,FWS-R4-ES-2014-0024

**Reclassification of the West Indian Manatee from *Endangered* is Mandatory Based on Best Practices of *Risk Management***

SUMMARY

This comment addresses the contradiction of current manatee management practices with the best practices of Risk Management. This contradiction is a direct result of the continued classification of the manatee as *Endangered*. *Endangered* means a species is in danger of extinction throughout all or a significant portion of its range, which is clearly not the case (*see CFFW Habitat analysis*). Further, the classification of a marine mammal as Endangered requires that regulators treat the species as a "depleted" stock in need of Recovery. Failure to recognize that manatees are already recovered has led to a contradiction between current management practices and Risk Management.

Classification of the manatee as "endangered" violates basic and accepted principles of Risk Management, as manatees are not in danger of extinction. Moreover, current management practices intended to increase the 'depleted' manatee population, limited only by warm water carrying capacity, are seriously flawed. In order to effectively manage a species that is likely already at its Optimum Sustainable Population, science requires that the manatee be delisted.

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. CFFWs 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 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 & Survivability
  - 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

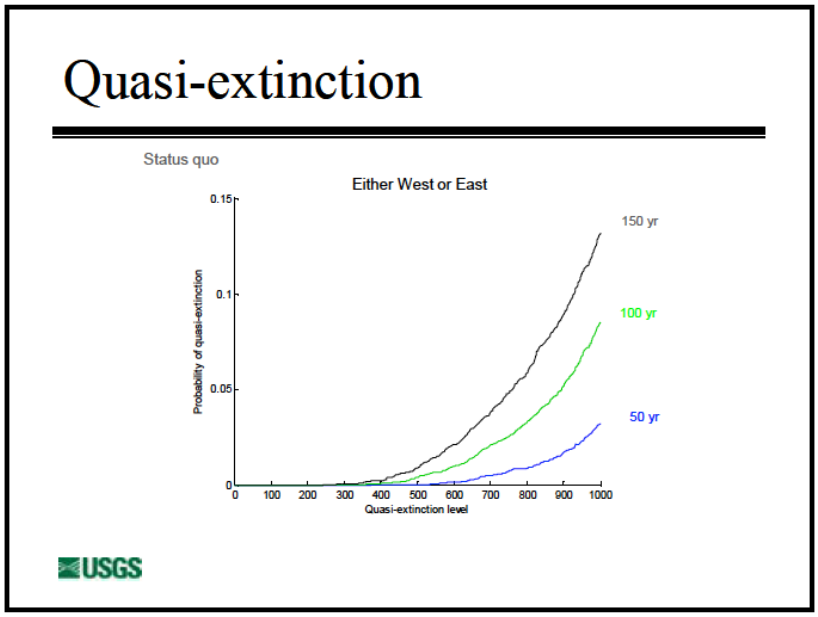
Unfortunately, with respect to manatee management, the USFWS decision-making has been adversely affected by public pressure from a small group of special interest groups. In this case, a series of bad decisions started and continues to be driven by a legal settlement to a 2001 lawsuit brought by these groups. This settlement and continued pressure by these groups has led to a dichotomy between politically motivated actions and scientific based needs. (The most blatant example of political infighting is the then-Florida Governor's meddling in that state's wildlife commission's plan to reclassify the manatee as "threatened" (a behind-the-doors move by the manatee club that nearly destroyed the Manatee Forum)

CFFW is based in Brevard County in the shadow of Kennedy Space Center. Our current President, Bob Atkins, was the Senior Manager for Operations for Lockheed Martin and a member of the KSC Senior Management Team. As such he managed key portions of several start up investigations and mishap investigations. He has substantial training, experience and expertise with resect to risk management skills, a key part of that responsibility.

Sound risk management starts with an effort to identify all elements of risk. This task in itself can be arduous. The next step is to prioritize all risks in order to manage overall risk more efficiently. In many instances, one cannot eliminate all risk, so prioritization plays an important role. Many times we hear comments within the manatee management group that are basically an identification of one risk or another. These risk-related subject comments include loss of warm water, loss of habitat, collision with watercraft, occurrences of outbreaks of toxic red-tide, and sudden onslaught of extreme cold weather, to name a few.

All of these are related to the historically most relevant risk for the manatee species – the risk of extinction. Continued classification as *Endangered* forces the risk of extinction to be the risk of highest priority.

