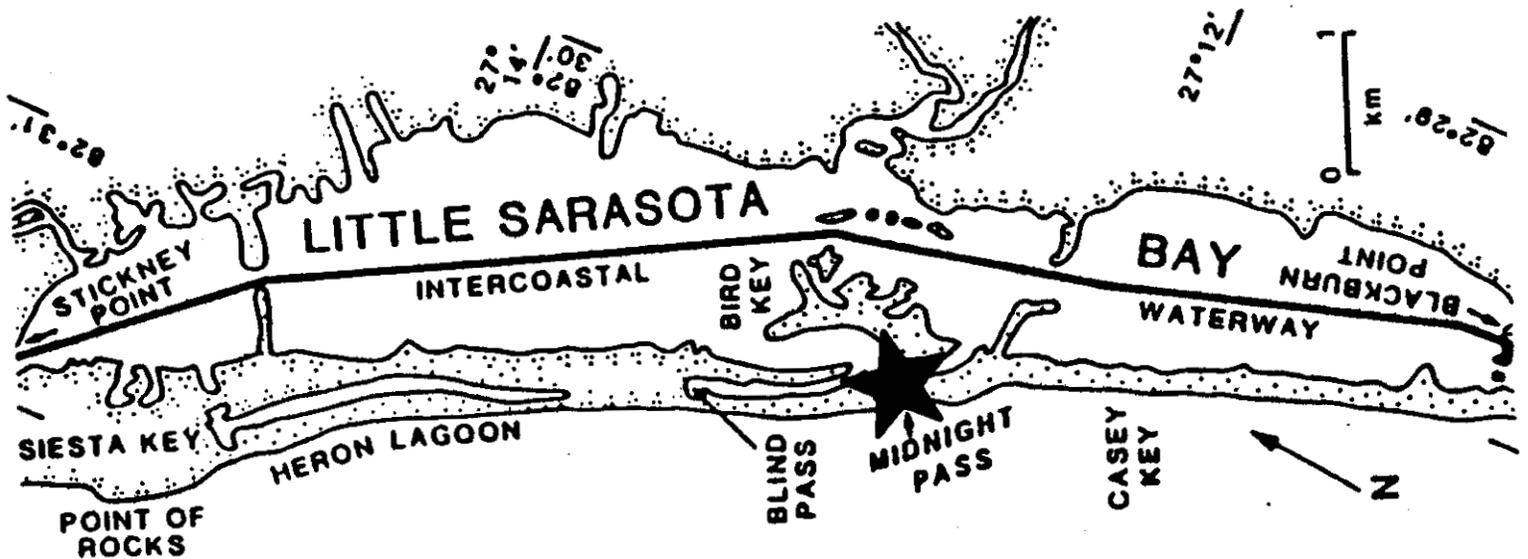


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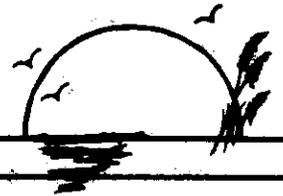
Midnight Pass Society

AN ENVIRONMENTAL ASSESSMENT
OF LITTLE SARASOTA BAY
SUBSEQUENT TO THE CLOSURE OF MIDNIGHT PASS



The

Midnight Pass



SOCIETY, INC.

"MIDNIGHT PASS - PASS IT ON!"

POST OFFICE BOX 38865

ROBERT D. MEADOR, PRESIDENT (813) 849-1825

SARASOTA, FLORIDA 34231

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April, 1990

AN ENVIRONMENTAL ASSESSMENT OF LITTLE SARASOTA BAY SUBSEQUENT TO THE CLOSURE OF MIDNIGHT PASS

by The Research Committee

John B. Morrill, Ph.D.
James P. Herbert

EXECUTIVE SUMMARY

Governmental agencies permitted two homeowners to artificially close Midnight Pass in December, 1983, concluding a process initiated some twenty years before. Since then, the Midnight Pass Society has witnessed the day-by-day degradation of Little Sarasota Bay...once a beautiful, outstanding coastal lagoon. We were encouraged when, early in 1988, Sarasota County took steps to obtain the permits needed to restore this essential inlet.

