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April 7, 2016

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7915 Baymeadows Way, Ste. 200
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Re: 12-Month Finding on a Petition to Downlist the West Indian Manatee and Proposed Rule to Reclassify the West Indian Manatee as Threatened [Docket No. FWS-R4-ES-2015-0178]

Dear Mr. Herrington,

The Center for Biological Diversity (Center) and Animal Welfare Institute submits these comments in opposition to the United States Fish and Wildlife Service's (USFWS or Service) proposed rule and 12-month finding indicating its intention to downlist the West Indian manatee from endangered to threatened (12-Month Finding).¹

USFWS committed multiple legal and scientific errors in its 12-Month Finding, including its failure to (1) designate or revise critical habitat in conjunction with the agency's listing determination; (2) conclude that the manatee is not endangered in a significant portion of its range; and (3) rely on the best available science in its determination that the manatee is no longer in danger of extinction. In addition to these oversights, we remain concerned that downlisting the manatee will pose a threat to this species and will facilitate declines if USFWS promulgates an unprotective 4(d) rule, particularly with no plans in place to protect the manatee in light of ongoing and future threats. These comments also incorporate by reference concerns raised in our comment letter on the Service's 90-day finding.²

I. Factual Background

The Service first protected the West Indian manatee (*Trichechus manatus*) as endangered throughout its range under the Endangered Species Preservation Act of 1966. It was one of the

¹ Endangered and Threatened Wildlife and Plants; 12-Month Finding on a Petition to Downlist the West Indian Manatee and Proposed Rule to Reclassify the West Indian Manatee as Threatened, USFWS, 81 Fed. Reg. 1000 [Jan. 8, 2016] [hereinafter "12-Month Finding"].

² Comments to the USFWS on its 90-day finding on the West Indian manatee, from the Center for Biological Diversity and Everglades Law Center, Sept. 2, 2014.

first species to be protected under what was the precursor to the Endangered Species Act (ESA).³ In 1973, the Service listed the manatee under the Endangered Species Act.⁴

Manatees are found in freshwater, brackish water, and marine environments. Typical habitats include coastal tidal rivers and streams, mangrove swamps, salt marshes, and freshwater springs.⁵ Manatees are herbivores and feed on a wide range of aquatic vegetation.⁶ Preferred feeding areas include shallow seagrass beds with ready access to deep channels.⁷ Manatees use springs and freshwater runoff sites for drinking water and secluded canals, creeks, embayments, and lagoons for resting, cavorting, mating, calving, and nurturing their young.⁸ Travel corridors include open waterways and channels.⁹

The manatee's inability to adequately thermoregulate in temperatures less than 68 degrees Fahrenheit can restrict it to natural and artificial sources of warm water. Natural warm water sources include springs, and artificial sources include heated water discharged from power and industrial plants.¹⁰ Prolonged exposure to cold water temperatures can result in debilitation and death due to "cold stress" syndrome.¹¹ The loss of warm-water habitats is one of the leading threats facing the population and is likely to contribute to the decrease of manatees in the future.¹²

The West Indian manatee is divided into at least two subspecies. The Florida manatee (*Trichechus manatus latirostris*) is most abundant in Florida waters but may be found as far west as Texas and as far north as Massachusetts.¹³ The Antillean manatee (*Trichechus manatus manatus*) is native to over twenty countries across the Greater Antilles, Central, and South America.¹⁴ The Puerto Rico population of Antillean manatees is considered part of the Antillean subspecies, but is geographically and genetically isolated from both the Florida and larger

³ Office of the Secretary, *Native Fish and Wildlife, Endangered Species*, 32 Fed. Reg. 4001 (Mar. 11, 1967), available at <http://www.nmfs.noaa.gov/pr/pdfs/fr/fr32-4001.pdf>.

⁴ 16 U.S.C. § 1531 *et seq.*

⁵ *Id.*

⁶ *Id.*

⁷ *Id.*

⁸ *Id.*

⁹ *Id.*

¹⁰ James A. Powell, Ph.D., *Concerns regarding the US Fish & Wildlife Service's decision of "may affect but not adversely affecting" the West Indian Manatee of the proposed Lake Worth Inlet deepening and widening project,* at 2 (February 27, 2014) (*hereinafter* "Powell Report").

¹¹ 75 Fed. Reg. 1574, 1575.

¹² *Id.*

¹³ U.S. Fish & Wildlife Service, *Endangered and Threatened Wildlife and Plants; 12-month Finding on a Petition to Revise Critical Habitat for the Florida Manatee (Trichechus manatus latirostris)*, 75 Fed. Reg. 1574, 1575 (January 12, 2010), available at <http://www.gpo.gov/fdsys/pkg/FR-2010-01-12/pdf/2010-325.pdf#page=1>; 12-Month Finding, at 1002.

¹⁴ 12-Month Finding, at 1002-03.

Antillean manatee populations.¹⁵ USFWS manages the Puerto Rico Antillean population as a separate unit; the Service has not broken down or designated the remaining Antillean populations into separate management units.¹⁶

The minimum number of manatees counted in Florida has generally increased since statewide aerial surveys began in 1991.¹⁷ These surveys are performed during the winter months at warm water refuges. Yet, synoptic aerial counts have considerable biases as sightability can be related to environmental conditions such as water clarity, surface chop, and behavior of individual animals such as bottom resting compared to surface resting as examples.¹⁸ Consequently, the Florida Fish and Wildlife Conservation Commission (FWC) has specific criteria as to appropriate conditions when surveys can be flown, including minimum wind speeds, fixed survey tracks, experience of observers, and ambient temperatures. The latter is particularly important since it is cold weather that causes manatees to aggregate at warm water sites, which are the focus of surveys.¹⁹

Since 2010, however, those counts have not followed a similar growth trajectory as previous years.²⁰ In 2010, 2011 and 2014, 5,077, 4,834, and 4,824 manatees were counted, respectively.²¹ The 2015 population estimate that counted 6,063 individuals represented “near-perfect” counting conditions, allowing observers to count more manatees than usual.²² In its 12-Month Finding, the Service reports the current manatee population at 6,350 individuals.²³ However, this population estimate was the product of a new survey method, which results in consistently higher population numbers than would have been reported using previous survey methods.²⁴ Thus, the most recent manatee population estimates do not necessarily represent an “increase” or “rebound” in manatee populations compared to previous censuses, but simply denote potentially improved survey conditions and a shift to a new survey method.²⁵

¹⁵ Hunter, Margaret E. et al. *Puerto Rico and Florida Manatees Represent Genetically Distinct Groups*, 16 CONSERVATION GENETICS 1623-1635 (2012).

¹⁶ 12-Month Finding, at 1007.

¹⁷ Powell Report, at 3.

¹⁸ *Id.*

¹⁹ *Id.*

²⁰ *Id.*

²¹ <http://myfwc.com/research/manatee/projects/population-monitoring/synoptic-surveys/>.

²² Liston, Barbara, Florida Manatee Population Shows Signs of Recovery, Maybe, Reuters (Mar. 17, 2015), <http://www.reuters.com/article/us-usa-florida-manatees-idUSKBN0MD2NZ20150317> (“advocates for the endangered manatee cautioned that near-perfect conditions for the headcount may have helped push the number higher than ever, said Holly Edwards, a biologist for the Florida Fish and Wildlife Conservation Commission”).

²³ 12-Month Finding, at 1024.

²⁴ Martin, Julien et al., *Combining Information for Monitoring at Large Spatial Scales: First Statewide Abundance Estimate of the Florida Manatee*, 186 BIOLOGICAL CONSERVATION 44-51 (2015).

²⁵ *Id.*, at 49 Fig.4 (comparing 2011 population estimates using previous survey method and the Martin et al. (2015) method, with the Martin et al. method reporting much higher populations).

Surveys of the Antillean manatees have not been consistently conducted across its range. Based on the opinions of local experts, the Service estimates the Puerto Rico population at 532 individuals and the global population of Antillean manatee at 6,792 individuals.²⁶

In its 12-Month Finding, USFWS classified each country's manatee population as either increasing, stable, or decreasing.²⁷ The 12-Month Finding classified the Florida subspecies' population (6,350 individuals) as stable or increasing.²⁸ Regarding the Antillean subspecies, the 12-Month Finding listed the Puerto Rico (532 individuals), Honduras (100 individuals), and French Guiana (100 individuals) as stable, and the Bahamas (10 individuals) population as increasing.²⁹ It labeled populations in twelve other countries (4,150 individuals) as decreasing, while population trends in the remaining four countries (1,900 individuals) are listed as unknown.³⁰

Florida manatee

The Florida manatee population is divided into four regional management units (formerly subpopulations): Northwest, Upper St. John's River, Atlantic and Southwest.³¹ The Northwest unit occupies the Florida Panhandle south to Hernando County. The Upper St. John's River unit encompasses the St. John's River south of Palatka. The Atlantic unit occupies the east coast of Florida from the lower St. John's River south of Palatka to the Florida Keys. The Southwest unit occurs from Pasco County south to Whitewater Bay in Monroe County.³²

The Service designated critical habitat for the Florida manatee in 1976.³³ While it was one of the first ESA designations of critical habitat for an endangered species and the first for an endangered marine mammal, the designation did not list any of the required specific physical or biological features essential to the conservation of the manatee, which may require special management considerations or protection.³⁴

The Service has prepared multiple 5-year reviews of the status and threats to the manatee, as required by the ESA. USFWS published its most recent 5-year review for the manatee in 2007.³⁵

²⁶ 12-Month Finding, at 1002-03.

