

## **Resolution of the Florida Keys National Marine Sanctuary Advisory Council Advancing Buoy Working Group Recommendations to Florida Keys National Marine Sanctuary Staff**

**WHEREAS**, the Florida Keys National Marine Sanctuary protects the unique marine waters of the Florida Keys that are a national treasure and of international significance; and

**WHEREAS**, the Florida Keys National Marine Sanctuary protects one of the largest reef systems in the world, and the only coral barrier reef in the Continental United States; and

**WHEREAS**, these reefs are intricately tied to the area's economy, attracting tourists for diving and snorkeling, and supporting strong commercial and recreational fishing industries; and

**WHEREAS**, healthy reefs are critical in protecting shoreline ecosystems and infrastructure from hurricanes and other weather-related impacts; and

**WHEREAS**, the reefs have suffered degradation due to increasing use, ocean acidification, increasing temperatures, and diseases; and

**WHEREAS**, a great deal of funding is invested in restoring coral reefs in many areas of the sanctuary and through the Mission: Iconic Reefs initiative; and

**WHEREAS**, the sanctuary staff have asked for community input in anticipation of the final Restoration Blueprint; and

**WHEREAS**, increased visitor use and storms have resulted in buoys being broken or dislodged on a continuous basis making it difficult for the sanctuary staff to maintain the current array of installed buoys; and

**WHEREAS**, the private and non-profit sectors can, and are eager to, partner with the sanctuary to support buoy priorities within legal constraints; and

**WHEREAS**, the Sanctuary Advisory Council created a Buoy Working Group to identify strategies to more effectively and efficiently prioritize buoy management actions with the following objectives:

- Prioritize implementation strategies, locations, and types of buoys recommended within the sanctuary
- Develop management and financing strategies to support these recommendations

**THEREFORE, BE IT RESOLVED** that the Florida Keys National Marine Sanctuary Advisory Council:

1. Acknowledges the commitment and contribution of the Advisory Council and community members who served on the Buoy Working Group.
2. Requests that the Buoy Working Group Recommendations be forwarded to the Sanctuary Superintendent for consideration during the Restoration Blueprint implementation process.

*Disclaimer: The council is an advisory body to the sanctuary superintendent. The opinions and findings of this publication do not necessarily reflect the position of Florida Keys National Marine Sanctuary, Office of National Marine Sanctuaries, National Oceanic and Atmospheric Administration, U.S. Department of Commerce, Florida Department of Environmental Protection or the Florida Fish and Wildlife Conservation Commission.*

## Recommended Priorities from the Buoy Working Group (BWG)

The three goals of buoy management identified by the Advisory Council's Buoy Working Group are to support resource protection/conservation, restoration, and public access. Often buoy strategies support two or three of these goals and sometimes they work at cross purposes. The BWG generated a list of buoy-related actions for the sanctuary to consider, and evaluated the actions with respect to how they cross-walk to each of these goals. The BWG identified conservation/protection as the highest priority that should ultimately drive buoy-related decision making because: 1) restoration is already being supported through the Mission: Iconic Reefs initiative and through other sanctuary-specific actions; 2) the aquatic heat wave in the Keys is creating additional urgency to relieve human use pressure on the reefs; and 3) some current buoy locations may be contributing to degradation of the reefs as a result of localized human impacts. The results of this scoring process are presented in Appendix 1.

While the ranked list is informative, the final BWG recommendations bundle actions that collectively promote conservation and protection in discrete high priority locations. The locations span the geography of the Keys including the Lower, Middle, and Upper Keys reefs, as well as the Lower Keys backcountry, and the Marquesas. The recommendations support protection of reef and seagrass habitat. Some recommendations require a focused collaborative dive into site based planning, followed by implementation. Other recommendations focus on education, funding, permitting strategies, and technical suggestions.

The BWG was tasked with recommending new buoy management strategies that require little or no new funding. Recognizing that the sanctuary buoy team is already at capacity with nearly 800 buoys and static funding and staffing levels, the BWG generated recommendations that promote protection by implementing site-based strategies that, for the most part, modify the current layout of buoys and limit installation of additional buoys, and leverage collaborations with local organizations to support new installations and assist in maintenance.