Then, in November, 1989, the Florida Dept. of Environmental Regulation informed the County it had been given insufficient data to support the reopening of Midnight Pass. The Society took this as a challenge and set out to provide the FDER and other permitting agencies the needed supporting documentation.

The result is this 223 page report, a comprehensive assessment of environmental conditions in Little Sarasota Bay six years after Man closed Midnight Pass. The report clearly shows the extent of environmental degradation since, and specifically due to, Pass closure. The conclusion is inescapable; the only way to reverse the evident trend of environmental degradation is to restore this historic inlet.

Each of the report's 16 chapters is independent of the others; a particular topic can be directly referenced. However, a full review of the report provides an appreciation as to how the various chapters both interrelate and support one another. Following is a summary of each of the report chapters:

Safety Valve - The opening chapter provides the history of Midnight Pass. An tidal inlet has existed in this locale throughout recorded history and perhaps for as long as the barrier islands it separated. History reveals that the closing of Midnight Pass was a Man-made event. Having caused the instability and ultimate closure of Midnight Pass, Man is clearly responsible for the resultant environmental damage. Further, so long as "We" leave Midnight Pass closed, there is increased risk a storm event will create another pass in the area...but perhaps through a developed part of the single barrier island created from Casey and Siesta Keys.

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INTRACOASTAL WATERWAY. Midnight Pass was a strong, stable and naturally formed inlet. The deepening of the ICW in the early 1960's and especially the improper deposition of more than 200,000 cubic yards of spoil material had a major impact on Pass equilibrium. The northern channel began to shoal in...and nothing was done. Trees fell into navigable waters and were left there...adding to shoaling problems. A mid-1970's petition effort addressed the issue...but was ignored. In 1980, Sarasota County acquired lands in the area specifically to allow for the relocation and stabilization of Midnight Pass...but nothing was done. By 1983 the Pass threatened two Gulf-front homes. The homeowners were permitted to close the Pass and, after five patently flawed attempts at relocation, abandoned their efforts. Clearly, the loss of equilibrium, the northern migration and the ultimate closing of Midnight Pass were caused by MAN, not Mother Nature.

FISH KILLS. Such sorry events are graphic signals that extensive damage has been done to an aquatic ecosystem. During the summer of 1987, a year of just average rainfall, a massive fish kill occurred in Little Sarasota Bay...confined to just this embayment. Without the usual tidal exchange through Midnight Pass, trapped runoff and groundwater seepage so altered dissolved oxygen and salinity levels that millions of fish were killed. Fish kills did not occur while the Pass was open...even in years of heavy rainfall. Looking ahead, similar tragedies are bound to recur time and again in years of normal or heavy rainfall as long as Midnight Pass is kept closed...or there are fish left to kill.

CLAM PAPER. This chapter reports the results of a Society field study of the clam beds historically found in and around the Jim Neville Marine Preserve. Closing the Pass so altered water quality in the Bay that ALL the salinity-dependent, filter-feeding clams were killed. EVERY Quahog, Venus Sun Ray and Angel Wing clam...millions died. They couldn't tolerate the lack of water circulation, the sediment-covered Bay bottom, the lowered salinity and dissolved oxygen levels. The Preserve has been turned into a clam cemetery. The only way to restore this historic habitat is to restore Midnight Pass.

SEAGRASSES. The chapter begins with a natural history of seagrasses, reviews the various stresses to which "Man" has subjected them and reveals how the closing of Midnight Pass greatly amplified these adverse conditions.

Seagrass meadows form the very foundation of a bay's ecosystem, supporting a diversity and abundance of marine life. While three seagrasses used to thrive in Little Sarasota Bay, only Cuban Shoal weed remains; the Turtle and Manatee grasses have entirely disappeared.

