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July 12, 2021

Ms. Sharon Marino
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North Atlantic—Appalachian Region
U.S. Fish and Wildlife Service
300 Westgate Center Dr.
Hadley, MA 01035

Re: *Draft Recovery Plan for the Rufa Red Knot (Calidris canutus rufa)*, Docket No. FWS-R5-ES-2020-0098.

Dear Ms. Marino,

The National Audubon Society, including our state offices and local chapters, are submitting the following comments on the U.S. Fish and Wildlife Service's (USFWS) *Draft Recovery Plan for the Rufa Red Knot (Calidris canutus rufa)*.¹ These comments are being submitted electronically via Docket No. FWS-R5-ES-2020-0098.

The National Audubon Society is a bipartisan conservation organization with 23 state programs, 41 centers, more than 450 local chapters, and more than 1.8 million members. Audubon and our partners work throughout the Western hemisphere to support *rufa* Red Knot recovery at all stages of the bird's annual lifecycle. In the United States, Audubon works to support recovery of the *rufa* Red Knot through habitat protection and restoration, scientific analysis, conservation policies, and coastal stewardship. Internationally, Audubon works with the First Nations in Canada to create new protected areas to support migration and breeding habitats; on the creation and management of protected areas that support the species in the Bahamas, Panama, and Chile; and on strengthening science, protection and policies in Panama, Colombia and Chile. In Colombia and Chile, Audubon is also helping to develop national bird conservation plans that incorporate protective policies, funding and government support for their survival.

With climate change impacts already in motion and intensifying, controlling what we can control to recover the subspecies becomes vitally important, and doing it quickly becomes imperative to the survival of the *rufa* Red Knot. As a biologist with 40 years of experience studying declining shorebirds on the Delaware Bay said in a recent *New York Times* article, "I think we need to think about the red knot as a species that is dying, and we really need

¹ U.S. Department of the Interior, Fish and Wildlife Service, "Endangered and Threatened Wildlife and Plants: Draft Recovery Plan for the Rufa Red Knot." Federal Register, Vol. 86, No. 90. May 12, 2021. <https://www.govinfo.gov/content/pkg/FR-2021-05-12/pdf/2021-10064.pdf> (Hereafter referred to as the "USFWS Draft Recovery Plan.")

emergency measures.”² Her sober assessment is echoed by an independent wildlife biologist who has trapped, monitored and counted Red Knots on the Delaware Bay beaches for 25 years: “The subspecies is now much closer to extinction.”³ We call on the USFWS to recognize these calls for urgency and lay out a bold and ambitious plan for recovering the subspecies on an expedited timeline before it’s too late.

Needed Actions

The *rufa* Red Knot is one of the National Audubon Society’s priority coastal bird species. Our comments focus on needed improvements to the Draft Recovery Plan, and essential elements that must be included in the Recovery Implementation Strategy for the *rufa* Red Knot.

1. USFWS should make every effort to account for the precipitous decline in *rufa* Red Knot populations over the last 20 years, including capturing the dramatic decline of birds stopping over in Delaware Bay, as documented by the Spring 2021 bird count. The Draft Recovery Plan cites data that reliably shows a minimum of a 75 percent loss of birds in the Southern Wintering Region,⁴ with that number potentially being closer to a loss in the high 80s given the groups’ reliance on the Delaware Bay.⁵ The population of *rufa* Red Knot is far from stable and these precipitous population declines need to be accounted for in recovery efforts.
2. The final Recovery Plan and Recovery Implementation Strategy must address the significant threats to *rufa* Red Knot habitats from increasing development and climate change effects, such as sea level rise and increasingly extreme storms. USFWS should look to bolster and expand protections for important habitats through the Coastal Barrier Resources System and should direct much needed funding to efforts to conserve, restore and manage vital ecosystems both here and abroad, including funding coastal stewardship activities to reduce human disturbance to the bird.
3. The Recovery Plan and Recovery Implementation Strategy must address overharvesting of vital food sources – like horseshoe crabs – at important stopover areas, such as Delaware Bay. Horseshoe crab eggs provide a vital food source that *rufa* Red Knot need to fuel their migration, but as the USFWS notes, the “overharvest of the horseshoe crab in Delaware Bay is considered the key causal factor in the decline of the Southern wintering population of the red knot.”⁶ USFWS should coordinate with fisheries managers everywhere that crabs are harvested to adopt a temporary moratorium on horseshoe crab harvests and to develop an ecosystem reference point based on egg density to ensure that horseshoe crab harvesting is being sustainably managed in consideration of the important food source that these animals provide for shorebirds, like the Red Knot, and other wildlife. Additionally, USFWS should work with biopharmaceutical regulators to ensure that the use of synthetic lysate is approved for use, to discourage bleeding of horseshoe crabs for biomedical uses.
4. USFWS should fully reinstate Migratory Bird Treaty Act (MBTA) protections from incidental take. The USFWS should employ all available tools to address the species’ recovery, and the MBTA is an important tool, like the Endangered Species Act, to ensure

² Hurdle, Jon, “Red Knots in Steepest Decline in Years, Threatening the Species’ Survival,” in *The New York Times*. June 5, 2021.

³ Hurdle, Jon, “Red knot numbers plummet, pushing shorebird closer to extinction,” in *New Jersey Spotlight News*. May 31, 2021. <https://www.njspotlight.com/2021/05/red-knot-pushed-closer-extinction-delaware-bay-migration-stopover-shocking-decline-this-year-larry-niles-lowest-since-records-kept-1982/>

⁴ USFWS Draft Recovery Plan, *op cit*, p. 8.

⁵ *Ibid*, p. 9.

⁶*Ibid*..

that projects utilize best management practices to minimize harm to the *rufa* Red Knot and other imperiled migratory birds across their range, including by reducing collisions and by providing a means for recovery after incidents that impact the species, such as oil spills, chemical exposure, and more. USFWS should also fund better monitoring to assess incidental take from coastline and offshore development. No methods exist to capture “take” events in the offshore environment and this will be a vital part of the responsible build out of offshore wind (a critical resource to mitigate climate change). USFWS has a responsibility to evaluate the impacts (not just predict risk) of the offshore wind industry to *rufa* Red Knot and other migratory species, so that impacts can be properly mitigated.

5. The USFWS needs to expedite its timeline for recovery of the *rufa* Red Knot. The population of the subspecies is dangerously low and the threats to its survival are manifold and, in the USFWS’s own words, intractable. To ensure the survival of the subspecies, USFWS action needs to be swift and bold.

The Draft Recovery Plan acknowledges the multiple threats to the *rufa* Red Knot – including habitat loss as a result of climate change effects and development, human and predator disturbance, and reduced prey availability.⁷ These and other threats to the *rufa* Red Knot are manifesting along the U.S. coasts and inland areas, Central and South America, and the Caribbean. These primary threats to the *rufa* Red Knot, which prompted its listing as a threatened species six years ago, have only increased since then. The dramatic declines in the *rufa* Red Knot population call for accelerated action on the part of the USFWS to protect the bird, its habitat, and food sources by spearheading changes in programs within its jurisdiction, and exerting leadership with other state and federal agencies, non-profits and the private sector. There is literally no time to waste.

