

Development of a Boating Management Plan for the Boca Chica Harbor Area

Preliminary Review

By the Monroe County Office of Marine Resources

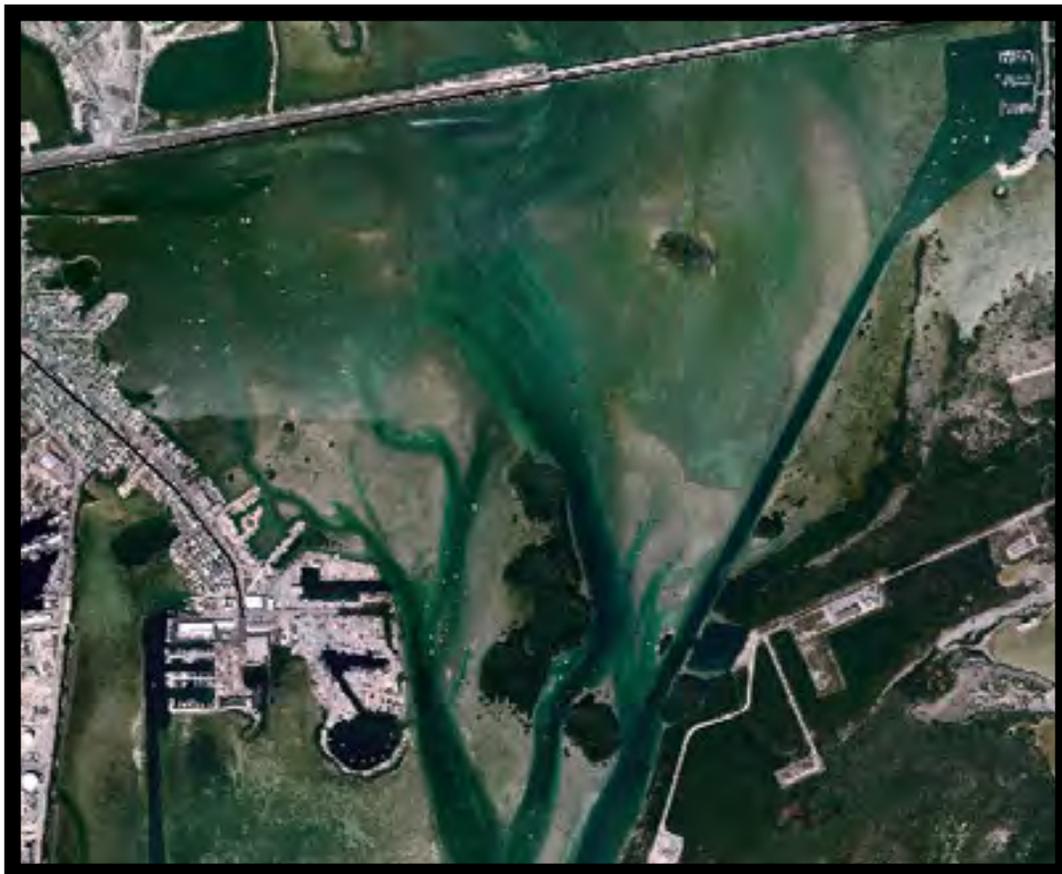
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Introduction:

The Boca Chica harbor area has in recent decades become a home for over a hundred vessels representing a variety of boating user groups (Fig. 1). And while one area of the harbor is managed for specific established uses (e.g. the Navy mooring field), most of the harbor remains unmanaged and is being used by boaters for the purposes of vessel storage and living aboard. The long-term anchoring of both recreational and commercial vessels has become a growing problem for the County to deal with, particularly in the Boca Chica area. Impacts directly associated with these vessels include benthic damage, abandoned and derelict vessels, and the illegal discharge of sewage.

In March 2008 the Monroe County Board of County Commissioners addressed these growing issues by passing Resolution 078-2008, which acknowledges environmental impacts associated with the unregulated anchorage at Boca Chica harbor. The resolution further directs staff to evaluate the potential of establishing a managed mooring field and pumpout facility to serve boaters and protect the environment. This *Preliminary Review* attempts to further describe the impacts, characterize the harbor area and users, evaluate the feasibility of establishing moorings, and provide options to address the problems.