²⁷ 12-Month Finding, at 1002-03.

²⁸ *Id.*

²⁹ *Id.*

³⁰ *Id.*

³¹ U.S. Fish & Wildlife Service, 2012 Final Stock Assessment Report, West Indian Manatee 1-2 (January 2014), (*hereinafter* "SAR 2012"), available at http://www.fws.gov/northflorida/manatee/SARS/FR00001606_Final_SAR_WIM_FL_Stock.pdf.

³² *Id.*

³³ See 50 C.F.R. § 17.95(a).

³⁴ 16 U.S.C. § 1532(5)(A); Recovery Plan.

³⁵ West Indian Manatee (*Trichechus manatus*) 5-Year Review: Summary and Evaluation, USFWS (2007) [*hereinafter* 2007 5-Year Review].

This review focuses exclusively on the Florida manatee and Antillean populations in Puerto Rico and U.S. Virgin Islands—amounting to 542 of the approximately 6,792 Antillean manatees alive in the wild.³⁶ Based on the Service’s review of these three populations, the 5-year review recommends downlisting all populations of the West Indian manatee from endangered to threatened under the ESA.³⁷ This recommendation was not based on any information or analysis of the status or trends of the Antillean manatee populations outside of Puerto Rico and the Bahamas.³⁸

Since the Service published its 2007 5-Year Review, there have been additional, massive, and unaccounted-for die-offs of Florida manatees due to multiple cold-stress and red tide events, as well as eutrophication in the Indian River Lagoon. An unprecedented cold weather event during the winter of 2009-2010 was largely responsible for a record annual total number of 766 manatee deaths documented over that time span.³⁹ Of these deaths, 282 were directly attributed and an additional 197 were suspected to have been caused by the cold water event.⁴⁰ In 2011, FWC reported the second highest number of cold-stress related mortalities with 112 deaths directly attributed to the cold.⁴¹ In addition to cold-related stress, hundreds of manatees have died in the past two years in Southwestern and Southeastern counties following eutrophication and red-tide events. In 2013, 277 manatees died as a result of red-tide, according to FWC.⁴² In 2013, at least 118 manatees died in the waters of the Indian River Lagoon that continue to be algae-laden today.⁴³ 2013 saw a record-breaking 830 deaths, approximately 17 percent of the total manatee population.⁴⁴ These events have likely affected the Florida manatee’s population abundance and possibly its age and sex distribution.⁴⁵

II. Legal Background

Congress enacted the Endangered Species Act of 1973, in part, “to provide a program for the conservation of . . . endangered and threatened species” and their ecosystems.⁴⁶ One of the

³⁶ 12-Month Finding, at 1002-03; 2007 5-Year Review, at ii.

³⁷ 2007 5-Year Review, at 35.

³⁸ 2007 5-Year Review, at ii.

³⁹ SAR 2012.

⁴⁰ *Id.* at 8.

⁴¹ *Id.*

⁴² 2013 Final Red Tide Manatee Mortalities, Florida Fish and Wildlife Conservation Commission (2015), available at <http://myfwc.com/media/3217971/2013RedTide.pdf>.

⁴³ Greg Allen, “With Murky Water and Manatee Deaths, Lagoon Languishes,” NPR, September 26, 2013 at <http://www.npr.org/2013/09/26/223037646/with-murky-water-and-manatee-deaths-lagoon-languishes>; <http://myfwc.com/media/3217953/2013.pdf>.

⁴⁴ David Fleshler, Manatee Numbers Down in South Florida, Sun Sentinel, January 4, 2014 at http://articles.sun-sentinel.com/2014-01-04/news/fl-manatees-arrive-20140104_1_manatee-coordinator-florida-power-light-plant-palm-beach-county.

⁴⁵ Letter from Marine Mammal Commission to USFWS, September 21, 2011, available at http://mmc.gov/letters/pdf/2011/annual_mtg_fws_92111.pdf.

⁴⁶ 16 U.S.C. § 1531(b).

Service’s many duties under the ESA is to list species as threatened or endangered.⁴⁷ A species⁴⁸ is endangered if it is “in danger of extinction throughout all or a significant portion of its range.”⁴⁹ The Service must list a species as threatened if it finds that the species is “likely to become an endangered species within the foreseeable future throughout all or a significant portion of its range.”⁵⁰

When the Service makes a listing determination, it must only do so using the best available scientific and commercial data and according to a set of five listing factors.⁵¹ These factors are:

- (A) the present or threatened destruction, modification, or curtailment of [the species’] habitat or range;
- (B) overutilization for commercial, recreational, scientific, or educational purposes;
- (C) disease or predation;
- (D) the inadequacy of existing regulatory mechanisms; or
- (E) other natural or manmade factors affecting its continued existence.⁵²

To the maximum extent possible, the Service must designate “critical habitat” concurrent with a listing determination under 16 U.S.C. § 1533(a)(1).⁵³ Critical habitat is defined as “the specific areas . . . on which are found those physical or biological features (I) essential to the conservation of the species and (II) which may require special management considerations or protection.”⁵⁴

III. Discussion

A. Downlisting the Manatee Is a Listing Decision that Requires the Agency to Designate Critical Habitat

The Service has failed to propose critical habitat concurrently with its proposal to downlist the manatee across its range. As mentioned above, when USFWS makes a listing determination—including a downlisting determination—the ESA requires USFWS to either designate critical habitat for the manatee or determine that such a designation is not prudent or determinable.⁵⁵ USFWS failed to do either in its 12-Month Finding.

⁴⁷ 16 U.S.C. § 153.(a)(1).

⁴⁸ “The term ‘species’ includes any subspecies of . . . wildlife . . . , and any distinct population segment of any species of vertebrate . . . wildlife which interbreeds when mature.” 16 U.S.C. § 1532(16).

⁴⁹ 16 U.S.C. § 1532(6).

⁵⁰ 16 U.S.C. § 1532(20).

⁵¹ 16 U.S.C. § 1533(b)(1)(A).

⁵² 16 U.S.C. § 1533(a)(1)(A)-(E).

⁵³ 16 U.S.C. § 1533(a)(3)(A)(i).

⁵⁴ 16 U.S.C. § 1532((5)(A)(i)-(ii).

⁵⁵ 16 U.S.C. § 1533(a)(3)(A)(i).

The Endangered Species Act also provides that “[c]ritical habitat may be established for those species now listed as threatened or endangered species for which no critical habitat has heretofore been established as set forth in subparagraph (A). . . .”⁵⁶ Subparagraph A defines critical habitat as “(i) the specific areas within the geographical area occupied by the species, at the time it is listed ... on which are found those physical or biological features (I) essential to the conservation of the species and (II) which may require special management considerations or protection; and (ii) specific areas outside the geographical area occupied by the species at the time it is listed ... upon a determination by the Secretary that such areas are essential for the conservation of the species.”⁵⁷

The “constituent elements” of critical habitat - which “*shall* be listed with the critical habitat description,”⁵⁸ - may include (1) space for individual and population growth, and for normal behavior; (2) food, water, air, light, minerals, or other nutritional or physiological requirements; (3) cover or shelter; (4) sites for breeding, reproduction, rearing of offspring, germination, or seed dispersal; and generally, (5) habitats that are protected from disturbance or are representative of the historic geographical and ecological distributions of a species. Department of Interior regulations also specify that these elements “may include, but are not limited to, the following: roost sites, nesting grounds, spawning sites, feeding sites, seasonal wetland or dry land, water quality or quantity, host species or plant pollinator, geological formation, vegetation type, tide, and specific soil types.” *Id.*

There are no such elements listed in the West Indian manatee critical habitat designation. Because management of Critical Habitat is based on the management of constituent elements, this omission seriously compromises the utility of the designation.

