Preserve Tippecanoe Bay, and Beyond

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Readers’ note on links.

This document contains imbedded links to references. To access the links, it is best to read this document from an online device so the sources of information are readily available. The online version of this document is available at www.tinyurl.com/Tippybay.

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Executive Summary

A primary purpose of this report is to publicly air a more complete story about a proposal to dredge through the Charlotte Harbor Aquatic Preserve and State Park to connect Manchester Waterway to the Myakka River. A complete, accurate and objective accounting of the project is needed for 2 reasons: (1) The advocates for this project are promoting it in way that is incomplete and misleading, creating a false picture of project costs and benefits. And (2) there has been no public disclosure of the negative impacts this proposal would, if approved and implemented, have on the human and natural community at large.

This report also serves as a red flag to alert the public that our county government has lost any commitment to restoring and/or sustaining our natural world, for which many of us live here. The county has not established the capability to manage the health of our estuaries – where fresh and saltwater meet. This is a concern because our local economy and lifestyles are dependent on the health of our waterways. This is about more than just Tippecanoe Bay. Our way of life and well-being are at stake.

This report describes the Tippecanoe Bay area and explains its unique ecosystem and how it serves as a nursery ground for juvenile fish, as well as vital habitat for adult fish, seagrasses and irreplaceable mangroves. Equally important is the role this area plays in supporting the overall health of the greater estuary that is so vital to the region's economy and our lifestyles.

For historical context we go back to the 1950s, to describe the scene before any development. That way we can imagine the area in its natural state. This is important because the advocates for dredging through this area claim they aim to "restore" it. The land around Tippecanoe Bay was purchased by the Florida West Coast Land Company and then General Development Corporation, who began massive earth-moving projects that altered vast areas of pinewoods, freshwater wetlands, tidal mangroves, creeks and marshes. This included gigantic drainage ditches called "waterways," whose outflows threatened Tippecanoe Bay with nutrient runoff.

It is important to understand the science behind excess nutrients and the stormwater and wastewater systems that create these threats to water quality. In the late 1970s, it was because of these threats to Tippecanoe Bay, and the wider effort to protect the fragile water quality and estuarine life of Charlotte Harbor, the state stepped in and stopped the damage (at least in part). The part of the dredged "waterway" that drained into Tippecanoe Bay was plugged, by legal requirement to partly restore the damage. Tippecanoe Bay and the surrounding region became part of the Charlotte Harbor State Aquatic Preserve and State Park. By law, these lands and waters - now buffered and isolated from the stormwater and wastewater of the nearby development - are to be preserved in essentially natural conditions for future generations to enjoy.

The proposed dredging project overlooks the lessons of history and science, claiming it aims to "restore" natural channels for boating access. In truth, the project proponents want to "restore" back to that historical stage of the region's development – and make it even worse – which was so harmful to the native ecosystem. These project proponents are also claiming that the dredging would be good for the

environment, without acknowledging that it will allow free flow of canal water and its nutrient laden stormwater and wastewater - the runoff the state acted to stop on the late 1970s – to reach the protected waters of the aquatic preserve and state park.

More than water quality (as if that's not enough to reject this proposal) is at stake. Irreplaceable mangroves will be destroyed at a cost of lost storm buffering, fish habitat, water filtering and carbon sequestration. Nursery areas for juvenile Red Drum, Bay Anchovy (sardine), Sand Seatrout and the endangered Juvenile Smalltooth Sawfish will be disturbed. Dredging will also destroy habitat for adult Smalltooth Sawfish and seagrasses. Seagrasses provide primary food sources as well as shelter, spawning and nursery habitat to a great diversity of aquatic organisms. They also reduce turbidity, facilitate sediment stabilization and aid in nutrient cycling. The proposed project would wreak havoc on this pristine ecosystem.

There is conflict between the interests of boat users, who want quicker access to deep water, and the long-term interests of the community at large which is better served by preserving the Tippecanoe Bay area (and by extension the economic and lifestyle interests of the greater Charlotte community) as intended by the state's late 1970s decisions, and the county's creation of the Tippecanoe Environmental Park in the mid-1990s. This conflict is highlighted by political contributions made to advance special interests (boater's) advantage over the public interest in the health of the estuary. We are at the point where commissioners are publicly touting the alleged environmental benefits of the proposed dredging, a project that science tells us will degrade estuary water quality and destroy natural habitat.

In the 1990s, it seemed that the county might be taking a stand on preservation of the natural word. That hope has faded over the two decades as the county has failed to acknowledge the degradation of our estuaries, which are at a tipping point, much less dedicate the resources needed to restore our waters to state standards and then sustain them.

The proposed Manchester Waterway dredging is not in the best interest of our precious Tippecanoe Bay ecosystem, and by extension the estuary at large, our economy and lifestyles. This project would harm the overall community. For the county commission to take on the role of lead agency for the project – as currently being considered – and become the primary advocate for this venture, would be putting special interest ahead of the overall community interests at large. Instead of spending community resources for the benefit of a few, the county should instead consider investing in a serious commitment to the natural world starting with the effective management of local waters. Our primary aim should be to restore our estuaries, and interior waterways, and then sustained them to meet state water quality standards.

For a more complete understanding of the potential economic, ecological and community impacts of the proposed Manchester Waterway dredging project, please continue reading the supporting information provided in the pages that follow.

