

FIRST U.S. ATLANTIC RECORD OF NAZCA BOOBY *SULA GRANTI*, WITH IMPLICATIONS FOR VAGRANCY BY PACIFIC SEABIRDS INTO THE GULF OF MEXICO

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ABSTRACT

Sutherland, K. E., Metheny, N. J., & Haney, J. C. (2025). First U.S. Atlantic record of Nazca Booby *Sula granti*, with implications for vagrancy by Pacific seabirds into the Gulf of Mexico. *Marine Ornithology*, 53(1), 165–169. <http://doi.org/10.5038/2074-1235.53.1.1632>

An adult Nazca Booby *Sula granti* was photographed in the western Gulf of Mexico on 03 August 2024 during a survey of marine birds and mammals over waters east of South Padre Island, Texas, USA (26.384°N, 096.176°W). This is the first report of *S. granti* in US waters of the Gulf of Mexico; previous eBird reports indicate occasional presence in Caribbean waters off Costa Rica (2018) and Colombia (2020). As many as 20% of all marine and waterbird species occurring in the Gulf of Mexico have core ranges in the Pacific Ocean or its continental margins. Dispersal by Pacific birds over the narrow isthmuses of Panama or Tehuantepec (Mexico) into these waters may occur more often than realized. Such vagrancy may arise from unrecognized migratory movement, tropical storm displacement, ship-following through the Panama Canal, and/or merely long-distance wandering instigated by a variety of factors.

Key words: dispersal, Gulf of Mexico, Nazca Booby, seabird vagrancy, *Sula granti*

INTRODUCTION

Vagrancy is wandering by individual animals outside the species' core geographic range, including migratory corridors (Dufour et al., 2024). Although inter-ocean vagrancy by seabirds is perceived to be uncommon (Bourne, 1967; Sealy & Carter, 2012; but see Veit et al., 2022), movement between ocean basins is a regular phenomenon in some species. For example, the trans-equatorial Atlantic species Manx Shearwater *Puffinus puffinus*, which breeds in the North Atlantic, and Wilson's Storm Petrel *Oceanites oceanicus*, which breeds in the South Atlantic, regularly appear off the Pacific coast of North America; many reports are available in the eBird database (eBird, 2021) as of 29 August 2024. Such birds made it to waters of Cape Horn at the southern tip of Chile, but in returning to breeding areas, they did so on the Pacific rather than the Atlantic side of Patagonia. Ultimately, they reached latitudes, at least in the case of Manx Shearwater, similar to those occupied in the species' core Atlantic range.

Vagrancy may be triggered by a number of factors. Poor feeding conditions within the breeding range may prompt seabirds to seek prey elsewhere, in response to population density relative to prey availability (McKee et al., 2023; Velarde et al., 2015). When driven by population growth, density-dependent factors can also lead to adaptive exploratory movements into new potential range (Veit et al., 2021, 2022). Haemosporidian parasites may contribute to vagrancy by distorting the compass sense or inherited migration direction in birds (Bensch et al., 2024). Tropical cyclonic weather systems also displace seabirds outside of their core range (Shiomi, 2023; Ventura et al., 2024; Weimerskirch & Prudor, 2019; Wiley & Wunderle, 1993).

Despite strong flight, tropical sulids of the Pacific are not thought to be especially prone to over-flying the isthmus of Central America.

They exhibit strong natal philopatry (Huyvaert & Anderson, 2004), with their phylogeography reflecting physical barriers and restricted gene flow (Morris-Pocock et al., 2010; Steeves et al., 2005). Nevertheless, out-of-range coastal and even inland reports among tropical sulids seem to have increased in North America in recent decades (e.g., Morgan et al., 2009; Roy, 2014; Skevington et al., 2015; see also inland reports for Masked Booby *Sula dactylatra*, Brown Booby *S. leucogaster*, and Red-footed Booby *S. sula* in eBird, 2021). Here, we report the first known occurrence of Nazca Booby *Sula granti*, a species endemic to the eastern tropical Pacific Ocean, in waters off the eastern United States. We discuss this record in the context of reports of vagrancy by other Pacific seabird species into the Gulf of Mexico ("the Gulf"). Because the Gulf's peculiar geography favors Pacific-to-Atlantic vagrancy, we hypothesize that this phenomenon is less atypical than it seems.