- 1. The Recovery Plan and forthcoming Recovery Implementation Strategy should account for the alarming declines of *rufa* Red Knot populations in most areas of its range.**

The Draft Recovery Plan starts from the false assumption that the *rufa* Red Knot population is stable.⁸ Yet, the only reliable data cited in the Draft Recovery Plan shows staggering losses in the Southern wintering region – Tierra del Fuego, Argentina and Chile – where the bird population has declined more than 75 percent over the last 20 years.⁹ The USFWS states that: “Rufa red knot counts in this Southern wintering region have been markedly lower in recent years. Comparing the average counts for Tierra del Fuego from the 1980s and 2000 (52,244) with the period of 2018-2020 (11,608), the recent counts are more than 75 percent lower than the earlier counts.”¹⁰

Yet even the 75 percent collapse of the population may be an underestimate. Since the Southern wintering population “is disproportionately reliant on Delaware Bay,”¹¹ it is possible that the Spring 2021 bird count of less than 7,000 *rufa* Red Knots along Delaware Bay

⁷ USFWS Draft Recovery Plan, *op cit*, [“Loss of breeding and nonbreeding habitat (including sea level rise, coastal engineering, coastal development, and arctic ecosystem change); likely effects related to disruption of natural predator cycles on the breeding grounds; reduced prey availability throughout the nonbreeding range; and increasing frequency and severity of asynchronies (mismatches) in the timing of the birds’ annual migratory cycle relative to favorable food and weather conditions.”]

⁸ *Ibid*, p. 9.

⁹ *Ibid*, p. 8.

¹⁰ *Ibid*.

¹¹ *Ibid*, p. 9

represents a catastrophic plummet from nearly 52,000 birds in the Southern wintering region in 2000 to 6,680 in 2021, a nearly 87 percent loss of birds over a little more than two decades. The 2021 bird counts along both the New Jersey and Delaware sides of Delaware Bay found only 6,880 birds, “down sharply from 19,000 in 2020 and even further below the 30,000 recorded in 2018 and 2019.”¹² The New York Times reported that the record-low *rufa* Red Knot count “is the lowest since the early 1980s when the population was about 90,000.”¹³

The Southern population is not the only one of the four population groups that is in trouble. The USFWS Species Status Assessment Report indicates that the Western Gulf of Mexico/Central America population is also declining, while the status of the remaining two populations of birds – the North Coast of South America and the Southeast US/Caribbean populations – is unknown since data is insufficient to draw conclusions.¹⁴ Nevertheless, the FWS estimates that the North Coast of South America population is around 31,000 birds, the Southeast US/Caribbean population is around 15,500 birds and the Eastern Gulf of Mexico/Central America population may be about 6,000 birds.¹⁵

Despite plummeting population numbers in some regions, uncertainties in other regions, and overall low population numbers for the bird across all regions, the USFWS still describes the bird’s population as “stable,” even though the total population is estimated at less than 64,000 birds.¹⁶ In its Draft Recovery Plan, the USFWS makes an astonishing statement that the statistics do not appear to support: “We conclude that overall *rufa* red knot abundance is diminished relative to the 1980s *but currently stable*.” (emphasis added.)¹⁷ This conclusion is simply not warranted. The Recovery Plan should account for more recent population data for the 2021 spring migration and ensure that the declining population trends and unstable or uncertain population numbers are adequately accounted for in the USFWS Implementation Strategy for supporting recovery of the *rufa* Red Knot. This startling decline of the Red Knot must be addressed in the Recovery Plan and Recovery Implementation Strategy and immediate, broad-scale action must be taken to arrest the causes and consequences of the precipitous decline evidenced in 2021. It is clear that the scale of the population loss requires an unprecedented response.

2. Habitat protection, restoration, and management needs to be a central part of the USFWS *rufa* Red Knot Recovery Plan.

The USFWS Recovery Plan acknowledges that climate change disruptions and habitat loss are key contributors to declining populations of the *rufa* Red Knot, and that the bird “faces numerous threats across its range on multiple geographic and temporal scales.”¹⁸ Sea level rise impacts and climate change disruptions are accelerating, while coastal development continues to claim important habitat every year.¹⁹

¹² Hurdle, Jon, *New Jersey Spotlight News*, op cit.

¹³ Hurdle, Jon, *The New York Times*, op cit.

¹⁴ U.S. Fish and Wildlife Service, Ecological Services New Jersey Field Office, “Species Status Assessment Report for the *Rufa* Red Knot (*Calidris Canutus rufa*), Version 1.1. September 2020. Pp. 21-25. (Hereafter referred to as “USFWS Species Status Assessment.”)

¹⁵ Ibid.

¹⁶ USFWS Draft Recovery Plan, op cit, p. 8.

¹⁷ Ibid, p. 9.

¹⁸ Ibid. p. 10.

¹⁹ According to the USFWS Species Status Assessment, op cit. pp. 9-35, the *rufa* Red Knot faces “numerous threats across its range on multiple geographic and temporal scales.” Arctic ecosystem changes from climate change are among the highest-ranked threats to the birds, but so too are sea level

Given the significant and growing threats to important habitats, the final Recovery Plan and Recovery Implementation Strategy should take an expansive approach to conserving and restoring habitats and use all the tools in the federal government's toolbox. The *rufa* Red Knot uses the entire U.S. coastline along the Gulf of Mexico and Atlantic Ocean, as well as inland areas, encompassing a wide range of habitat, for both wintering and migration periods.²⁰ During

rise, coastal development, and coastal engineering impacts. It is important to note that the USFWS points out that "coastal engineering" includes hard structures, beach nourishment and dredging as actions that constitute a "highly severe" threat to the birds. The USFWS cites several habitat threats that are occurring and likely to continue, given the "overwhelming evidence that the climate will continue to change over coming decades." The loss, degradation and diminishment of habitat and food resources includes:

- Earlier snow melts in the Arctic breeding grounds are impacting juvenile survival rates because the birds produce smaller offspring that struggle to find suitable prey.
- Increases in nest predation due to climate-induced shifts in predator-prey relationships are resulting in greater predation on eggs and chicks.
- Increased numbers of shrubs and taller plants due to warming temperatures are covering the bare ground that the birds need for nesting in the Arctic.
- Ocean warming and acidification could be affecting the abundance of mollusks and other invertebrate prey, while harmful algal blooms are increasing in frequency and range, threatening the birds with sickness and death.

Sea level rise is threatening to inundate tidal flats and erode sandy beaches that are needed by the birds for feeding and resting.

