

FWS-R4-ES-2014-0024

Reclassification of the West Indian Manatee from *Endangered* is Mandatory Based on an Analysis of Potential Biological Removal (PBR)

SUMMARY

This comment is in support of the removal of the West Indian Manatee from the imperiled species list. There is an uncontestable proof that manatees are now improperly classified as either “endangered” or “threatened.” This comment shows that the calculation of Potential Biological Removal (PBR) under “endangered” or “threatened” status miserably fails a “reality check” with synoptic counts, mortality counts, and the Service’s Core Biological Model. Failure to match the species’ listing with the best available science is confounding effective species management.

INTRODUCTION

This comment is one of several prepared by Citizens For Florida’s Waterways (CFFW) in support of reclassification of the West Indian Manatee. Each comment is written in a standalone manner and provides strong science based support of the reclassification. Most of the supporting science comes directly from the work performed and presented by the Florida Fish and Wildlife Conservation Commission (FWC) and the United States Fish and Wildlife Service (USFWS).

Both individually, but more conclusively in collection, these comments provide a strong case for reclassification of the manatee as *Recovered*. Make no mistake. We believe delisting is the only reasonable conclusion that can be drawn from the best available data. In addition, failure to do so presents unacceptable risk to the very local habitats and ecosystems that the manatee shares with thousands of other species, many of which truly deserve listing and protections afforded by the ESA.

CFFW is the oldest and largest Florida based advocacy organization for recreational boaters. CFFW’s founding is rooted in opposition to arbitrary and questionable implementation of speed zones with significant impact to large areas where recreational boating activities had been a popular activity for families for several decades. Over the three decades of our existence, CFFW has represented educated, informed and sound science based counter-point for much of the unfounded and unscientific rhetoric of anti-boating organizations like the Save the Manatee Club.

CFFW is a charter member and consistent participant of the Manatee Forum. As such, we have been privileged to learn manatee science from the foremost experts with the latest available and best manatee science. We have listened to representatives of the state and federal management decision makers and

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numerous experts from outside government. It has always been our pledge to follow where the best science leads.

Each comment deals with a specific topic:

- Habitat
 - Manatee habitat has expanded significantly because of human activity.
- Abundance
 - Manatee abundance is large and growing; abundance is under-reported.
- Carrying Capacity and Optimum Sustainable Population
 - Manatees are at or near Optimum Sustainable Population
- Risk Management
 - Management policies based on the legal requirements of “endangered” or “threatened” status contradict proven Risk Management methods
- ***Potential Biological Removal/Authorized Take***
 - ***Delisting the manatee would allow issuance of a take authorization that matches best science and data***
- Rebuttal of the form letter opposing reclassification
 - Calls to retain endangered status are debunked

COMMENT

Hypothesis

If manatees are accurately classified as ‘endangered’ or ‘threatened,’ then their population should be decreasing, as human-caused mortality far exceeds the species’ calculated Potential Biological Removal (PBR), which is the number of manatees that can be safely “taken” by human causes without jeopardizing recovery. Calculating PBR is a requirement for establishing “incidental take authorization.”

Also discussed herein is the risk caused by improper classification. Perversely, continued classification of manatees as “endangered” could result in massive harm to Florida ecosystems, as species managers continue to base policy on “more is always better”.

Background

According to the 2001 US Fish & Wildlife Manatee Recovery Plan, “The near and long term threats from human-related activities are the reasons for which the Florida manatee currently necessitates protection under the Endangered Species Act.”

Classification of manatees as “endangered” triggers certain required findings under

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the Endangered Species Act (ESA) and the Marine Mammal Protection Act (MMPA). Specifically, “endangered” or “threatened” marine mammals are a “depleted” stock, meaning they are below their optimum sustainable population (OSP). Thus, a PBR calculation (like its relative, Fractional Excess Growth), is intended to ensure that desired growth rates to “recover” a species’ OSP¹ are met.

Section 117 of the MMPA requires the Fish & Wildlife Service to prepare “Stock Assessment Reports” (SAR) for manatees. A SAR typically includes the following:

- a description of the stock's geographic range
- a "minimum population estimate"
- current population trends
- current and maximum net productivity rates
- "Potential Biological Removal" levels
- status of the stock
- estimates of annual human-caused mortality and serious injury by source
- descriptions of other factors that may be causing a decline or impeding the recovery of "strategic stocks"

To calculate PBR, US FWS uses a calculation process developed by the National Marine Fisheries Service (NMFS):

PBR is the product of three elements: the minimum population estimate (N_{min}), half of the maximum net productivity rate ($0.5 R_{max}$), and a recovery factor (Fr). Recovery factor values range between 0.1 and 1.0 and population simulation studies demonstrate that a default value of 0.1 should be used for endangered (depleted) stocks and a default value of 0.5 should be used for threatened stocks or stocks of unknown status (NMFS 2005).