This is all the more concerning because the Service has already recognized the need to designate critical habitat for the manatee. In 2008, the Center and other organizations petitioned USFWS to revise its critical habitat designation for the Florida manatee.⁵⁹ The petition argued that the critical habitat revision is required due to the lack of constituent elements in the original designation, changes in use patterns by manatees since the designation, and new information from scientific studies carried out since the designation.⁶⁰ Patterns of use have also changed, largely in response to coastal development, industrial growth, and increased recreational use of the manatee’s nearshore habitats.⁶¹ In 2010, USFWS agreed that critical habitat revisions were warranted and signaled its intent to designate critical habitat in the future.⁶²

⁵⁶ 16 U.S.C. 1532(5)(A).

⁵⁷ 16 U.S.C. §1532 (5)(A). This definition is also codified b regulation 50 CFR § 424.12(b).

⁵⁸ *Id.* [emphasis added].

⁵⁹ Wildlife Advocacy Project, Save the Manatee Club, Center for Biological Diversity, and Defenders of Wildlife, “Petition for a Rule to Revise Critical Habitat for the Florida Manatee, *Trichechus manatus latirostris*, pursuant to the Endangered Species Act.” (Dec. 19, 2008) (hereinafter “2008 Petition”), *available at* http://www.biologicaldiversity.org/species/mammals/Florida_manatee/pdfs/ManateeCHPetition.pdf.

⁶⁰ *Id.*

⁶¹ *Id.*

⁶² *Id.*

If the Service ultimately decides to downlist the manatee, it must concurrently designate statutorily sufficient critical habitat. In its 12-month finding, USFWS has failed to indicate either its intention to designate such habitat or, alternatively, to determine that such a designation is not prudent or determinable.⁶³ Its failure to do so violates the ESA.⁶⁴

B. Downlisting is Arbitrary and Capricious Because the Manatee Is Endangered in a Significant Portion of Its Range

In its 12-month finding, the Service asserts that its recent policy for interpreting “significant portion of its range” precludes maintaining the endangered status of the manatee unless the species is in danger of extinction across all of its range.⁶⁵

Under the Service’s new “Significant Portion of Its Range” policy, if USFWS determines that a species is threatened throughout all of its range, it conducts no further analysis of whether the species is in danger of extinction in a “significant portion of its range” and, hence, should be protected as endangered.⁶⁶ In effect, with species such as the manatee, where the Service has already found the species to be threatened throughout its range, the agency has entirely written the “significant portion of its range” out of the definition of an endangered species.⁶⁷ This approach is fundamentally inconsistent with the ESA’s language, legislative history, and purpose.⁶⁸

The Service justified this element of the policy on a strained and ultimately improper rationale:

If a species is endangered or threatened throughout its range, no portions of its range can qualify as “significant.” We made this change in response to numerous comments, which raised two issues. First, commenters were concerned that a species simultaneously meeting the definitions of an “endangered species” and a “threatened species” would be extremely confusing. Second, some commenters thought that it was inappropriate to protect the entire range of a species as endangered if the species, viewed rangewide, met the definition of a “threatened species.” This change eliminates these concerns.⁶⁹

⁶³ 16 U.S.C. § 1533(a)(3)(A)(i).

⁶⁴ 239 F. Supp. 2d 9, 21-22 (D.D.C. 2002) (reversed in part on other grounds) (failure to designate critical habitat concurrent with listing decision or make a “not-determinable” finding a “patent violation of an unequivocal statutory mandate”).

⁶⁵ 12-Month Finding, at 1024. See U.S. Department of the Interior, Fish and Wildlife Service, U.S. Department of Commerce, National Oceanic and Atmospheric Administration, Final Policy on Interpretation of the Phrase “Significant Portion of its Range” in the Endangered Species Act’s Definitions of “Endangered Species” and “Threatened Species”; Final Rule, 79 Fed. Reg. 37,578 (July 1, 2014) [hereinafter “SPR Rule”].

⁶⁶ See 79 Fed. Reg. at 37,579

⁶⁷ See 16 U.S.C. § 1531(6).

⁶⁸ *Defenders of Wildlife v. Norton*, 258 F.3d 1136, 1142 (9th Cir. 2001).

⁶⁹ 79 Fed. Reg. at 37,579.

While the policy may have eliminated the “concerns” of opponents of endangered species protection, it also unlawfully narrowed the statutory definition of an “endangered species.” A species is “endangered” – and thus statutorily entitled to the protections that inure to an “endangered species” – whenever, based on the listing factors, the Service finds the species to be “in danger of extinction throughout all *or a significant portion of its range*.”⁷⁰ Thus, in order to fully evaluate the conservation status of a species, and, in particular, to discern whether it may be “endangered,” the agency must consider not only its status range-wide, but also whether it is in danger of extinction in a “significant portion of its range.”⁷¹

The new policy ignores this requirement altogether, providing that if a species is “threatened” throughout its range, the Service will not even consider whether it is endangered in a “significant portion of its range.”⁷² Thus, the “significant portion of its range” language in the definition of an “endangered species” is stripped of all meaning for a species that is listed as “threatened” range-wide. This is impermissible.⁷³

In its manatee downlisting, the Service stated: “[b]ecause we have concluded that the West Indian manatee is a threatened species throughout all of its range, no portion of its range can be ‘significant’ for purposes of the definitions of ‘endangered species’ and ‘threatened species.’”⁷⁴ USFWS then referred to its Significant Portion of Its Range policy for justification. Applying this regulation, the agency failed to determine whether the manatee was in danger of extinction throughout a significant portion of its range. For instance, the Service did not address whether persistent population declines and habitat loss, combined with increases in poaching and pollution across the vast majority of the Antillean subspecies’ population indicated that the manatee was in danger of extinction across some or all of this subspecies’ range. Instead, because USFWS determined that the Florida population did not face a high risk of extinction in the next 100 years, impacts across the Antillean subspecies’ population *could not* be significant. In other words, the Service determined that, if the manatee is not endangered *everywhere*, then it is endangered *nowhere*. This is an illegal interpretation of the ESA.

Because the agency did not make an initial determination as to whether the manatee was at risk of extinction over a significant portion of its population, its proposed downlisting violates the ESA.⁷⁵ The failure of the Service’s new rule to stop or even consider persistent declines across

⁷⁰ 16 U.S.C. § 1531(6) (emphasis added).

⁷¹ *Id.*

⁷² 79 Fed. Reg. at 37,609 (explaining a portion of a species range can only be “significant” “if the species is not currently endangered or threatened throughout its range”).

⁷³ *Defenders of Wildlife*, 258 F.3d at 1142 (“[T]he Secretary’s interpretation of ‘a significant portion of its range’ has the effect of rendering the phrase superfluous. Such a redundant reading of a significant statutory phrase is unacceptable.”).

⁷⁴ 12-Month Finding, at 1024.

⁷⁵ 16 U.S.C. § 1532(6).

nearly half of the manatee’s total worldwide population only serves to highlight the illegality of this rule and its failure to provide adequate conservation to endangered and threatened species.

C. FWS Does Not Rely on the Best Available Scientific and Commercial Data in Its Decision to Downlist the Manatee

The Service does not rely on the best available science in its decision to downlist the manatee. USFWS listed as the one of the primary bases of its decision the results of population viability modeling from Runge et al. (2015) and Castelblanco-Martinez et al. (2012).⁷⁶ However, the Service cannot rely on Runge et al. (2015) and Castelblanco-Martinez et al. (2012) to conclude that the current status of the Manatee warrants downlisting because the population viability modeling does not rely on the best available science.

1. Population Viability Modeling of the Florida Manatee Population Does Not Rely on the Best Available Science

The Service cannot properly rely on the modelling results in Runge et al. because this model’s underlying assumptions are faulty, principally that there will be no future increase in the various threats Florida manatees face.⁷⁷ Specifically, the Runge et al. report warns, “[i]n the comparison of threats . . . it was assumed that the various threats operate at their current levels indefinitely.”⁷⁸ In addition, this model failed to account for any of the most recent major mortality events, including recent cold snaps, severe red tide, and seagrass loss in the Indian River Lagoon.⁷⁹

Contrary to the assumptions and parameters of Runge et al.’s population modeling, the best available scientific and commercial data indicate threats are increasing and will continue to increase. Runge et al. only input five threats into their population viability analysis: “watercraft-related mortality, loss of warm-water habitat, red tide, mortality in water-control structures . . . and mortality resulting from interaction with marine debris (for example, fishing lines, trap lines).”⁸⁰

Watercraft mortality is increasing

Regarding watercraft-related death rates, Runge et al. assume watercraft mortality rates will remain similar to those present from 2001 to 2009.⁸¹

⁷⁶ 12-Month Finding, at 1000.

⁷⁷ Runge, M. C. et al., *Status and Threats Analysis for the Florida Manatee (Trichechus manatus latirostris)*, U.S. Geological Survey 20 (2015), available at <http://pubs.usgs.gov/of/2015/1083/pdf/ofr2015-1083.pdf>.