Any collaboration with the public and private sector would be done with the following acknowledgements:

- 1) The sanctuary will permit all activities to ensure that they are legally allowed, do not present liability issues for the sanctuary, and are consistent with sanctuary rules and regulations; and
- 2) regardless of where support may come from, there is no proprietary ownership of mooring buoys, i.e., all buoys remain publicly available.

The Sanctuary Advisory Council Buoy Working Group recommendations are:

**1. Development of modified site plans to reduce human impacts on high-use reefs:**

Resources needed: staff time

The BWG recommends exploring site-based strategies that eliminate or reduce the concentration of buoys from the top of the reef to patch reef and sandy areas on the side of the reefs. The intent is to protect the reef, create new opportunities for diving and fishing, enable experienced divers to swim over the reef, and create sites in sandy areas to support dive certification exercises in locations that avoid reef damage. When staff are ready to draft site plans, the BWG suggests the following:

- In consultation with restoration practitioners, locate subsurface buoys to support restoration practitioners
- Reduce or eliminate mooring balls near sensitive coral and restoration sites
- Install anchors for drop lines to support diver certification training (alternately, explore permitting options for organizations willing to do this work themselves.)
- Identify permitting requirements, implementation strategy, and funding needs.
- Remove buoys in less than 10 feet of water over the reef to prevent boat damage during periods of high wave action.
- Evaluate effectiveness and feasibility of rotating buoys to relieve pressure.

The BWG recommends that site planning be undertaken in the following locations which are listed in estimated order of priority. Included in these locations are some site-specific recommendations that can be considered during site planning.

- The Molasses-Sand Island reef complex.
  - Install subsurface infrastructure in the sandy areas behind the tower on the west and northwest side of Molasses Reef to support dive skills training. This infrastructure would include an array of anchors with loops arranged so that dive boats can anchor in a location that will avoid reef impacts from wind and currents despite wind and current direction. These anchors will allow PADI-required down lines to be secured to the loops and avoid damage to reefs from drifting or tying. This could represent a no-cost action with the sanctuary providing the permit and the dive community providing the funding for infrastructure installation.
  - Shift mooring balls from the existing mooring field to other areas of the reef such as sand, patch reef, deep water and in areas with no mooring balls to spread out use pressure and create new dive options.
  - Move some mooring balls from the top of Molasses Reef to the sandy area outside of the Molasses Reef SPA near Sand Island to support fishing boats which are currently anchoring there.

- Consider clarifying the boundary of Molasses Reef with an additional boundary marker
- Move mooring balls away from restoration areas in Molasses Reef to give them time to grow.
- Sand Island: Relocate mooring balls from the interior of Sand Island away from the reef to support fishing and provide access to diving without being on top of the reef.
- The Grecian Rocks-Key Largo Dry Rocks reef complex
  - Relocate some of the mooring buoys from the shallowest areas on the west side of Grecian to the deeper water stretch from Key Largo Dry Rocks to Grecian on the offshore side of the reef line.
  - Add additional mooring buoys around the Christ Statue if there is room to do so safely.
- Alligator Reef
  - Carve out an anchor exception area in the sandy portions of what may fall within the new SPA boundary to accommodate high levels of recreational use in this area.
  - Place new mooring/marker buoy in south and northeastern corner of expanded SPA boundary
  - Need additional mooring buoys outside of the current SPA zone. Suggestions from the dive and fishing community include: the south corner, middle, and northeastern corner of the current SPA. These are outside the current SPA but inside the proposed expansion included in the Restoration Blueprint.
- French Reef
  - Add mooring balls on the south, northeast, and east side of the French Reef outside the SPA to provide fishermen a place to tie up to and fish in a way that will not impact the reef
- Horseshoe Reef
  - To support restoration of this important site by relieving use pressure, consider temporarily replacing surface mooring buoys with subsurface buoys, while not providing surface mooring buoys.
- Carysfort Reef - will likely need a site plan once the Blueprint is finalized to take into account restoration and nursery efforts.
  - Reduce the number of buoys in the mooring field since it is not as heavily used as others
  - Move some mooring buoys outside of the SPA to support fishing access.
- Lower Keys Backcountry
  - The BWG highlighted the need to pay conservation attention to the backcountry. There is increasing boat use by inexperienced boaters that is having a negative impact on seagrass beds. The Lower Keys Guides