An unpublished 1984 Sarasota County study demonstrates the seagrass devastation in just the first year of Pass closure...some areas lost 90% of their coverage! A catastrophic seagrass loss occasioned by the normal rainfall during 1987 is also described. The misimpression that

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seagrass habitat actually increased since Pass closure is corrected. In fact, under just normal rainfall conditions, seagrasses that used to live in Little Sarasota Bay can no longer survive, let alone thrive. The area has been reduced to just potential habitat...dependent on restoring tidal exchange through Midnight Pass.

The seagrass that remains is sparse and stressed...a shadow of what it was. Decimation of the historic seagrass meadows of Little Sarasota Bay will result in a substantial reduction in the type and numbers of marine plants and animals found here...a process already well on its way.

SEAGRASS STUDY. Results of the December, 1989, field study are reviewed in the preceding chapter. The field work included groundtruthing the Jim Neville Marine Preserve and sampling the seagrass found there. Only stressed, sparse patches of Cuban Shoal weed were located...along with some dense accumulations of drift algae.

GRACILARIA. Little Sarasota Bay is one of the few local waters with an abundance of Gracilaria. This macro red drift algae thrives in poorly circulated, nutrient-enriched waters. Significant accumulations of the algae can be a biological indicator of poor water quality.

The chapter is aptly subtitled "The Good, the Bad & the Ugly." Gracilaria is a food resource and also serves as a complex habitat for fish fry and benthic critters. But dense beds can displace rooted vegetation. Gracilaria dies off at the onset of each rainy season. With decomposition comes oxygen depletion, loss of habitat, the return of nutrients to the water column and noxious odors.

In Little Sarasota Bay drift algae, nicknamed "Gumbo," was carried out of the Bay on spring ebb tides to fertilize the near-shore areas of the Gulf. Without Midnight Pass, this spring cleaning no longer occurs...the proliferating algae is trapped in the Bay, concentrating its detrimental effects upon the ecosystem.

GRACILARIA STUDY. This Society study was authorized due to the absence of "hard data" and in light of informal observations of drift algae in the area. Field work was done in February, 1990. Large accumulations of Gracilaria were found at several Bay sites...in some instances posing a threat to seagrass. Organic sediments found on the Bay bottom at several sites were also sampled.

DOORWAY. Closing the Pass eliminated one of four Gulf-to-bay doorways in Sarasota County. Since nearly all marine critters need such doorways, Midnight Pass played a key role in accommodating the migratory requirements of fish, shrimp and mammals. The Sarasota County fishing industry located in this area years ago due to the easy access to/from the Gulf. Closing the Pass has harmed this industry... and has made sport fishing and recreational boating far less desirable as well.

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BENTHIC ANIMALS. The animals that live in or upon the bay bottom are important in their own right and play a key role in sustaining other bay inhabitants. Closing Midnight Pass greatly changed the ecosystem of Little Sarasota Bay; long-established residents either migrated or they died.

Many of the non-vertebrate animals that had been found here were associated with high quality, high salinity, inlet-influenced waters. None can be found here today.

A Mote Marine Lab study of area benthic invertebrates has documented the continuing diminution of this community. Of the seventeen most abundant species found in 1984, only three remained in 1988...and all three were polychaete worms known for their tolerance of poor water quality!

This large decline in numbers and types of benthic critters has occurred during drought conditions. When normal rainfall returns, additional devastation of the salinity-dependent benthic animals that historically lived here is anticipated.

SALINITY/RAINFALL. The marine plants and animals historically inhabiting this estuarine coastal lagoon required a narrow salinity range. Average salinities today are 15-20% below open Pass conditions. Far more significantly, salinity depressions following major rainfall events are now much greater and last much longer...creating an intolerable environment for many historic inhabitants.

A comparison of salinity levels (conductivity) between 1973 and 1988 discloses a definite reduction in values beginning in 1982...two years before full Pass closure. The gradual onset and extent of decline in Bay salinity is well documented.