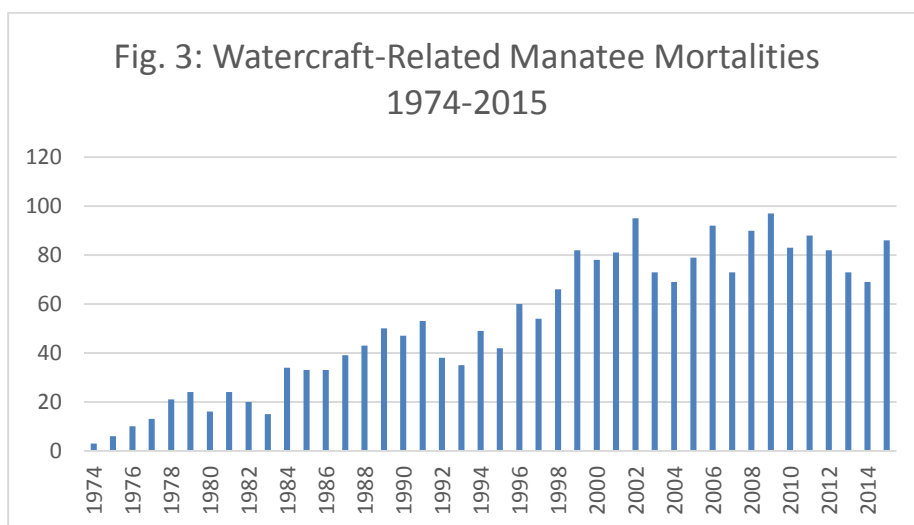
⁷⁸ *Id.*

⁷⁹ *Id.* at 2.

⁸⁰ *Id.* at 3.

⁸¹ *Id.* at 10.

In its 5-year review, USFWS compares the rates of human-caused and natural mortality in each of Florida’s four management units.⁸² In the Northwest and Southwest regions, manatee mortality was equally split among human and natural causes, while the Service lists the majority of mortalities in the Upper St. Johns and Atlantic Coast regions as human-caused.⁸³ The 5-year review lists watercraft-related mortality as the leading cause of human-induced death in all regions.⁸⁴ Watercraft-related mortalities have steadily risen throughout the decades. In the 1970s, the average annual rate of watercraft mortality was approximately 13.⁸⁵ This rose to 32 in the 1980s, 52 in the 1990s, 83 in the 2000s, and 80 in the 2010s.⁸⁶ The first two and a half months in 2016 have seen an unprecedented 23 manatee mortalities.⁸⁷ If this rate continues, 2016 will be the deadliest year on record, amounting to 120 mortalities.



As USFWS has recognized, the number of watercraft-related mortalities has been shown to rise with the total number of watercraft navigating Florida’s waters. The number of registered

⁸² 2007 5-Year Review, at 14.

⁸³ *Id.*

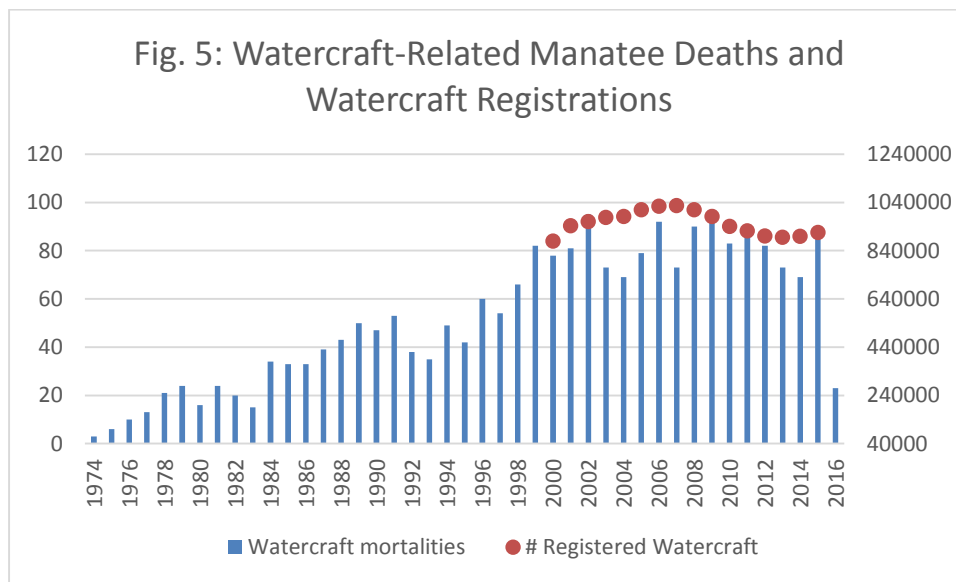
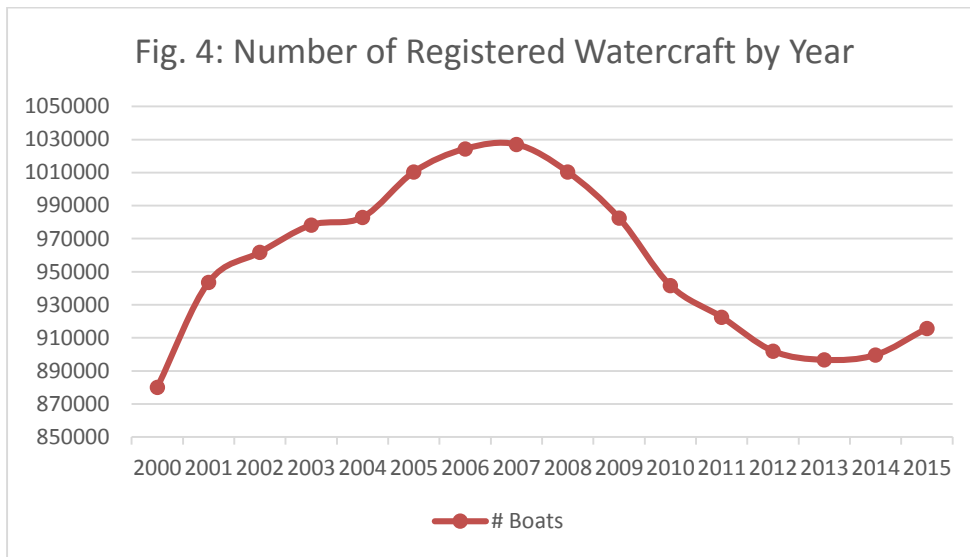
⁸⁴ *Id.*

⁸⁵ Yearly Mortality Summaries: 1974-2014, Florida Fish and Wildlife Conservation Commission, <http://myfwc.com/research/manatee/rescue-mortality-response/mortality-statistics/yearly/> (last accessed Mar. 19, 2016); 2015 Manatee Mortalities, Florida Fish and Wildlife Conservation Commission, <http://myfwc.com/research/manatee/rescue-mortality-response/mortality-statistics/2015/> (last accessed Mar. 19, 2016).

⁸⁶ Yearly Mortality Summaries: 1974-2014, Florida Fish and Wildlife Conservation Commission, <http://myfwc.com/research/manatee/rescue-mortality-response/mortality-statistics/yearly/> (last accessed Mar. 19, 2016); 2015 Manatee Mortalities, Florida Fish and Wildlife Conservation Commission, <http://myfwc.com/research/manatee/rescue-mortality-response/mortality-statistics/2015/> (last accessed Mar. 19, 2016).

⁸⁷ YTD Preliminary Manatee Mortality Table by County From: 01/01/2016 to 03/11/2016, Florida Fish and Wildlife Conservation Commission (2016), available at <http://myfwc.com/media/3389228/YearToDate.pdf>.

watercraft rose steadily to a high of 1,027,043 in 2007.⁸⁸ The Great Recession, which started in December 2007, hit Florida especially hard, and the number of registered vessels dropped to a low of 896,632 in 2013.⁸⁹ Since 2013, the total number of registered vessels has steadily risen to 915,713 in 2015.⁹⁰



⁸⁸ Florida Vessel Owners: Statistics—Annual Vessel Statistics by County, Florida Department of Highway Safety and Motor Vehicles, <http://www.flhsmv.gov/dmv/vslfacts.html> (last accessed Mar. 19, 2016).