Association has developed a plan for channel markers at several channel access points in the backcountry. The BWG recommends that the sanctuary pilot a collaborative project with the guides association to install channel markers at the Sugarloaf channel pursuant to permits from the sanctuary, U.S. Coast Guard, Florida DEP, and ACOE to evaluate the process and effectiveness. The lessons learned from this experience can inform how additional channel markers can be installed to protect seagrass beds in the backcountry, provide safe access for boaters, and foster a cost-effective collaboration with the fishing guide association.

- The Marquesas - Dry Tortugas Stopover
  - This area is receiving more use by overnight visitors. To protect seagrass beds, install additional mooring buoys on the south and west side of the Marquesas Keys where live-aboards (35-45ft) anchor on their way to the Tortugas. Because of the geographic constraints on sanctuary staff, the BWG recommends coordination with staff from Dry Tortugas National Park and/or USFWS.
- Eastern Dry Rocks-Man Key Complex
  - EDR/Man Key: Add additional small vessel mooring buoys on Man Key to separate small boats from big boats on EDR and ease pressure on the EDR SPA
- Sombrero Key
  - Heavily used and is a restoration site. Consider as a candidate for site planning to balance uses similar to Molasses Reef.

## **2. Restoration-related strategies:**

Resources Needed: supplies, contracts for installation, staff time to modify marker systems below

- “Transit Only” informational spar buoys at proposed restoration sites at Marker 32 in the Lower Keys, and at restoration sites in the Middle and Upper Keys is an easy low-cost strategy to reduce pressure on restoration sites.
- Installation of subsurface buoys on restoration sites based on needs from the reef restoration practitioners.
- Proposed new SPA at Turtle Rocks: consider pilot strategy of not marking the proposed new boundary with SPA boundary markers
- Mark the boundary of the proposed new restoration areas. At Cheeca Rocks and add a small number of mooring buoys
- Clarify closed areas at Conch Reef with Marker Buoys if these markers can logistically and legally be reestablished in water shallower than 100 feet.
- Reduce the number of mooring balls at Carysfort to reduce impact on restoration efforts.

### **3. Wildlife Management Area Strategies:**

Resources Needed: staff time to coordinate with USFWS and support installation and permitting (explore possibility of using USFWS funding).

- Pelican Shoal WMA: add buoys outside the protection zone in accordance with USFWS guidance to provide access *if* this can be done in a way that does not impact nesting. Via BWG public input, USFWS colleagues suggested buoys be installed no closer than 100 yards from the island.
- Snipe Keys WMA: Add a permanent day marker, i.e., sign indicating no wake zone. Coordinate with USFWS.

### **4. Education Strategies:**

Implementation will require a multi-pronged, multi-lingual, and creative education initiative to reinforce proper tie-up procedures, and promote sanctuary regulations and buoy requirements.

Resources: education/communication staff, supplies for buoy modification, funds for supplies and print materials.

- Provide easy to understand symbols on spar buoys about what is not allowed in SPAs
- Provide continuous education on proper buoy use to commercial operators, recreational boat rental operators, and recreational boaters.
- Pilot outreach to rental operators and explore best options for sharing information and resources with them. Encourage rental operators to explicitly teach buoy use (Pennekamp dockmaster does this and could be a resource for others.)
- Advocate for inclusion of proper buoy use and tie-up procedures in state-mandated boater safety courses
- Leverage social media strategies such as cell phone alerts when entering the Keys and QR codes at boat ramps, on rental boats, and on buoys.
- Create and update Marine Sanctuary Explorer App content.
- Outreach on airlines flying into Key West and Miami and at boat shows in Miami.
- Update charts with GPS locations of buoy anchors
- Work with GPS companies and NOAA chart office to make GPS/chart updates as clear as possible following the completion of the Restoration Blueprint process.
- Target boating campgrounds in the Keys with brochures to inform about buoys and sanctuary rules related to boating.