Introduction

The Problems

The Manchester Waterway Civic Association (MWCA) is proposing to dredge accesses from the west end of the Manchester waterway into deep water through the Charlotte Harbor Aquatic Preserve and Preserve State Park. The project is currently called the Navigational Water Quality Improvement Project (NWQIP). At present, Charlotte County is considering whether it should become the lead agency for developing the project. If the county were to assume the lead project management role, it would move

the permitting processes and other project actions forward through government channels with less thorough review of potential impacts than if the MWCA retained management leadership.

The first problem is that MWCA and certain county commissioners are promoting this proposed dredging project in, at best misleading – and at worst, false and deceptive – ways. Nobody is publicly disclosing the negative impacts this proposal brings to the ecosystems involved, the community's economy and our lifestyles.

The second problem with this proposed dredging project is the significant harmful impacts to the water quality in our invaluable estuaries – including Tippecanoe Bay, Myakka River and Charlotte Harbor. Unfortunately, the county does not have the capability to manage estuary water quality for protection, let alone restoration.

The final problem with the proposed dredging is that – in spite of a glimmer of hope in the 1990s that the county would champion the preservation of our natural world – the county has returned to a position of disregard for the state of our essential and fragile natural communities. Meanwhile mother nature is unforgiving, and neglect of her needs will pose a threat to our well-being.

The purpose of this report is to air a more complete story about the proposed Manchester Waterway dredging project and provide a more complete evaluation based on history and science.

Audience

The information in this report is intended for the general public in the Charlotte County community.

Report Organization

By glancing at the table of contents, one can see how the information in this report is organized:

- In the section, ***Geographic, Ecological and Economic Orientation***, the Tippecanoe Bay area is described in terms of its location, ecosystem features and importance to the region's economy. The locations of the proposed dredging are shown.
- The ***History*** section takes us back in time to the 1950s, to describe the scene before any development. Then we review what happened when General Development Corporation began to transform parts of the area and what this meant in terms of nutrient runoff. A ***science*** lesson makes up the middle part of this history section, to explain the harmful effects that development has on our natural world. An important part of the history is the late 1970 when the state stopped the ecosystem damage (in part) and created of the Charlotte Harbor Aquatic Preserve and Preserve State Park, the aim being to prevent nutrient runoff into the area and to protect the greater estuary. The county stepped in in the mid-1990s with commitment to the natural world by the creation of the Tippecanoe Environmental Park. The Manchester waterway was completed, but it was isolated from the aquatic preserve and state park. In this centennial year of Charlotte County, it seems that the priority for preserving the natural world has been lost. History and science tell us that (1) the proposed project would be harmful for the Tippecanoe ecosystem, and (2) it is also being promoted by deceptive means.
- ***Impacts***: In this section, the impacts of the proposed dredging on the Charlotte Harbor Aquatic Preserve and Preserve State Park are gauged in terms of water quality, as well as ecosystem features including mangroves, seagrass and fish habitat – including the smalltooth sawfish. As a guide, we will review the conditional approval for this project, voted by the county's *Beaches and Shores Advisory Committee* in 2018. Spoiler: The current project meets NONE of the conditions. In this section we also describe the inability of the county to manage water quality. This is important because our estuary is at a tipping point, and somebody (hopefully) the county

will take responsibility for its restoration and sustainment. Climate change, another threat to water quality is brought into the problem.

- ***Stakeholders Interests*** are shared, reflected on and evaluated in this section. There is conflict between the interests between some boat users, who want quick access to deep water, and the long-term interests of the community at large who benefit by the status quo – an area preserved from nutrient runoff and human activity. This conflict is compounded by the special interest advantage gained by campaign contributions, and the commission seeming to favor the dredging for dubious reasons, such as it being allegedly good for the environment.
- The ***Conclusion:*** The proposed dredging is not in the interest of the Tippecanoe Bay ecosystem, and by extension the estuary at large, our economy and our lifestyles. This project would harm the overall community. For the commission to take on the role of lead agency, as primary advocate for this venture, would be putting special interest ahead of the overall community interest. Instead of spending community resources for the benefit of a few, the county should instead consider investing in a serious commitment to the natural world starting with the effective management of local waters. We must restore our estuaries, and interior waterways, and then sustained them to meet state water quality standards.
- **Appendices**: Appendix A dispels the popular myth that the water inside the Manchester is "cleaner" than outside in the estuary. Appendix B is a copy of the MWCAs' presentation to the county's Beaches and Shores Advisory Committee in May 2018.

References

The intent is to make clear the sources of the information presented in this report. References are imbedded links in the report that take one directly to sources. To access the links, it is best to read this document from an online device. The online version of this document is available at www.tinyurl.com/Tippybay.

If you find what seems like an inconsistency or unclear references, please let us know (email wckeller@earthlink.net) so we can resolve the issue.

Authors

The authors are community leaders and scientists interested in sustaining the health of the County's waters, economy and lifestyle for future generations. The views expressed here are the authors' own and do not represent the opinions or positions of organizations they work for or support.

- **Dr. William (Coty) Keller, PhD,** is retired from careers as a Naval Office (including tours as ships' captain) and college professor teaching national security affairs and in the decision sciences. Coty is in his third career (non-paying) working to conserve and restore the natural relationships among living things and the environment. For more details on Keller's background and experience, go to his website at https://ecopapak.org/.
- **Capt. Judy Ott, M.S.,** is an estuary scientist and educator who has been involved with managing the Charlotte Harbor estuaries since 1990 with the FDEP Charlotte Harbor Aquatic Preserves, Charlotte Harbor National Estuary Program, and Estuary Escapes LLC. Her experience includes water and seagrass monitoring, watershed management and education.