⁸⁹ *Id.*

⁹⁰ *Id.*

The number of registered vessels operating in Florida's waters is eclipsed by the number of non-registered watercraft. In 2013 and 2014, the Florida Fish and Wildlife Conservation Commission reported, "it is estimated that up to one million non-registered vessels actively use Florida's waters, and this segment of the boating population appears to still be growing."⁹¹

As Florida's population continues to increase, it is reasonable to expect an increasing number of boats in Florida's waters, which will likely cause an increase in the number of watercraft-related manatee deaths. Neither Runge et al. nor the Service provide any information or data to counter this. It also does not take into account the fact that local municipalities are already moving to roll back protective regulatory measures regarding manatee speed zones.⁹²

Manatees are losing warm-water refuges

Regarding the loss of warm water habitat, Runge et al. assume that the network of natural springs will be sufficient to support the Florida manatee population at current numbers.⁹³ Runge et al. assumed current natural warm-water habitat acreage and quality would remain constant in the near future.⁹⁴ This assumption goes against the best available scientific information which suggests that both the quantity and quality of these warm-water sites will decrease in coming years due to aquifer drawdown, water pollution, and sea level rise. Florida's spring system is hydrologically connected to an extensive groundwater system. Recent and projected increases in groundwater withdrawals, among other factors, have and will continue to contribute to increasing drawdown of these aquifers, which will decrease the amount of water that ultimately reaches the spring systems upon which Florida manatees rely.⁹⁵ In addition, spring water pollution continues

⁹¹ Boating Accidents Statistical Report 2014, Florida Fish and Wildlife Conservation Commission—Division of Law Enforcement III (2015), available at <http://myfwc.com/media/3046895/2014-BoatingStatistics.pdf>; Boating Accidents Statistical Report 2013, Florida Fish and Wildlife Conservation Commission—Division of Law Enforcement (2014), available at <http://myfwc.com/media/2804464/2013-BoatingStatistics.pdf>.

⁹² Berman, D. Commissioner: Boat speed zones to protect manatees 'archaic' Jan. 7, 2016, <http://www.floridatoday.com/story/news/local/environment/2016/01/07/commissioner-boat-speed-zones-protect-manatees-archaic/78369448/>.

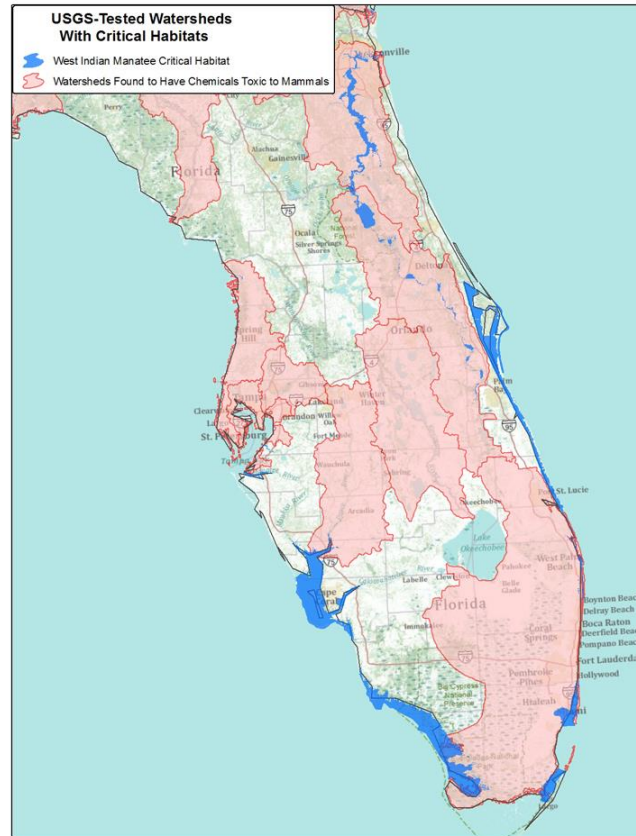
⁹³ Runge, M. C. et al., Status and Threats Analysis for the Florida Manatee (*Trichechus manatus latirostris*), U.S. Geological Survey 6 (2015).

⁹⁴ *Id.*

⁹⁵ Weber K.A. & Robert G. Perry, Groundwater Abstraction Impacts on Spring Flow and Base Flow in the Hillsborough River Basin, Florida, USA, 14 Hydrogeology Journal 1252-1264 (2006); Lizette Alvarez, Florida Lawmakers Proposing a Salve for Ailing Springs, New York Times, http://www.nytimes.com/2014/04/15/us/florida-lawmakers-proposing-a-salve-for-ailing-springs.html?_r=0 (Apr. 14, 2014); Lizette Alvarez, Florida Struggles to Overcome Threats to Freshwater Springs, New York Times, <http://www.nytimes.com/2012/06/23/us/florida-worries-as-growth-threatens-its-freshwater-springs.html?pagewanted=all> (June 22, 2012).

to be an increasing problem.⁹⁶ Most Florida springs suffer from severe and increasing pollution levels, which increase algal loads and decreases spring quality and visibility.⁹⁷

Fig. 6 – Florida Watersheds Found to Have Chemicals Toxic to Mammals⁹⁸



⁹⁶ Harrington, D. et al., Florida Springs Initiative Monitoring Network Report and Recognized Sources of Nitrate, Florida Dep't of Environmental Protection 113 pp. (2010), available at https://www.dep.state.fl.us/springs/reports/files/springs_report_102110.pdf; Katz, B.G., Sources of Nitrate Contamination and Age of Water in Large Karstic Springs of Florida, 46 Environmental Geology 689-706 (2004); Stevenson R. J. et al., Ecological Conditions of Algae and Nutrients in Florida Springs: the Synthesis Report 58 pp. (2007), available at https://www.researchgate.net/profile/R_Stevenson/publication/238737639_ECOLOGICAL_CONDITION_OF_ALGAE_AND_NUTRIENTS_IN_FLORIDA_SPRINGS_THE_SYNTHESIS_REPORT/links/00b7d52dd50da3f55d000000.pdf.

⁹⁷ Harrington, D. et al., Florida Springs Initiative Monitoring Network Report and Recognized Sources of Nitrate, Florida Dep't of Environmental Protection 113 pp. (2010), available at https://www.dep.state.fl.us/springs/reports/files/springs_report_102110.pdf; Katz, B.G., Sources of Nitrate Contamination and Age of Water in Large Karstic Springs of Florida, 46 Environmental Geology 689-706 (2004); Stevenson R. J. et al., Ecological Conditions of Algae and Nutrients in Florida Springs: the Synthesis Report 58 pp. (2007), available at https://www.researchgate.net/profile/R_Stevenson/publication/238737639_ECOLOGICAL_CONDITION_OF_ALGAE_AND_NUTRIENTS_IN_FLORIDA_SPRINGS_THE_SYNTHESIS_REPORT/links/00b7d52dd50da3f55d000000.pdf.

⁹⁸ http://www.biologicaldiversity.org/campaigns/pesticides_reduction/maps/manatee.html (last accessed Apr. 7, 2016) (USFWS graphic).

In addition, Runge et al.'s model does not account for the predicted loss of freshwater springs as a result of sea level rise. As the Service notes in its 12-month finding, climate change and sea level rise may result in "losses of warm-water refugia."⁹⁹ The 12-month finding continues, "[sea level rise] could mean the loss of most of the major industrial warm-water sites" and "[sea level rise] or storm surge coupled with reduced spring flows could reduce or eliminate the viability of natural springs used by wintering manatees."¹⁰⁰

Red tide events are on the rise

In relation to red tide events, Runge et al. reference events occurring in 1996, 2003, 2005, and 2006 as the baseline to measure the potential impacts of future red tide events.¹⁰¹ Red tide die-offs in each of those years totaled 151, 100, 93, and 64, respectively.¹⁰² By contrast, the 2013 red tide event has been linked to at least 277 mortalities.¹⁰³ 2013 red tide mortalities were nearly double that of the previous high of 151 in 1996; however, Runge et al.'s model does not account for this or similar future red tide events. Nor does Runge et al.'s model account for the view in the 12-month finding and shared by experts that climate change is expected to "increase the frequency, duration, and magnitude of harmful algal blooms and cause blooms to start earlier and last longer."¹⁰⁴

Runge et al. also entirely failed to consider several significant current and future threats to Florida manatee populations, including large cold-water die-offs, climate change and sea level rise, and cumulative impacts arising from increased human presence and development.

Cold-water events are expected to increase

Regarding Florida's recent cold water events in 2010 and 2011, Runge et al. admit they fail to discuss or in any way account for the massive die-offs resulting from these events that killed at least 288 manatees and may have killed nearly 500 in 2010, as well as 113 confirmed cold-stress deaths in 2011.¹⁰⁵ Experts expect an increase in number and severity of cold-water events in

⁹⁹ 12-Month Finding, at 1023.

¹⁰⁰ *Id.* at 1024.

¹⁰¹ Runge, M. C. et al., *Status and Threats Analysis for the Florida Manatee (Trichechus manatus latirostris)*, U.S. Geological Survey 6 (2015).

¹⁰² Red Tide Manatee Mortalities, Florida Fish and Wildlife Conservation Commission, <http://myfwc.com/research/manatee/rescue-mortality-response/mortality-statistics/red-tide/> (last accessed Mar. 22, 2016).