²⁰ USFWS Species Status Assessment, *op cit*, "Some red knots make one of the longest distance migrations known in the animal kingdom, traveling up to 19,000 miles annually." (p. 9) In the United States, the *rufa* Red Knot's range – both migratory and wintering – encompasses the entire Gulf of Mexico coastline, from Texas to Florida; the Atlantic Ocean coast from Florida to Massachusetts; and parts of the Northern Great Plains. The habitat depended on by the birds includes specific, core areas as well as general coastal and inland features. (p. 9) The birds use multiple areas in the U.S. for both wintering and migration, including:

- **Wintering areas:** The core wintering areas include the Atlantic coast from Florida to North Carolina, and Laguna Madre on the Texas Gulf coast. Yet, *rufa* Red Knots can spend longer than the winter season on the Texas coast. In one study, red knots wintering in the Northwest Gulf of Mexico spent nearly the entire nonbreeding phase of their annual cycle on the Texas coast – 286 days, or nearly 79% of the calendar year. In addition to Laguna Madre, red knots also winter in Louisiana and the rest of the Gulf coast, the south- and mid-Atlantic coast and New England, and the Caribbean (pp. 7-11).
- **Northbound migration:** The northbound migration occurs along the Southeast Atlantic coast, from Florida through North Carolina; the Virginia barrier islands; and Delaware Bay, including Delaware and New Jersey (at pp. 9-10).
- **Southbound migration:** Southbound migrations occur along the coasts of Massachusetts and New Jersey, and the mouth of the Altamaha River in Georgia. However, "birds can occur all along the coasts in suitable habitats. In one study of northern-wintering red knots, the total time spent along the U.S. Atlantic coast averaged 218 days, or about 60% of the calendar year." ((p. 10).
- **Mid-continental migration:** *Rufa* Red Knots wintering in Texas typically use a central, overland flyway across the mid-continental United States for their northern migration, with birds departing Texas in May and using stopover areas in the Northern Great Plains and along southern Hudson Bay. During the southbound migration, these Texas-wintering birds will head back along their mid-continental route, using southbound stopover sites on the south shore of Hudson Bay. However, "small numbers of red knots are reported annually during spring and fall migration across the interior U.S. (i.e., greater than 25 mi from the Gulf or Atlantic Coasts). Such reported sightings are concentrated along the Great Lakes, but multiple reports have been made from nearly every interior State." (U.S. Department of the Interior, Fish and Wildlife Service, "Status of

spring and fall migrations, *rufa* Red Knots “generally prefer sandy coastal habitats at or near tidal inlets or the mouths of bays and estuaries.”²¹ The birds require a “reliable network of coastal and inland staging areas with abundant, high-quality prey.”²² In wintering areas, red knots “need wide, sparsely vegetated beaches, shoals, tidal mud or sand flats, or mangrove-dominated shorelines with ample small mollusk prey.”²³

The breadth of habitat requires wide-ranging coastal and inland protections that encompass geographies, regions and specific areas. Focusing recovery efforts on one or two particularly important areas for the birds will not achieve the birds’ recovery. For example, the Draft Recovery Plan recommends that Winter and Migration Focal Areas be delineated across the Red Knot’s range to support the recovery of all four populations.²⁴ Recovery actions would be concentrated in, but not limited to, the Focal Areas, which would most likely encompass Tier 1 sites.²⁵ In addition, the Focal Areas could also include areas outside of Tier 1 sites that provide important habitat. The USFWS notes that “Tier 2 habitats cumulatively are a central element in *rufa* red knot recovery.”²⁶ This could be the case along Florida’s Gulf Coast, where complexes of Tier 2 sites can equate to the ecological importance of a Tier 1 site since there are likely several areas where Red Knots move among foraging and roosting sites depending on tide, topography, sediment composition, vegetation cover on upper beaches, and wind speed/direction. It is clear that with a range that spans entire coastlines, recovery efforts must also span coastlines and be comprehensive, bold and wide-ranging.

Several areas along the Atlantic Ocean and Gulf of Mexico serve as examples of the kind of habitat needed by red knots during migrations or wintering. These examples show the bird’s dependence on specific areas in particular – such as Delaware Bay – as well as barrier islands, spits, inlets, beaches and bays all along the Atlantic and Gulf coasts. They also highlight the trans-coastal regions used by the birds, making it clear that recovery efforts must include coast-wide geographies as well as targeted hot spots and recovery efforts must focus on the roles these important habitats and regions play in the bird’s lifecycle (feeding, breeding, resting etc.)

- **New England: Massachusetts.** The *rufa* Red Knot uses coastal areas in Massachusetts as migratory stopover locations for foraging during spring and fall migrations as the birds move between their wintering and breeding grounds.²⁷ The birds stop-over in the state during fall migration (July-September), particularly using beaches on outer Cape Cod and mainland beaches along West Cape Cod Bay.²⁸

the Species – red knot.” November 2015.

https://www.fws.gov/verobeach/StatusoftheSpecies/20151104_SOS_RedKnot.pdf.)

²¹ Harrington, Brian A., “*Calidris Canutus*, Red Knot,” in *The Birds of North America*, No. 563. Cornell Laboratory of Ornithology and The Academy of Natural Sciences. 2001. Pp. 8-9.

²² U.S. Department of the Interior, Fish and Wildlife Service, North Atlantic-Appalachian Region and New Jersey Field Office, “Draft Recovery Plan for the Rufa Red Knot (*Calidris canutus rufa*.)” May 2021. P. 6. (Hereafter referred to as “USFWS Draft Recovery Plan.”) https://fws.gov/northeast/red-knot/pdf/20210510_draft%20red%20knot%20recovery%20plan_final%20version%20for%20FRN.pdf

²³ Ibid.

²⁴ USFWS Draft Recovery Plan, op cit. p. 11.

²⁵ Ibid.

²⁶ Ibid, p. 12.

²⁷ Massachusetts Division of Fisheries and Wildlife, Natural Heritage and Endangered Species Program, “Red Knot: *Calidris Canutus*.” 2020. <https://www.mass.gov/doc/red-knot/download#:~:text=Red%20Knots%20use%20coastal%20areas,during%20both%20spring%20and%20fall>.

²⁸ Ibid.

- **Mid-Atlantic: Delaware Bay.** Delaware Bay is a lifeline for the *rufa* Red Knot. According to the USFWS, the shores of the Delaware Bay in Delaware and New Jersey are “the single most important migration staging area” during the birds’ northbound (spring) migration.²⁹ The birds reach Delaware Bay after “long flights that may span thousands of miles without stopping.”³⁰ Prior to embarking on their migration north, the birds’ physiology changes in preparation for the long and arduous flight.³¹ Because stopovers are time-constrained, Red Knots “require stopovers rich in easily digested food to achieve adequate weight gain” to fuel the next leg of the migration, and be capable of breeding when they arrive in their Arctic breeding grounds.³² Delaware Bay provides “the final Atlantic coast stopover for an estimated 50-80% of all *rufa* red knots making their way to the Arctic breeding grounds each spring,” with birds from the Southern wintering region more reliant on this area relative to birds that winter elsewhere.³³ Delaware Bay “serves as the principal spring migration staging area for the red knot because of the abundance and availability of horseshoe crab eggs a superabundant source of easily digestible food.”³⁴
- **South Atlantic: South Carolina.** According to research by the South Carolina Department of Natural Resources, as many as two-thirds of the *rufa* Red Knots found on South Carolina beaches fly directly to the Arctic after leaving South Carolina, making the state’s beaches, “the last stop to gain weight or energy for their journey to the Arctic.”³⁵ During late winter and spring, red knots gather by the thousands along South Carolina beaches, especially at Cape Romain National Wildlife Refuge, Deveaux Bank, and Seabrook, Kiawah, and Harbor Islands.³⁶
- **Eastern Gulf of Mexico: Florida.** The complex of sites including Outback Key, mud flats in Shell Key Preserve, and Fort Desoto County Park’s North and Middle Beaches on the mid-Gulf coast “plays a vital role for both nesting and migratory waterbirds.”³⁷ The 65-acre preserve in Florida regularly hosts red knots.³⁸ A devastating red tide in 2018 killed and dislocated birds, but more than 1,000 *rufa* Red Knots returned in October 2019.³⁹

²⁹ USFWS Species Status Assessment, *op cit*, p. 15..

³⁰ *Ibid*, p. 9.