Disclaimer

One of the authors, Keller, is a resident of the Manchester Waterway community, with a vested interest in the outcome of this matter.

Geographic, Ecological and Economic Orientation

In this section, the Tippecanoe Bay area is described in terms of its location, ecosystem features and importance to the region's economy. The locations of the proposed dredging are shown in Figure 9.

Area of Concern

Figure 1 frames the Tippecanoe Bay/ Muddy Cove area as it exists today. State Road 776, El Jobean Road, is to the north (top) and west (left). The Myakka River is to the south (bottom). To the southeast (bottom right) is Deerfly Bay. To the east (right) we have the manmade lakes and canals of the Manchester Waterway.

Figure 1 - Tippecanoe Bay & Surrounding Area

Image from nautical chart #03E, annotated for Deerfly Bay and Myakka Rive

The ecosystem is full of natural wonders: Tippecanoe Bay is shallow, much of it 3 feet or less of depth, making it critical habitat for juvenile smalltooth sawfish. The area is lined with protected mangroves, including red mangrove habitat. The seagrasses ringing Tippecanoe Bay provide essential fish habitat.

Mangroves

We are blessed with healthy mangrove forests around Tippecanoe Bay. And we cannot afford to lose any of these shrinking mangrove habitats or their associated benefits, as explained below.

Figure 2 - Mangroves

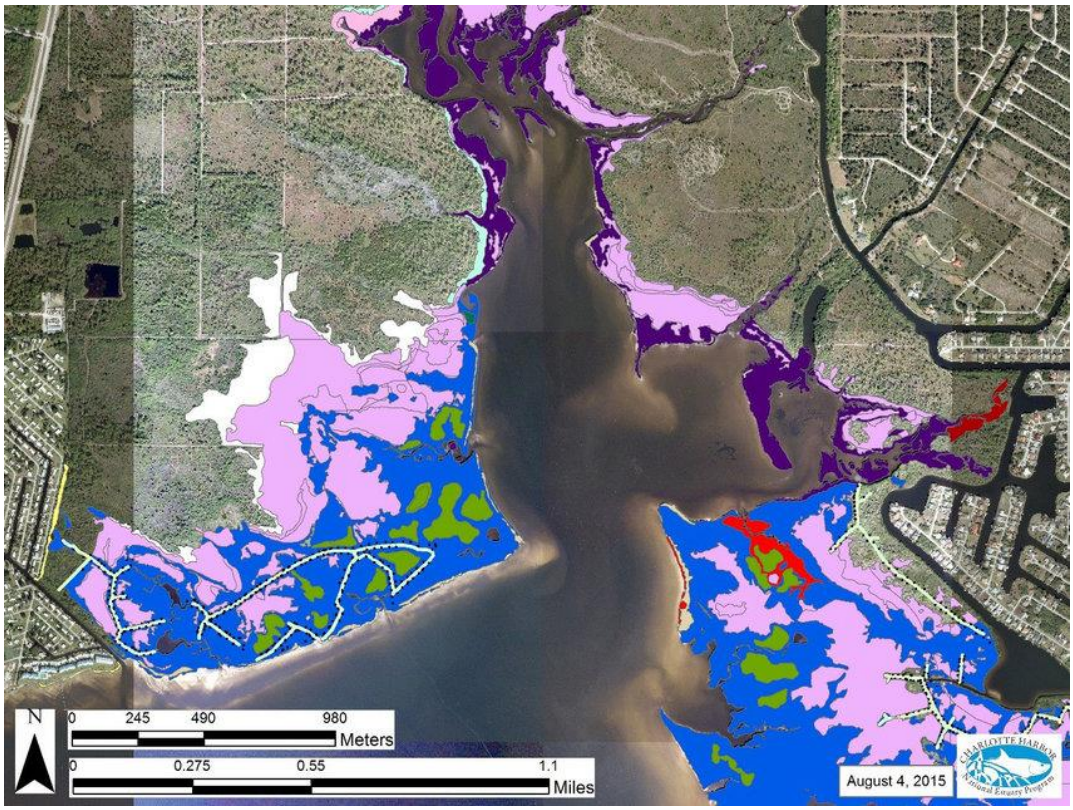

Figure 2 shows CHNEP habitat mapping along Tippecanoe Bay in northern Charlotte Harbor, based on aerial photographs. In the image, the colors represent different habitats, including: pink = salt marsh, blue = mixed mangrove fringe, olive green = basin black mangrove, red = red mangrove fringe, white = white mangrove fringe, beige = tropical hardwood hammock (coastal berm), black dots = spoil along mosquito ditches.

At the 2016 UF/IFAS Mangrove Symposium, Jamie Scudera (Natural Resources Project Manager with Charlotte County's Parks and Natural Resources Division) explained why mangroves are so important to us. They serve as a nursery ground and home to numerous and diverse wildlife, especially fish. Mangroves provide a storm buffer for human and wildlife homes. Mangroves help clean water quality because they provide very efficient sediment and nutrient filtering and recycling.

Mangroves mitigate climate change by taking carbon from the atmosphere and storing it in their biomass and in the soil. Mangroves forests are among the best habitats when it comes to carbon sequestration, storing as much as 10 to 40 times the carbon sequestered by "regular" forests.