¹⁰³ *Id.*

¹⁰⁴ 12-Month Finding, at 1022-23; Van Dolah, F. M., Marine Algal Toxins: Origins, Health Effects, and Their Increased Occurrence, 108 *Environmental Health Perspectives* 133-141 (2000); Moore, S. K. et al., Impacts of Climate Variability and Future Climate Change on Harmful Algal Blooms and Human Health, 7 *Environmental Health S4*, Supplement 2 (2008), 12 pp.

¹⁰⁵ 12-Month Finding, at 1005; Runge, M. C. et al., *Status and Threats Analysis for the Florida Manatee (Trichechus manatus latirostris)*, U.S. Geological Survey 4 (2015).

coming years due to increasing numbers of storms and changes in weather patterns due to climate change.¹⁰⁶

Climate changes and sea-level rise threaten the manatee

Runge et al. fail to consider the impacts of climate change on manatee populations, or that these impacts are expected to increase in intensity and frequency. Edwards (2013) provided a detailed review of current and projected climate change impacts to the Florida manatee, and identified significant threats from (1) the projected increase in exposure to harmful algal blooms; (2) the current and projected increase in the intensity of hurricanes and storm surge; (3) the projected increase in cold extremes like those that occurred in the winters of 2010 and 2011, exposing manatees to severe cold stress and die-offs; (4) the loss of warm water refugia due to sea level rise, saltwater intrusion, storm surge, and changes in precipitation and streamflow; and (5) degradation of habitat and food resources.¹⁰⁷ In addition, Martin et al. (2011) highlighted that sea level rise and saltwater intrusion are projected to increase groundwater consumption for human use, which will affect spring flow and thermal capacity at manatee winter aggregation sites.¹⁰⁸ Sea level rise is also expected to disrupt coastal power plant operations that provide artificial warm-water refuges for manatees.

Florida's population is projected to increase rapidly

In addition, the Runge et al. population viability analysis does not adequately account for a host of other cumulative impacts that will intensify as a result of the increase of Florida's human population. Florida's population has increased by nearly four million people in the past five years to total nearly 20 million residents.¹⁰⁹ Coincident with the estimated increase of the manatee population are similar increases in the Florida human population and the manatee death rate. Between 2000 and 2015, the Florida human population increased from 15,982,378 to

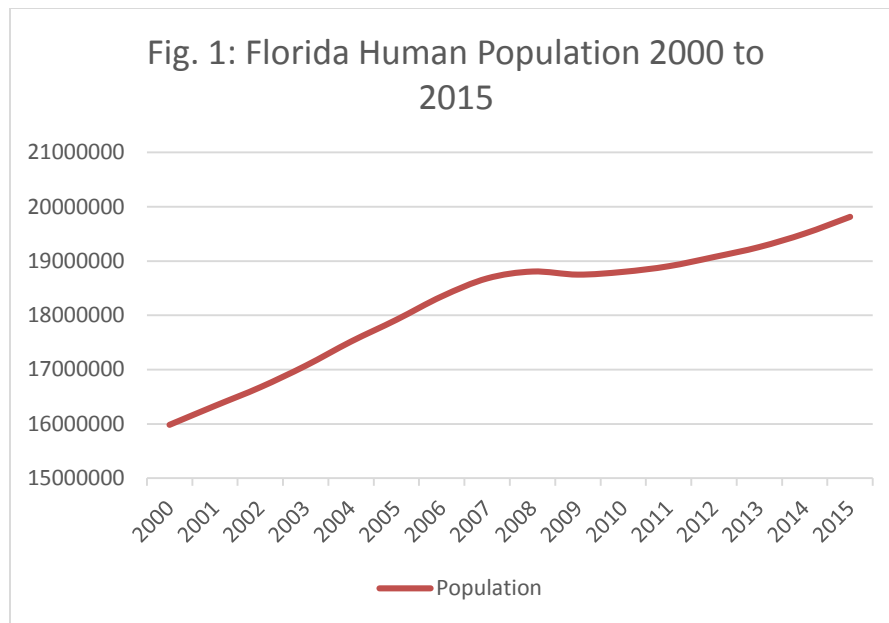
¹⁰⁶ Cohen, J.L. et al., Arctic Warming, Increasing Snow Cover and Widespread Boreal Winter Cooling, 7 Environmental Research Letters (2012).

¹⁰⁷ Edwards, H.H., Potential Impacts of Climate Change on Warmwater Megafauna: the Florida Manatee Example (*Trichechus manatus latirostris*), 121 Climatic Change 727-738 (2013).

¹⁰⁸ Martin, J. et al., Structured Decision Making as a Proactive Approach to Dealing with Sea Level Rise in Florida, 107 Climatic Change 185-202 (2011).

¹⁰⁹ See Population Estimates for Florida Municipalities, Florida Legislative Office of Economic and Demographic Research (2015), available at <http://edr.state.fl.us/Content/population-demographics/data/Flmupops.xls>; Florida: Profile of General Population and Housing Characteristics, Florida Legislative Office of Economic and Demographic Research, available at http://edr.state.fl.us/Content/population-demographics/2010-census/data/Florida_Comparison_Profile.pdf.

19,815,183—an increase of nearly four million people.¹¹⁰ According to a medium projection, Florida’s population will rise by over 7 million to an estimated 27,217,568 people by 2045.¹¹¹



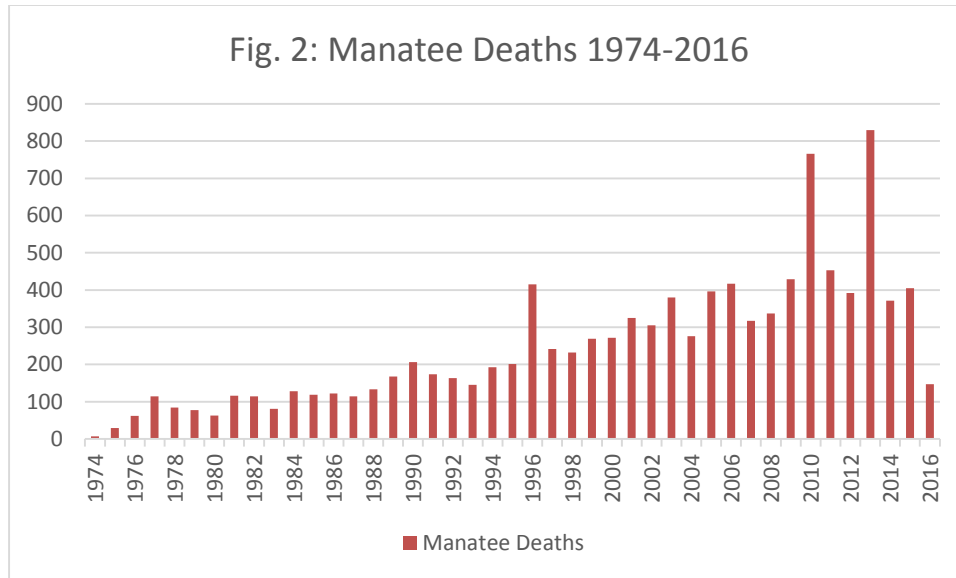
Along with Florida’s rise in population, there has been a rise in reported manatee mortalities. In the 1970s, manatee mortalities averaged 62 per year.¹¹² Average annual mortalities climbed to 116 in the 1980s, 224 in the 1990s, 345 in the 2000s, and 536 in the 2010s. In the first two and a half months of 2016, the Florida Fish and Wildlife Conservation Commission has already recorded 147 manatee deaths—nearly 15 manatee deaths each week.¹¹³ If this trend continues, 2016 will see an estimated 780 manatee deaths, raising the annual average number of manatee deaths in the 2010s to 571.

¹¹⁰ See Population Estimates for Florida Municipalities, Florida Legislative Office of Economic and Demographic Research (2015), available at <http://edr.state.fl.us/Content/population-demographics/data/Flmupops.xls>; Florida: Profile of General Population and Housing Characteristics, Florida Legislative Office of Economic and Demographic Research, available at http://edr.state.fl.us/Content/population-demographics/2010-census/data/Florida_Comparison_Profile.pdf.

¹¹¹ Projections of Florida Population by County, 2020-2045, with Estimates for 2015, Florida Legislative Office of Economic and Demographic Research (2015), available at http://edr.state.fl.us/Content/population-demographics/data/MediumProjections_2015.pdf.

¹¹² Yearly Mortality Summaries: 1974-2014, Florida Fish and Wildlife Conservation Commission, <http://myfwc.com/research/manatee/rescue-mortality-response/mortality-statistics/yearly/> (last accessed Mar. 19, 2016); 2015 Manatee Mortalities, Florida Fish and Wildlife Conservation Commission, <http://myfwc.com/research/manatee/rescue-mortality-response/mortality-statistics/2015/> (last accessed Mar. 19, 2016).

¹¹³ YTD Preliminary Manatee Mortality Table by County From: 01/01/2016 to 03/11/2016, Florida Fish and Wildlife Conservation Commission (2016), available at <http://myfwc.com/media/3389228/YearToDate.pdf>.