³¹ *Ibid*, “The birds undergo several physiological changes the leg muscles, gizzard, stomach, intestines and liver all decrease in size, while the pectoral (chest) muscles and heart increase in size.” These physiological changes include the reduced size of the gizzard, which is what grinds the hard shells of mollusks. Red knots “arriving from lengthy migrations are not able to feed maximally until their digestive systems regenerate, a process that may take several days.”

³² *Ibid*.

³³ *Ibid*.

³⁴ *Ibid*, p. 12.

³⁵ South Carolina Department of Natural Resources, “Shorebird research underscores importance of South Carolina beaches.” June 7, 2018. https://www.dnr.sc.gov/news/2018/jun/jun7_shorebirds.html

³⁶ *Ibid*.

³⁷ Parsons, Vicki, “Protect Magical Outback Key,” in *Bay Soundings*. September 16, 2020.

<http://baysoundings.com/protect-magical-outback-key/>

³⁸ *Ibid*.

³⁹ Liechty, Jeff, “Red Knots Return to Outback Key after Devastating Red Tide Bloom in 2018,” in *Audubon Florida*. Autumn 2019. <https://fl.audubon.org/news/red-knots-return-outback-key-after-devastating-red-tide-bloom-2018>

- **Western Gulf of Mexico: Texas.** Laguna Madre spans two countries – from southern Texas to the state of Tamaulipas, Mexico – and is one of only a handful of hypersaline lagoons in the world.⁴⁰ It is a vast expanse of shallow, wind-driven wetlands separated from the Gulf of Mexico by a long strand of skinny barrier beaches.⁴¹ Geolocator data has shown that both *rufa* and *roselaari* subspecies stop at Laguna Madre in spring.⁴² Some *rufa* Red Knots are combining their fall, winter and spring into one stop, depending on the Laguna Madre area for more than 75 percent of the year.⁴³

The birds' reliance on crucial habitat areas makes them particularly vulnerable to loss or disruption of habitat in these zones. As noted by the Cornell Lab of Ornithology, "the tendency to concentrate at traditional migration staging sites and wintering areas may render [*rufa* Red Knot] populations vulnerable to loss of strategic habitats critical to the well-being of their populations."⁴⁴ The Cornell Lab notes that at migration staging sites, "Red Knots were the most heavily concentrated of all shorebirds, with 98% in the spring and 97% in the fall concentrated at key sites, virtually all of which were coastal locations."⁴⁵

In addition to climate threats from sea-level rise and increased erosion from more extreme storms, increasing coastal development also threatens habitats important to recovery of the *rufa* Red Knot. New development on beaches and islands paves over important habitats; brings people, cars and pets onto beaches disturbing these sensitive birds; and builds pressure for massive sand mining and dredging operations that dig thousands of tons of sand from the inlets, spits and flats that the birds depend on.

The threats from sea level rise, coastal development, shoreline hardening, and sand mining span much of the Gulf of Mexico and Atlantic coasts and the *rufa* Red Knot habitat they provide. Addressing these threats requires coast-wide actions to restore the subspecies. All of these areas should be considered for habitat conservation, restoration, stewardship, and monitoring activities. Additional protective measures must be taken to address habitat areas that are of particular importance to the bird and highly vulnerable to degradation or loss from threats like sea-level rise and development.

- a. *The USFWS should act to restore protections offered by the Coastal Barrier Resources Act and expand the Coastal Barrier Resources System.*

The Coastal Barrier Resources Act (CBRA) provides a critical tool to help the USFWS conserve and protect habitats vital to *rufa* Red Knot recovery. Coastal development, coastal engineering, and sea level rise impacts are ranked by the USFWS as high-level threats to the *rufa* Red Knot, and they are occurring throughout the bird's wintering and migratory ranges along the Gulf of Mexico and Atlantic Coast.⁴⁶ The CBRA has been one of the nation's most effective tools for protecting coastal habitat, and it should be bolstered and expanded to protect vitally important habitats for the *rufa* Red Knot and other imperiled shorebirds.

⁴⁰ Western Hemisphere Shorebird Reserve Network, "Uncovering the Mysteries of Red Knot Movements on the Gulf Coast." February 13, 2020. <https://whsrn.org/uncovering-the-mysteries-of-red-knot-movements-on-the-gulf-coast/>

⁴¹ Ibid.

⁴² Ibid.

⁴³ Ibid.

⁴⁴ Cornell Lab of Ornithology, "Birds of the World: Red Knot, *Calidris Canutus*." March 4, 2020.

⁴⁵ Ibid.

⁴⁶ USFWS Species Status Assessment, *op cit.* p. 18.

The USFWS administers the CBRA, which created the Coastal Barrier Resource System (the System or CBRS) of protected areas that now includes nearly 3.5 million acres of wetlands, beaches and islands, and spits and inlets along the Gulf of Mexico, Atlantic Ocean, Great Lakes, U.S. Virgin Islands and Puerto Rico.⁴⁷ The CBRA prohibits most federal expenditures on areas included in the System, resulting in a savings of nearly \$10 billion to the federal Treasury.⁴⁸ Shielding these areas from federal development funds results in them remaining undeveloped or lightly developed, which ensures that valuable habitat for birds, economically important fisheries and shellfisheries, and other wildlife remains available.⁴⁹ Discouraging development in coastal areas also helps protect people and structures from damaging storms, hurricanes and sea level rise. Many of the areas in the CBRS provide vitally important habitat for the *rufa* Red Knot along the Gulf and Atlantic coasts. Expanding the CBRS to include more habitat areas and restoring its full protections against federally funded sand mining, would *conserve* vital habitats for the *rufa* Red Knot in the immediate and long term.

First, USFWS should fully restore the CBRA's prohibition against federally funded sand mining in the CBRS areas for sand to be used outside of the System. In November 2019, the Trump Administration abruptly adopted an illegal rule that would allow beaches, islands, inlets and spits to be mined, paid for by federal tax dollars, to generate sand for use in renourishing beaches outside of the System.⁵⁰ This rule directly contradicts the stated intent and purpose of the CBRA, and is opposed by dozens of organizations representing fiscal conservatives, taxpayer advocates, sportsmen, anglers, conservationists, marine researchers and the insurance industry.⁵¹ This rule runs directly counter to the recovery of *rufa* Red Knot. For example, the New Jersey office of the U.S. Fish and Wildlife Service found that dredging or sand mining in inlets and shoals and beach nourishment activities can result in negative impacts to Red Knots.⁵² We urge USFWS to consider CBRA protections as part of its arsenal in supporting recovery of the *rufa* Red Knot and to restore the CBRA's full protections from federally-funded sand mining, including important habitats used by the *rufa* Red Knot.

Second, the USFWS should work to expand the System by finalizing and submitting maps to Congress for adoption that would add areas to the CBRS in nine states affected by Hurricane Sandy (NH, MA, RI, CT, NY, NJ, DE, MD and VA) including states that provide important habitats for the *rufa* Red Knot.⁵³ The proposed additions would add more than a quarter-million acres of islands, beaches, inlets and wetlands to the protective System. The

⁴⁷ See U.S. Fish and Wildlife Service, "Coastal Barrier Resources System." <https://www.fws.gov/cbra/>

⁴⁸ Coburn, Andrew S. and Whitehead, John C., "An Analysis of Federal Expenditures Related to the Coastal Barrier Resources Act (CBRA) of 1982," in *Journal of Coastal Research*. March 15, 2019. <https://bioone.org/journals/journal-of-coastal-research/volume-35/issue-6/JCOASTRES-D-18-00114.1/An-Analysis-of-Federal-Expenditures-Related-to-the-Coastal-Barrier/10.2112/JCOASTRES-D-18-00114.1.short>

⁴⁹ U.S. Government Accountability Office, "Coastal Barrier Resources System: Status of Development That Has Occurred and Financial Assistance Provided by Federal Agencies." GAO-07-356. March 19, 2007. <https://www.gao.gov/products/gao-07-356>

⁵⁰ Bernhardt, David, Secretary of the Interior, "Letter to the Honorable Jeff Van Drew, U.S. House of Representatives." November 4, 2019.