The Mangrove Preservation and Protection Act of 1996 is supposed save mangroves from trimming and alteration while also banning the use of herbicides and other chemicals used to defoliate them. But in reality, mangroves can be destroyed legally if the county signs off on a "mitigation" offset plan. According to environmental specialists at the county, FDEP does allow mangroves to be destroyed in Charlotte county, as long as mangrove mitigation credits are purchased to offset the loss. Because there is not a "mitigation bank" location for restoring mangroves in Charlotte County, projects needing mangrove mitigation credits must purchase these credits at the Little Pine Island Mitigation bank in Lee County. Think about that – we can with "special" permission, destroy mangroves which will release the

stored carbon to the atmosphere adding to the greenhouse effect. Meanwhile, those mangroves and the invaluable services they provide are lost. Fish and wildlife nurseries and homes are permanently converted to human development. Storm protection is lost. Runoff filtering capability is lost. Forever. Lee County will eventually gain some – but not all – of the benefits at some time in the future. But we will never recover the carbon that was sequestered by the lost mangroves or the carbon that was released when they were destroyed.

In the end, it seems we have NO acceptable remedy for destroying mangroves in Charlotte County.

Seagrasses

Betty Staugler is the UF/IFAS Extension Charlotte County agent for the Florida Sea Grant Program. Betty explains that "when seagrasses are thriving, that's good news for the entire ecosystem. When they're not, it's a problem. Seagrasses are structured habitats that support a diverse array of species, including economically valuable fishes and invertebrates. Additionally, seagrasses reduce shoreline erosion, oxygenate the water, capture carbon, trap sediments and improve water clarity. So, let's face it, they're pretty important!"

Figure 3 - Aquatic Preserve Seagrass

All of Tippecanoe Bay is within the Charlotte Harbor Aquatic Preserve, (where this image was taken), which means this area enjoys special protections. The importance of the aquatic preserve to the issue at hand will be explained in the History section of this report.

As they do everywhere, seagrasses serves as an indicator of estuary health. Seagrasses provide primary food sources as well as shelter, spawning and nursery habitat to a great diversity of aquatic organisms. They also reduce turbidity, facilitate sediment stabilization and aid in nutrient cycling. Seagrass health depends on good water clarity and quality. Changes in water quality, hydrology and salinity directly affect seagrass distribution, abundance and diversity.

Seagrass monitoring has been conducted throughout the Charlotte Harbor Aquatic Preserves each year since 1999 by FDEP Charlotte Harbor Aquatic Preserve staff. The purpose of the monitoring is to characterize seagrass conditions and trends, as well as improve management and preservation of the seagrasses. Seagrasses are monitored annually at 50 fixed sites throughout the Charlotte Harbor region. Five sites are located within the tidal Myakka River, 4 of which are adjacent to the Manchester Waterway, including Tippecanoe Bay and Muddy Cove (see Figure 4).

Figure 4 FDEP Charlotte Harbor Aquatic Preserves Annual Seagrass Monitoring Sites Near Manchester Waterway.

Note that the green crosshatching indicates location of seagrasses mapped by SWFWMD.

Seagrass data is collected just after the growing season (August-October), starting from the shoreline to the deep edge of seagrass beds, where seagrass growth is limited by lack of sunlight. Data collected at each site includes seagrass species, density, and length, as well as water depth and sediment type. With help from research partners and the use of aerial photography, the seagrass data is examined for changes over time and compare conditions withing different areas of areas of the estuaries. The results are presented regularly at scientific conferences and have been published in *Florida Scientist. Recent reports include the FDEP Charlotte Harbor Aquatic Preserves: 18-Year Results of the Seagrass Transect Monitoring Program 1999-2016 (* https://floridadep.gov/sites/default/files/CHAP-Seagrass-Report-1999-2016.pdf) and FWC Seagrass Integrated Mapping and Monitoring report.

The results of the FDEP annual seagrass transect monitoring are important for assessing the potential impact area of the proposed Manchester Waterway "Navigational Water Quality Improvement Project". The proposed channel dredging shown on the MWCA web site indicates the routes run through shallow waters into a depth of about 5 feet in the Myakka River. These routes pass through potential seagrass habitats. While intensive field surveys of the actual dredge routes would be conducted as part of the permit application process, general conditions that might be encountered can be estimated from the FDEP seagrass monitoring data at the sites in the region. While seagrass conditions vary by year, based on 20 years (1999-2019) of seagrass monitoring data for 4 sites (MYR02, MYR03, MYR04 and MYR05), seagrasses in the Tippecanoe and tidal Myakka River area generally grow to a depth of 2.5 feet (0.8 m). And the monitoring data indicates that, on average, the seagrasses in the region extend over 400 feet

(125 m) from the shore into deeper water. These general estimates are used to calculate potential impacts of the project in table 9 of this report.

Fisheries

Florida Fish and Wildlife Conservation Commission (FWC) rates fish habitat on a scale of Low, Moderate, High and Optimum. Mapping by FWC's Peter Rubec and others shows our area of concern (Tippecanoe Bay, Muddy Cove, Deerfly Bay, the upper Myakka) is prime fish nursery habitat. Here are some examples of the many species found in this area, by way of personal communication with David Blewett with FWC's Fisheries-Independent Monitoring (FIM) program. Let's begin with Red Drum.

