

The

Midnight Pass



SOCIETY, INC.

"MIDNIGHT PASS - PASS IT ON!"

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MIDNIGHT PASS POSITION PAPER

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FISH KILLS IN
LITTLE SARASOTA BAY

SYNOPSIS

During the summer of 1987 a massive fish kill occurred in Sarasota County which was limited almost exclusively to Little Sarasota Bay. The event was caused by runoff from heavy rainfall coupled with grossly inadequate flushing of the embayment. The Bay had historically enjoyed the tidal action through Midnight Pass and its predecessor passes; Midnight Pass was closed in 1983. The fish kill represents a biological indicator of at least transient poor water quality associated with Pass closure. Such environmental tragedies can be expected to recur during significant rainfall events as long as the Pass is kept closed. In addition, the location of the reported fish kills in Little Sarasota Bay strongly suggests a significantly larger null zone of water exchange than had been previously estimated.

INTRODUCTION. A fish kill is defined as an occurrence in which some condition or combination of conditions results in the death of a significant number of one or more species of fish. Fish kills may signify that a potential threat to humans exists in the water. Fish kills most certainly signal that extensive damage has been done to the aquatic ecosystem.

The closing of Midnight Pass was "permitted" in December, 1983. In the six years since the Pass was closed, area rainfall has been below average for every year save one...1987. In July, 1987 alone, area rainfall exceeded fifteen inches. A Sarasota County model indicates that 14.8 inches of rain on Little Sarasota Bay and its fifteen square miles of drainage basin could displace the entire volume of water in the Bay. And the northern reaches of Little Sarasota Bay receives fresh water input from Phillippi Creek as well!

When the Pass was open and flowing, one or two tidal exchanges would have mitigated the potential for damage such heavy rainfall and resultant runoff might otherwise have done to Little Sarasota Bay. But Midnight Pass was no longer functioning in 1987 and the staggering volume of runoff and transported pollutants were trapped in the Bay. Water exchange was limited to only what could occur to the north and south. Too much of anything can be harmful. In this instance the massive volume of fresh water itself became a pollutant.

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REPORTED FISH KILLS. The first fish kill reported to the Midnight Pass Society was on Saturday, July 25, 1987. The last reported kill entered on the society calendar was August 1, 1987. During this period the Society directly received at least fifteen telephone call fish kill reports. In every instance we suggested they call either the Marine Patrol or the DNR Resource Alert Hotline (1-800-342-1821). Midnight Pass Society officers witnessed a number of fish kills during tours of the Bay. Others were sighted in response to calls from members. A few of the larger kills were reported to the DNR. Many fish kills went unreported because they seemed redundant. In other instances the fish carcasses were wind driven or sank to the bottom before they could be reported. Late the week of July 27th a Marine Patrol officer requested that the Society discontinue calling in fish kill sightings since they were well aware of the problem.

While the newspapers and Sarasota County personnel concentrated on the fish kills occurring in Blind Pass Lagoon, just north of Midnight Pass, the reported incidents covered a broad range of Little Sarasota Bay. Unfortunately, the Marine Patrol did not retain records of the reported sightings. Society records, including diaries, calendars and photographs, indicate the reported fish kills ranged from the Stickney Point Bridge south to Southbay (near South Creek). However, the fish kills were concentrated in the embayment between Point Crisp (Coral Cove) and the Blackburn Point Bridge. See Exhibit 1.

In a discussion with a Marine Patrol Officer late in the week, the only other fish kill report he knew of was reported in Whitaker Bayou some miles north in the City of Sarasota. All news reports identified Little Sarasota Bay as the site of the problem. Clearly, the fish kill phenomenon was localized to Little Sarasota Bay. Accordingly, the cause or causes for the fish kills had to be peculiar to this area.

A Sarasota County Interoffice Memo confirms the timing and location of the fish kills approximately as reported above. The memo also states that the fish kills were "...apparently limited to the Little Sarasota Bay area."

FISH KILL CAUSES. The answer is evident. Very heavy rainfall resulted in excessive stormwater runoff. Along with the immense volumes of fresh water running into the Bay came the full range of pollutants associated with runoff... organics, fertilizers, pesticides, metals, et al. In the absence of the usual tidal exchange through Midnight Pass, the runoff displaced the Bay water and was trapped there for an extended period of time... longer than could be tolerated by the fish.

