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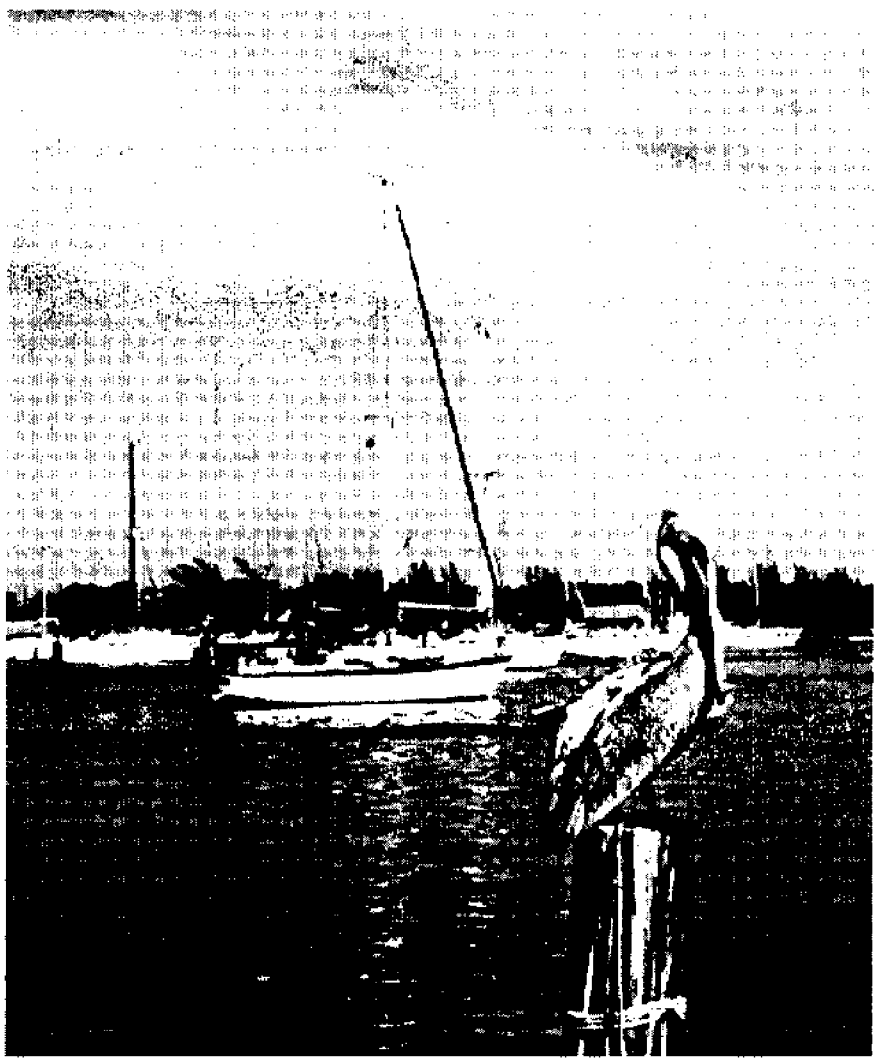

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Executive Summary

Forty-seven anchorages, traditionally used for storm refuge and nature-tourism, are a unique resource of southwest Florida's boating geography. Some anchorages have been subjected to increasing user pressure; many locations, however, are visited occasionally or infrequently. Past attempts at managing these anchorages have been based, in general, on individual experiences or anecdotal information. Because of the range of prevailing conditions, such an approach offers an incomplete assessment of anchorage management needs, and even leads to unfairly restricting boating activities, or offers only partial, or inappropriate, solutions to protect sensitive marine resources.

This evaluation by the Southwest Florida Regional Harbor Board (RHB), provides a regional framework for anchorage management, and identifies specific measures which should be addressed to improve conditions at selected sites. The report presents a method to evaluate the relative management needs, determined by: (1) identifying the issues; (2) ranking the issues, both habitat and non-habitat; (3) calculating anchorage 'issues' scores; and (4) identifying relative management needs.

The study is part of a Five-year (1996-2001) Pilot Anchorage Program that includes management, boater education, monitoring, and resource inventory. This program is being carried by the Boaters' Action and Information League (BAIL), FDEP, Florida Sea Grant, the Southwest Florida Regional Planning Council, and the West Coast Inland Navigation District.

The RHB Technical Advisory Committee (TAC) identified nine issues that determine whether an anchorage requires active management: (1) existing land use; (2) overlaping jurisdiction which may create conflicting regulations; (3) inadequate signage; (4) restricted or limited shore access; (5) multiple anchoring uses; (6) high use intensity; (7) required, but unavailable, pumpout facilities; (8) crowding of anchored vessels; and (9) sensitive bay habitat. The TAC ranked the issues from highest [most important, #9] to lowest [least important, #1]. The issues appear above in their ranked order. There are eight non-habitat issues (#1 - #8) and one habitat issue (#9). The habitat issue (#9, highest ranking) was treated independently using five quality indicators: (a) Surface Water Classification, (b) Outstanding Florida Waters designation, (c) Shellfish Harvesting Classification, (d) sea grass presence, and (e) inclusion in an aquatic preserve.

The non-habitat characteristics for the anchorages were scaled in order to reflect their relative rankings and the site characteristics were transformed and summed into non-habitat site scores. Each score was obtained by adding the weighted value of each issue, and was converted into low, medium and high management classes. The habitat score for the anchorages was derived from the five quality indicators which were ranked and summed. It was necessary to combine

the habitat site score with the non-habitat site score in order to create a composite management assessment site rating. This required a second transformation of the habitat site score (in order to make it comparable to the non-habitat score), and it was accomplished by determining numerical break-points for low, medium and high habitat site ratings. Results of this analysis show that 34 anchorages (72%) are sites which require low management, 12 (26%) are medium, and 1 (2%) is a high management site. This evaluation is a relative scoring of the anchorage management needs within southwest Florida.

Roosevelt Channel/Tween Waters is the one high management need anchorage. This is because the site scored high in the sixth (continuous high use), seventh (pumpout required), and eighth (frequent crowding) most critical issues. Repair of the pumpout facility at the Tween Waters Marina will lower the site score from high to a medium management level.

There are four medium management type anchorages -- Venice/Higel Park, Boca Grande/Grand Bayou, Sarasota/Island Park, and Matanzas Pass/ Ft. Myers Beach. The Venice location is a small anchorage that is subject to crowding, continuous high use, multiple types of anchoring, and inadequate signage. Boca Grande is another small anchorage subject to frequent crowding and continuous high use, which also has a high habitat score that is related to being situated in quality bay waters designated aquatic preserve. Sarasota and Matanzas Pass are the two largest, most active anchorages in the region. They share many of the same characteristics: popularity, multiple uses, and frequent crowding. Matanzas, in addition, has intense commercial, industrial and residential uses along its waterfront which often compete and conflict with each other and with on-the-water use of the anchorage.