Figure 1. Boca Chica Harbor Area



Anchorage Issues in the Keys:

Monroe County has long been aware of impacts related to anchoring activities throughout the Keys. There are at least fifteen areas between Key Largo and Key West that have been historically used by anchor-outs. Several of these anchorages only have a few dozen boats at any given time, many of which are transient. But more commonly the larger anchorages contain fifty to a hundred or more boats, many of which rarely move. These anchorages, used for wet storage and liveboards, create the majority of the anchorage-related impacts. The long-term anchoring of vessels has become not only a County concern, but also a state concern. The state FFWCC and DEP have recognized the problems associated with long-term anchoring and are considering establishing new policies limiting the length of stay for vessels on sovereign submerged lands. The concept is to keep cruising boats cruising and ensure that the waters and harbors of the state are available for all recreational boaters.

Impacts associated with storage boats and liveboard vessels have become more obvious to the general public as anchorages increase in size, and impact not only the environment but also staff resources and public funds. The Monroe County Comprehensive Plan addresses these issues and provides policies (under Goal 202) directing the County to reduce impacts through the identification of liveboard anchorages, the implementation of pumpout facilities, and the potential for developing mooring fields to properly manage vessels and liveboards. As a result, several studies by Monroe County have been conducted to collect data regarding anchorages, characterize users and associated impacts, and generate options and solutions.

In 2001 the Marine Resources Department provided a *Project Proposal for a Keys-Wide Mooring Field System* to the DCA describing the impacts associated with liveboard anchorages, and suggested a system of mooring fields throughout the Keys that would provide for local liveboards as well as transient cruisers. The proposal also discussed the need for a 'six month policy' at the state level to provide the County with authority to limit the length of stay at an anchorage. The 'six month policy' is now being considered by both the DEP and FWC. In 2002 the Marine Resources Department conducted an in-depth study of anchorages and associated impacts throughout the Keys (*Keys-Wide Mooring Field System Preliminary Planning Document*). All identifiable anchorage areas were visited to determine the distribution of anchored vessels throughout the County, and set priorities for mooring field implementation and development. The evaluations included a characterization of each anchorage site including numbers of vessels, types of vessels, available shoreside access, the benthic environment, and any existing facilities. Results of the study indicated five anchorages as moderate to high priority sites in need of boating management.

Anchorage Issues in Boca Chica Harbor:

The 2002 study indicated that the Boca Chica harbor area was the most heavily used of the five anchorages in need of boating management. The anchorage had over one hundred vessels, with no pumpout facilities or designated shoreside facilities available. Water depths varied greatly, with many vessels anchored in less than three feet of water over seagrass flats. The area was used by liveboards and transients, as well as commercial fishermen that store their boats at anchor. Derelict and abandoned vessels were found to be a prevalent problem throughout the anchorage. Moorings were suggested in the study as a means of managing the anchorage area and reducing the multiple boating related impacts. It was also determined that the area is a preferred location for several dozen transient boaters, as a stay-over or a jumping off point to the Bahamas. The 2002 plan suggested the need to locate an appropriate parcel on the east side of

Stock Island to develop as a shoreside facility. The following objectives for a managed mooring field were cited in the plan:

- 1) Provide fair and equitable access to user groups for utilization of popular anchorage areas
- 2) Minimize conflicts between anchor-outs and shoreside residents
- 3) Ensure compliance with the Clean Vessel Act
- 4) Provide approved pump-out services at all popular anchorage areas
- 5) Assist with the implementation of 'no discharge zone' status for the Florida Keys
- 6) Provide necessary shoreside services and amenities to transient and local liveaboard boaters
- 7) Removal of accumulated marine debris, including illegal moorings, in anchorage areas
- 8) Eliminate abandoned and derelict vessels
- 9) Provide safe and secure vessel mooring in anchorage areas
- 10) Protect and promote the health of benthic resources in and adjacent to anchorage areas

The Boca Chica Harbor Anchorage in 2008:

Issues related to the unregulated anchorage at Boca Chica Harbor persist, and the numbers of derelict vessels are increasing. The Florida FWC and the County Marine Resources Office continue to remove abandoned vessels from the anchorage using Boating Improvement Funds (Fig. 2). There has been a trend towards multiple boat ownership, with one person collecting and storing four or five vessels that ultimately become derelict. And the County is now dealing with larger steel vessels being stored in and adjacent to navigable channels used by marina patrons and commercial fishermen. The expense of removing and destroying these larger vessels has nearly doubled the annual cost to the County's derelict vessel program in the past year.

