

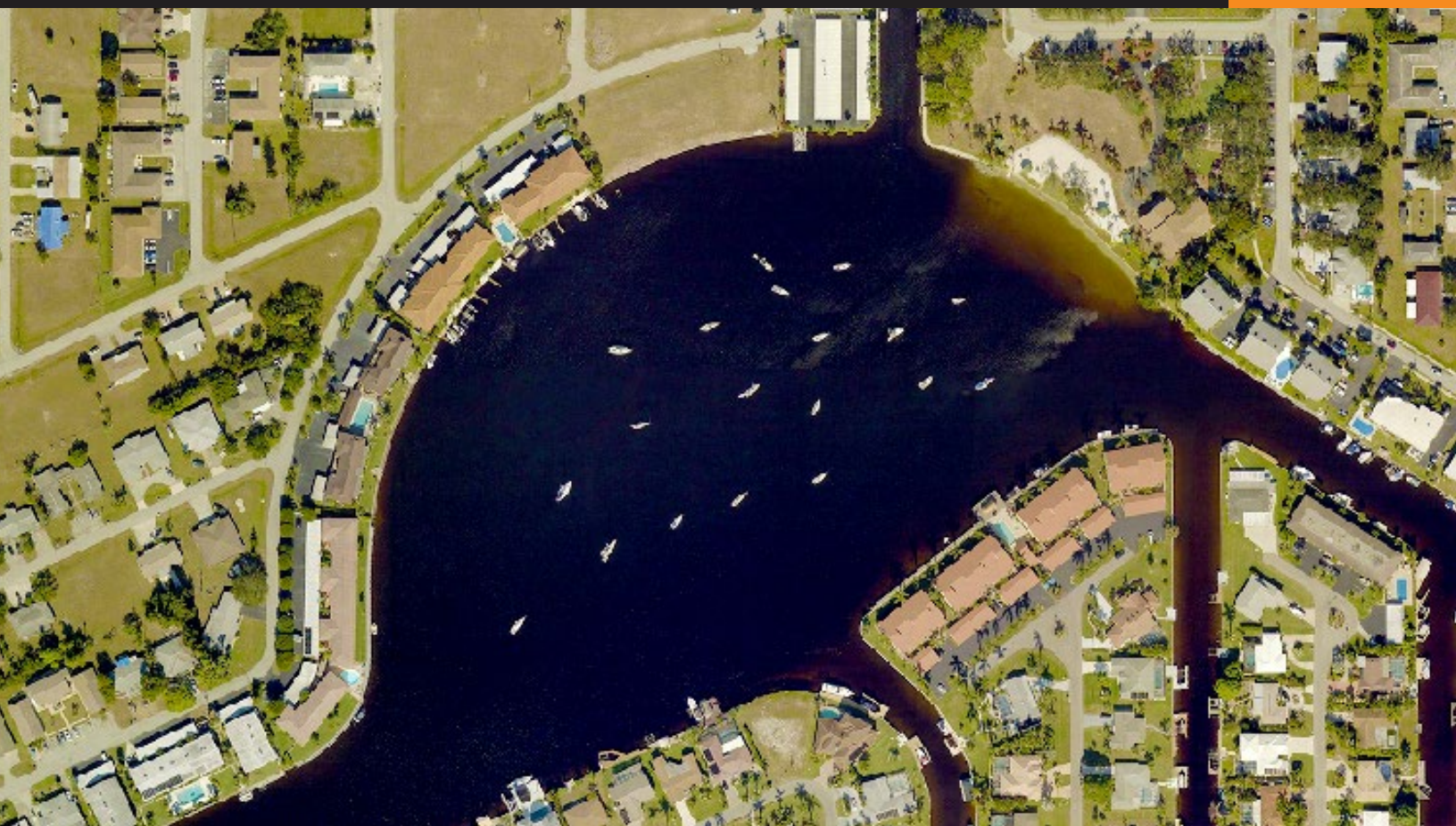


Mooring Field Ordinance

Mooring Field Vessel & Example
Ordinances, and Use Schedule &
Accident Report

City of Cape Coral, Florida

April 20, 2018
Deliverable
#2



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Mooring Field

Proposed Mooring Field Location & Boundary

Stantec staff have reviewed the geographic data in and around Bimini Basin and collaborated with the City of Cape Coral staff and public stakeholders to receive input to determine what mooring field layout would be best suitable for Bimini Basin, local residents and the surrounding waterfront communities. Stantec Staff conducted a public outreach meeting on April 3, 2018 with the purpose of gathering adjacent resident's opinions, suggestions and goals for the proposed mooring field project. The resulting outcome of the public meeting was a resounding agreement to pursue the creation of an organized and regulated mooring field within Bimini Basin (Figure 1). The information gathered from City of Cape Coral staff and public input has allowed Stantec to develop and propose two feasible options that address the goals of the City and meet the needs of local residents.