The above described five sites face complex management issues. There are no 'quick-fix' mechanisms to resolving these issues and some intervention may be required. Most other locales are used infrequently, and based on this analysis, they require no direct intervention.

The TAC recommends to the RHB the following action items:

1. Encourage repair of the pumpout facility at Roosevelt Channel/Tween Waters. Assist with obtaining resources to place a pumpout at Matlacha.

2. Improve signage at Venice/Higel Park, Useppa Island/Cabbage Key, Point Blanco #2, Pelican Bay, Big Pass/Otter Key, New Pass/Sands Point, Longbeach/Longboat Pass #1, and Terra Ceia.

3. Explore ways of promoting volunteerism at specific anchorages to instill stewardship and help sustain quality conditions. Examples of such local

community participation include Adopt-a-Shore and Rails-to-Trails private and corporate sponsors.

4. Meet with communities at Boca Grande and Ft. Myers Beach to foster grass roots support for instituting some form of anchorage management at these locations.

5. Actively support the City of Sarasota Harbor Task Force which is attempting to address long-term management needs at this location.

6. Recommend to the State of Florida that resources be provided to: (a) expand this anchorage management evaluation scheme to include development and application of an invertebrate or mollusk density index, in order to measure submerged habitat health, at southwest Florida anchorages; and (b) utilize the expanded evaluation scheme to collect and examine comparable habitat and non-habitat data from other popular anchorages in Florida, in order to determine the quality condition of local sites within a statewide assessment framework.

Background - Need for a Logical Framework

The forty-seven anchorages situated along the southwest Florida barrier island chain are a unique resource in the region's boating geography.[1] They are used both by residents and transient vacationers, for storm refuge, as locales for experiencing nature-tourism, and as cruising destinations. These anchorage sites offer a range of environmental conditions and boating facilities which affect the intensity and frequency of their use (see location map in Figure 1). Some anchorages -- because of their natural attractions or access to land-side boating facilities -- have been subjected to increasing user pressure; many locations, however, are visited occasionally or infrequently. Because of the range of prevailing conditions, any attempt to base management decisions on individual experiences or anecdotal information, at best, would offer an incomplete assessment of anchorage management needs, and at worst, could restrict boating activities unfairly or offer only partial -- or even inappropriate -- solutions to protect sensitive marine resources.

The evaluation system, presented in this report, provides a regional framework for anchorage management and identifies specific measures which should be addressed to improve conditions at selected sites. This report is produced by the Southwest Florida Regional Harbor Board (RHB), a body constituted by a Memorandum of Agreement authorized by the State of Florida, Department of Environmental Protection (FDEP).[2] The RHB implemented the management element of a Five-Year (1996-2001) Pilot Anchorage Program, that also includes boater education, monitoring and resource inventory components. This program is being carried out in southwest Florida by the Boaters' Action and Information League (BAIL), FDEP, Florida Sea Grant, the Southwest Florida Regional Planning Council, and the West Coast Inland Navigation District.

A prime objective of the Southwest Florida Pilot Anchorage Program is to establish a rational basis for determining active or passive (non-regulatory) management strategies for individual anchorages, or groups of sites, within this regional setting. This document presents a method to evaluate the relative management needs within the region. Needs are determined by: (1) identifying the anchorage management issues; (2) ranking the issues, both habitat and non-habitat;

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[1] A characterization of the anchorage conditions at the forty-seven sites is found in G.A. Antonini, et al. 1995, Southwest Florida Anchorage Selection Guide, Florida Sea Grant Extension Bulletin 30, Gainesville, Fl.

[2] The RHB consists of 15 members representing state regulatory and academic organizations, counties and city agencies, and boating organizations in southwest Florida. The Board's mission is to study and protect the environment of anchorages while assuring equal access for all user groups with a minimum of regulations.

(3) determining anchorage 'issues' scores; and (4) identifying relative management needs. The methodology is flow-charted in Figure 2.

Management Issues

There are nine issues that determine whether active or passive (non-regulatory) management is needed in southwest Florida.[3] They are:

(1) Existing Land Use: urban, suburban, natural (shoreline land use may affect contacts between shore residents and anchoring boaters);
(2) Jurisdiction: city or town, county, federal (overlaping authority may create conflicting regulations);
(3) Inadequate Signage: yes, no;
(4) Shore Access: restricted (no access), limited, unrestricted;
(5) Multiple Use: residential (live-aboard), recreational, storage (in-the-water), commercial;[4]
(6) High Use Intensity: not present (therefore not an issue), occasional, continuous;
(7) Pumpout: available, required, not required;
(8) Crowding: not present (therefore not an issue), infrequent, frequent;[5]
(9) Habitat: indicators of environmental quality are used, including, Surface Water Classification, Outstanding Florida Waters designation, Shellfish Harvesting Classification, sea grass presence, and inclusion in an aquatic preserve.

The nine management issue conditions were determined for the forty-seven anchorages in southwest Florida. They are presented in Table 1 (Anchorage management issues data base).[6]

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[3]The selection of these issues derives from a baseline feasibility study (Antonini et al, 1994) and the authors' discussions with the RHB.

[4]This refers to multiple anchoring activities and does not consider other types of on-the-water uses, such as sailing, skiing, sportfishing, which may take place concurrently within the anchorage.

[5]Crowding refers to the spacing of anchored vessels. It does not consider: congestion, which is related to other types of on-the-water activities, or the frequency of use, which is covered by the 'high use intensity' issue.

[6]Anchorage management information on the 47 anchorages was compiled in June 1996. Site conditions in October 1997 remain the same, with the exception of a pump-out facility which has been installed at Roosevelt Channel/'Tween Waters. However, at this time, the pump-out at the Tween Waters Marina is inoperable, and, therefore, the service is considered to be 'not available'.

Issue Ranking and Weighting

The RHB Technical Advisory Committee (TAC) examined the nine issues and ranked them from highest [most important, #9] to lowest [least important, #1].[7] The anchorage management issues appear in their ranked order in the listing above. Issues are separated into habitat and non-habitat groups. The method for combining the habitat and non-habitat issues is shown in Figure 2 and explained below.