### **5. Strategies for collaborations between the private and non-profit stakeholder community**

Resources Needed: staff person to develop program and organize fiscal arrangements.

Members of the BWG are eager to support the sanctuary in managing the buoy program. They offer eyes on the water every day, have the capability to raise funds to install new, or maintain

existing infrastructure, and can advocate on behalf of the sanctuary for additional funds at the state and federal levels. Ideas generated by the BWG include:

- Development of an “adopt-a-mooring field” program similar to the adopt-a-highway program. This type of a program might include cleaning buoys, reporting on missing buoys, transporting beached buoys to the sanctuary headquarters, or fundraising to install new and permitted infrastructure. If the sanctuary is interested in this type of partnership, the details of roles and responsibilities could be developed by BWG members and sanctuary staff.
- Fundraising to support infrastructure installation and maintenance. There are non-profits in the Keys (e.g., Reef Relief, and the newly created Marine Preservation Society), and the National Marine Sanctuary Foundation that can create a fund dedicated to buoy infrastructure. The private sector is willing to consider generating funds through a variety of ways including donations, increasing user fees for snorkeling and diving operations, holding fundraisers, promoting sponsorships, and creating an adopt-a-buoy program. These programs not only raise funds to assist the sanctuary’s goals, but broaden the stakeholder base and promote outreach and education opportunities. The BWG recommends that an MOA be developed outlining the roles and responsibilities of the sanctuary and associated partners to provide structure to these collaborations.

## **6. Logistical Suggestions**

### Resources Needed: staff time and supplies

One of the primary challenges encountered by the buoy program involves improper buoy usage, notably vessels not being correctly secured; coupled with buoy hardware and tackle ill-equipped to handle larger vessels. This situation often leads to persistent buoy failures due to instances such as large vessels utilizing small vessel mooring balls, these moorings lack appropriate design in contrast to large vessel moorings to withstand the forces exerted by these sizable boats.

The BWG recommends the following actions:

- The large vessel buoys should be a different color than the small mooring balls and be identified clearly as large vessel mooring buoys. The location of large vessel mooring balls should be clearly accessible in the app and on the web site.
- Consider a color-coded surface mooring buoy that indicates authorized use only in restoration areas. They could be installed and removed as needed based on the state of the restoration projects.
- An evaluation of the effectiveness of the large vessel mooring balls to withstand the pull of large vessels will inform necessary design modifications of the buoys (e.g., larger diameter line or increased elasticity) to support large vessels.



- Each small and large vessel mooring buoy lanyard should have a red tag that has basic visual instructions on how to properly use the buoy. Using graphics will help users regardless of language spoken.
- The BWG proposes a high priority recommendation that the sanctuary evaluate the root causes of mooring buoy failure and accordingly consider modifying the design in high incident areas to reduce chronic issues. The FKNMS buoy program should identify specific sites that regularly are missing buoys. Large vessel use at these sites routinely leads to the failure of these systems. Once these sites are identified they can be retrofitted with the improved/reinforced mooring buoy systems.
- The BWG should evaluate cost and effectiveness of installing thimbles in pick-up lines or whether simply making the eyesplices smaller is sufficient to reduce impact to buoys from improper use.

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## Appendix I - Buoy Working Group Scoring Process

### **Describe the process:**

Aside from identifying educational and collaborative opportunities to support the buoy program, the buoy working group spent a great deal of time generating actual in-situ recommendations for improving the buoy program to support the Restoration Blueprint as well as other issues. The actions were organized by Lower, Middle, and Upper Keys regions. The BWG unanimously recommended conservation and protection as the priority driver for these recommendations. The working group leadership team also considered input from sanctuary staff when making their decision. Once this decision was made, the BWG created a weighting system in which a weight of 10 was applied to the scores for conservation/protection, a weight of 5 was applied to the restoration scores, and a weight of 2 was applied to scores of actions supporting public access. These weights were assigned considering that on a scale of 1-10 the spread of these weights enabled enough resolution to clarify high, medium and low priorities.