Figure 2. Derelict Vessel in Boca Chica Harbor



Anchorage Characterization:

Planning efforts for addressing the anchorage impacts begin with characterizing existing boating/anchoring patterns, the physical environment in which the vessels are anchored, adjacent facilities, as well as recognizing the concerns of state and federal government agencies. Options and alternatives can then be developed and evaluated based on those characteristics.

The harbor is situated between Boca Chica Key and Stock Island, is approximately .5 nm² in area, and includes two marked (and an additional soon to be marked) navigational channels (Fig. 3). Historically, vessels have anchored in the western two thirds of the harbor, west of the federal channel leading into the Boca Chica Naval Base marina facility. There is a public boat ramp on US1, adjacent to the northwest part of the harbor. Several private campgrounds and trailer parks line the western shoreline. The Navy AICUZ crash zone runs through the center of the harbor area.

Figure 3. Facilities, Navigational Channels, and the Navy AICUZ



The greater anchorage area is actually two distinct anchorage areas, differing and separated by topography. The northern anchorage area is a large open expanse of generally shallow water over seagrass. The southern anchorage area, isolated from the northern half by flats and several mangrove islets, consists of shallow seagrass flats with two deep natural navigable channels running in between (Fig. 3).

The northern anchorage area, which can be seen from US 1, is home to the majority (~60%) of the anchored vessels (Fig. 4). Vessels include recreational power and sailboats (many of which are not operational) as well as numerous small commercial fishing boats. Few true cruising boats are anchored in this area. This anchorage area is not considered by staff to be appropriate for long-term anchoring as it embodies a complex system of shoals with water depths averaging less than four feet. Many of the vessels in this area are aground at low tide. The shallow nature of this section of the harbor also restricts navigation, as can be evidenced by numerous prop scars in the area. Vessels in the area rarely hoist anchor to navigate, and would likely have trouble doing so if attempted. In addition, ground tackle that has been down for years (in most cases) continues to denude the benthos beneath anchored vessels. A 'halo' surrounding anchors and chain in this area is a common effect of inappropriately shallow anchoring practices. This anchorage area also generates the majority of derelict and abandoned vessels in the Boca Chica harbor area. Many vessels here are not occupied and are either stored or used for storage. Those vessels that are occupied tend to breed other derelict vessels, and four or five vessels rafted to the main vessel is a common occurrence (Fig. 5). The rafted vessels are often sold or traded, with documentation (i.e. title and registration) rarely transferred from one owner to the next.

Figure 4. Northern Anchorage Area



Boaters in the northern anchorage area utilize either the state boat ramp on US 1 or a facility along the shore of Stock Island for access to land. This practice has resulted in numerous dinghies tied off at the DOT owned launching facility and to the adjacent mangroves. Dinghies have also been observed tied off at many private properties along the Stock Island shoreline. Numerous bicycles can also be found in these locations, presumably belonging to the occupants of anchored vessels. There are no vessel sewage facilities in this area, thus it is assumed that

most if not all of the vessel occupants pump their sewage directly into the water. In addition, the FWC reports a significant amount of crime associated with liveaboards in this area of Boca Chica harbor.

Figure 5. Rafted Vessels in Northern Anchorage Area



In the southern anchorage area can be found approximately 30-40 vessels, primarily anchored in the confines of the two well defined channels (Fig. 6). This is the area where most of the true cruising boats can be found, as the channels provide direct unimpeded access to the Atlantic Ocean. Controlling depths here are approximately seven feet, which allow for safe piloting in and out of the anchorage area. A greater percentage of functional, well maintained vessels are located in this area as compared to the northern anchorage. However, in the past year several large steel vessels have been anchored and abandoned in this area, as the deep draft of the vessels would not allow them to be piloted into the shallower northern anchorage area.

Properties adjacent to this area include several fish houses and a large marina complex. Occupants of vessels likely dinghy into one or more of those facilities to access land. It is quite difficult to navigate between the southern and northern anchorage areas without using one of the marked channels to the east due to the extreme shoals. While pumpout facilities are provided at the marina complex, the facility is open to members only. It is assumed that vessel occupants in this area pump their sewage directly into the water body. Since many of the vessels in this area are operational and maintained, it may be presumed that vessel occupants would utilize pumpout facilities if they were made available.