The TAC selected five criteria to determine the habitat ranked score of each anchorage. These quality value criteria include:

Surface Water Classification:

II	Shellfish propagation or harvesting
III	Recreation, propagation and maintenance of a healthy, well-balanced population of fish

Outstanding Florida Waters)

Yes

No

Shellfish Harvesting Areas

Open	Approved and conditionally approved
Closed	Conditionally restricted, prohibited and unclassified

Sea Grass Presence

Yes

No

Aquatic Preserve

Yes

No

The habitat issue represents the most important anchorage management component (#9 or highest in the issues ranking). It was treated independently using five quality indicators: Surface Water Classification, Outstanding Florida Waters designation, Shellfish Harvesting Classification, sea grass presence, and inclusion in an aquatic preserve. Each quality indicator contains two rated options (see flow

[7] The TAC included representatives of the state regulatory and marine research agencies, university research and extension education, regional and county planning departments, boating groups, and shore resident organizations.

chart in Figure 2). The minimum habitat site score is obtained by adding the lowest sub-rankings for each of the quality indicators (3+2+5+4+1 = 15). The maximum habitat site score is obtained by adding the highest sub-rankings for each of the quality indicators (6+9+10+8+7 = 40). Table 2 shows the individual habitat quality indicator scores and summed site score for each anchorage. The summed site score is transformed into low, medium, and high management classes by dividing the range between the minimum and maximum score (25) by 3: anchorages accruing 15-24 points are considered to have low habitat management need, 25-32 are placed in the medium category, and point scores in the 33 to 40 range are considered high need sites. Table 2 shows the results of the habitat issues portion of the analysis. Twenty sites (43%) have a high need, 6 locations (13%) a medium one, and 21 anchorages (45%) require low level management.

The non-habitat characteristics for the anchorages were scaled in order to reflect their relative rankings (see weighting scheme in Table 3) and the site characteristics were transformed and summed into site scores. Each site score was obtained by adding the weighted value of each issue. The maximum possible site score is (1+2+3+4+5+6+7+8) 36. Summed site scores were converted into low, medium and high management classes by dividing the maximum score (36) by 3, which equals 12 points for each class: anchorages accruing 1-12 points are considered to have low need, 13-24 points are placed in the medium category, and point scores in the 25-36 range are placed in the high need category. Table 4 shows the results of the non-habitat issues portion of the analysis: 1 site has a high need; 7 locations (15%) have a medium need, and the remainding 39 sites (83 %) have low need for management.

It was necessary to combine the habitat site score with the non-habitat site score in order to create a composite management assessment site rating. This required a second transformation of the habitat site score (in order to make it comparable to the non-habitat score), and it was accomplished by determining numerical break-points for low, medium and high habitat site ratings. The maximum attainable habitat score is 40 (see flow chart in Figure 2). This score is given a value of 9 which was the ranking of the "habitat" issue by the TAC. Thus, the derived maximum anchorage management score for all issues would be 36 + 9 = 45. (Recall that 36 is the maximum non-habitat score (Figure 2). A series of ratios were calculated to reconcile the individual habitat issue score with the ranked habitat issue. The minimum habitat score of 15 is determined to be 3 (9/40 as 15/x = 3). Thus, the range of 6 (from minimum to maximum) is calulated, and low = 3, medium = 6, and high score = 9. The numerically transformed habitat site scores are listed in the far right column of Table 4.

The composite management score (non-habitat and habitat issues) for the forty-seven anchorages is presented in Table 5. The management site score is obtained by dividing the maximum composite score (45) by 3 to obtain management

need ranges: low = 0-15, medium = 16=30, and high = 31=45 points. Thirty-four anchorages (72%) are sites which require low management, 12 (26%) are medium, and 1 (2%) is a high management site.

Results

This evaluation is a relative scoring of the anchorage management needs within southwest Florida. Table 6 shows one high management scored anchorage -- Roosevelt Channel/Tween Waters -- at the lower end (35) of the 31-45 point 'high' range. There are four medium management type anchorages -- Venice/Higel Park (29), Boca Grande/Grand Bayou (26), Sarasota/Island Park (25), Matanzas Pass/Ft. Myers Beach (25) -- that scored above the mid-point (23) of the 16-30 point 'middle' range. These five sites have the greatest need for some type of management intervention of the 47 anchorages in the region. Specific remedial measures are listed in Table 7 and discussed below.

Roosevelt Channel/Tween Waters

This site has the highest score within the region. This is because Roosevelt Channel scores high in the 6th,7th,and 8th most critical issues: continuous high use, pumpout required, frequent crowding. Recommended immediate action: repair of the pumpout facility at the Tween Waters Marina. This will lower the site score from high to a medium management level.

Venice/Higel Park

This is a small anchorage site that is subject to crowding, continuous high use, multiple types of anchoring (over-night recreational and wet storage), and inadequate signage (there are extensive seagrass beds in the northern sector and hazardous oyster bars in the northern and southern sectors). Recommended immediate action: signage to protect grasses and hard-bottoms and warn boaters of hazards to navigation. This will lower the site score from the 'high' medium to the 'mid' medium management level.

Boca Grande/Grand Bayou

This is a small 'pocket' anchorage. It has a high habitat score that is related to being situated in quality bay waters that are designated aquatic preserve. There are fringing mangroves along the shore and adjacent to the deepest water outside the channel. Boats normally moor Bahamian-style (stern tied to the mangroves or to a steel cable along the foreshore, and anchor off the bow). The anchorage is subject to frequent crowding and continuous high use. There is no 'quick-fix' to resolving management issues at this site. Active intervention may be required.

Sarasota/Island Park

This is one of the largest, most active anchorages in the northern portion of the southwest Florida boating region. Its 'high' medium management score reflects this popularity. There are multiple uses: residential (live-aboard), recreational (over-night), wet storage, and the anchoring of commercial fishing vessels. Though the anchorage site is large, there is frequent crowding in the more popular, sheltered sectors. It is a locale subject to frequent high use. There is no 'quick-fix' to resolving management issues at this site. Active intervention may be required.

Matanzas Pass/Ft. Myers Beach

This is another large, active anchorage, and is situated in the southern portion of the southwest Florida boating region. It shares many of the same characteristics as Sarasota/Island Park: popularity, multiple uses of the anchorage, and frequent crowding. However, the Matanzas site, in addition, has intense commercial, industrial and residential uses along its waterfront which often compete and conflict with each other and on-the-water use of the anchorage. There are complex management issues that may require some intervention.

Other Locations

Most other locales are used infrequently. Based on this analysis, they require no direct intervention, but anchoring conditions, boating safety and habitat preservation could be improved, in some instances, by the provision of adequate signage or pumpout facilities. Table 7 lists these recommended improvements.