Figure 1: Bimini Basin



Figure 2: Mooring Field Area

Mooring Field Vessels

Mooring Field Use Schedule and Layout Options

Stantec staff reviewed parcel data provided by Lee County to help determine the best options for the mooring field boundary limits. The boundary of the mooring field was delineated by offsetting the bulkhead line around the basin 150 feet. By doing so, this created an ample fairway for vessels arriving and departing the basin, which allows for safe passing and/or docking on any of the surrounding docks. With the boundary line of the proposed mooring field established, Stantec staff propose the following two options best meet the goals and objectives for the basin:

Option 1:

Mooring Field Option 1 (Figure 3) will provide for 18 moorings installed to provide safe mooring to vessels up to 35 feet length overall (LOA). All mooring stations will have a bounding radius of 70 feet. This gives the moored vessel the necessary room required for the mooring system to maneuver during storm events and tidal shifts without colliding with neighboring moored vessels or other structures inside the basin.



Figure 3: Option 1 - Proposed Mooring Field Layout with Moorings for Vessels up to 35 Feet in Overall Length

Option 2:

Mooring Field Option 2 (Figure 4) will provide 15 moorings. 12 moorings will be designated for vessels up to 35 feet length overall (LOA) and 3 mooring buoys for vessels up to 45 feet length overall (LOA). Mooring stations for vessels up to 35 feet length over all (LOA) will have a bounding radius of 70 feet. Mooring stations for vessels up to 45 feet length overall (LOA) will have a bounding radius of 85 feet. This gives the moored vessel the necessary room required for the mooring system to maneuver during storm events and tidal shifts without colliding with neighboring moored vessels or other structures inside the basin.



Figure 4: Option 2 - Proposed Mooring Field Layout with Moorings for Vessels up to 35 Feet (12) and 45 (3) Feet in Overall Length

Mooring Field Use Schedule

Maximum Number of Vessels

Using Option 1 and 2 as base guidelines, approximately 18 boats could be moored at any one time within the mooring field. Naturally, a reduction in the size of boats permitted or introducing smaller sized boat limitations could increase the number of moorings available.

Length of Stay

With the configuration of either proposed mooring field option, the length of stay for each vessel is a critical factor to implementation and management of the mooring field. Based on community feedback, other local mooring field plans, and the City of Cape Coral goals, it is proposed that 5-1-5 day system be used for mooring field occupancy within a 30-day period. This means that a boater can only stay at the mooring field for 5 consecutive days, then must leave for a 1-day period, before returning for another 5 consecutive days. No boater may stay within the basin for more than 10 days within a 30-day period. This approach has been very successful at other managed mooring fields, including the City of Naples.

With the length of stay established in the mooring field to 5-days, this will give the opportunity for the City of Cape Coral to manage special events. Since boaters can only stay for a shortened period of time, the City can block out a window of time for cardboard boat races and other winter parades, by not allowing any moorings during these events.

Projects Required to Support a Mooring Field

With the creation of the Bimini Basin Mooring Field ordinance, there will be various additional capital projects associated with the implementation and operation of the mooring field. While reviewing other mooring field plans and ordinances, additional implementation costs which go beyond the initial establishment of the mooring field ordinance must be considered:

1. State/Federal permitting
2. Mooring ball system installation
3. Pump-out systems
4. Upland facilities (ie, restrooms, showers, trash receptacles, parking, dockage, laundry, etc.)


Permitting:

The first step in establishing a managed municipal mooring field is to permit the boundary and number of proposed mooring stations. This permit will also include mooring stations, proposed sewage pump-out facility and any upland structures associated with the creation of Bimini Basin Mooring Field. Permits must be issued by the Florida Department of Environmental Protection (FDEP) and the United States Army Corps of Engineers (USACE).

Mooring System Installation

As discussed with the City of Cape Coral, the end goal is to install permanent mooring systems within Bimini Basin. There are several options for mooring systems used nationwide. There are several mooring field systems that will function well within the mooring field. Once a system is finalized, construction plans to present to marine contractors for the installation of the mooring systems shall be developed. State and federal permits will also dictate that the installation of uniform waterway markers to demarcate the mooring field boundary.

TABLE 1. COMPARISON OF BREAKOUT FORCE FOR MOORING ANCHORS



Test	CONCRETE BLOCKS					MUSHROOMS			DOR-MOR	HELICALS
	BoatU.S.	Vineyard Haven	Vineyard Haven	BoatU.S.	Sarasota Sailing Squadron	BoatU.S.	Vineyard Haven	Vineyard Haven	BoatU.S.	BoatU.S. Vineyard Haven Sarasota Sailing Squadron
Anchor dry weight	8,000 lbs.	6,000 lbs.	3,000 lbs.	2,000 lbs.	1,500 lbs.	500 lbs.	500 lbs.	350 lbs.	650 lbs.	Various sizes
Breakout force	4,000 lbs.	3,200 lbs.	2,100 lbs.	800 lbs.	800 lbs.	1,200 lbs.	1,700 lbs.	2,000 lbs.	4,500 lbs.	10,000 - 20,800 lbs.
Holding Ratio*	0.5	0.5	0.7	0.4	0.5	2.4	3.4	5.7	6.9	

BoatU.S. – 1995 BoatU.S. Insurance pull-test conducted by BoatU.S., MIT, and Cruising World in Newport, RI
 Vineyard Haven – Test performed at Vineyard Haven, MA by Helix Moorings with harbor masters, marine writers, and BoatU.S. in attendance
 Sarasota Sailing Squadron – 2007 Practical Sailor test conducted at the Sarasota Sailing Squadron
 *Holding ratio is defined as breakout force/anchor dry weight and represents the breakout pounds per pound of anchor dry weight.