Figure 5 - Juvenile Red Drum

(Photo from FWC)

Our area of concern is rated high to optimum habitat for early juvenile Red Drum.

Figure 6 - Bay Anchovy

UF/IFAS

The area is rated optimum habitat for the juvenile Bay Anchovy.

Figure 7 – Juvenile Sand Seatrout

Photo from FWC

Tippecanoe Bay and Muddy Bay habitats are rated optimum for juvenile Sand Seatrout.

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Figure 8 - Juvenile Endangered Smalltooth Sawfish Habitat

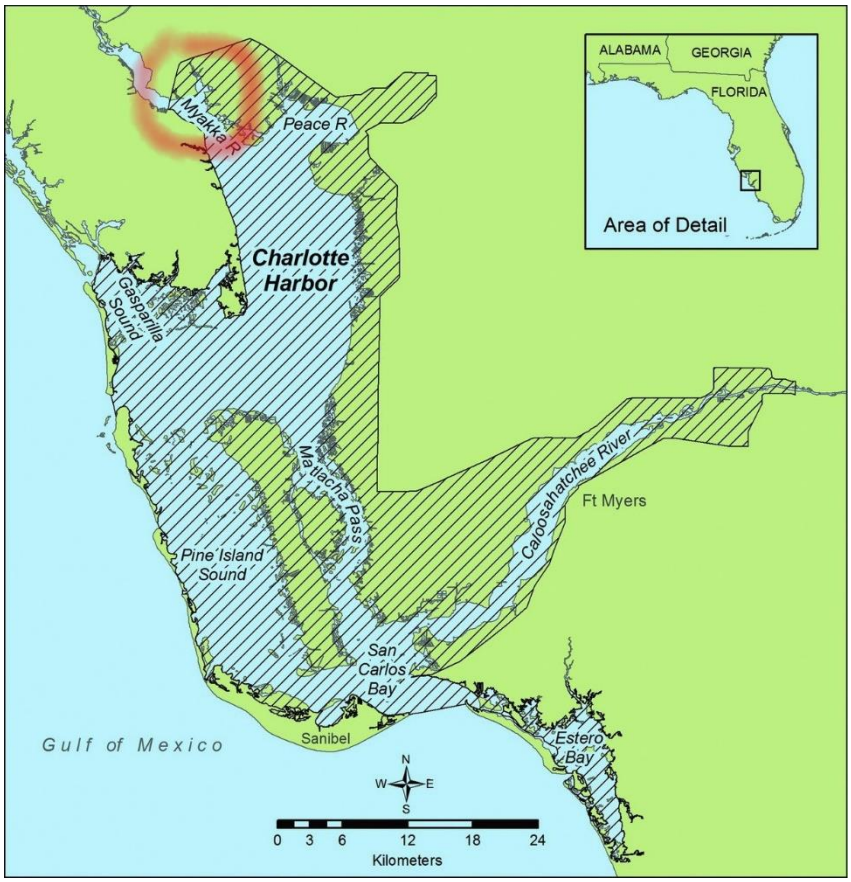


Image from Norton https://www.tandfonline.com/doi/full/10.1080/19425120.2012.676606

In addition to the Low, Moderate, High, and Optimum scale FWC uses for rating fish habitat, we should consider the "Critical Habitat" designation from the Endangered Species Act. Tippecanoe Bay (red circle in the illustration) is a Critical Habitat for the Juvenile Endangered Smalltooth Sawfish

The Tippecanoe Bay area is flush with mangroves, and shallow. Critical habitat for juvenile sawfish is unvegetated submerged lands adjacent to mangroves with less than 3-foot water depth. Areas not covered with seagrass – about 70% - are ideal habitat for juvenile Smalltooth Sawfish.

In summary, the area of concern is lush nursery habitat for many species including Red Drum, Bay Anchovies, Sand Seatrout and the juvenile Endangered Smalltooth Sawfish.

Estuary's Economic Importance

Tippecanoe Bay is part of the tidal Myakka River Estuary (which with the tidal Peace River, Charlotte Harbor proper, and lower Lemon Bay – make up the county's estuaries). The health of the estuaries is essential to the economy and lifestyles of the greater community.

Residents, tourists and economists often focus on beaches. But, without healthy estuaries, beaches – and all their associated livelihoods – are threatened. Estuaries are where freshwater and saltwater mix, forming brackish water**.** They provide valuable nursery habitat for commercial and recreational fishes.

They also provide the economic and lifestyle basis for most Charlotte County communities. We rely on our estuaries for recreational fishing, seafood, boating, birding, and the aesthetics of daily life here (UF/IFAS, 2016). Information from UF/IFAS Sea Grant shows boating and fishing licenses alone brought in almost $16 million to the county economy in 2010. In 2016, tourism supported over 5,500 jobs in the county, with wages over $100 million dollars, contributing more than $195 million to the local GDP. These sources of revenue for the county would be drastically reduced if the health of our estuaries and waterways declines.