Recommendations

1. High priority: repair the pumpout facility at Roosevelt Channel/Tween Waters.

2. High priority: improve signage at Venice/Higel Park. Assign a RHB delegate to assist the City of Venice and the local boating community (Venice Yacht Club, waterfront resident associations) develop a request to the WCIND for funds to support: (a) installation of signs at this location (utilize the recently completed resource inventory to determine the type, quantity and placement of signs), and (b) printing of an anchorage photomap and distribution to cruising boaters.

3. High priority: active management may be required at three popular, intensively used anchorages: Boca Grande/Grande Bayou, Sarasota/Island Park, Matanzas Pass/Ft. Myers Beach.

(a) Boca Grande/Grand Bayou: this is a quality habitat location where continued, intensive use may degrade the environment. There is no current management framework in place. Assign a RHB delegate to meet with members of the local community (public agencies, shore resident associations, boating groups) to determine whether there is grass roots support for instituting some form of anchorage management.

(b) Sarasota/Island Park: the City of Sarasota Harbor Task Force, with leadership from the RHB and BAIL, is attempting to address long-term management needs at this location. The work of the Task Force should be actively supported.

(c) Matanzas Pass/Ft. Myers Beach: this anchorage is the focus of WCIND and City of Ft. Myers Beach efforts to develop a management plan that addresses the competing and conflicting interests of residential, recreational, commercial and industrial uses of the shorefront and adjoining bay waters. This effort should be actively supported.

4. Improved signage is needed at the following locations: Useppa Island/Cabbage Key, Point Blanco #2, Pelican Bay, Big Pass/Otter Key, New Pass/Sands Point, Longbeach/Longboat Pass #1, Terra Ceia.

   Assign RHB delegates from the respective counties to work with local marine/natural resource citizens advisory committees, and incorporate requests for improved signage at these locations in the annual request to WCIND and other funding sources for improvements in boating facilities. Sites (a), (b) and (c) are situated in Lee County waters; sites (d) and (e) are in Sarasota County, with joint jurisdiction (d) with the City of Sarasota, and (e) with the Town of Longboat Key; sites (f) and (g) are in Manatee County, with joint jurisdiction of (f) with the Town of Longboat Key.

5. A pumpout facility should be located at Matlacha. The RHB delegate from Lee County can assist the local community and Lee County with this task.

6. The proposed improvements in signage at anchorages along the southwest Florida coast represent a considerable initial investment, in completing permit applications, purchasing materials and providing equipment and labor for installation. The RHB should explore ways of promoting volunteerism at specific anchorages to instill stewardship and help sustain quality conditions. These are examples of this type of local community participation that may serve as models, such as Adopt-a-Shore and Rails-to-Trails.

7. The anchorage management classification scheme, presented in this report, ranks the *relative* management needs (or lack thereof) for the forty-seven traditionally used anchorages in southwest Florida. At present, there is no basis for determining whether these site conditions within the region are less than, equal to, or more critical than, anchorage conditions which prevail in other parts of Florida. The RHB should recommend to the State of Florida that resources be provided to: (a) expand the classification scheme to include development and application of an invertebrate or mollusk density index, in order to measure submerged habitat health, at southwest Florida anchorages, and (b) utilize the expanded classification scheme to collect and evalute comparable habitat and non-habitat data from other popular anchorages in Florida, in order to determine the quality condition of local sites within a statewide assessment framework.

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Antonini, G.A., L. Zobler, W. Sheftall, J. Stevely, and C. Sidman, 1994, Feasibility of a Non-Regulatory Approach to Bay Water Anchorage Management for Sustainable Recreational Use, Technical Paper 74, Florida Sea Grant, Gainesville, Fl.

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Figure 1. Recommended anchorages along Florida's southwest coast.