Over 60 percent of Florida’s population lives near the coast, and this percentage will likely remain stable or increase in the coming years.¹¹⁴ An increase in human population also increases in a host of anthropogenic influences, which, among other impacts, have led to large-scale losses and degradation of habitat and seagrass across all of Florida.¹¹⁵

2. Population Viability Modeling of Antillean Manatee Populations Is Hypothetical and Not Based on the Best Available Science

Regarding population trends across the range of the Antillean manatee subspecies, the Service relies on a population viability analysis published by Castelblanco-Martinez et al. (2012).¹¹⁶ The Service interprets this article to “describe[] a metapopulation with positive growth.”¹¹⁷

This was neither the conclusion nor the aim of Castelblanco-Martinez et al.’s population viability modeling for the Antillean subspecies. Instead, this model sought to predict this subspecies’ population “tendencies under various *hypothetical* scenarios of conservation.”¹¹⁸ This model tested manatee viability under a wide range of possible biological and threat factors.¹¹⁹ Its

¹¹⁴ Saving Florida’s Vanishing Shores, U.S. EPA (2002), *available at* https://www3.epa.gov/climatechange/Downloads/impacts-adaptation/saving_FL.pdf.

¹¹⁵ Orth, R. J. et al., A Global Crisis for Seagrass Ecosystems, 56 *BioScience* 987-996 (2006); 12-Month Finding, at 1004.

¹¹⁶ 12-Month Finding, at 1000; Castelblanco-Martinez et al., Potential Effects of Human Pressure and Habitat Fragmentation on Population Viability of the Antillean Manatee, *Trichechus manatus manatus*: a Predictive Model, 18 *Endangered Species Research* 129-145 (2012).

¹¹⁷ 12-Month Finding, at 1000.

¹¹⁸ Castelblanco-Martinez et al., Potential Effects of Human Pressure and Habitat Fragmentation on Population Viability of the Antillean Manatee, *Trichechus manatus manatus*: a Predictive Model, 18 *Endangered Species Research* 129 (2012) (emphasis added).

¹¹⁹ *Id.* at 129-145.

“conclusion” cites a range of possible population outcomes depending on the presence and intensity of various threats, but does not suggest one outcome to be correct.¹²⁰ This model considers a large variety and intensity of potential threats, and did not arrive at its results based on current or projected real-life threats to this subspecies.¹²¹ Thus, this model does not conclude that manatee populations *are* increasing—only that populations *could* increase under certain unproven assumptions and conditions and decrease under other uncertain assumptions and conditions.

One thing that Castelblanco-Martinez et al. *is* clear about is the constant decline of the Antillean manatee across its population and the decrease in the quality and quantity of available habitat. This article reports that the Antillean subspecies’ population has been steadily declining, and faces continuous, serious threats from poaching, habitat loss, and destruction.¹²² If any conclusion can be definitively wrought from this article it is that “the number of manatees sighted per year has decreased,” and that “[m]anatee populations and their available habitat have declined,” indicating that combined threats to the Antillean subspecies are outstripping this subspecies’ ability to reproduce.¹²³

D. Downlisting Will Severely Impact the Future Viability of the Manatee

If the Service decides to downlist the manatee across its range, it will likely cause a trend towards deregulation that will ultimately lead to fewer protections and increased threats to the Manatee.

The Center has documented a disturbing practice where the Service has increasingly adopted 4(d) rules designed to carve out loopholes that do not promote the conservation of threatened species under these rules’ protection.¹²⁴ Instead of using 4(d) rules to “provide for the conservation of [threatened] species,” USFWS has instead used these rules to allow for increased take of species listed as threatened, and carve out protections for private interests rather than species.¹²⁵ The Center’s report concludes that “in recent years, the Service has escalated use of the 4(d) provision to sanction actions that are clearly harmful to the conservation of threatened species.”¹²⁶ This report found that, of the 75 domestic 4(d) rules, “19 include major loopholes allowing activities such as logging, oil and gas development and other forms of habitat

¹²⁰ *Id.*

¹²¹ *Id.*

¹²² *Id.*

¹²³ *Id.*, at 130, 141.

¹²⁴ Sanerib, T. et al., *Lethal Loopholes: How the Obama Administration is Increasingly Allowing Special Interests to Endanger Rare Wildlife*, Center for Biological Diversity (2016) 37 pp., *available at* https://www.biologicaldiversity.org/programs/biodiversity/endangered_species_act/pdfs/Lethal_Loophole_4d_Rule_Report.pdf.

¹²⁵ *Id.*; 16 U.S.C. § 1533(d).

¹²⁶ Sanerib, T. et al., *Lethal Loopholes: How the Obama Administration is Increasingly Allowing Special Interests to Endanger Rare Wildlife*, Center for Biological Diversity 1 (2016).

destruction known to be detrimental to the survival and recovery of the species.”¹²⁷ The current administration is responsible for issuing a shocking 8 of those 19 decisions.¹²⁸ There is a real risk that the Service will continue this trend and roll back protections for the manatee in Florida and Puerto Rico.

E. Recovery Criteria for the Florida Manatee Have Not Been Met

Recovery criteria in the 2001 recovery plan for the Florida manatee (2001 Recovery Plan) have not been met. The 2001 Recovery Plan lists several criteria the Service states “must be met prior to the reclassification of the Florida manatee from endangered to threatened.”¹²⁹

These criteria include:

1. Reduce or remove threats to manatee habitat or range, as well as threats from natural and manmade factors by enacting and implementing federal, state or local regulations that:
 - adopt and maintain minimum spring flows;
 - protect warm-water refuge sites;
 - protect foraging habitat associated with select warm-water refuge sites;
 - protect other important manatee areas; and
 - reduce or remove unauthorized human caused “take.”
2. Achieve the following population benchmarks in each of the four regions for an additional 10 years after reclassification:
 - statistical confidence that the average annual rate of adult survival is 90% or greater;
 - statistical confidence that average annual percentage of adult female manatees accompanied by first or second year calves in winter is at least 40%; and
 - statistical confidence that average annual rate of population growth is equal to or greater than zero.¹³⁰

The 12-month finding chose to entirely ignore the required “population benchmarks” in the 2001 Recovery Plan, concluding that these benchmarks are redundant and difficult to estimate.¹³¹ These demographic criteria were developed by the Manatee Population Status Working Group as an essential part of the 2001 Recovery Plan.¹³² These criteria were the result of an interagency panel of experts tasked with “advis[ing] [the Service] on population criteria to determine when

¹²⁷ *Id.*, at 2.

¹²⁸ *Id.*

¹²⁹ Florida Manatee Recovery Plan—Third Revision, USFWS v (2001) [hereinafter “2001 Recovery Plan”].

¹³⁰ *Id.*

¹³¹ 12-Month Finding, at 1012.

¹³² 2001 Recovery Plan, at A1.

species recovery has been achieved,” as well as “provid[ing] managers with interpretation of available information on manatee population biology.”¹³³ It is unsettling that the Service has since concluded the results of this working group are redundant and unnecessary. In reviewing these recovery criteria, it is also difficult to understand how the Service arrived at such a conclusion. Adult survival rate, calving rate, and population growth are synergetic, not redundant. For instance, a short-term overall population growth rate may be countered by underlying data suggesting a negative adult survival rate or low calving rate. It is reasonable to determine that a congruence of demographic indicia are necessary to ultimately conclude that Florida manatees are recovered. By contrast, it is much less reasonable to assume that one flat value (i.e. total population) is sufficient to determine the overall health of the manatee population.

In its 12-month finding, the Service fails to make any determination on the current status or trends according to the population benchmarks laid out in the 2001 Recovery Plan. Thus, in its 12-month finding USFWS has failed to make a central determination it concluded “must be met prior to the reclassification of the Florida manatee.”¹³⁴

In addition to the above list of recovery criteria, the 2001 Recovery Plan contains a list of “recovery factors,” labeled “A” to “E” that track the ESA’s listing criteria, as well as the 2001 Recovery Plan’s downlisting criteria, and provide benchmarks against which to judge each criterion’s success. Most of these recovery factors have not been met.

Regarding Recovery Factor A, the Service was required to:

- (a) Establish minimum spring flows “to support manatees at the Crystal River Spring Complex, Homosassa Springs, Blue Springs, Warm Mineral Spring, and other spring systems as appropriate, in terms of quality (including thermal) and quantity;”
- (b) Protect a network of “level 1 and 2 warm-water refuge sites” as “marine sanctuaries, refuges, or safe havens;”
- (c) Identify “feeding habitat sites . . . associated with the network of warm-water refuge sites;” and
- (d) Identify and protect “a network of migratory corridors, feeding areas, calving and nursing areas” as “manatee sanctuaries, refuges and/or safe havens” in several Florida counties.¹³⁵

As to sub-criterion A(a), USFWS has failed to establish minimum flow levels for the most important springs. Of the 14 springs the Service has identified, ten have yet to adopt minimum spring flows.¹³⁶

¹³³ *Id.*, at B1.