An open Pass/closed Pass comparison really tells the tale. Current salinity levels (1988-1990) are compared to Mote Lab salinity readings from 1973-1975...when their facilities were situated on Little Sarasota Bay next to Midnight Pass. Across the board, current salinities are much lower than those prevalent during the open Pass regime. A comparison of rainy seasons from these periods showed that current salinities are only half what they were when Midnight Pass was performing its tidal exchange function.

The rainfall section reviews the crucial role Midnight Pass played as a mitigator of the effects of seasonal rainfall. Area hurricane history is reviewed and the observation made that we're well overdue for a major storm event. A return to normal rainfall patterns &/or a major storm would spell disaster for this already stressed ecosystem.

WATER QUALITY. Closing Midnight Pass has denied Little Sarasota Bay the mitigation, modulation and regulation aspects of regular tidal exchange with the Gulf; it has thrown the balance of nature out of balance! Unbalanced conditions are greatly amplified during the rainy season...dissolved oxygen and salinity levels decline, coliform bacteria levels are raised and the waters become highly turbid.

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April, 1990
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A Society invention, the Waechter Stick, is described. The monitoring program raw data from June, 1988 through January, 1990 is presented.

SELECTED BIBLIOGRAPHIES. The majority of the reference material used in preparing this assessment is listed by major subject.

CONCLUSION

In the six years since the closure of Midnight Pass there has been a significant decline in water quality and in environmental quality within the immediate region of the former tidal inlet and at least half of the surrounding Bay. The degradation in water and environmental quality is directly related to the closure of Midnight Pass. The only way to reverse this trend is to restore the historic inlet.

It has been more than six years since Midnight Pass was permitted to be closed; more than two years that the Pass restoration permits have been "in process." While we dally, the ecosystem of Little Sarasota Bay suffers...the beautiful coastal estuary we inherited is truly dying.

The health, safety and welfare of the residents of, and the visitors to this part of Sarasota County would be greatly enhanced by restoring Midnight Pass. Pass restoration is highly important to the commercial fishermen who settled in the vicinity due to the easy access it afforded to and from the Gulf of Mexico. Sport fishermen and boaters would benefit, too.

But most of all it would benefit the marine plants and animals that used to live here. Those who accept responsibility for our past actions and who care at all for the condition of our natural environment have no choice but to support the restoration of this historic inlet. Let's pass on to future Sarasotans the environment we inherited...not the environmental nightmare we created.

Midnight pass... pass it on!

The complete assessment report may be obtained through local libraries, at the Mote Marine Laboratory or at the Sarasota Bay Project.

You may borrow the report from the Society or purchase a copy:
\$ 50.00 Society members
\$ 75.00 All others

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John B. Morrill, Ph.D.
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MARCH, 1990

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March 19, 1990

AN ENVIRONMENTAL ASSESSMENT
OF LITTLE SARASOTA BAY
SUBSEQUENT TO THE CLOSURE OF MIDNIGHT PASS

PREFACE

Midnight Pass was closed in December, 1983, concluding a process initiated some twenty years before. We watched as the Bay began to change, slowly becoming more and more uninhabitable for the creatures that used to live there. The Society spent untold hours chronicling the decline, monitoring the Bay waters and doing what we could to "hurry along" the restoration of this essential inlet.

Then, in November, 1989, The Florida Department of Environmental Regulation (FDER) informed Sarasota County that it had submitted insufficient data to support the opening of Midnight Pass. The Society took this statement as a challenge and set out to provide the necessary data to the FDER.

We began by pulling together the existing relevant information. Where improper conclusions were drawn therefrom, we set out to correct them. Where there were gaps in the data sets, we filled them. Thus, we uncovered the MML monitoring data from the early 1970's, assessed the fate of the clam population and conducted field studies of seagrasses and red drift algae.

The result is this Report, a comprehensive assessment of Little Sarasota Bay six years following the closure of Midnight Pass. We begin with a natural history of the area and an assessment of the factors that led to Pass closure.

Several chapters are devoted to assessing the effect of Pass closure on segments of the local ecosystem... seagrasses, the migratory critters, the benthic populations. We've devoted an extensive chapter to salinity/rainfall while another chapter assesses other water quality parameters.