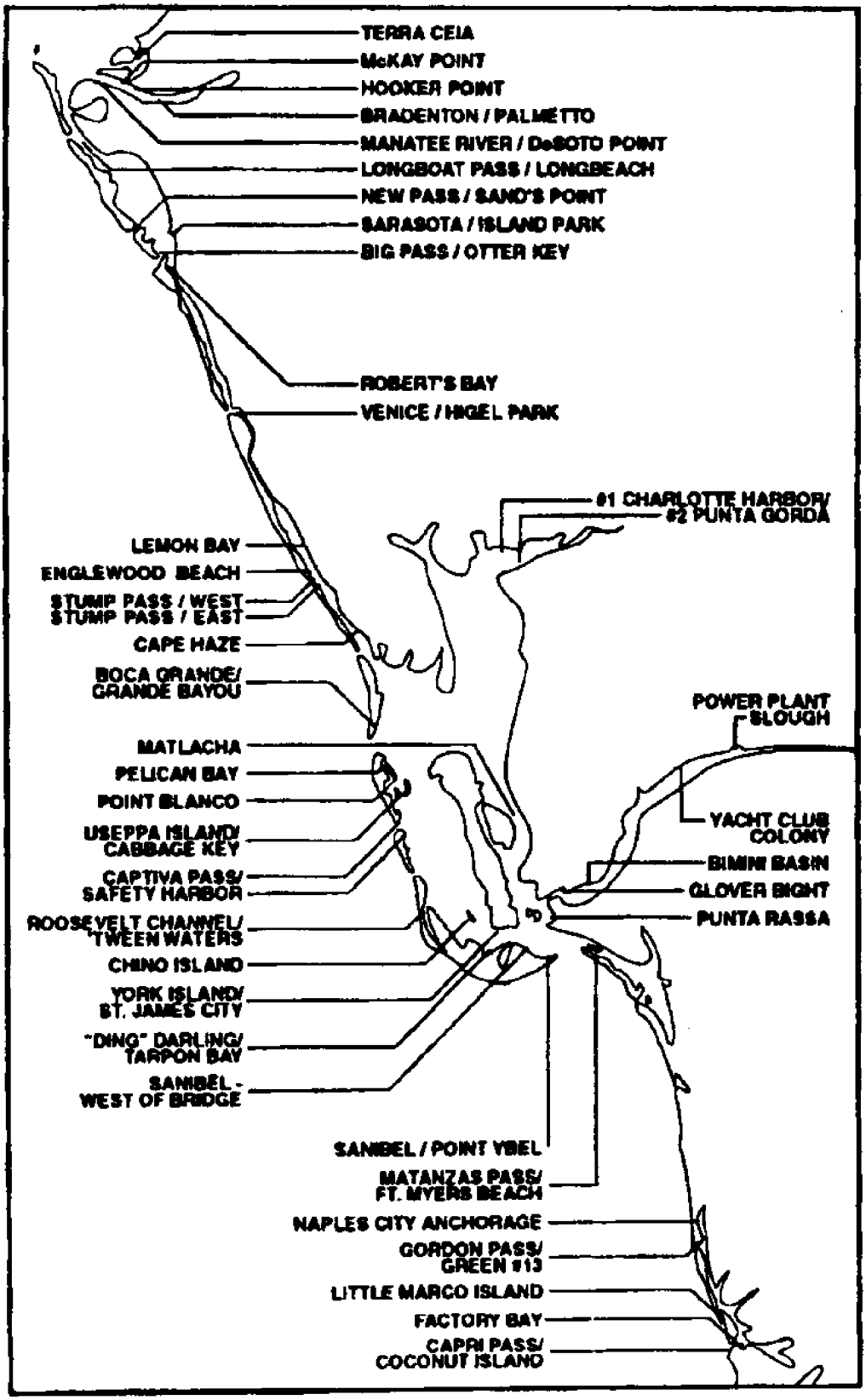

Table 1. Anchorage Management Issues Data Base

Anchorages	Land Use Urban (A) Suburban (B) Natural (C)	Jurisdiction (Authority)			Inadequate Signage Yes (Y) No (N)	Shore Access Restricted (A) Limited (B) Unrestricted (C)	Anchorage Use Live-aboard, Rec-Anchor, Storage, Commercial Liv, Rec, Sto, Com	High Use Intensity Not Present (NP) Occasional (O) Continuous (C)	Pumpout Available (A) Required (B) Not Required (C)	Crowding Not Present (NP) Infrequent (I) Frequent (F)	Habitat				
		City or Town (Name)	County	Federal (NONE)							Surface Water Class	Outstanding Florida Waters	Shellfish Harvesting Class	Sea Grass Presence	Aquatic Preserve
Capri Pass / Coconut Island	B	None	Collier	RBNERR	N	B	Rec	O	C	I	II	No	P	Yes	No
Factory Bay	B	None	Collier	RBNERR	N	C	Rec	NP	C	I	II	No	P	Yes	No
Little Marco Island	B	None	Collier	RBNERR	N	B	Rec	O	C	I	II	Yes	P	Yes	Yes
Gordon Pass / Green #13	C	Naples	Collier	NONE	N	A	Rec	NP	C	I	II	No	P	Yes	No
Naples City	A	Naples	Collier	NONE	N	C	Rec	O	A	NP	II	No	P	Yes	No
Doctors Pass	B	Naples	Collier	NONE	N	C	Rec	NP	C	NP	II	No	P	Yes	No
Sanibel / Point Ybel	B	Sanibel	Lee	CHNEP	N	C	Rec	O	C	NP	II	No	P	Yes	No
Matanzas Pass/Ft. Myers Beach	A	Ft. Myers Bch.	Lee	CHNEP	N	C	Liv, Rec, Sto, Com	C	A	F	II	No	P	Yes	No
Punta Rassa	C	None	Lee	CHNEP	N	C	Rec	NP	C	NP	II	No	P	Yes	No
Glover Bight	C	Cape Coral	Lee	CHNEP	N	C	Rec	NP	C	I	II	No	P	No	No
Bimini Basin	A	Cape Coral	Lee	CHNEP	N	C	Rec	NP	C	NP	II	No	P	No	No
Yacht Club Colony	A	Cape Coral	Lee	CHNEP	N	A	Rec	NP	C	NP	II	No	P	No	No
Power Plant Slough	C	None	Lee	CHNEP	N	B	Rec	NP	C	NP	II	No	P	Yes	No
Sanibel - West of Bridge	B	Sanibel	Lee	CHNEP	N	C	Rec	NP	C	NP	II	No	P	Yes	No
York Island / St. James City	C	None	Lee	CHNEP	N	C	Rec	NP	C	NP	II	No	P	Yes	No
Ding Darling / Tarpon Bay	C	Sanibel	Lee	CHNEP/WILD	N	C	Rec	NP	C	NP	II	Yes	P	Yes	Yes
Chino Island	C	None	Lee	CHNEP	N	B	Rec	NP	C	NP	II	Yes	A	Yes	Yes
Roosevelt Channel / Tween Waters	A	None	Lee	CHNEP	N	C	Liv, Rec, Com	C	B	F	II	Yes	P	Yes	Yes
Safety Harbor	B	None	Lee	CHNEP	N	C	Rec	NP	C	NP	II	Yes	A	Yes	Yes
Captiva Pass	C	None	Lee	CHNEP	N	C	Rec	NP	C	I	II	Yes	A	Yes	Yes
Useppa Island / Cabbage Key	B	None	Lee	CHNEP	Y	C	Rec	O	C	NP	II	Yes	C	Yes	Yes
Point Blanco # 1	C	None	Lee	CHNEP	N	C	Rec	NP	C	NP	II	Yes	P	Yes	Yes
Point Blanco #2	C	None	Lee	CHNEP	Y	C	Rec	NP	C	NP	II	Yes	P	Yes	Yes
Pelican Bay	C	None	Lee	CHNEP	Y	C	Rec	O	C	NP	II	Yes	P	Yes	Yes
Matlacha	A	None	Lee	CHNEP	N	C	Rec, Com	NP	B	NP	II	Yes	P	Yes	Yes
Edgewater Lake	B	None	Charlotte	CHNEP	N	C	Rec	NP	C	NP	II	No	P	No	No
Live Oak Point	A	None	Charlotte	CHNEP	N	C	Rec	NP	C	NP	II	Yes	P	Yes	Yes
Charlotte Harbor # 1	A	None	Charlotte	CHNEP	N	C	Rec	NP	A	NP	II	Yes	P	Yes	Yes
Charlotte Harbor # 2	A	Punta Gorda	Charlotte	CHNEP	N	C	Rec	NP	A	NP	II	Yes	P	Yes	Yes
Boca Grande / Grand Bayou	A	None	Lee	CHNEP	N	C	Liv, Rec	C	C	F	II	Yes	P	Yes	Yes
Cape Haze	B	None	Charlotte	CHNEP	N	A	Rec	NP	C	NP	II	Yes	P	No	Yes
Stump Pass East	C	None	Charlotte	CHNEP	N	B	Rec	NP	C	NP	II	Yes	C	Yes	Yes
Stump Pass West	C	None	Charlotte	CHNEP	N	B	Rec	O	C	NP	II	Yes	C	Yes	Yes
Englewood Beach	A	None	Charlotte	CHNEP	N	C	Rec	O	A	NP	II	Yes	P	Yes	Yes
Lemon Bay	B	None	Charlotte	CHNEP	N	C	Rec	NP	C	NP	II	Yes	P	Yes	Yes
Venice / Higel Park	B	Venice	Sarasota	SNEP	Y	C	Rec, Sto	C	C	F	II	Yes	U	Yes	No
Big Pass / Otter Key	B	Sarasota	Sarasota	SNEP	Y	A	Rec	NP	C	I	II	Yes	P	No	No
Sarasota / Island Park	A	Sarasota	Sarasota	SNEP	N	C	Liv, Rec, Sto, Com	C	A	F	III	Yes	P	No	No
New Pass / Sands Point	B	Longboat Key	Sarasota	SNEP	Y	C	Rec	O	C	I	II	Yes	P	Yes	No
Longbeach / Longboat Pass # 1	B	Longboat Key	Manatee	SNEP	Y	C	Rec, Com	O	C	I	II	Yes	P	Yes	No
Longbeach / Longboat Pass # 2	B	Longboat Key	Manatee	SNEP	N	C	Rec	O	C	I	II	Yes	P	Yes	No
Manatee River / DeSoto Point	C	None	Manatee	DNM	N	C	Rec	O	C	NP	II	Yes	U	Yes	No
McKay Point	B	None	Manatee	NONE	N	B	Rec	NP	C	NP	II	No	U	Yes	No
Hooker Point	B	None	Manatee	NONE	N	B	Rec	NP	C	NP	II	No	U	Yes	No
Palmetto	A	Palmetto	Manatee	NONE	N	C	Rec	NP	A	NP	II	No	U	Yes	No
Bradenton	A	Bradenton	Manatee	NONE	N	C	Rec	NP	A	NP	II	No	U	Yes	No
Terra Ceia	C	None	Manatee	NABS	Y	B	Rec	NP	C	NP	II	Yes	P	Yes	Yes