OBSERVATION

At 14h42 on 03 August 2024, we sighted an adult Nazca Booby from the NOAA research vessel (R/V) *Gordon Gunter* during the Visual Surveys for Abundance and Distribution restoration monitoring project in the western Gulf of Mexico. We first saw the bird at 26.384°N, 096.176°W, over water depths of 650 m, about 100 km east of South Padre Island, Texas, USA (Fig. 1). This area was at the western frontal edge of a large anti-cyclonic (warm-core) eddy that had separated from the Loop Current a few months earlier (Fig. 1). The booby approached from the port side as the vessel was transiting west-northwest on a heading of 285°. Over the course of five minutes, the bird circled the vessel several times before flying off to the north-northwest. Winds were light (~8 km/h) and out of the north, with a Beaufort sea state of 2. No tropical storm systems had tracked across this region of the Gulf during the previous four weeks.

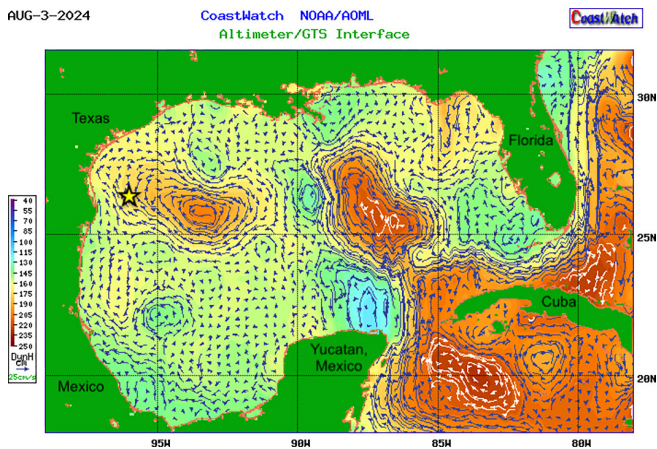


Fig. 1. Environmental conditions at the location (yellow star, 26.384°N, 096.176°W) for a Nazca Booby seen on 03 August 2023, along the western boundary of an anti-cyclonic eddy in the western Gulf of Mexico. Oceanographic mapping (<https://www.aoml.noaa.gov/phod/dhos/altimetry.php>) used altimetry observations for the fields of geostrophic water currents (in cm/s; see legend, left side), based on sea height anomalies and sea heights obtained from satellites and modeling supplements. Blue and green hues depict cyclonic (cold-core) oceanographic eddies and flows, whereas the deeper orange hues depict stronger anti-cyclonic (warm-core) oceanographic eddies and flows. The large deep-orange bulge protruding into the Gulf north of Yucatan, Mexico, is the Loop Current.

Detected initially from the flying bridge by NJM during an observation watch, the Nazca Booby was also seen a few seconds later as it flew to the starboard side, where the other observer, KES, was taking photographs. Multiple images were subsequently captured by both observers, and the bird was identified as a Nazca Booby due to its bill color. At 15h30, the vessel altered course to 076° onto the next survey line. Later, at 16h27, the Nazca Booby appeared again, now accompanied by a female Brown Booby *Sula leucogaster*. Both birds proceeded to circle the vessel while diving after flying fish (Exocoetidae) flushed by the ship.

After six or seven minutes, NJM lost track of the bird. At 18h46, during the last watch of the same day, the Nazca Booby flew towards the ship again from astern. This time it flew around the ship, prompting some roosting Brown Boobies to vocalize from the port anchor as it passed nearby. The Nazca Booby then alighted alone on the starboard anchor at 19h03. It was last confirmed on this perch just after sunset at 20h19 (1,580 m water depth; 26.599°N, 095.489°W), but it was gone by the next morning.

The bill was deep orange at the base turning to a bright yellow-orange at the tip (Fig. 2). In contrast, the very similar Masked Booby has a straw or pale-yellow bill base; bill color can distinguish the two taxa (Pyle, 2020). Nazca Booby is further distinguished by its yellow-orange iris and dark facial skin (Fig. 2; Harrison et al., 2021). At distance, the bird did not have noticeably white central rectrices, but photo enlargements showed characteristically frosty white bases to some tail feathers; this feature can overlap with Masked Booby (Harrison et al., 2021; Howell & Zufelt, 2019; Pyle, 2020). At least three short but growing rectrices were covered by other feathers that masked any

white underneath (Fig. 2). The perched Nazca Booby appeared slender-bodied with a thin-looking bill and head, which is consistent with measurements that rule out the stockier Masked Booby with its heavier bill (Pitman & Jehl, 1998).