We include our plan for Pass maintenance once the inlet is restored and our thoughts as to future management of the area...the opportunities available. We answer once again the stated concerns of the opposition... but it takes two to communicate.

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All our raw monitoring data are included herein... and we most sincerely thank our Volunteer Monitors who just keep on keeping on! We conclude this Report with a selected bibliography of most of the materials we found useful... for the benefit of others who may wish to delve further into this, or similar, issues.

The state of Little Sarasota Bay, especially the central half thereof, has markedly declined from the healthy, inter-dependent, estuarine coastal lagoon ecosystem that it was just a few years ago. Unfortunately, if Midnight Pass is not restored, once rainfall patterns return to normal the present bad situation can only get worse.

Three major factors have caused significant diminution in the environmental qualities that had long been associated with this embayment:

1. In the absence of the tidal circulation historically provided by Midnight Pass, depressions in Bay salinity levels are now much greater and last much longer. The impact these lowered salinity regimes has had on the marine plants and animals of the Bay is well chronicled in this Report.
2. Tidal currents provide a surficial turbulence that serves to cleanse the Bay bottom. In the absence of those currents, organic sediments have accumulated which adds to nutrient-enrichment and water turbidity. These sediment accumulations also create hostile conditions for certain benthic animals that historically inhabited the area.

The filter-feeding benthic community relied on tidal currents to deliver food. Without their food resources, they died.

Seagrasses need current flow to maximize their interaction with the water column and to control the accumulation of sediments and epiphytic growth on their leaves. The seagrasses still in this area are stressed from lack of tidal current.

3. Tidal exchange of waters between the Gulf of Mexico and Little Sarasota Bay is also crucial. "Man" counts on tidal exchange to dismiss the pollutants he puts into the Bay. Migratory marine animals need the doorway... their very survival depends upon it.

Tidal exchange is what keeps the balance of nature "in balance" in at least the central half of Little Sarasota Bay. Balanced environmental and water quality conditions are essential for the viability of the habitats in this embayment.

Tidal exchange provides for the expulsion of excess nutrients from the Bay into the Gulf of Mexico... just one example of keeping Bay conditions "in balance." But those same nutrients are important resources of food and nourishment for the near-shore marine community in the Gulf of Mexico. For six years this nourishment pipeline has been shut down.

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March 19, 1990

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In our opinion the information contained in this Report clearly shows that, in the six years subsequent to the closure of Midnight Pass, there has been a significant decline in water quality and in environmental quality within the immediate region of the former tidal inlet and at least half of the surrounding Bay. The degradation in water and environmental quality is directly related to the closure of Midnight Pass. The only way to reverse this trend is to restore the historic inlet.

In 1986, Little Sarasota Bay was designated an "Outstanding Florida Water" by the FDER. We applaud that distinction but caution that this mustn't be considered the end of the road and an award, but the beginning of a sincere commitment to the environment... a challenge to maintain and improve this body of water. The restoration of Midnight Pass is the first step in meeting this commitment. It could well be the first step on the road to improving the quality of these waters from Class III to Class II.

To deny this embayment historic tidal flow, to ignore the plight of the marine community of Little Sarasota Bay would be dead wrong... we'd be wrong and they'd be dead. The only environmentally responsible course of action with respect to Midnight Pass is to restore the inlet and the environmental characteristics so essential to the marine plants and animals that used to live here.

Midnight Pass...Pass it on!

John B. Merrill
James P. Herbert

WE DEDICATE THIS REPORT
AND THE MANY HOURS SPENT
BY SOCIETY VOLUNTEERS IN ITS CREATION
TO THE "CRITTERS" OF LITTLE SARASOTA BAY.
WE ONLY HOPE THIS EFFORT
PROVIDES THE IMPETUS
TO RESTORE THIS LITTLE
"CORNER OF THE WORLD"
TO THE HEALTHY, BALANCED AND PRODUCTIVE
ECOSYSTEM THAT IT ONCE WAS.

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