¹³⁴ Florida Manatee Recovery Plan—Third Revision, USFWS v (2001) [hereinafter “2001 Recovery Plan”].

¹³⁵ 2001 Recovery Plan, at 42.

¹³⁶ 12-Month Finding, at 1012.

For sub-criterion A(d), the 12-month finding suggests that the 2001 Recovery Plan requires the Service to simply “identify” a network of migratory corridors, further stating—without detail—that protections are in place “in many of these areas.”¹³⁷ However, the 2001 Recovery Plan had a more demanding requirement—that “[t]he network of migratory corridors, feeding areas, calving and nursing areas identified in [the manatee Habitat Working Group] are protected as manatee sanctuaries, refuges, or safe havens.”¹³⁸ According to its 2001 Recovery Plan, the Service was required to convene this Habitat Working Group, which would include “resource managers, manatee biologists, and experts familiar with the many features of the manatees’ aquatic environment.”¹³⁹ One of the primary goals of this working group was to be to “ensure the implementation of tasks needed to identify, monitor, and evaluate habitat.”¹⁴⁰ While the 2007 5-year review mentions the progress of the Habitat Working Group, it states that this group was “in the process of identifying a network of migratory corridors and other use areas” but had not yet done so.¹⁴¹ The 12-month finding never mentions this working group or its progress towards identifying and protecting these areas, as required in the 2001 Recovery Plan.

Similarly, the Service stated the Habitat Working Group needed to identify feeding sites associated with warm water refuges prior to downlisting (sub-criterion A(c)).¹⁴² However, the 2007 5-Year Review reports that the Habitat Working Group “has not yet identified nor characterized feeding sites associated with these refuges.”¹⁴³ The 12-Month Finding does not adequately discuss the results of this working group, let alone determine whether these sites have been sufficiently identified.

Recovery Factor B requires the Service to reduce the amount of unauthorized take in the form of harassment.¹⁴⁴ Harassment and other forms of take at wintering and other sites remains a serious issue. Commercial, recreational, and educational activities are resulting in manatee harassment, particularly at Crystal River National Wildlife Refuge. This refuge contains freshwater springs, which offer manatees protection against cold stress.¹⁴⁵ Harassment in springs such as Crystal River is well documented and recurrent.¹⁴⁶ Despite recent measures to restrict access, the springs remain open to tourists during the winter, and the controversial “swim with” program remains in

¹³⁷ *Id.*, at 1013.

¹³⁸ 2001 Recovery Plan, at 42.

¹³⁹ *Id.*, at 84.

¹⁴⁰ *Id.*

¹⁴¹ 2007 5-Year Review, at 6.

¹⁴² 2001 Recovery Plan, at 2.

¹⁴³ 2007 5-Year Review, at 6.

¹⁴⁴ 2001 Recovery Plan, at 42.

¹⁴⁵ Laist D.W. et al., Winter Habitat Preferences for Florida Manatees and Vulnerability to Cold. 8 PLoS ONE , available at <http://www.plosone.org/article/info%3Adoi%2F10.1371%2Fjournal.pone.0058978>.

¹⁴⁶ Behrendt B., Manatee Abuse Caught on Tape, Tampa Bay Times (Feb. 11, 2007), http://www.sptimes.com/2007/02/11/Citrus/Manatee_abuse_caught_.shtml; Wildlife Authorities Move to Halt Manatee Harassment, USFWS (Mar. 12, 2007), <http://www.fws.gov/northflorida/Releases-07/001-07-Joint-FWS-FWC-manatee-harassment-031207.htm>.

place.¹⁴⁷ Necessary protections are still lacking, such as additional no-entry sanctuaries, prohibitions against diving with manatees, and limiting the number of swimmers near manatees at one time.

Recovery Factor D in the 2001 Recovery Plan is meant to ensure the adequacy of existing regulations to protect manatee populations.¹⁴⁸ This recovery factor acts to ensure several sub-criteria of the other recovery factors are adequately regulated and enforced. Recovery Factor D requires the Service to ensure adequate regulatory mechanisms and enforcement to:

- Establish minimum spring flows (Recovery Factor A(a));
- Protect important manatee habitat (Recovery Factor A(b)-(d)); and
- Reduce or remove unauthorized take (Recovery Factor E(a)-(c)).

As discussed above, the Service has failed to establish minimum spring flows or to adequately protect important manatee habitat. Regarding Recovery Factor E, the regulations in place have failed to prevent increases in human-caused take. Thus, the Service has failed to achieve Recovery Factor B.

Finally, Recovery Factor E sets three goals: (1) “reduce unauthorized watercraft-related take;” (2) install exclusion devices on one half of Florida’s water control structures and navigational locks; and (3) “reduce or remove threats of injury or mortality from fishery entanglements and entrapments and entrapment in storm water pipes and structures.”¹⁴⁹

Regarding the first goal, as the Service recognizes, watercraft-related injury remains the major source of human-caused take, and there is little sign that the rate of take will drop in the future.¹⁵⁰

Relating to the third goal, a recent study shows that take relating to fishing gear is steadily increasing.¹⁵¹ Between 1997 and 2009, there were 380 reported stranding events involving manatees that had “fishing gear interactions.”¹⁵² Interactions consisted largely of hook and line entanglement on manatee flippers and the presence of hooks and lines in the stomachs and

¹⁴⁷ Annie Snider, Things Are out of Control as Manatee-loving Tourists Overwhelm Refuge, Greenwire (Jan. 29, 2014), <http://www.eenews.net/stories/1059993658>.

¹⁴⁸ 2001 Recovery Plan, at 42.

¹⁴⁹ 2001 Recovery Plan, at 43.

¹⁵⁰ See 2007 5-Year Review, at 14.

¹⁵¹ Adimey, N. M. et al, Fishery Gear Interactions from Stranded Bottlenose Dolphins, Florida Manatees and Sea Turtles in Florida, U.S.A., 81 Marine Pollution Bulletin 103-115 (2014).

¹⁵² *Id.* at 105-107. The number of reported take events represent absolute minimum estimates. As Adimey et al. note, stranding data does not account for: “(1) unreported/unobserved cases, (2) animal accessibility, (3) the mobility of live entanglements, (4) detectability in aquatic habitats, (5) inability to determine gut contents in live animals, (6) decayed necropsy evidence, (7) limited staff and resources, and (8) the reliability of initial public reports.” *Id.* at 112.

intestines of manatees.¹⁵³ Manatees are also commonly injured interacting with trap pot gear.¹⁵⁴ Interactions with trap pot gear often involved flipper entanglement.¹⁵⁵

Overall, Adimey et al. (2014) recorded a constant increase in the number of interactions over the years, and the number of these interactions is likely to continue to increase.¹⁵⁶ This trend is related to increasing fishing activities in Florida's waters.¹⁵⁷ Florida has been named "the Recreational Fishing Capital of the World."¹⁵⁸ Over 1 million recreational fishing licenses are sold in Florida each year, and this number continues to increase one percent annually.¹⁵⁹ As expected, most recreational fishermen use hooks and lines. In addition to recreational fishing, commercial fishing is a major industry in Florida.¹⁶⁰ Commercial fishing employs a variety of methods, including hook and line, net, trawling, and trap pot, to name a few.

So long as commercial and recreational fishing continues to increase in Florida, manatee take will also likely continue to increase. None of the Service's actions have thus far been able to stop this trend. Thus, the third goal under Recovery Factor E has not been met.

IV. Conclusion

Downlisting the West Indian manatee from endangered to threatened is not supported by the best available science and represents an unsound conservation decision. The best available scientific and commercial information shows that the manatee continues to face increasing natural and man-made threats, including watercraft, red tide, habitat loss, cold water events, pollution, poaching, and climate change. In addition, the Service has chosen to downlist the manatee across its range based on an illegal and irrational interpretation of the ESA, and has failed to adequately consider threats to the manatee across its range. If the Service decides to downlist the manatee, it must concurrently designate critical habitat that will aid in the continued conservation of this species. Failure to do so would be a violation of the ESA. Finally, downlisting the manatee may lead the Service to issue a 4(d) rule that harms rather than conserves the manatee. Please do not hesitate to contact me with any questions about this comment letter.

¹⁵³ *Id.*, at 105-107.

¹⁵⁴ *Id.*

¹⁵⁵ *Id.*

¹⁵⁶ *Id.*, at 105, 109.

¹⁵⁷ *Id.*, at 104.

¹⁵⁸ *Id.*

¹⁵⁹ *Id.*

¹⁶⁰ *Id.*

Sincerely,



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