¹ In the 2001 Manatee Recovery Plan, the Manatee Population Status Working Group proposed a target annual population growth rate of at least 4%, based on a 94% or better adult survival rate. This goal is not one of the population-related criteria for reclassification, which are:

Achieve the following population benchmarks in each of the four regions over the most recent 10 year period of time:

- statistical confidence that the average annual rate of adult survival is 90% or greater;
- statistical confidence that the average annual percentage of adult female manatees accompanied by first or second year calves in winter is at least 40%; and
- statistical confidence that the average annual rate of population growth is equal to or greater than zero.

These criteria were replaced in 2007 by the CBM and related models (*see 2007 Manatee 5-Year Review*)

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A 2014 attempt to calculate PBR produced the number 14 – the number of manatees that could be “taken” annually without preventing recovery of the species². A 2009 SAR calculated a PBR of 12. The reason for the small change in PBR is two-fold:

- 1) In 2009, the minimum population estimate was 3,808. In 2013, the number increased to 4,834.
- 2) In 2009, the fractional result of the computation (11.8) was rounded UP to 12. In 2013, the fractional result (14.98) was rounded DOWN to 14.

2009 SAR	2013 SAR
$N_{\min} = 3,802$ $R_{\max} = 6.2\%$ $F_r = 0.1$ $PBR = (3,802) (0.031) (0.1) = 11.80$ (or 12)	$N_{\min} = 4,834$ $R_{\max} = 6.2\%$ $F_r = 0.1$ $PBR = (4,834) (0.031) (0.1) = 14.98$ (or 14)

“Take” versus modeled growth rate

According to the PBR, the human ‘take’ of manatees that could be authorized under law far exceeds actual take. FWS states that an average of 99 manatees per year are taken by human causes, which is seven times greater than the PBR calculation!

Why is the manatee population growing – and not, as the PBR would appear to strongly suggest, shrinking?

In 2009, strong growth rates were reported in three of the four “management units,” with the Southwest Region reporting a likelihood of a 1.1% annual decline. Yet, taken as a whole, manatee numbers were clearly increasing, rapidly, despite the PBR.

In 2013, new estimates using an updated Core Biological Model (CBM) by Langtimm and Runge increased growth rates in all four management units, most especially in the Southwest, a management unit that moved from a possible decline to a certainty of an increasing population. Moreover, when questioned at the May 2013 Manatee Forum where these findings were presented, Runge stated that the improvements were not due to improved “protection,” but due to improved data and methodologies. These very strong population increases would have been documented in 2009 if the 2013 data and method had been available. In short, the improved numbers are not due to better “protection,” but to better numbers. Moreover, and importantly, past concerns about declining southwest unit population, and a possible decline in the Atlantic, were based on inaccurate data!

² The 2009 and 2013 SARs focused on ‘take’ by commercial fishing (an MMPA requirement). However, this same PBR method was used in 2003 by FWS in an effort to authorize “incidental take” by all watercraft. The proposed rule was withdrawn, as the PBR of 12 was far less than actual “take”. At the time, modeling was far less accurate than today; it was believed the southwest manatee “unit” – then called a “stock” – was in decline, and that the outlook in the southwest and Atlantic stocks, using the parameters was ‘dire’. The Service withdrew the proposed “incidental take” rule.

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Management Unit	2009 Adult Survival Rates (from 2009 SAR)	2013 Adult Survival Rates (not included in 2013 SAR; Langtimm 2013 estimates are shown here)	Change
Northwest	.959 (+4% growth)	.975	+016
Upper St Johns	.960 (+6.2% growth)	.977	+017
Atlantic Coast	.963 (+3.7% growth)	.967	+004
Southwest	.908 (-1.1% growth)	.956	+048

Clearly and unequivocally, the hypothesis presented in the opening of this commentary is false. Manatee population increases raise the question: How can seven times as many manatees be killed by people as the PBR allows? Is the data or method used to calculate PBR flawed; is classification as “endangered” or “threatened” wrong; or both?

Is the data flawed?

No. FWS itself calls the CBM the most sophisticated modeling program for any species. At the request of CFFW, Mike Runge fitted the model to the Upper St Johns unit, which has the most complete and accurate assessment of manatee population and mortality. The model fit. CFFW itself has reverse-engineered the CBM with FWC mortality data, and with synoptic surveys. Again, the model fit both times.

Is the method flawed?