Table 1 - Economic Value of Charlotte County Boating and Fishing Licenses

Economic Value of Charlotte County Boating and Fishing Licenses (2010)*		
	Licenses	**Est. Total Benefit**
Recreational Fishing	**22,485**	**$8,000,000**
Marine Related Businesses	**4,700**	**$4,900,000**
Boating	**21,000**	**$1,900,000**
Commercial Fishing	**154**	**$1,100,000**
TOTAL	**48,339**	**$15,900,000**
***Source: UF UFS Sea Grant (Staugler, 2011)**		

While these numbers are very large, they do not capture the full value of our waterways to our livelihoods and lifestyles. Property values are based, in large part, on proximity to pristine waters and natural areas. Many residents' primary investments are their real estate. If water quality declines, so will property values. The potential loss of millions of dollars in property values and quality of life emphasizes the necessity for protecting and restoring our estuaries, waterways and water quality, even at what might first appear to be considerable costs. In addition, it is significantly less expensive to maintain healthy watersheds which protect water quality than to pay for expensive restoration of water quality and habitats after they have already been degraded (USEPA, 2012).

Proposed Dredged Accesses at West End Manchester Waterway

It is not clear exactly where, or to what depths the MWCA proposes to dredge through the west end of the Manchester Waterway. Based on the presentation made to the Beaches and Shores Advisory Committee in May 2018 (a copy is provided in Appendix B to this report), the MWCA website (https://manchesterwaterway.org/), and an interview with the local paper, we know this:

- Initially 3 "options" were proposed (see appendix B)
- All three options are still being considered (Website)
- Civic association President Jeffrey Anlauf told *The Daily Sun*, one of the proposed "cuts" would be for sawfish, and the other, for manatees. Only one would be for boats. This, together with the website information, implies three cuts.

The general location of the three cuts is shown here in Figure 9 below.

Figure 9 - Approximate Locations of Proposed Dredging

The northernmost cut originates from the Flamingo Waterway, as an extension of what is now called the Christopher Waterway. South of that is a cut from the west end of O'Hara Drive. Both these cuts would go through the shallow waters of Tippecanoe Bay to meet the Myakka River.

The third cut would originate on the southern side of the Manchester Waterway, and be an extension of the existing Como Waterway (which runs north and south from Northport). It would cut into shallow Deerfly Bay. From there it would meet the Myakka River.

For the sake of consistency, we will refer to the three cuts as:

1. Christopher WW through Muddy Cove
2. O'Hara WW to Tippecanoe Bay
3. Como WW through Deerfly Bay

The information just provided in this Geographic, Ecological and Economic section is intended to orient you to: where the Tippecanoe Bay area is, the main features of its pristine ecosystem, its importance to the region's economy, and where the MWCA wants to dredge into it. Understanding the location and value of the resources in Tippecanoe Bay is important context for the discussions about the proposed Manchester Waterway dredging that follow.

History

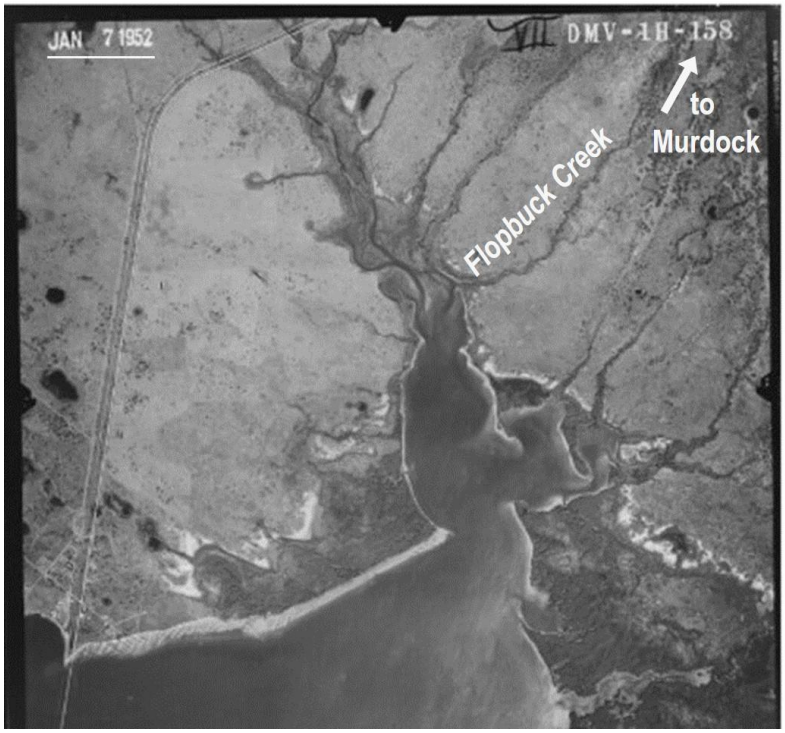
The *History* section takes us back in time to the 1950s, to describe the Tippecanoe scene before any development. Then we review what happened when General Development Corporation and began to transform parts of the area and what that lead to, especially in terms of nutrient runoff. A science lesson makes up the middle part of this section. This history lesson concludes with the state of Florida stopping the ecosystem damage (in part) and creating the Charlotte Harbor Aquatic Preserve and Preserve State Park. We end this section by reflecting on how history and science do not support current the MWCA dredging proposal: History and science tell us that: (1) the proposed dredging project would be harmful for the Tippecanoe ecosystem, and (2) it is also being promoted by devious means.

Florida archeologist and anthropologist Dr. George Luer researched and surveyed the Tippecanoe area in the mid-1990s. He reported his findings in 1997 to the Charlotte Harbor Environmental Center in the paper "Archeology and Tippecanoe Scrub Preservation Area, Charlotte County, FL" (1997 report). His findings deal with more than archeology, and his historical connection to the natural environment is especially relevant to understanding the development of this area.