⁵¹ See National Audubon Society, R Street Institute, *et al* "Letter to The Honorable Deb Haaland, Secretary of the Interior." June 16, 2021.

⁵² U.S. Fish and Wildlife Service, New Jersey Field Office, "Rufa Red Knot (*Calidris canutus rufa*) [threatened.]" May 11, 2016. <https://www.fws.gov/northeast/njfieldoffice/endangered/redknot.html>; U.S. Fish and Wildlife Service Northeast Region, New Jersey Field Office, "Rufa Red Knot Background Information and Threats Assessment" November 2014. https://fws.gov/northeast/red-knot/pdf/20141125_REKN_FL_supplemental_doc_FINAL.pdf.

⁵³ See U.S. Fish and Wildlife Service, "Coastal Barrier Resources Act," *op cit*.

FWS is also working to finalize maps for South Carolina and Florida that would add more than 10,000 acres to the CBRS in the two states.⁵⁴ The National Audubon Society applauds the USFWS's proposed changes to the CBRS in these 11 states and supports the enactment of the maps by Congress. We urge the USFWS to provide a full-throated endorsement of the package of maps, and work diligently with Congress to support their enactment.

Third, the USFWS should continue its support for legislation that would modernize and expand the definition of coastal barriers to protect migration areas that will enable these resources to migrate inland and naturally adapt to rising sea levels. Such expansion will be vitally important for protecting these important habitats in the future as rising seas and increasing impacts from more intense storms continue to damage and degrade coastal ecosystems. The "Ocean-Based Climate Solutions Act" would authorize a pilot project to apply CBRA to coastal areas that are not currently a part of the CBRS, including areas subject to sea level rise impacts and storm surges, which would result in enhanced coastal resiliency and the protection of emerging habitat, marsh migration corridors, and other areas.⁵⁵ It would also require the USFWS to examine how the CBRA could be expanded to the Pacific Coast.⁵⁶

Finally, while Congressional action to modernize and grow the protective System is welcome, the USFWS need not wait for it and can immediately begin the process of expanding the CBRS. The "Guiding Principles and Criteria" developed by the Service for adding areas to the CBRS provide sufficient guidance to allow the Service to immediately start identifying areas where CBRA protections could be expanded.⁵⁷ These principles and criteria enable USFWS to begin to identify those areas outside the current System that could be added to the System to protect coastal barrier resources that are vulnerable to coastal hazards now, and that will be increasingly vulnerable in the future, given sea-level-rise scenarios.

For *rufa* Red Knot to recover, it must have habitat not only now but also in the years to come. The USFWS states in its Species Status Report that, "considerable opportunities exist for management actions to support red knot adaptive capacity . . . by facilitating the inland migration of beaches and tidal flats."⁵⁸ The criteria and guidance could be used to immediately begin to identify areas that are related to a coastal barrier ecosystem, such as upland areas adjacent to beaches, tidal flats, and wetlands, which could function as migration corridors to enable these habitats to adapt to sea-level rise. The Service should develop maps that would propose inclusion of these areas that could be reviewed by the public and enacted by Congress.

⁵⁴ Ibid.

⁵⁵ See H.R. 3764, the "Ocean-Based Climate Solutions Act." Introduced June 8, 2021.

⁵⁶ Ibid.

⁵⁷ In assessing an area to see if it qualifies for inclusion in the CBRS, the USFWS considers the following guiding principles:

1. Whether the area may reasonably be considered to be a coastal barrier feature or related to a coastal barrier ecosystem (this generally includes areas that are inherently vulnerable to coastal hazards such as flooding, storm surge, wind, erosion, and sea level rise) and
2. Whether inclusion of the area within the CBRS is rationally related to the purposes of the CBRA (i.e., to minimize the loss of human life, wasteful expenditure of Federal revenues, and damage to fish, wildlife, and other natural resources).

U.S. Fish and Wildlife Service, *Final Report to Congress: John H. Chafee Coastal Barrier Resources System Digital Mapping Pilot Project*. 2016. P. 37. <https://www.fws.gov/cbra/projects/pilot/John-H-Chafee-CBRS-Digital-Mapping-Pilot-Project-Report-2016.pdf>

⁵⁸ USFWS Species Status Assessment, *op cit.* p. 41.

- b. *The USFWS should seek additional funding and quickly deploy funds to work to protect and restore important habitats and to manage habitats to reduce human disturbance to Red Knots and other shorebirds.*

President Biden's proposed Fiscal Year 2022 budget includes \$1.9 billion to fund the USFWS's principal resource management and conservation programs.⁵⁹ The budget proposal provides an increase of \$331.3 million over the 2021 enacted level to "support local conservation partnership programs, improve targeted conservation efforts, restore damaged lands, and promote locally led efforts of all kinds."⁶⁰ The proposed budget includes \$240 million above the FY2021 enacted level for "programs and projects that will contribute to minimizing the negative effects of climate change, bolster community resilience, and increase carbon sequestration."⁶¹ Additional funding will be used to support land management and restoration, and accelerate efforts to conserve 30 percent of U.S. land and water by 2030 "through investments in partner programs, climate science and habitat adaptation and resilience."⁶²

USFWS should support increased funding levels and prepare to deploy new funding to support critical habitat restoration, conservation, and coastal stewardship efforts in areas important for recovery of *rufa* Red Knot and other imperiled shorebirds both domestically and abroad. The USFWS can build upon its leadership in using nature-based approaches for protecting and conserving important habitat in refuges and other areas within its jurisdiction. This will also help to showcase "non-structural" methods for addressing flood risk that can be replicated elsewhere. For example, the USFWS installed a 21,000-foot living shoreline to protect marshes in a coastal section of the Glenn Martin National Wildlife Refuge in the Chesapeake Bay.⁶³ By stabilizing a highly vulnerable shoreline, more than 1,000 acres of interior tidal high marsh, submerged aquatic vegetation and clam beds are protected against future storms.⁶⁴ And, in the Seal Beach National Wildlife Refuge in California, the USFWS conducted a pilot project targeted to protecting nesting areas for the clapper rail.⁶⁵ The USFWS applied a thin layer of sediment to six acres of marsh in the pilot project, which was "not only intended to improve the habitat quality for the rail, but also to evaluate the success of this project as a regional strategy to combat sea level rise."⁶⁶

Management of suitable habitats for *rufa* Red Knot is also critical to their recovery and funds should also be deployed to minimize human disturbance of the bird at important sites. Habitat management at focal wintering areas is key. This may include establishing posted areas at often-used roosting sites with signage and winter bird stewardship staffing to intervene in

⁵⁹ U.S. Fish and Wildlife Service, Press Release: "President Biden's Fiscal Year 2022 Budget Makes Significant Investments in Conservation and Addressing Climate Change." May 28, 2021. https://www.fws.gov/news/ShowNews.cfm?ref=president-biden%E2%80%99s-fiscal-year-2022-budget-makes-significant-investments-&_ID=36919

⁶⁰ Ibid.