DISCUSSION

When breeding, Nazca Boobies are endemic to lower latitudes of the eastern tropical Pacific Ocean. The largest breeding colonies are found on the Galápagos Islands (Ecuador) and Malpelo Island (Colombia). Smaller colonies occur on the Revillagigedo Islands (Mexico), Clipperton Atoll (mid-Pacific Ocean), Cocos Island (Costa Rica), Isla de la Plata (Ecuador), and Lobos de Afuera (Peru). Listed as “Least Concern,” their global population size is about 50,000 individuals (BirdLife International, 2021). This species may exhibit population declines and undergo long-distance movements when sardine populations collapse during climate-mediated changes near major breeding colonies (Tompkins et al., 2017; Veit et al., 2021).



Fig. 2. Top: Full view of Nazca Booby flying around the NOAA ship R/V *Gordon Gunter* following its initial sighting at 14h42 on 03 August 2023 in the western Gulf of Mexico (26.384°N, 096.176°W). Middle: Bird's bill and iris detail. Bottom: Bird's tail base feathering in dorsal views. Photo credit: Kate E. Sutherland

Whether related to food supply or other influences, Nazca Boobies travel long distances away from the core range. Though they concentrate in the eastern tropical Pacific, they have been encountered more broadly, with reports southward to waters off Chile and Rapa Nui (Easter Island) in the extreme eastern South Pacific, as well as to the eastern North Pacific and Gulf of Alaska (Harrison et al., 2021; eBird, 2021). Small numbers occur at the Hawaiian Islands (Vanderwerf et al., 2008), and there are scattered reports west to Japan and its outlying archipelagos, the pelagic waters east of Guam, and in West Papua. Nazca Boobies have been reported twice in the eastern Indian Ocean: once along the coast (eBird, 2021) and once at Ashmore Reef in Western Australia (Australian Marine Parks, 2024).

Almost 20% of all coastal waterbirds, marine birds, and sea ducks reported from the Gulf of Mexico ($n = 117$ species) have core ranges in the Pacific Ocean (Haney et al., 2025). Most Pacific species are accidental, e.g., Heermann's Gull *Larus heermanni*, Stejneger's Petrel *Pterodroma longirostris*, and Wedge-tailed Shearwater *Ardena pacifica* (Hodne, 2022a); yet, Wedge-tailed Shearwaters occurred five times in or near the Gulf of Mexico during 2022–2024 alone (eBird, 2021). The most recent reports were from 08 July 2024 when Hurricane Beryl made landfall at Lake Conroe, Texas, USA (Olsen & Apte, 2024) and from 06 August 2024 after Tropical Storm Debby made landfall at Pasco County, Florida, USA (Colantonio, 2024). Of particular relevance to Pacific sulids, Blue-footed Booby *S. neobuxii* has occurred twice along Texas's Gulf coast, with additional reports from inland portions of the state of Texas (Hodne, 2022b; eBird, 2021).

“Vagrancy” by seabirds from the Pacific Ocean into the Gulf of Mexico may be more likely to occur than presently supposed, due in part to varied mechanisms that can facilitate this inter-ocean dispersal. Studies show seasonal migrations by tagged waterbird species across Mexico's Isthmus of Tehuantepec, which have not been linked to extreme weather conditions (Lamb et al., 2018). This is a previously unrecognized waterbird migration route, one in which birds traverse the isthmus southwards to the Gulf of Tehuantepec in fall/winter and reverse direction back into the Gulf of Mexico in the spring.