Surface Water Classification

II Shellfish propagation or harvesting

III Recreation, propagation and maintenance of a health, well-balanced population of fish

Shellfish Harvesting Classification

A Approved

C Conditionally Appr. d

P Prohibited

U Unclassified

Federal Jurisdiction

RBNERR Rookery Bay National Estuarine Research Reserve

CHNEP Charlotte Harbor National Estuary Program

WILD Wildlife Sanctuary

SNEP Sarasota Bay National Estuary Program

DNM DeSoto National Monument

NABS National Audubon Bird Sanctuary

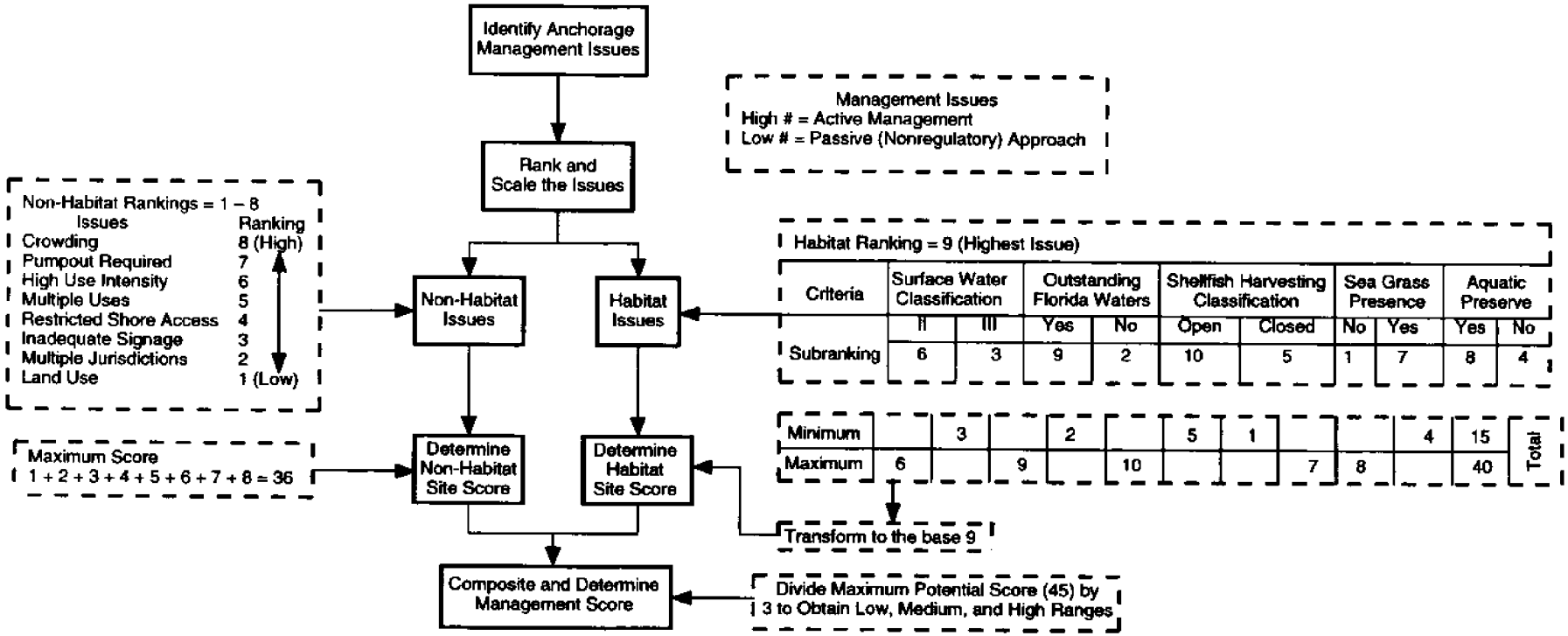

Figure 2. Flow chart of anchorage management classification scheme

Table 2. Habitat Numerical Ratings and Anchorage Site Scores					
Anchorages	Surface Water Class	Baywater Outstanding Florida Waters	Habitat Shellfish Harvesting Class	Sea Grass Presence	Aquatic Preserve
Capri Pass / Coconut Island	6	2	5	7	4
Factory Bay	6	2	5	7	4
Little Marco Island	6	9	5	7	8
Gordon Pass / Green #13	6	2	5	7	4
Naples City	6	2	5	7	4
Doctors Pass	6	2	5	7	4
Sanibel / Point Ybel	6	2	5	7	4
Matanzas Pass / Ft. Myers Beach	6	2	5	7	4
Punta Rassa	6	2	5	7	4
Glover Bight	6	2	5	1	4
Bimini Basin	6	2	5	1	4
Yacht Club Colony	6	2	5	1	4
Power Plant Slough	6	2	5	7	4
Sanibel - West of Bridge	6	2	5	7	4
York Island / St. James City	6	2	5	7	4
Ding Darling / Tarpon Bay	6	9	5	7	8
Chino Island	6	9	10	7	8
Roosevelt Channel / Tween Waters	6	9	5	7	8
Safety Harbor	6	9	10	7	8
Captiva Pass	6	9	10	7	8
Useppa Island / Cabbage Key	6	9	10	7	8
Point Blanco # 1	6	9	5	7	8
Point Blanco #2	6	9	5	7	8
Pelican Bay	6	9	5	7	8
Matlacha	6	9	5	7	8
Edgewater Lake	6	2	5	1	4
Live Oak Point	6	9	5	7	8
Charlotte Harbor # 1	6	9	5	7	8
Charlotte Harbor # 2	6	9	5	7	8
Boca Grande / Grand Bayou	6	9	5	7	8
Cape Haze	6	9	5	1	8
Stump Pass East	6	9	10	7	8
Stump Pass West	6	9	10	7	8
Englewood Beach	6	9	5	7	8
Lemon Bay	6	9	5	7	8
Venice / Higel Park	6	9	5	7	4
Big Pass / Otter Key	6	9	5	1	4
Sarasota / Island Park	3	9	5	1	4
New Pass / Sands Point	6	9	5	7	4
Longbeach / Longboat Pass # 1	6	9	5	7	4
Longbeach / Longboat Pass # 2	6	9	5	7	4
Manatee River / DeSoto Point	6	9	5	7	4
McKay Point	6	2	5	7	4
Hooker Point	6	2	5	7	4
Palmetto	6	2	5	7	4
Bradenton	6	2	5	7	4
Terra Ceia	6	9	5	7	8

Table 3. Rankings and Weights for Non-Habitat Site Issues				
Issues	**Ranking**		**Weighting Factors**	
Land Use	1	0 (rural)	0.5 (urban)	1 (suburban)
Jurisdiction Authority	2	1 (2 entities)	-	2 (3 entities)
Inadequate Signage	3	-	-	3 (yes)
Shore Access	4	2 (limited)	-	4 (restricted)
Multiple Uses	5	1.00 (2 uses)	3.00 (3 uses)	5.00 (4 uses)
High Use Intensity	6	3 (occasional)	-	6 (continuous)
Pumpout Required	7	-	-	7 (yes)
Crowding	8	4 (infrequent)	-	8 (frequent)