With most of the vessels in this area anchoring in sufficient water depths, fewer vessels have been observed listing or aground. In addition, less seagrass damage would be expected in this

area, as ground tackle is able to function as designed with less chain dragging on the bottom. And since the shoals are too shallow to anchor in, little propeller damage is observed in this area.

Figure 6. Southern Anchorage Area



Synopsis of the Two Anchorage Areas:

As indicated in the above characterization of the northern and southern anchorages, the two anchorage areas differ greatly. The majority of anchoring related problems have been observed in the northern anchorage where long-term anchoring has been determined to be unsuitable, seagrass scarring is prominent, crime is greater, more derelict vessels are generated, and navigation is impeded by the shallow nature of the area.

The southern anchorage tends to be less problematic. Vessels in the southern anchorage area tend to be in better condition, fewer vessels are rafted together, boats do not remain in the anchorage as long, and little benthic damage is observed. And staff recognizes that suitable anchoring habitat is available in the two deep natural channels

Issues that the two anchorages share are the lack of pumpout facilities and any appropriate shoreside facility for access to land. Also, Navy representatives have come before the County indicating that it is not appropriate to have liveaboards in the AICUZ (either the crash or noise zones). The wide swath of the crash zone overlaps both anchorage areas, and the entire harbor is within the noise zone. The Navy has further stated that liveaboard vessels in the Boca Chica harbor area encroach on the security of the naval base.

Options and Solutions:

Based on the information provided above, it is staff's recommendation that long-term anchoring in the northern anchorage area is not appropriate, and steps should be taken to either prohibit or limit anchoring activity in that area. The County currently does not have the authority to regulate anchoring of non-liveaboard vessels. Therefore, the County at this time can only address the anchoring of liveaboard vessels in the northern anchorage. However, the FFWCC and DEP are addressing the limitations of local governments to regulate anchoring activity, and the agencies are working together on rule making to provide additional authority to local governments. It is anticipated that such authority will at least allow the County to limit anchoring of all vessels to 30 days. The rule could potentially provide additional authority, allowing the County to prohibit anchoring all together. The rule is expected to be finalized by the legislature in 2009. Any plans by the County to regulate anchoring should consider the anticipated state rule, and staff recommends waiting until early 2009 before finalizing any boating management plan that involves anchoring regulations.

In regard to the potential to develop a mooring field anywhere in the Boca Chica harbor area, the County will have to address the multiple issues brought forward by staff of the Boca Chica Naval Station relating to liveaboards, encroachment, and military security issues. In addition to Navy policies and concerns, staff has learned that a significant amount of baybottom in the harbor is owned by the Navy. This could be an additional impediment to the potential development of a mooring field in the southern anchorage area where the Navy baybottom overlaps (Fig. 7). The eastern channel, which would potentially be appropriate for moorings, is almost entirely over Navy baybottom. The Navy also owns the mangrove islands in that area.

Figure 7. Parcel Ownership in Southern Anchorage Area



Staff is providing the following options for addressing anchoring impacts in the Boca Chica harbor area. The various options are developed in response to the variety of anchoring impacts, permitting criteria for moorings, Navy issues, adjacent shoreside facilities, and other elements that must be considered to provide an effective solution. Any anchoring regulations will require a County ordinance which must be approved by the FFWCC to be enforceable.

Option 1: Limit anchoring throughout the entire Boca Chica harbor area to 30 days. This option would reduce anchoring impacts throughout the greater anchorage area. Providing a time limit on anchoring would change the types of vessels and users in the harbor. Most of the anchoring would likely occur in the southern anchorage area. Anchored vessels would predominately be cruisers navigating through the Keys and beyond. Storage vessels and long-term liveaboards would be reduced. However, this option would create enforcement issues. It would be the responsibility of the County to manage and enforce the anchoring time limits. It will be difficult to document and prove the time periods that different boats have been anchored.

Provisions:

Signage would be erected informing boaters of the regulations and boundaries of the limited anchoring zone. Pumpout facilities could be made available, either via a pumpout boat or an established shoreside facility. Long-term liveaboards wishing to be relocated could potentially be provided for at the City of Key West mooring field. Staff at the City has indicated that there are ample moorings available.