⁶¹ Ibid.

⁶² Ibid.

⁶³ U.S. Department of the Interior, Hurricane Sandy Recovery, "'Living shoreline' helps nature stand against the storm in the Chesapeake Bay." October 20, 2015.

<https://www.doi.gov/hurricanesandy/usfws-living-shoreline-helps-nature-stand-against-storm-chesapeake-bay>

⁶⁴ Ibid.

⁶⁵ U.S. Fish and Wildlife Service, Seal Beach National Wildlife Refuge, "Salt Marsh Sediment Augmentation Project." 2015.

https://www.fws.gov/refuge/seal_beach/what_we_do/resource_management/Sediment_Pilot_Project.html

⁶⁶ Ibid.

disturbances or intrusions into posted areas. This may also include establishing or expanding state-established Critical Wildlife Areas to close some coastal beach and island segments during the winter months from November to February at a minimum.

The USFWS should also ensure that it is deploying and prioritizing grant funding for projects that support protection, restoration, and management of habitats important to the recovery of the *rufa* Red Knot not only here at home, but also internationally. For example, the National Coastal Wetlands Conservation Grant Program provides grants to protect, restore and enhance coastal wetland ecosystems and associated uplands, not only for habitat benefits, but because “coastal wetlands must be protected as they play a significant role in reducing flooding from storm surge and in stabilizing shorelines under sea-level rise.”⁶⁷ Beaches, islands and spits that are used by *rufa* Red Knots are also important storm buffers for upland communities. The Delaware River Basin Restoration Program, a catalyst for collaborative conservation in the watershed that includes Delaware Bay, is an example of a geographic program whose funds should be better prioritized to support the habitat needs of migratory bird populations including the *rufa* Red Knot. The Neotropical Migratory Bird Conservation Act Grant program provides funding to support conservation projects throughout the Western Hemisphere to support the needs of migratory bird populations, like the *rufa* Red Knot, and is a vital but underfunded source of support for recovery efforts like this, which need to happen on a continental scale and across a species' full life cycle. The USFWS should consider how it might utilize these and other grant programs to direct funds toward projects that will support protection, restoration, and habitat enhancement of barrier islands and inlets and other important habitats important for Red Knot recovery.⁶⁸ Allocating funds to projects to conserve island and inlet ecosystems would benefit the *rufa* Red Knot and countless other shorebirds, while providing important coastal resiliency benefits for nearby communities and should be a critical component of the USFWS's efforts to support recovery of the subspecies.

3. The Recovery Plan and Implementation Strategy must address overharvesting of vital food sources – like horseshoe crabs – at important stopover areas.

In addition to these coast-wide threats from habitat loss, the USFWS recovery plan and implementation strategy must address loss of important food sources due to overharvesting of horseshoe crabs (HSC) at important stopover, staging, and wintering areas for the *rufa* Red Knot. HSC eggs are a vitally important food source at several of the birds' most important staging and migratory area. Horseshoe crab eggs are laid in clusters or nest sites along the beach with females laying approximately 90,000 eggs per year in different egg clusters.⁶⁹ The Atlantic States Marine Fisheries Commission (ASMFC) has recognized the importance of HSCs in the “food web for migrating shorebirds,” particularly in the Delaware Bay Estuary and the “estimated 425,000 to one million migratory shorebirds that converge on it to feed and rebuild energy reserves prior to completing their northward migration.”⁷⁰

Yet, overharvesting of horseshoe crab at key locations threatens the birds' ability to refuel for long flights. For example, concerns over illegal crab harvesting in South Carolina's Cape

⁶⁷ Adaptation Clearinghouse, Georgetown Climate Center, Georgetown University, “USFWS National Coastal Wetlands Conservation Grant Program.” January 5, 2017. <https://www.adaptationclearinghouse.org/resources/usfws-national-coastal-wetlands-conservation-grant-program.html>

⁶⁸ Florida Department of Environmental Protection, “Beaches.” <https://floridadep.gov/rcp/beaches>

⁶⁹ Atlantic States Marine Fisheries Commission, “Horseshoe Crab.” (Hereafter referred to as “ASMFC Horseshoe Crab.”) <http://www.asmfmc.org/species/horeseshoe-crab> .

⁷⁰ Ibid.

Romain National Wildlife Refuge, and its impact on Red Knots and other migratory birds, prompted a lawsuit against the practice that resulted in a temporary halt to horseshoe crab harvesting in the Refuge.⁷¹ Harvesting over the sustainable limit is suspected in South Carolina, even where harvesting is legal.⁷² In New York, conservation groups have called for closures of areas to horseshoe crab harvesting in an effort to protect this vital food source for migrating shorebirds.⁷³ While the state of New Jersey has banned horseshoe crab harvesting, New York has not, instead setting a 2021 quota for horseshoe crabs at 150,000.⁷⁴ As of mid-June 2021, nearly 50 percent of that quota had been reached and this quota does not account for recreational take.⁷⁵

HSC harvesting is also a critical issue in the Delaware Bay region, which supports the largest spawning population of the crabs in the world.⁷⁶ In 1986, Delaware Bay was designated as the first Western Hemisphere Shorebird Reserve Network (WHSRN) site due to its “hemispheric significance” to Red Knots and several other shorebirds.⁷⁷ The USFWS Draft Recovery Plan notes that, “The single most important spring staging area is along the shores of Delaware Bay in Delaware and New Jersey, where rufa red knots achieve very high rates of weight gain feeding on the eggs of spawning horseshoe crabs.”⁷⁸ The Service notes that, in all likelihood, “Red knots came to rely on Delaware Bay because their populations were recovering at the same time that Atlantic-side stopover habitats in the region were become developed and the shorelines stabilized.”⁷⁹

Stock depletions have been exacerbated by the biopharmaceutical industry’s capture of HSC to be bled to produce *Limulus ameobocyte lysate* (LAL) for endotoxin testing.⁸⁰ LAL is a clotting agent that aids in the detection of human pathogens in patients, drugs, and intravenous devices.⁸¹ Blood from the HSC is obtained by collecting adults and extracting a portion of their blood. The biomedical harvest “is a rapidly growing cause of mortality for horseshoe crabs and is likely contributing to reduced reproductive capacity,” according to a wide-ranging coalition of conservation groups, anglers, physicians, and marine researchers.⁸² While the ASMFC

⁷¹ See Defenders of Wildlife, “Court orders halt to blood harvest of horseshoe crabs in Cape Romain.” May 12, 2021. <https://defenders.org/newsroom/court-orders-halt-blood-harvest-of-horseshoe-crabs-cape-romain>. See also

“Notice of Intent to Sue to Remedy Violations of Federal Law in Cape Romain National Wildlife Refuge” sent by Michael Senatore and Lindsay Dubin, Defenders of Wildlife, to Aurelia Skipwith, Director, U.S. Fish and Wildlife Service. May 13, 2020.

⁷² Chiara Eisner, “Vaccine testing is changing. Why is this \$13B lab still bleeding SC horseshoe crabs?” The State. Feb. 11, 2021, <https://www.thestate.com/news/local/environment/article248306895.html>

⁷³ See Liner, Jillian, Director of Bird Conservation, Audubon New York, Letter to Kim McKown, Marine Invertebrate and Protected Resources Unit Leader, New York State Department of Environmental Conservation,” regarding the proposed closing of Pikes Beach to horseshoe crab harvesting. April 24, 2017.