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Table 4. Non-Habitat Numerical Ratings and Anchorage Site Scores

Anchorages	Land Use Ranking = 1	Jurisdiction Authority Ranking = 2	Inadequate Signage Ranking = 3	Shore Access Ranking = 4	Multiple Use Ranking = 5	High Use Intensity Ranking = 6	Pumpout Required Ranking = 7	Crowding Ranking = 8	Summed Site Score	TransformedSite Score
Capri Pass / Coconut Island	1.00	1.00	0.00	2.00	0.00	3.00	0.00	4.00	11.00	Low
Factory Bay	1.00	1.00	0.00	0.00	0.00	0.00	0.00	4.00	6.00	Low
Little Marco Island	0.00	1.00	0.00	2.00	0.00	3.00	0.00	4.00	10.00	Low
Gordon Pass / Green #13	1.00	1.00	0.00	4.00	0.00	0.00	0.00	4.00	10.00	Low
Naples City	0.50	1.00	0.00	0.00	0.00	3.00	0.00	0.00	4.50	Low
Doctors Pass	1.00	1.00	0.00	0.00	0.00	0.00	0.00	0.00	2.00	Low
Sanibel / Point Ybel	1.00	2.00	0.00	0.00	0.00	3.00	0.00	0.00	6.00	Low
Matanzas Pass/Ft. Myers Beach	0.50	2.00	0.00	0.00	5.00	6.00	0.00	8.00	21.50	Medium
Punta Rassa	0.00	1.00	0.00	0.00	0.00	0.00	0.00	0.00	1.00	Low
Glover Bight	0.00	2.00	0.00	0.00	0.00	0.00	0.00	4.00	6.00	Low
Bimini Basin	0.50	2.00	0.00	0.00	0.00	0.00	0.00	0.00	2.50	Low
Yacht Club Colony	0.50	2.00	0.00	4.00	0.00	0.00	0.00	0.00	6.50	Low
Power Plant Slough	0.00	1.00	0.00	2.00	0.00	0.00	0.00	0.00	3.00	Low
Sanibel - West of Bridge	1.00	2.00	0.00	0.00	0.00	0.00	0.00	0.00	3.00	Low
York Island / St. James City	0.00	1.00	0.00	0.00	0.00	0.00	0.00	0.00	1.00	Low
Ding Darling / Tarpon Bay	0.00	2.00	0.00	0.00	0.00	0.00	0.00	0.00	2.00	Low
Chino Island	0.00	1.00	0.00	2.00	0.00	0.00	0.00	0.00	3.00	Low
Roosevelt Channel / Tween Waters	0.50	1.00	0.00	0.00	3.00	6.00	7.00	8.00	25.50	High
Safety Harbor	1.00	1.00	0.00	0.00	0.00	0.00	0.00	0.00	2.00	Low
Captiva Pass	0.00	1.00	0.00	0.00	0.00	0.00	0.00	4.00	5.00	Low
Useppa Island / Cabbage Key	1.00	1.00	3.00	0.00	0.00	3.00	0.00	0.00	8.00	Low
Point Blanco # 1	0.00	1.00	0.00	0.00	0.00	0.00	0.00	0.00	1.00	Low
Point Blanco #2	0.00	1.00	3.00	0.00	0.00	0.00	0.00	0.00	4.00	Low
Pelican Bay	0.00	1.00	3.00	0.00	0.00	3.00	0.00	0.00	7.00	Low
Matlacha	0.50	1.00	0.00	0.00	1.00	0.00	7.00	0.00	9.50	Low
Edgewater Lake	1.00	1.00	0.00	0.00	0.00	0.00	0.00	0.00	2.00	Low
Live Oak Point	0.50	1.00	0.00	0.00	0.00	0.00	0.00	0.00	1.50	Low
Charlotte Harbor # 1	0.50	1.00	0.00	0.00	0.00	0.00	0.00	0.00	1.50	Low
Charlotte Harbor # 2	0.50	2.00	0.00	0.00	0.00	0.00	0.00	0.00	2.50	Low
Boca Grande / Grand Bayou	0.50	1.00	0.00	0.00	1.00	6.00	0.00	8.00	16.50	Medium
Cape Haze	1.00	1.00	0.00	4.00	0.00	0.00	0.00	0.00	6.00	Low
Stump Pass East	0.00	1.00	0.00	2.00	0.00	0.00	0.00	0.00	3.00	Low
Stump Pass West	0.00	1.00	0.00	2.00	0.00	3.00	0.00	0.00	6.00	Low
Englewood Beach	0.50	1.00	0.00	0.00	0.00	3.00	0.00	0.00	4.50	Low
Lemon Bay	1.00	1.00	0.00	0.00	0.00	0.00	0.00	0.00	2.00	Low