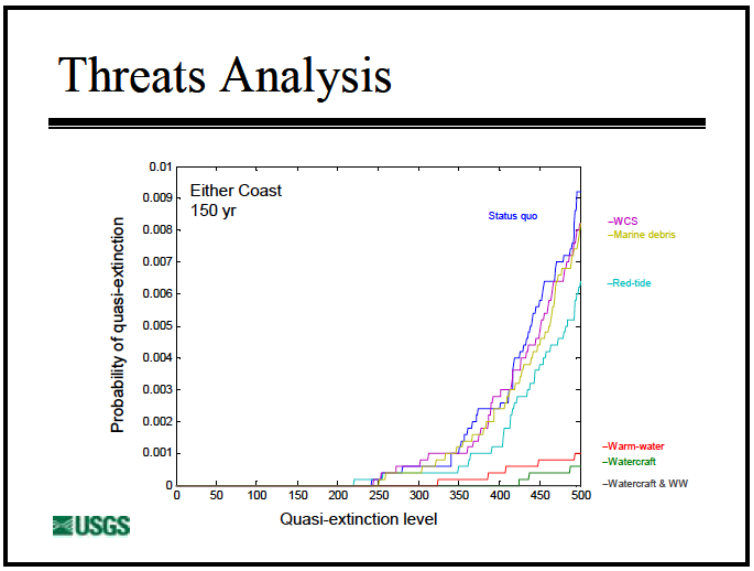
Recently, Michael Runge of USGS updated the manatee core biological model (CBM) as in input to the USFWS manatee stock assessment. This CBM is considered to be the most sophisticated population modeling tool developed to date. The CBM is based on current minimum population size, adult survivability rates, reproductive rates and includes the potential influence of various threats such as watercraft, warm water, red tide, and other threats. The primary output of the CBM is that the probability of 'quasi-extinction' over the next 100 years is less than 1/10 of 1% (0.1%). There is zero chance of actual extinction based on CBM analysis.




Source: Manatee Threats Analysis, Michael C. Runge, USGS, presented to the Manatee Forum, May 2013

Runge included a set of analyses that address the level of risk associated with the various perceived threats to manatee survival. The results of these analyses and the potential risk associated with each threat individually and collectively are illustrated in the chart below. Note that even when considered over the next 150

years, these threats do not significantly impact the probability of 'quasi-extinction' one way or another. (Again, we emphasize, there is zero risk of extinction.)

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Industry standard Risk Management practices have application to all types of situations and decision-making, especially when developing strategic planning. There are many forms of the risk assessment matrix, but the following one from *www.faasafety.gov* will help illustrates how different manatee management would be if based on accepted risk management practices.

likelihood of manatee extinction →

| RISK ASSESSMENT MATRIX | | | | |
|---|---|---|---|---|
| | Severity | | | |
| Likelihood | Negligible | Marginal | Critical | Catastrophic |
| Frequent | | | | |
| Probable | | | | High |
| Occasional | | | Serious | |
| Remote | | Medium | | |
| Improbable | Low | | | |

Matrix Source: *www.faasafety.gov*

The collective data from two consecutive stock assessments including the CBM analysis (the best available science) establishes beyond any reasonable doubt that the threat of manatee extinction is zero. When we look at this with respect to the basic risk management matrix, this places the risk of extinction well within the bottom region of the bottom row of the matrix. Therefore no matter how serious

you may feel that the consequence of extinction is, the risk is clearly classified as acceptable.

On the other hand, there is also a potential risk of over-population. This occurs if the population exceeds the optimum sustainable population (OSP) and continues to grow to carrying capacity (CC).

All available data indicates that the manatee population has grown at a rate of 5-7% over the last 40 years. Without some form of management intervention, this population will continue to increase until it reaches some natural limiting factor. As late as 2003, it was clear that USFWS believed that this limiting factor was available warm water volume. This is clear from the following excerpt:

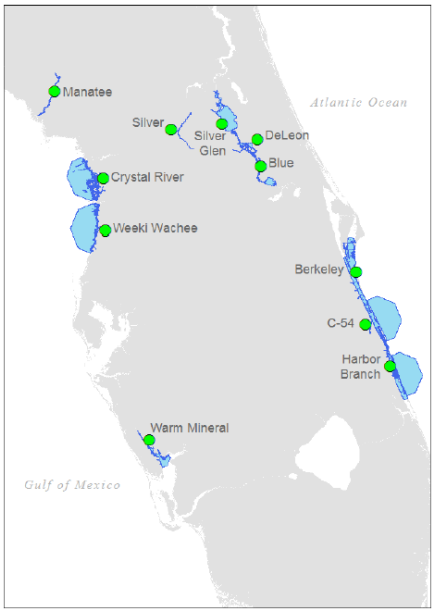
> Federal Register: May 8, 2003 (Volume 68, Number 89), Proposed Rules, Page 24700-24704 in reference to: Fish and Wildlife Service ACTION: Proposed rule; withdrawal. Availability of Record of Decision; 50 CFR Part 18; RIN 1018-AH86; Marine Mammals; Incidental Take During Specified Activities.
>
> *"New information about carrying capacity suggests that it may decline over the next 3 to 60 years, which would affect density-dependent life history and management functions of the Florida manatee.* ***The limiting factor for the carrying capacity of each stock is warm water refugia.*** *Each stock of Florida manatees is variably dependent on natural and artificial warm water refugia, such as springs, sewerage outfalls, and power plant discharges. Preliminary information presented in the Incidental Take Model, but not yet peer reviewed, suggests that a reduction in total warm water carrying capacity is possible, if not likely, in the near future. This would suggest that OSP will change over time. Our implicit assumption of a stable OSP is challenged by this information. This, in turn, has implications for our interpretation of total population estimates, and our assumption that none of the stocks were severely depleted based on the demographic benchmarks."*