A rarer mechanism for inter-ocean movements could involve passive transport by crossover storms, i.e., tropical systems that develop in the Pacific then re-form or continue on the eastern side of Central America, with oceanic birds trapped inside them. Tropical Storm Hermine reached near hurricane strength in the Gulf of Mexico in September 2010 after developing from Tropical Depression 11-E in the Gulf of Tehuantepec, which it crossed prior to tracking north into the Gulf of Mexico. In 2022, Hurricane Agatha tracked northeast, made a Pacific landfall west of the Gulf of Tehuantepec, and dissipated over Mexico, but the system reformed into Tropical Storm Alex in the southern Gulf of Mexico. Besides the passive transport in some seabirds (Shiomi, 2023), other species are known to actively direct their movements both towards and away from tropical storm systems (Lempidakis et al., 2022; Ventura et al., 2024; Weimerskirch & Prudor, 2019).

Another meteorological influence for birds moving between oceans is when tropical storms make landfall west of the Isthmus of Tehuantepec (e.g., Tropical Storm Chris, 30 June 2024) or track northward from the western Bay of Campeche (southern Gulf of Mexico, close to the Mexican coastline; e.g., Hurricane Ida,

26 August to 01 September 2021). Cyclonic winds on the eastern side of these systems enhance southerly winds over the Isthmus of Tehuantepec, favoring bird transport from the Pacific into the Atlantic. Regardless of the scenario, the Isthmus of Tehuantepec's low elevation and comparatively narrow width likely diminish its ability to act as an absolute geographic barrier from the Pacific into the Gulf of Mexico, especially for strong-flying marine birds.

For the Nazca Booby that we sighted, we found scarce evidence for storm-assisted movement into the Gulf, at least as an exclusive influence. The last tropical system to track across our study area before the sighting was Hurricane Beryl on 05–08 July 2024. Beryl's sustained southerly winds reached > 110 km/h, but its track before entering the western Gulf ran east to west across the northern Caribbean Sea south of the Greater Antilles. Although Beryl might have displaced the booby from the northern Caribbean Sea into the Gulf, the time lag and geographical mismatch make it an unlikely explanation for the bird's appearance in the Gulf. The Gulf booby sighting also was contemporaneous with Tropical Storm Debby (03–05 August 2024), but that system traversed northwards along the far eastern Gulf of Mexico near Florida, during which time winds in the western Gulf remained light.

Instead, we believe it more likely that this Nazca Booby crossed from the Pacific into the Caribbean/Gulf via the Isthmus of Panama, as illustrated by a number of earlier reports, including a banding recovery confirmed a Nazca Booby at the Caribbean entrance to the Panama Canal (Huyvaert & Anderson, 2004). One Nazca Booby has been observed at the canal's Pacific entrance, another at the Miraflores Locks near the Pacific entrance, and at least two more at Gatun Lake in the middle of the isthmus (eBird, 2021) just a few tens of kilometers from the canal's Caribbean entrance. Two previous eBird reports of Nazca Booby occurred not far from the Isthmus of Panama in the extreme southern Caribbean Sea: one was a solo adult seen from near the mouth of the Rio Pacuare, northwest of Limón, Costa Rica (Zeledon, 2018); the other was an adult with Masked Boobies in deep offshore waters west of the Guajira Peninsula, Colombia (Wilson, 2020).

If our Nazca Booby traveled via the Panama Canal unassisted, movements in the Caribbean Sea and Gulf of Mexico may have been ‘facilitated’ (i.e., intermittently ship-associated) along its route. The bird clearly showed familiarity with vessels; it readily perched on an anchor and exploited the R/V *Gordon Gunter* to forage for flying fish. In using vessels for roosting and feeding, however, it resembled other tropical sulids in the Gulf of Mexico. Given its strong flight, healthy molt (Fig. 2), and absence of frayed or oiled plumage, we doubt the bird we sighted was ‘assisted’ (ship-dependent) along its entire route.

The Gulf's central location within the North American continent is proximate to both North Pacific and North Atlantic oceans. The narrow isthmuses of Tehuantepec and Panama enable shorter, less-obstructed land crossings by Pacific marine birds between the two regions. Once Pacific-origin birds arrive in the Gulf of Mexico, the basin's distinctive geography likely thwarts them from transiting back readily. Even to reach the open Atlantic Ocean, a water exit requires a circuitous route via the Florida Straits and around the Bahamas, or south via the Yucatan Channel and around various archipelagos of the Caribbean Sea. Both of these routes are over nutrient-poor waters, so vagrant seabirds may linger inside the Gulf of Mexico where ocean productivity is moderately high (Spies et al., 2016).

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