Heavy, extended rains also mean less sunlight. Less sunlight means less oxygen generation by the seagrasses, micro and macroalgae in the Bay. And massive stormwater runoff greatly increases water turbidity, further reducing light penetration... further reducing the ability of the Bay plants to produce oxygen. It is probable the plants were even transformed into net consumers of oxygen for a period of time.

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It appears that the fish were killed by insufficient levels of dissolved oxygen in combination with water salinity levels suppressed for too long a period of time below the tolerance levels of various fishes. They either suffocated and/or found their historic habitat no longer habitable. Much of the seagrass in Little Sarasota Bay was adversely impacted by the same hostile elements... the clam beds, too. See the separate papers on those biological indicators of poor water quality.

THE FUTURE. Huge quantities of stormwater runoff trapped in Little Sarasota Bay. The adverse impact of the runoff wasn't mitigated through the tidal exchange that had been historically available through the natural inlet. The fish died. It mattered not to the fish whether too much runoff was pumped into the Bay or too little was flushed out; they were killed.

A similar scenario is likely to recur in years of just a little more than average rainfall... as long as the Pass is kept closed. In 1987, the year of the fish kill, total rainfall was only about three inches over the annual average of 53 inches. In 1983, the last year with an open Pass, annual rainfall was nearly ten inches above average. There was no fish kill that year, even though tidal flow through Midnight Pass had become severely constricted. In the four months of the 1974 rainy season, 44½ inches fell, compared to 33½ inches in the same period for 1987. That's 11 more inches in just four months... and there was no fish kill in Little Sarasota Bay in that year.

In Little Sarasota Bay, excessive amounts of runoff pour into the Bay and too little can now get out. Both problems need to be addressed. Excessive and pollutant-laden stormwater must be kept out of all our bays. But, for the sake of Little Sarasota Bay, we must also restore the historical flushing action of Midnight Pass to at least an approximation of what it was before "Man" intruded and upset the delicate balance of nature. Restoring Midnight Pass will restore that balance of nature for Little Sarasota Bay so that the stormwater assaulting this embayment can be naturally mitigated as it is in many other bays. This will provide the Bay needed relief while the stormwater control problem is enthusiastically addressed and, hopefully, resolved. But face the facts: the solution is many years and many dollars away. Midnight Pass can be restored now; it's not the answer to the stormwater issue, but it is the first step in our commitment to restore our waterways.

CONCLUSIONS.

1. Tidal exchange historically benefited Little Sarasota Bay through Midnight Pass and its predecessor passes.
2. Midnight Pass was closed by "Man" in 1983.
3. A massive fish kill in 1987 was caused by runoff from excessive rainfall inadequately flushed from Little Sarasota Bay.
4. The fish died due to insufficient dissolved oxygen and salinity levels below their level of tolerance.

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CONCLUSIONS (CONT'D.).

5. The insufficient oxygen and salinities were directly attributable to the trapped runoff; the fish died because the Pass was closed.
6. Fish kills will likely recur in Little Sarasota Bay after heavy rains as long as Midnight Pass is kept closed.
7. Restoring Midnight Pass will mitigate the impacts of stormwater runoff in Little Sarasota Bay and greatly reduce the likelihood of future fish kills.
8. 1987 fish kills were reported over a broad range of Little Sarasota Bay suggesting that the actual null zone is much larger than was estimated by Sarasota County... at least as to adverse affects.

REFERENCES.

- A. Fish kills. The Delaware Conservatinist. Summer, 1989.
- B. Sarasota County memo, 7-31-87 from Serviss/Sauers to Merriam.
- C. Midnight Pass Society fish kill photos, drainage basin map and calendar of fish kill reports.
- D. Various newspaper articles.
- E. Meteorological rainfall records, Venice, Fla. 1972-76; 1983-89.
- F. Ecological Status of Little Sarasota Bay. 1985. Sarasota County
- G. Lemon Bay 208 Study.

FISH KILLS IN LITTLE SARASOTA BAY

EXHIBIT #1.