It is not the PBR calculation method that is at fault. Certainly, the data poured into the calculation could be improved. FWS and FWC have been unable to develop an OSP for manatees (readers are encouraged to review CFFW President Bob Atkins’ presentation before and part of the record of the May 2013 Manatee Forum providing upper and lower boundaries for carrying capacity and OSP for the Indian River Lagoon). In lieu of their own OSP, FWS instead uses synoptic survey results in its PBR, despite the agencies’ disdain for the counts. While recognizing synoptic surveys are a “minimum count” – indeed, surveys by Florida Power & Light counted significantly more manatees – the PBR does not adjust the synoptic count upward to account for the undercount.

However, moving the minimum population upwards has little effect on the resulting calculation. We note that between 2009 and 2013, the minimum count moved up from 3,802 to 4,834, an increase of more than 1,000, or 22% higher! Yet, the PBR increased only by two (22% of 12).

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The PBR calculation has been used for years, and for myriad species. While the calculation certainly can be “tweaked,” it is difficult to envision that if huge disparities between calculated PBR and actual population growth, such as we see with manatees, were occurring with other species, that the calculation would still be used.

Is the PBR wrong because the manatee is incorrectly classified?

Yes. Listing manatees as “endangered” is the sole explanation.

Because manatees are listed as “endangered,” the PBR calculation result is decreased by a factor of 10, only *one-tenth* of the PBR that would be calculated for an unlisted species.

Consider the result if manatees were reclassified as “threatened.” The PBR recovery factor default value would be .5, allowing for 74 annual human-caused mortalities.

$$\text{PBR} = (4,834) (0.031) (0.5) = 74.8 \text{ (or 74)}$$

74 is still substantially less than the 99 deaths per year average. Moreover, the actual number of manatees killed by human-related causes is certainly higher than an average of 99, as a substantial fraction of deaths are ‘undetermined.’

It is simply not conceivable, even as a “threatened” species, that the PBR is accurate, or a useful tool for guiding policy.

Only if the manatee is delisted completely does the formula for calculating PBR correlate with reality and the Core Biological Model. If manatees were delisted, the PBR would be 149 human-caused deaths per year, or about 50 more than the recent annual average. While this result likely still does not fully account for the growth rates established by Runge, et. al., it is certainly much closer.

Why this matters

The PBR is the required tool for determining whether “incidental take” of a species can be authorized. As we have reviewed, efforts to establish minimum take of manatees by recreational vessels have failed, as the PBR is so much lower than actual human take. Therefore, because there is no incidental take authorization, FWS and FWC remain focused on reducing human-caused mortality.

As noted earlier, the stated reason for listing the manatee as an endangered species is the threat of human-related activities, in particular, boating-related take.

Much of what has been done in the name of manatee protection has dealt with reducing the risk of watercraft collisions. A formidable permitting gamut has been established, which has placed slow speed zones in much of peninsular Florida – and

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most certainly in those areas favored by boaters for recreational watersports such as fishing, skiing and tubing. As FWC and FWS staff have stated, slowing boats down by establishing slow-speed zones is almost the only tool in the toolbox to try to reduce human-caused mortality. *(We note that effectiveness of speed zones has never been demonstrated, as a recent CFFW analysis showed.)*

Langtimm and Runge in 2013 (in preparation for review), showed that the heretofore greatest perceived threat to manatees – watercraft collisions – is of no real concern to the persistence of the species (eliminating watercraft mortality would reduce the risk of quasi-extinction by less than one-half of one percent over the next 100 years, according to the scientists' findings).

As explained above, if the manatee was delisted, "incidental take" under the MMPA for up to 150 deaths/year could be authorized, which is well within current mortality counts. However, a realistic "incidental take" authorization cannot be computed as long as the manatee remains endangered or threatened, managers remain focused on a largely inconsequential threat. In simple terms, their eyes are not on the ball.

The greatest threat facing manatees – ironically, even perversely – is overabundance. If we are at, near, or even above carrying capacity in key regions, which senior FWS officials have privately admitted to CFFW, then focusing on reducing mortality and increasing the manatee population is a highly inappropriate strategy. Moreover, we are learning that there are indeed negative consequences to the ecosystem caused by manatees, in particular overgrazing of seagrass that is critical to the survival of virtually every animal species that inhabits coastal waters.

But, because we are bound *de jure* to treat the "endangered" manatee as a "depleted" species that must be "recovered," managers must continue down the wrong "more is always better" path until such time as the manatee is finally and appropriately delisted.

Delisting in no way implies an end to "protection," as both the Federal and Florida manatee plans clearly state. Rather, it will give managers a larger toolbox to address the very real emerging threats to the whole ecosystem.

The 2001 recovery plan outlines a 20-year timeline to delist, but that timeline, along with so much of the information and recovery criteria in the 2001 plan, is outdated, and even outright incorrect. If the CBM tools available today had been available in 2001, the manatee would have been downlisted to 'threatened' at that time, and today we would be debating delisting, not simply a reclassification to threatened.

It is time to delist. Reclassification is overdue.