Venice / Higel Park	1.00	2.00	3.00	0.00	3.00	6.00	0.00	8.00	23.00	Medium
Big Pass / Otter Key	1.00	2.00	3.00	4.00	0.00	0.00	0.00	4.00	14.00	Medium
Sarasota / Island Park	0.50	2.00	0.00	0.00	5.00	6.00	0.00	8.00	21.50	Medium
New Pass / Sands Point	1.00	2.00	3.00	0.00	0.00	3.00	0.00	4.00	13.00	Medium
Longbeach / Longboat Pass # 1	1.00	2.00	3.00	0.00	3.00	3.00	0.00	4.00	16.00	Medium
Longbeach / Longboat Pass # 2	1.00	2.00	0.00	0.00	0.00	3.00	0.00	4.00	10.00	Low
Manatee River / DeSoto Point	0.00	1.00	0.00	0.00	0.00	3.00	0.00	0.00	4.00	Low
McKay Point	1.00	0.00	0.00	2.00	0.00	0.00	0.00	0.00	3.00	Low
Hooker Point	1.00	0.00	0.00	2.00	0.00	0.00	0.00	0.00	3.00	Low
Palmetto	0.50	1.00	0.00	0.00	0.00	0.00	0.00	0.00	1.50	Low
Bradenton	0.50	1.00	0.00	0.00	0.00	0.00	0.00	0.00	1.50	Low
Terra Ceia	0.00	1.00	3.00	2.00	0.00	0.00	0.00	0.00	6.00	Low

Table 5. Anchorage Composite Scores and Management Site Scores

Anchorages	Transformed Habitat Score	Non-Habitat Score	Composite Score	Management Score
Capri Pass / Coconut Island	3.00	11.00	14	Low
Factory Bay	3.00	6.00	9	Low
Little Marco Island	9.00	10.00	19	Medium
Gordon Pass / Green #13	3.00	10.00	13	Low
Naples City	3.00	4.50	8	Low
Doctors Pass	3.00	2.00	5	Low
Sanibel / Point Ybel	3.00	6.00	9	Low
Matanzas Pass / Ft. Myers Beach	3.00	21.50	25	Medium
Punta Rassa	3.00	1.00	4	Low
Glover Bight	3.00	6.00	9	Low
Bimini Basin	3.00	2.50	6	Low
Yacht Club Colony	3.00	6.50	10	Low
Power Plant Slough	3.00	3.00	6	Low
Sanibel - West of Bridge	3.00	3.00	6	Low
York Island / St. James City	3.00	1.00	4	Low
Ding Darling / Tarpon Bay	9.00	2.00	11	Low
Chino Island	9.00	3.00	12	Low
Roosevelt Channel / Tween Waters	9.00	25.50	35	High
Safety Harbor	9.00	2.00	11	Low
Captiva Pass	9.00	5.00	14	Low
Useppa Island / Cabbage Key	9.00	8.00	17	Medium
Point Blanco # 1	9.00	1.00	10	Low
Point Blanco #2	9.00	4.00	13	Low
Pelican Bay	9.00	7.00	16	Medium
Matlacha	9.00	9.50	19	Medium
Edgewater Lake	3.00	2.00	5	Low
Live Oak Point	9.00	1.50	11	Low
Charlotte Harbor # 1	9.00	1.50	11	Low
Charlotte Harbor # 2	9.00	2.50	12	Low
Boca Grande / Grand Bayou	9.00	16.50	26	Medium
Cape Haze	6.00	6.00	12	Low
Stump Pass East	9.00	3.00	12	Low
Stump Pass West	9.00	6.00	15	Low
Englewood Beach	9.00	4.50	14	Low
Lemon Bay	9.00	2.00	11	Low
Venice / Higel Park	6.00	23.00	29	Medium
Big Pass / Otter Key	6.00	14.00	20	Medium
Sarasota / Island Park	3.00	21.50	25	Medium
New Pass / Sands Point	6.00	13.00	19	Medium
Longbeach / Longboat Pass # 1	6.00	16.00	22	Medium
Longbeach / Longboat Pass # 2	6.00	10.00	16	Medium
Manatee River / DeSoto Point	6.00	4.00	10	Low
McKay Point	3.00	3.00	6	Low
Hooker Point	3.00	3.00	6	Low
Palmetto	3.00	1.50	5	Low
Bradenton	3.00	1.50	5	Low
Terra Ceia	9.00	6.00	15	Low

Table 6. Anchorage Sites Ranked by Composite Management Scores.

Anchorages	Composite Management Score
High Scores in the 31-45 Point Range	
Roosevelt Channel / Tween Waters	35
Medium Scores in the 16-30 Point Range	
Venice / Higel Park	29
Boca Grande / Grand Bayou	26
Sarasota / Island Park	25
Matanzas Pass / Ft. Myers Beach	25
Longbeach / Longboat Pass # 1	22
Big Pass / Otter Key	20
Matlacha	19
Little Marco Island	19
New Pass / Sands Point	19
Useppa Island / Cabbage Key	17
Longbeach / Longboat Pass # 2	16
Pelican Bay	16
Low Scores in the 0-15 Point Range	
Stump Pass West	15
Terra Ceia	15
Capri Pass / Coconut Island	14
Englewood Beach	14
Captiva Pass	14
Point Blanco #2	13
Gordon Pass / Green #13	13
Cape Haze	12
Chino Island	12
Stump Pass East	12
Charlotte Harbor # 2	12
Ding Darling / Tarpon Bay	11
Live Oak Point	11
Lemon Bay	11
Charlotte Harbor # 1	11
Safety Harbor	11
Yacht Club Colony	10

Table 7. Recommended Actions to Improve Anchorage Conditions in Southwest Florida.

High Priority Locations	Immediate Improvements in Infrastructure	Active Management
Roosevelt Channel/Tween Waters	Repair pumpout facility	
Venice/Higel Park	Improve signage	
Boca Grande/Grande Bayou		may be required
Sarasota/Island Park		may be required
Matanzas Pass / Ft. Myers Beach		may be required
Other Locations	Other Improvements in Infrastructure	
Useppa Island/Cabbage Key	Improve signage	
Point Blanco #2	Improve signage	
Pelican Bay	Improve signage	
Matlacha	Install pumpout facility	
Big Pass/Otter Key	Improve signage	
New Pass/Sands Point	Improve signage	
Longbeach/Longboat Pass #1	Improve signage	
Terra Ceia	Improve signage	