Option 2: Prohibit anchoring throughout the entire Boca Chica harbor area. This option would eliminate anchoring impacts throughout the greater anchorage area. The seagrass habitat would recover and the area would become suitable for flats fishing, etc. Provisions would need to be made for vessels displaced. Storage vessels and long-term liveaboards would be eliminated. Enforcement would be required, but would be straight forward and effective.

Provisions:

Signage would be erected informing boaters of the regulations and boundaries of the anchoring prohibited zone. Vessels displaced from the entire harbor area would need to be provided for. Many of the vessels would simply leave or be removed as derelict vessels. Long-term liveaboards wishing to be relocated could potentially be provided for at the City of Key West mooring field. Pumpout facilities would not be necessary.

Option 3: This option is a hybrid of options 1 and 2, in which the northern anchorage area would be an anchoring prohibited zone and the southern section would be a limited anchoring (30 day) zone. Results would be a combination of those described above. This would keep all anchoring within an appropriate area. Enforcement would be required and (as described above) would be difficult in the limited anchoring zone.

Provisions:

Signage would be erected accordingly in each zone. Pumpout facilities could be provided via a pumpout boat or shoreside facility. Any vessels displaced could be provided for at the Key West mooring field.

Option 4: This option would create a mooring field in the southern anchorage area and prohibit anchoring in the northern anchorage area where it has been determined to be inappropriate. No free anchoring would occur. This would be a managed area with County oversight of the entire Boca Chica harbor area. All impacts would be eliminated by ensuring that the only vessels overnighing are provided with sewage pumpout facilities, shoreside access facilities, and moorings designed for the environment.

Provisions:

Signage would be erected informing boaters of the anchoring prohibited zone to the north, and the requirement to use a mooring to stay in the zone to the south. Enforcement would be required over the entire harbor area. A shoreside facility must be identified and provided. Staff would be required to manage and operate the mooring field, shoreside facility, and pumpout facilities.

Discussion:

The management options described above provide an array of mechanisms for addressing the existing anchoring impacts in the greater Boca Chica Harbor anchorage area. All the options include mechanisms for reducing, if not eliminating, the number of vessels in the northern (primarily) and southern anchorage areas. Some of these mechanisms rely on new anchoring regulations and associated local authority that may be provided by the state legislature in 2009.