Each member of the BWG then individually scored each action on a scale of 0-5 evaluating how the action supported each goal. The average scores for each of the three goals were then multiplied by the weighted value of the goal, and the weighted values were summed to provide an overall score for each action.

The tables below provide the average unweighted scores, how the average scores are broken down by each goal, and the sums of the weighted averages. The list of actions are prioritized by the sum of the weighted scores from highest to lowest. This prioritization aligns almost exactly with the rankings of the unweighted averages as well. The color coding of the goals by green (high), yellow (medium), and red (low) provide insight into how each action supports each goal. If the average score for each goal on a scale of 0-5 was between 4.0 and 5 it was rated high; 3-3.99 it was rated medium; and less than 3 was rated low.

The sanctuary can use this information when prioritizing actions to pursue and for justifying its decisions. This information can also be used to generate coordinated talking points that can be used by both sanctuary and non-sanctuary staff.

[Score Sheets by Region](#)

## Appendix II - Public Input

The working group solicited public input via email and via personal outreach. Below are the specific feedback that was received from the community.

- 1. What buoys at Carysfort are they planning to remove? The moorings on the back reef at North and the forereef at South are pretty spaced out and we need all of them to access restoration sites so hopefully, none of those are being removed.**

We are proposing to develop a site plan for Carysfort to relieve the pressure on the reef. We will include restoration practitioners in the site development process.

- 2. Where are they planning to add subsurface buoys at Carysfort, Sombrero, etc. in support of restoration? I'd assume that the practitioners have a say in where these subsurface buoys are.**

Any plan to add subsurface buoys to support restoration will be developed in partnership with the restoration practitioners. The BWG wanted to acknowledge the importance of buoys to support restoration and acknowledges that this is already occurring.

- 3. If the proposal in the draft rule to eliminate anchoring in sand in SPAs stands, Pickles and Davis will need more mooring buoys. At Pickles, the suggestion is more buoys on or just inshore of the rubble pile; at Davis, there could be more buoys on the sides of the coral. She also supports the idea of carving out an anchoring area at Alligator because that has become a 'go-to' spot.**

Noted. The idea of carving out an anchoring area at Alligator was proposed and supported by the BWG.

- 4. Overall, we really appreciate the time and effort the Buoy Working Group put into this. We have provided some comments that apply to the document overall, and some that are specific to each subregion's proposals, but these are all recommendations that we support.**

Noted.

- 5. As these recommendations were being developed, were existing or potential new zones being considered? Some of these changes seem as though they aren't considering potential changes to zones, and therefore it might make sense to leave this as a draft document until the rule is final.**

Agreed. Most of these proposals will need to be reconsidered once the blueprint draft is finalized. The suggestions that directly relate to the outcomes of the Restoration blueprint will remain draft until the rule is finalized

**6. How is the carrying capacity of each area, and the ability of FKNMS to maintain significantly more buoys, being considered?**

Carrying capacity was driving the recommendations by the BWG. While the BWG did not quantify carrying capacity, the BWG believes that the amount of pressure on top of reefs and near restoration sites is causing stress to the reefs. The BWG is cognizant that the sanctuary buoy team does not have enough staff and funds to support significantly more buoys. This is why the strategy of moving buoys from sensitive areas on top of the reef system to the edges of reefs where patch reefs, sandy areas, and man-made structures provide opportunities for public access, reduce impacts to the reef, and does not require significantly more buoys. Rather, many of the strategies require existing buoys to be moved to other portions of the reef either permanently or temporarily.

**7. Many of these recommendations call for the addition of buoys rather than the shifting of buoys from one place to another.** The BWG has identified the relocation of existing buoys and rotation of buoys to minimize site pressure as strategies that should be strongly considered in site plans. The BWG recognizes that adding more buoys will be difficult to accomplish without a substantial increase in budget.