Before Development

The arial photo in Figure 10 below, retrieved from the UF achieves, shows Tippecanoe Bay and the surrounding area in 1952, before any significant development.

Figure 10 - Tippecanoe Bay, Surrounding Area Before development



UF flight IH 1951 Tile #158 (Flopbuck Creek, Murdock annotations added)

This is the same area, shown on the current navigational chart, Figure 1 in the Geographic, Ecological and Orientation section. You can use State Road 776 for a reference to get your bearings. Tippecanoe Bay and Muddy Cove have not changed much in the last 40 years. It was as shallow then as it is now. As evidence in the aerial photo, there was no deep water, no navigational channels. Tidal creeks like Flopbuck Creek provided the only avenues into the shallow water of Tippecanoe Bay. Luer describes how shallot draft boats (only) were used to make their way down to the Myakka River and Charlotte harbor, carrying citrus products from the Murdock area to market.

General Development Era Destruction

Luer explains that in the 1950s the land around Tippecanoe Bay was purchased by the Florida West Coast Land Company and then General Development Corporation, who began massive earth-moving projects that altered vast areas of pinewoods, freshwater wetlands, tidal mangroves, creeks and marshes. This included gigantic drainage ditches called "waterways," whose outflows threatened

Tippecanoe Bay with nutrient runoff. The Flamingo "Waterway," now at the northwestern side of the Manchester Waterway, was identified in particular as threatening Tippecanoe Bay with nutrient run-off.

Figure 11 - 1970 Flamingo Waterway Reaches Tippecanoe Bay

UF flight ILL 1970 Tile # 91 (annotations for Christopher and Knox WWs added)

This arial from 1970 shows the Flamingo "cut" reaching Tippecanoe Bay as an extension of what is now called the Christopher Waterway (to the northeast) and the Knox Waterway (to the east).

It is important to recognize that this dredging, while it did connect to upland dredge cuts to Tippecanoe Bay, never reached deep water. The depth of the water in Muddy Cove, where this "cut" emerged, was and is about 1 foot deep. In May 2018, the West Coast Inland Navigation District representative confirmed to the county Beaches and Shores Advisory Committee that there never was any navigational access or channel between Flamingo/Christopher Waterways and deep water.

Misinformation

This historic dredging never got a boat to sea, in spite of claims to the contrary. At the March 16, 2021 commission workshop, Commissioner Deutsch described this cut as a 6' deep channel that he could have used for his sailboat. He neglected to tell the whole story – that the Christopher/Flamingo canal never reached deep water, and that his sailboat would have to be transported over land to between Manchester Waterway and deep enough water in Charlotte Harbor.

There was never a natural deep navigable channel, and eventually in the late 1970s the US Army Corps of Engineers ordered the plugging of the Flamingo dredged channel (more on this in a bit). This truth is not disclosed or broadcast by proponents of the current proposal to open access from the west end of the Manchester Waterway to Tippecanoe Bay. The statement on the MWCA website that says *navigational access for Flamingo, Christopher and Knox Waterways was blocked* is misleading at best, and false and deceptive at worst.

Science Lesson – Why Nutrient Runoff Matters

Let's pause the history lesson to explain why nutrient runoff matters, because it is this concern that changed the course of development in the area adjacent to Tippecanoe Bay.

Florida Master Naturalist Program 101 teaches us the impacts of nutrients:

- Water high in dissolved nutrients can create algae blooms and deplete oxygen in the water.
- Algae blooms can shade out seagrass, coral, etc. and cause their death.
- Decomposing algae uses oxygen needed by other organisms.

Without oxygen, "dead zones" – areas lacking any fish or invertebrate life – can develop in waterways. Locally, Sunshine Lake in Port Charlotte has experienced a dead zone, as has the Indian River Lagoon estuary and the Gulf of Mexico. The Indian River Lagoon, on Florida's east coast, was one of the most biodiverse estuaries in the Northern Hemisphere. The estuarine system supported more than 4,300 species of plants and animals, five state parks, four federal wildlife refuges and a national seashore. The recent crash of the seagrasses and estuarine ecosystem in the Indian River Lagoon is considered a major ecological crisis. While restoration solutions are possible, they are costly and slow (Audubon, 2013). The crisis in Indian River Lagoon is a vivid reminder that our local estuaries, while threatened, as still relatively intact. To avoid a similar catastrophe in the Charlotte Harbor estuaries we must work together – now – to significantly reduce nutrients from reaching our waterways – to compensate for the effects of increasing temperatures, storms and sea level. This is a considerable challenge, but not impossible.

To avoid excess nutrients, we must understand where they come from: stormwater and wastewater.

Stormwater

In the natural world, rain falls on the ground and is, for the most part, eventually absorbed into the soil and/or used by plants and animals. In the developed world, rain (and some irrigation) falls on impervious surfaces (roofs, driveways, streets, parking lots, sidewalks etc.).

Figure 12 - Stormwater System

As the rainwater follows gravity, it picks up nutrients from fertilizer, yard clippings and other organic matter, together with other pollutants, and heads down into runoff swales, into drains and out into our waterways.

Figure 13 - Outflow into Manchester Waterway

This outflow pipe (Figure 13) originates on the western end of O'Hara Drive and spills into the west end of the Manchester Waterway. This is representative of the outcome of all stormwater runoff from the Manchester Waterway system. It is a good thing, especially for our local fisheries, that this polluted runoff can't flow directly into Tippecanoe Bay - yet.