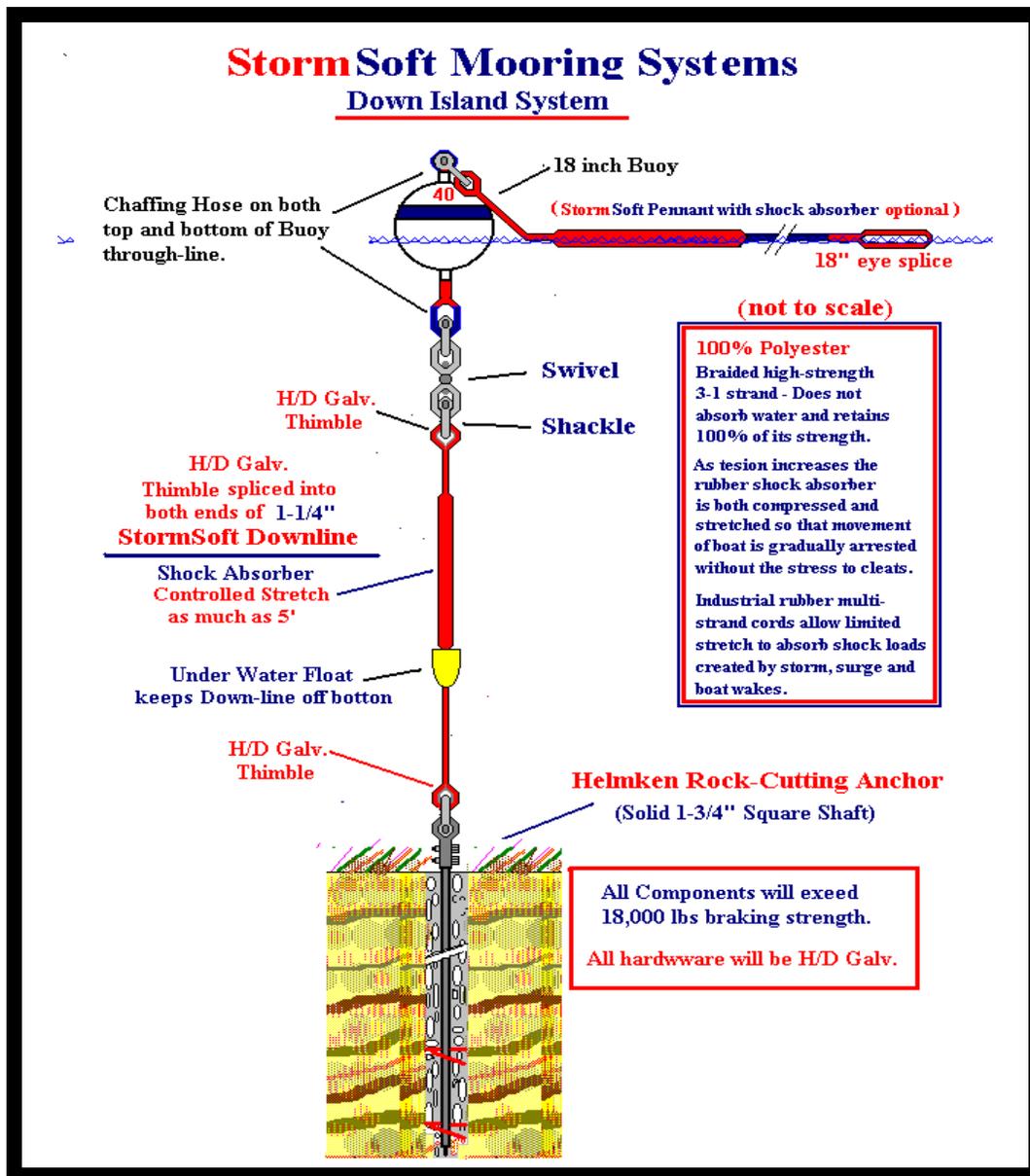
Eliminating anchoring in the northern anchorage area, and limiting anchoring (either via anchoring time limits or via moorings) in the southern anchorage area would address the majority of boating impacts and still allow for vessels to anchor or moor in that area which staff has determined to be appropriate for anchoring. If moorings are the choice by which boats will be moored, then the County will have to work with DEP and ACOE to pursue permits for installations. Staff believes that about fifty moorings could potentially be installed if both of the deep channels adjacent to Stock Island are utilized. However, it would be necessary to get approval from the Navy to install moorings in the Navy owned baybottom in the easternmost of those two channels. If the Navy does not allow use of their baybottom then the area remaining for mooring installations will be reduced to the point where it may no longer be feasible to have moorings. This is in addition to the fact that the Navy has already indicated issues with installing moorings anywhere in the Boca Chica harbor area.

Utilization of anchoring regulations, pending state authorization, may only require an ordinance on the part of the County to become official. Any plan that includes moorings will require permitting and most likely authorization by the Navy. In addition, permitting criteria would include addressing the presence of seagrass. However, new mooring system technology using embedment anchors and sub-surface buoys has proven that moorings prevent rather than create benthic damage (Fig. 8). The DEP and FWC are currently addressing the issue of moorings and their benefits, and the DEP is likely to modify their regulations to allow moorings over seagrass in the near future.

If moorings are pursued the County will also have to provide pumpout and shoreside access facilities. A pumpout vessel can be acquired utilizing the DEP Clean Vessel Act grant program. The creation of a shoreside facility is a larger matter and necessitates the County identifying a parcel or existing facility which would be suitable for such purposes. The facility needs to accommodate dinghies from the mooring field, provide waste facilities and some parking, and

house a small office from which to manage the mooring field. Staffing of a pumpout boat and an office is an additional consideration.

Figure 8. Mooring System Illustration



The County is currently pursuing the acquisition of the WSG property (formerly Gulf Seafood) located on the east side of Stock Island. This property is adjacent to the southern anchorage area and would be quite suitable for providing a shoreside facility and sewage pumpout capabilities (Fig. 9) to support a mooring field. Another shoreside facility possibility is an end-of-road property the County owns south of, and adjacent to the WSG property (Fig. 10). This property is quite small and would require the removal of mangroves and some maintenance dredging. Additionally, there is the potential to tie into the Key West Yacht Clubs of America vessel sewage system to serve a pumpout boat.

Figure 9. The WSG Property On Stock Island



Figure 10. County Owned End-Of-Road Adjacent to the WSG Property