As long as warm water was believed to be the limiting factor for CC, there was no official concern over any consequence to habitat if the manatee population actually reached the CC of the ecosystem. Manatees simply would reach equilibrium where the volume of warm water would limit the number of manatees that would not be subject to cold stress mortality. In this case, the OSP and the CC would essentially be the same.

OSP is defined, with respect to any population stock, by the Marine Mammal Protection Act (MMPA) section 3(9). OSP is the number of animals, which will result in the maximum productivity of the population or the species, keeping in mind the carrying capacity of the habitat and the health of the ecosystem of which they form a constituent element. (16 U.S.C. 1362(3)(9)).

In June 2012, Provancha, et al, published *Carrying Capacity Assessment of Manatee Forage and Warm-water Associated with Eleven Florida Sites,* which was submitted to the USFWS by Innovative Health Applications, LLC (IHA). Even though the intent of the study was to examine warm water CC, the authors recognized the availability of nearby SAV for forage as another primary consideration in determining the limits on CC.

The importance of this study is that it forever changes the underlying assumption that warm water refugia are the limiting factor for CC. This study established that available forage, submerged aquatic vegetation (SAV), was a more limiting factor than warm water. These graphics, taken directly from the study, indicate the 11 natural warm water refuges that were evaluated by the IHA study team. The blue shading indicates the 30km radius around each of the warm water sites where available SAV was evaluated. The SAV available in these surrounding areas proved to be more limiting than the warm water volume itself at 8 of the 11 sites evaluated. The total CC of these areas was estimated using 50 percentile values from 10,000 Monte Carlo simulations for each site.




| Site Name | Limiting K | Site-K | Forage-K |
|---|---|---|---|
| Blue Spring | 456 | 491 | 646 |
| Crystal River | 13725 | 14336 | 20388 |
| De Leon Springs | 349 | 1445 | 349 |
| Manatee Springs | 0 | 243 | 0 |
| Silver Glen Springs | 917 | 5638 | 917 |
| Silver Springs | 15 | 31827 | 15 |
| Warm Mineral Springs | 141 | 308 | 143 |
| Weeki Wachee | 1953 | 1953 | 31266 |
| C-54 | 230 | 15713 | 230 |
| Berkeley | 464 | 1414 | 464 |
| Harbor Branch | 298 | 18598 | 298 |

Source: IHA Study. Note that the IHA Study uses K for carrying capacity.

When taken at face value, the IHA study suggests that the combined CC for these eleven sites is around 18,500 manatees, but further investigation shows that the warm water volume site CC limit for Crystal River (13,725) comprises 74% of the calculated total CC, the vast portion of which is in offshore Gulf waters. With the Crystal River site removed from the analysis, the estimated CC of the remaining 10 sites was merely 4832, with 8 sites limited by nearby forage and 2 limited by warm water volume[1]. Clearly manatee carrying capacity is more strongly limited by forage than by warm water refugia, as previously believed.

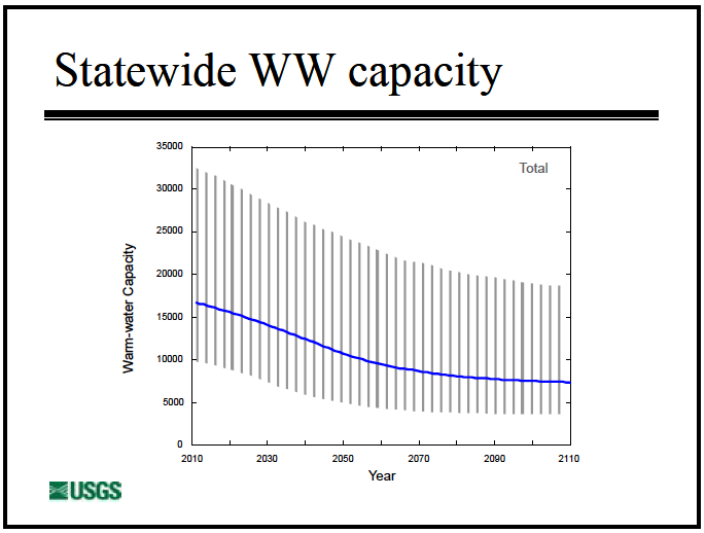
The fact that available SAV is more limiting to carrying capacity than warm water changes manatee management policy forever. This is due to one simple fact. Unlike warm water, which is not consumed and constantly replenishing, SAV is consumed and can be over-pressured to the point where it could be depleted. The manatee

