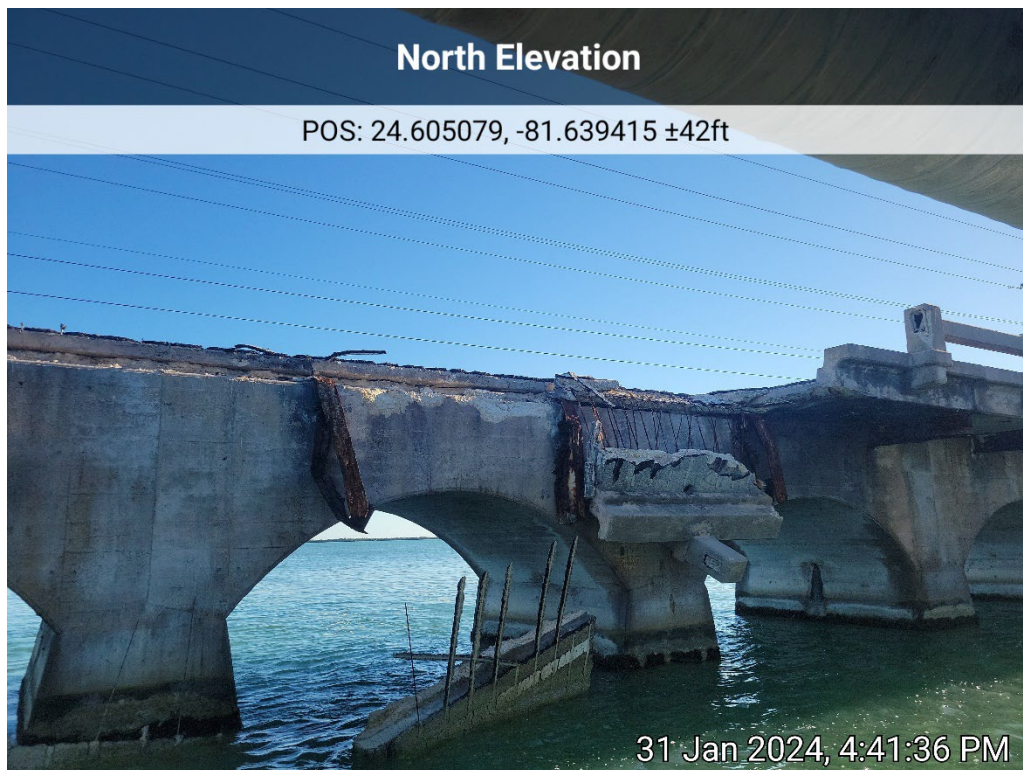


Photo 2. Northwest side of bridge with collapsed deck and steel beam supports.