⁷⁴ New York State, Department of Environmental Conservation, “Horseshoe Crab Quota and Landings Data.” Updated June 12, 2021. <https://www.dec.ny.gov/outdoor/100858.html>

⁷⁵ Ibid. See also New York State, Department of Environmental Conservation, “Commercial Limits for Lobsters, Crabs, and Whelk.” 2021. <https://www.dec.ny.gov/outdoor/98644.html>

⁷⁶ ASMFC Horseshoe Crab, *op cit.*

⁷⁷ USFWS Species Assessment, *op cit.* p. 19.

⁷⁸ USFWS Draft Recovery Plan, *op cit.* p. 6.

⁷⁹ USFWS Species Assessment, *op cit.* p. 9.

⁸⁰ ASMFC Horseshoe Crab, *op cit.*

⁸¹ Ibid.

⁸² See Letter from American Littoral Society, Anglers Conservation Network, et al, to Alex Gorsky, Chairman and Corporate Executive Officer, Johnson and Johnson. May 2021.

estimates mortality for bled crabs at 15 percent, “independent studies show mortality could be as high as 30 percent, with additional effects beyond mortality that impact the population’s ability to recover.”⁸³

HSC bleeding is also a completely unnecessary threat to this important species. A “low-cost, proven-safe alternative to LAL exists: rFC.”⁸⁴ The synthetic alternative is used by Eli Lilly & Co. and “has been or will likely shortly be deemed equivalent to LAL by pharmacopeia organizations around the world – except by the United States.”⁸⁵ It is imperative that this alternative to horseshoe crab blood be universally used by the U.S. as well as the international pharmacological industry.

The USFWS Draft Recovery Plan appropriately highlights the “overharvest of the horseshoe crab in Delaware Bay” as a “key causal factor in the decline of the Southern wintering population (Tierra del Fuego) of the red knot,”⁸⁶ and overharvesting of HSC has also been highlighted by the ASFMC and others.⁸⁷ Additionally, ASFMC indicates that “to date, no overfishing or overfished definitions have been adopted for management use” for the HSC fishery.⁸⁸ Despite these threats, the Draft Recovery Plan does not include any recommendations on how to address overharvesting of this food source that is critical to the recovery of the *rufa* Red Knot. The loss of critically important *rufa* Red Knot habitat and food sources must be addressed in the Recovery Plan and Recovery Implementation Strategy in order for the subspecies to fully recover. USFWS should consider ways that it can engage with state and regional fisheries managers and the pharmaceutical industry to protect horseshoe crabs from unsustainable harvest levels.

- a. *USFWS should work closely with the Atlantic States Marine Fisheries Commission, other federal and state agencies, and the biomedical industry to ban biomedical use of horseshoe crab blood, and to impose a moratorium on horseshoe crab harvests.*

The USFWS can exert leadership with the Atlantic States Marine Fisheries Commission to enact a moratorium on horseshoe crab harvesting from Connecticut to South Carolina to protect important staging and feeding locations. The Commission has the authority to establish a moratorium on horseshoe crab harvests, and the USFWS has an important role to play since the Commission states that it is in its “mutual interest” to “work in collaboration with its federal partners – NOAA Fisheries and the U.S. Fish and Wildlife Service.”⁸⁹ Improved management of

⁸³ “The biomedical harvest exceeded bait harvest for the first time in 2019: a 25 percent increase from 2018, and mortality was 31 percent higher than the average for the preceding 9 years. This marks 12 out of the last 13 years that biomedical harvest has exceeded ASMFC’s threshold for mortality.” *Ibid.*

⁸⁴ *Ibid.*

⁸⁵ *Ibid.*

⁸⁶ USFWS Draft Recovery Plan, *op cit.* p. 9.

⁸⁷ Commercial fishing operations brought in anywhere from 20,000 to 2 million pounds of crabs annually from 1970-1990. The 1990s saw an increase in commercial harvest of crabs as bait for the American eel and whelk pot fisheries, with a peak of nearly six million pounds of horseshoe crabs caught in 1997. This catch does not include those animals discarded from commercial gears including dredges, trawls and gillnets. Therefore, the actual number of horseshoe crabs that die from being captured or discarded from the commercial fishing industry may be 25-50 percent higher than the number that is recorded as the commercial fishing harvest, resulting in a consistently under-reported take. ASMFC Horseshoe Crab, *op cit.*

⁸⁸ *Ibid.*

⁸⁹ Atlantic States Marine Fisheries Commission, “About Us.” <http://www.asmfc.org/about-us/program-overview>

the HSC fishery in the mid- to south-Atlantic, and especially in the Delaware Bay, is crucially important for the recovery of the *rufa* Red Knot.⁹⁰ The Delaware Bay is depended on by the Southern wintering group of *rufa* Red Knots, which have seen a catastrophic 75 percent decline (if not more). The Service warns that the Southern wintering group is a “bellwether for the subspecies [of *rufa* Red Knot] as a whole because these longest-distance migrants are the most vulnerable to threats . . .”⁹¹ Protecting its essential migratory stopover areas is a necessary action to restoring the entire subspecies.

The USFWS should also join other entities that are urging the U.S. biomedical industry to follow the lead of Eli Lilly & Co. and adopt the use of synthetic lysate. Physicians’ groups, pharmaceutical leaders, anglers, and conservationists have joined together in supporting Eli Lilly’s decision and urging the rest of the industry to adopt the use of synthetic lysate. The USFWS has a deep regulatory interest in the protection of shellfisheries and wildlife that are under its jurisdiction. Stepping forward to add its expertise to the discussions would be enormously helpful.

Specifically, USFWS should address overharvesting of HSC by:

- Expanding the number of stopovers along the Atlantic coast by stopping the harvest of female horseshoe crabs from every population in every state.
- Improving estimates of bycatch and working to reduce bycatch and illegal harvesting
- Conducting outreach to all pharmaceutical companies to promote policies that will end the use of blood from a live animal for toxicity testing and promoting a switch to synthetic Lysate or recombinant Factor C (rFC) .
- Stopping biomedical harvest of horseshoe crabs in the Carl N. Shuster, Jr. Horseshoe Crab Reserve outside Delaware Bay and all dredging in the reserve during the horseshoe crab wintering period.
- Protecting the southbound stopovers in the US by reducing the effect of disturbance on Red Knots.
- Amending the Adaptive Management Framework to include egg monitoring as a key part of the evaluation of progress towards recovery and using eggs as a key metric to assess progress towards recovery for all horseshoe crab populations and imperiled shorebirds that rely on HSC eggs as a critical food source.
- Requiring greater transparency, accountability and adherence to best management practices by biomedical bleeding companies through oversight by the Atlantic States Marine Fisheries Commission (ASMFC).