[1] This is a minimum number, as other sites besides the 11 examined in the IHA study provide warm water and forage. We agree with the IHA study that these sites comprise a very large share of total possible habitat, meaning the maximum number likely does not significantly exceed the capacity that can be carried at these 11 sites.

could continue to consume a natural resource to the detriment of the overall habitat. SAV is the basic element of the habitat ecosystem that nearly every species in the ecosystem relies on for at least a portion of its life-cycle. Therefore, available SAV establishes the OSP for the West Indian Manatee.

This clearly establishes that the values for OSP and CC for the West Indian Manatee are distinct values. Carrying capacity remains limited by warm water. The CC exceeds the OSP, which is limited by SAV.

As has been established, the manatee population has been increasing for the last 40 years and will continue to increase to carrying capacity. Runge's estimations of future manatee population limits were all impacted by warm water CC.

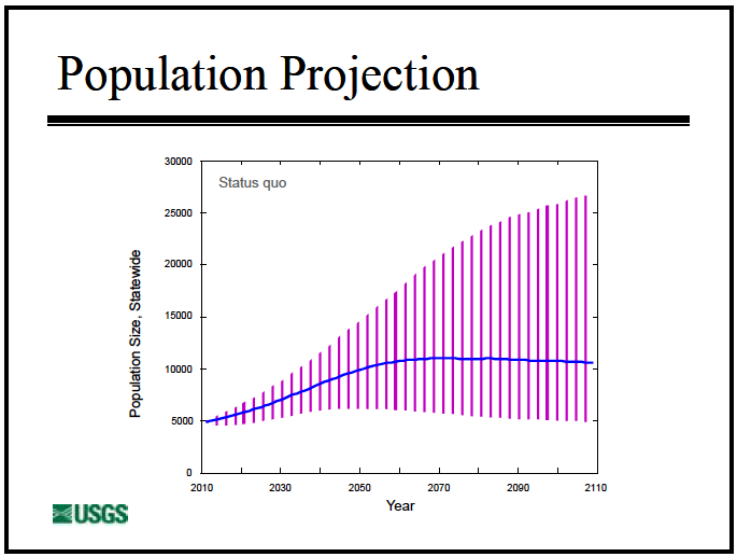



Source: Manatee Threats Analysis, Michael C. Runge, USGS, presented to the Manatee Forum, May 2013

The CBM indicates the manatee will continue to increase until ultimately limited by warm water at or near 10,000.

But the IHA study establishes that the OSP, limited by available SAV is considerably less than the CC. All indications are that it is highly probable that current trends in the manatee populations will continue unbounded to the CC, surpassing the OSP, without some other intervention.

If the manatee population increases beyond OSP, the potential impact to the habitat ecosystem is significant. Because we have continued to classify the manatee as *Endangered* based more on pressure from special interest than science, we now find

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ourselves in an ironic situation where we continue to manage the extremely unlikely (and therefore completely acceptable) risk of extinction and completely ignore the more likely unacceptable risk of overpopulation.

likelihood of manatee exceeding OSP →

| RISK ASSESSMENT MATRIX | | | | |
|---|---|---|---|---|
| | Severity | | | |
| Likelihood | Negligible | Marginal | Critical | Catastrophic |
| Frequent | | | | |
| Probable | | | | High |
| Occasional | | | Serious | |
| Remote | | Medium | | |
| Improbable | Low | | | |

Matrix Source: *www.faasafety.gov*

Consequence of manatee exceeding OSP ↑

The overarching public perception of the manatee is that it is completely harmless with no natural enemies and no adverse consequences. But as is the case with any species, there is a population level where the numbers make this notion erroneous. If the manatee is allowed to exceed the OSP and over-pressure the available SAV in the ecosystem, especially our fragile coastal estuaries so critical to the life cycle of numerous in-shore and off shore species, we have made a critical management

mistake. The unacceptability of the risk of overpopulation demands mitigation. This starts with reclassification of the species. The best available science demands reclassification, even in the face of popular opinion to the contrary.