Figure 5: Anchoring Systems

Pump-out Requirements:

Based on stakeholder input, it is anticipated that the transient vessels utilizing the mooring field will be producing grey water and sewage.

This will require the mooring field to have the proper means to remove the waste water from these vessels. The two common options would be to either provide a pump out vessel to directly pump out a moored vessel (Figure 6) or to have a pump out system installed at an upland location. (Figure 7). If the decision is to acquire a pump out vessel, there will be a need for a treatment system to dispose of the waste. If the choice is to have a pump out system installed at a nearby docking facility, the best location for boat docking for easy access for the tenant to operate the pumpout system 24/7.

Either option typically comes with operation and maintenance costs for equipment and staffing. These costs must also be factored into the overall project plan and implementation.

Install Upland Facilities

With every active mooring field there is a need to have supporting upland structures. The city-owned Four Freedoms Park may be an ideal location to install a permanent or floating dinghy dock for boaters to access the parks facilities. This dock can also be used as a pump out docking facility (if applicable). Additional facilities can make for a more desirable mooring destination include laundry rooms, restroom/showering facilities and waste receptacles.

Additional Considerations

Based on review of other communities mooring fields, the City of Cape Coral managed mooring field plan may also require the City to:

- Enforce the provisions of a sovereignty submerged lands lease (if required) and state/federal permits issued
- Provide administration for the operation, maintenance, safety, and security of the mooring field and shore side amenities
- Assign moorings
- Prepare records and reports as they relate to management of the mooring field
- Maintain the mooring field, anchoring systems, and dockmaster facilities
- Ensure that all mooring field patrons execute a mooring field use agreement during normal business hours, or for those vessels arriving after normal business hours, at the start of business the following day



Figure 6: Pump-out Vessel



Figure 7: Pump-out System

Existing Accident Reports

Stantec reviewed documents of incident reports provided by the City of Cape Coral. The documents are dated from January of 2013 to February of 2018. The majority of the police reports indicate that there were no major accidents. These majority of these reports consist of noise complaints, vessels losing anchor becoming adrift and vessels being tampered with by someone other than the owners. Once the ordinance is in place and the mooring field is established, the City of Cape Coral will be able to curb such activity by ensuring every mooring field tenant abides by the ordinance and rules within the City of Cape Coral. The incident reports received from the City of Cape Coral are included as Appendix A for reference.

Analysis of Similar Communities

Goals and Objectives:

Over the last decade in Florida, many communities have found themselves having to create local ordinances to regulate and enforce activities in areas where boaters typically anchor for long periods of time. This is good news for the City of Cape Coral, as the lessons learned during their development, can be used to enhance and strengthen the City's proposed mooring field ordinance for Bimini Basin. Some other communities that have created their own mooring field ordinances include:

- City of Naples
- Fort Myers
- Fort Myers Beach
- Key West
- Marathon Boot Key
- Punta Gorda
- Sarasota
- Stuart
- Vero Beach

After an analysis of the mooring field ordinances from these communities, the proposed mooring field ordinance for the city should include the following items in their ordinance:

General Conditions:

- Definitions
- Intent
- Purpose
- Target group of boaters
- Applicability and enforcement

Managed Mooring Field Rules:

- Authority of the harbormaster/dockmaster
- Vessels allowed
- Toilet facilities and pump-out requirements
- Transportation requirements
- Commercial uses
- Repairs
- Mooring and anchoring methods
- Abandonment of vessels
- Drug use or possession policy
- Illegal activities prohibited
- Noise
- Liability of the city
- Anchoring outside of designated area
- Mooring rental rates

Responsibilities of Tenants:

- Safe operation of vessels
- Use of sewage pump-out facilities
- Conduct of tenants
- Discharge of waste or other materials
- Boarding by law enforcement personnel
- Emergency repairs in absence of tenant
- Departure of vessels with delinquent dockage accounts

Amenities and Services:

- Damage of amenities and property
- Use of parking spaces
- Use of dinghy docks
- Use of sewage pump-out facility

Leasing Requirements:

- Lease agreement
- Tenant information required
- Vacation of mooring

Speed Limits:

- Outside of the mooring field

Severe Storm & Hurricane Plan:

- Established plan

Plan for Future Expansion:

- Expansion of mooring field

Managed Mooring Area:

- General description
- Signage

The proposed list of items above can serve as the framework of items to be included in the draft ordinance for the City of Cape Coral.

Accident Report

Existing Accident Reports

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Appendix