⁹⁰ Specifically, the ASFMC could take specific steps to sustainably manage the HSC fishery and to support recovery of the *rufa* Red Knot, including by:

- Adopting egg density as an ecosystem reference point. Rather than continuing to dismiss this approach, we recommend this Board hold a workshop to independently review standardized approaches to an egg density reference point. The ASFMC just put an ecosystem reference point in place for menhaden, and can do so for HSC. The Board’s own discussion of the constraints on the Adaptive Resource Management (ARM) including low quality data on biomedical harvest (number of crabs taken, survivorship, uncertainties about post-bleeding effect on crabs) underscore the need to develop this reference point.
- Requiring better disclosure of information from bleeding companies on biomedical harvest.
- Developing language for a motion to urge the U.S. Food and Drug Administration and U.S.Pharmacopeia to adopt rFC as an alternative to LAL.
- Holding a formal review of alternative bait development and taking an active role in transitioning to alternative bait for the whelk and eel fisheries.
- Working to immediately quantify the impact of bycatch and bycatch mortality.

⁹¹ USFWS Draft Recovery Plan, *op cit.* p. 13.

4. USFWS should work to immediately restore protections for migratory birds, like the *rufa* Red Knot, provided by the Migratory Bird Treaty Act.

The USFWS focuses its recovery strategy on “tractable threats,” both primary and secondary.⁹² The USFWS states that, “the essential management strategy for conserving” the *rufa* Red Knot is to “reduce or eliminate all tractable threats in the migration and wintering range,” which includes the coastline along the entire Gulf of Mexico and nearly all of the Atlantic Ocean.⁹³ “Tractable threats” are those that can be managed or avoided, like decisions about where we site new infrastructure, such as wind turbines or LNG terminals, and how we can mitigate the impacts of fossil fuel extraction or private space exploration activities, and other decisions that, if well managed, can reduce impacts on birds and other wildlife.⁹⁴ The Migratory Bird Treaty Act (MBTA) provides vital protections to prevent activities that harm birds and the full protections of the MBTA need to be restored to address “tractable” threats to the survival of imperiled species, like the Red Knot.

Audubon strongly supports the reinstatement of MBTA protections from incidental take. USFWS should return to fully implementing the law, consistent with decades of agency precedent, and develop a permitting program that advances best management practices (BMPs) while providing additional regulatory certainty. USFWS should employ all available tools to address species’ recovery, and the MBTA is an important tool to ensure that projects across its range utilize BMPs to minimize harm to this species and others, including reducing collisions, as well as providing a means for recovery after incidents that impact the species, such as oil spills, chemical exposure, and more. The MBTA should be viewed as a complementary tool to the Endangered Species Act, and USFWS reinstatement of full MBTA protections will support recovery of all MBTA-protected species, including the *rufa* Red Knot.

USFWS should also fund better monitoring to assess incidental take from coastline and offshore development. No methods exist to capture “take” events in the offshore environment and this will be a vital part of the responsible build out of offshore wind (a critical resource to mitigate climate change). USFWS has a responsibility to evaluate the impacts (not just predict risk) of the offshore wind industry to *rufa* Red Knot and other migratory species, so that impacts can be properly mitigated.

5. USFW should accelerate its timeline for rebuilding Red Knot populations

Despite the dramatic declines in Red Knot populations over the last 20 years, the timeline in the USFWS’s Draft Recovery Plan does not reflect the urgency that is needed. The USFWS concludes that, “If all actions are fully funded and implemented with cooperation of all partners, [we] anticipate delisting could be achieved by 2080.”⁹⁵ USFWS attributes part of the lengthy time frame given the need to address “threats such as coastal engineering and development,

⁹² Ibid.

⁹³ Ibid.

⁹⁴ “Not all threats to the red knot stem directly from climate change. Some threats relate to how humans may respond to climate change, for example, whether humans abandon or harden coastal areas in response to sea level rise Other threats, such as disturbance, are largely unrelated to climate change. It is in these categories of more proximate threats that management efforts may partially abate the impacts of climate change by increasing the resiliency of red knot populations, and where recovery actions under the ESA will likely focus.” USFWS Species Status Assessment, *op cit.* p. 36.

⁹⁵ USFWS Draft Recovery Plan, *op cit.* p. 20.

[which require] upwards of 25 years of concerted conservation efforts to be sufficiently abated to improve *rufa* red knot population trajectories.”⁹⁶

But the *rufa* Red Knot’s plummeting population and ever-contracting numbers make it clear that it can’t wait 25 years for coastal development and engineering threats to be addressed, much less 60 years for a successful recovery. Those timelines further imperil the dwindling number of birds. Along with long-term activities, there are actions that the USFWS can and should take **right now** to start protecting *rufa* Red Knot habitat from damage and further loss. The USFWS delineates three categories of recovery actions that are deemed to be the most urgent, and “that must be taken to prevent extinction or to prevent the species from declining irreversibly.”⁹⁷ These three “must-do” categories rank the highest among the eight overall recovery action categories, which as a group, will be used to develop the Recovery Implementation Strategy that will “detail specific activities to achieve recovery.”⁹⁸ The top three actions are:

- Maintain, enhance and restore habitat (e.g., through land acquisition/protection, avoiding/minimizing degradation and loss, restoration, facilitating shoreline migration, restoring coastal processes.)
- Maintain and restore ample food supplies.
- Limit disturbance from human activities and preclusion from suitable habitats (e.g., caused by humans, predators, gulls).⁹⁹

The process of initiating and implementing the top tier actions can start today, as described above. Launching land acquisition programs that can target important habitat areas, restoring habitat, charting and facilitating migration, addressing human activities that harm habitat – all of those actions can start immediately either through programs that are within the purview of the USFWS, or through partnerships with other federal and state agencies, nonprofits and the private sector.

Conclusion

The *rufa* Red Knot is facing a crisis that requires immediate bold action as well as sustained commitment. There is no need – and indeed, no time – to wait to start protecting the *rufa* Red Knot’s migratory and wintering habitat along the coasts, and its critical staging areas like the Delaware Bay and other areas with important horseshoe crab populations. The USFWS should exert leadership with the Atlantic States Marine Fisheries Council to ensure that the horseshoe crab is sustainably managed from Connecticut to South Carolina in order to protect this vitally important source of food for the Red Knot. It should also join with the chorus of other medical, industry, sportsmen, anglers and conservation groups who are calling on the U.S. biomedical regulators to authorize use synthetic lysate and stop the harvest and bleeding of horseshoe crabs.

Actions should commence immediately, and continue at an aggressive pace, to protect the spits, inlets, shoals, mudflats, islands and beaches along the Gulf of Mexico and Atlantic Coast that are used by the *rufa* Red Knot. There are steps that can be taken beginning today. FWS can overturn the harmful Trump Administration rule that allows federally funded sand mining in CBRS areas for sand to be used outside of the System. The Service can act to

⁹⁶ Ibid.

⁹⁷ Ibid, p. 19.

⁹⁸ Ibid.

⁹⁹ Ibid.

expand the Coastal Barrier Resources System administratively while supporting new strengthening legislation. The Service can deploy funds to apply natural infrastructure approaches to stabilize habitats that are threatened by sea level rise, including through existing restoration programs and through new initiatives to target islands and inlets that are crucial to *rufa* Red Knots. The USFWS can also fund important work to protect *rufa* Red Knot habitats internationally.

The *rufa* Red Knot is facing the dire threat of extinction. The National Audubon Society urges the USFWS to act boldly and quickly to begin the process of recovery. Thank you for the opportunity to comment on the Draft *rufa* Red Knot Recovery Plan.

Sincerely,

National Audubon Society
Audubon Florida
Audubon Mid-Atlantic
Audubon North Carolina
Audubon South Carolina
Audubon Texas
Charleston Audubon