**8. In the strategy “strategically locate buoys and subsurface infrastructure to support dive certification training”, what is meant by subsurface infrastructure?**

The BWG has developed an idea of placing anchors with steel pins strategically placed to enable boats carrying dive students to tie up with their down lines regardless of wind and current direction. These anchors would be replaced in the sandy areas off the main reef area.

**9. We are supportive of the two new buoy types proposed – transit buoys and subsurface buoys for restoration and research.**

Noted

**10. Turtle Rocks shows that it falls under the ‘expand use of spar buoys to promote information sharing’ but that doesn’t really apply and the other recommendations that are similar fall just under the ‘use submerged buoys to support restoration’ strategy.**

This is a recommendation for the sanctuary staff to consider when and if Turtle Rocks becomes a SPA and will remain as draft until then. The BWG noted that areas that are being restored may need time to become established before they are impacted by recreational use. However, any consideration of this suggestion will remain with the sanctuary and will need to be consistent with sanctuary rules and policies.

**11. Upper Keys: It is unclear how the two Sand Island recommendations relate and/or contradict each other. It may help to have more information on what they each mean.**

**Middle Keys: Alligator Reef - would this be better achieved by placing mooring balls in that area? The recommendation for that area was to add buoys to indicate an area where people are allowed to anchor, and we just thought that it would be more protective of the resources and more similar to other areas (to avoid confusion) to place mooring buoys rather than allowing anchoring in one specific place.**

The BWG acknowledges that enabling an anchor zone in the sand contradicts the strategy to make the rules consistent throughout the sanctuary. However, in this area there is so much use that there will never be enough mooring balls to accommodate use and people will anchor anyway. Additionally, it would require the sanctuary staff to install and maintain many more buoys. For this reason, the BWG felt it wise to consider a way to allow anchoring in this area.

**12. Lower Keys: EDR/Man Key - is the idea that adding large vessel buoys at Man Key will pull boats away from EDR, reducing pressure there?**

This action was written incorrectly. The idea is that mooring balls at Man Key will support small vessels and reduce pressure on EDR.

**13. Lower Keys: Backcountry Channel Markers/Buoy at Snipe Key - is this specific to one area at Snipe or backcountry channel marking in general? If the latter, can we get more information on where?**

We are proposing piloting the use of channel markers in the areas around Lower Sugarloaf Key to evaluate its success. If successful, the sanctuary and lower guides association can identify other locations appropriate for channel markers.

**14. We are really struggling at Looe Key. (I know they had finally replaced some buoys, I hoping they are doing more)**

Noted - the BWG will follow up with dive shops in the Looe Key area to understand the buoy related needs.

**15. I am the biologist at the Florida Keys National Wildlife Refuge Complex; we are actively working with NOAA on the finalization of the proposed rule for the Florida Keys National Marine Sanctuary including all the WMAs. Based on our data and experience, we have been recommending 100 yards as a minimum distance for reducing disturbance to nesting, foraging and resting birds. We would suggest that buoys for mooring be placed no closer than 100 yards to islands in order to decrease disturbance to birds. Our specific recommendations for individual WMAs have**

**been shared with NOAA, and should be helpful guidelines for buoys as well once finalized.**

Noted. Any buoy related proposals near WMA's will apply this criteria for buoy placement.

**16. Potentially, many folks we are trying to educate about buoy use etc. may be tourists or short-term guests in general and perhaps there is now "app-fatigue". especially when you only need that app for a short time. IF there is such a thing as app-fatigue, my recommendation would be that the landing webpage page for the app contains the utmost important information along with links to the app. So for instance, if that is a 30-sec video on how to tie up to a buoy, if it's a link to a cell-phone friendly guide, make sure those are on the "landing page" for downloading the app. Perhaps I am way off base, but I would be curious to understand if we are keeping up with the attention span of the audiences we are trying to reach.**

Noted. Thank you for the suggestion.

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