Wastewater

Nutrients from wastewater come from our sewers and septic systems. Sewer systems facilities can release nutrients into waterways intentionally as permitted or by operations mistakes or by leakage. Sewer systems in the Manchester area were created in the early 1980s (based on the dates on the bridges (which carry the wastewater pipes) and have not been upgraded for aging infrastructure or resilience to rising sea levels. Without infrastructure upgrades, we can expect more sewer system leaks as time goes on.

Figure 14 - Sewers, Septic System Plan

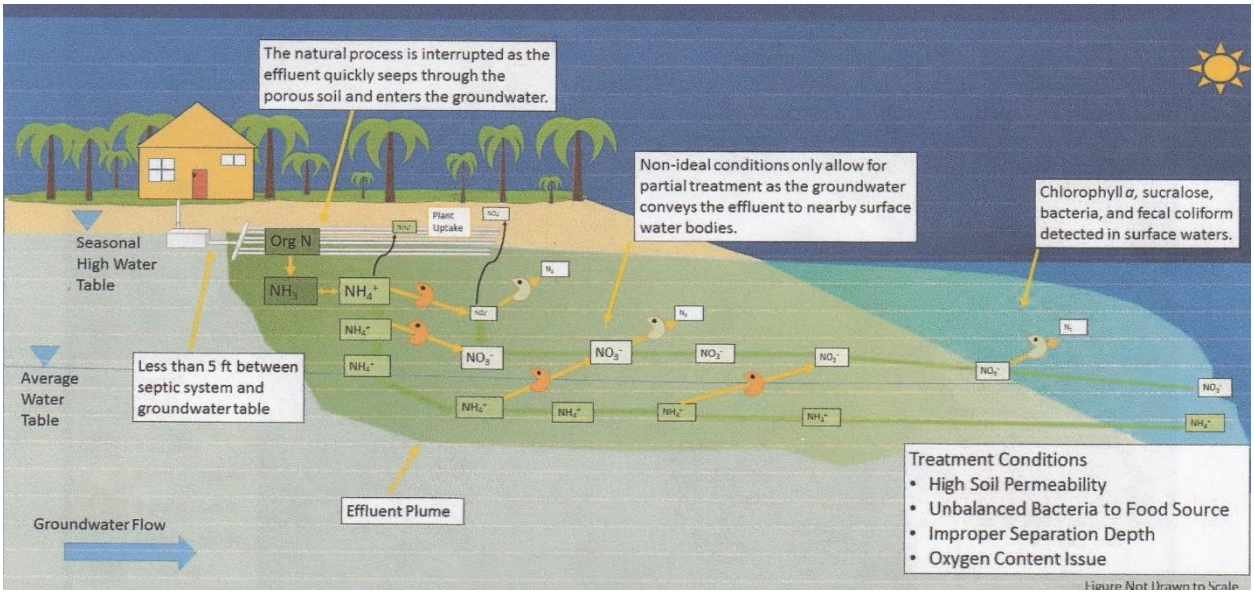
Illustration from Figure 4-3 Charlotte County Sewer Master Plan.

Septic systems are among the worst sources of wastewater nutrients in our waterways. While the Manchester Waterway neighborhood has sewers in the southernmost area, septic systems are predominant in the northern and western sections.

The red area in Figure 14 is served by septic systems. This includes the Como and Flamingo Waterways north of Edgewater Drive. The Como and Flamingo Waterways also connect with the Cocoplum Waterway in Northport and are subject to whatever pollution originates there.

Septic systems have become infamous throughout the state for their degradation to water quality. At the Charlotte County Water Quality Seminar held in May 2017, Dr. Brian Lapointe stated that about 2/3 of local water quality problems are caused by septic systems.

Figure 15 - Septic Systems Not Suitable for Florida Soils



From Figure 1-4 Charlotte County Sewer Master Plan.

Even if built to code and maintained, septic systems are not suitable for Florida's geology. They provide excess nutrients to the waterways, which creates algae blooms, reduced oxygen, loss of seagrass and dead zones. The houses all along the upper portions of the Flamingo and Como Waterways are in in this situation. It's a good thing they are isolated from the pristine ecosystem of Tippecanoe Bay – for now.

Spoiler – Manchester Waterway is Impaired

Given the high level of stormwater and wastewater systems that exist in the Manchester area, it should be of no surprise that the Manchester Waterway (Water Body ID #2047) is designated as Impaired by the Florida DEP – for Chlorophyll -*a*, an indicator of high algae concentrations, nutrient enrichment and degraded water quality.

Table 2 - Chlorophyll -a

Chlorophyll -*a* is a green pigment used by plants for photosynthesis and is a useful indicator of algae levels in the water; important because algae form the base of the food chain and help in oxygenating the water, but too much algae can cause oxygen levels to collapse. Excess chlorophyll is an indicator of nutrient enrichment or degraded water quality. Florida DEP Estuary Water Quality Standards: https://www.flrules.org/gateway/ruleNo.asp?id=62-302.300

Science tells us that nutrient runoff from development threatens the estuary now, just as it did in the 1970s when the state stepped in to stop the original habitat destruction and damage. Science also tells us that *runoff from development is detrimental to our environment*, despite claims to the contrary made by some county commissioners at the March 16 workshop – that *opening the west end of the Manchester would be good for the environment*. As reported in the Charlotte Sun, "Last but not least, obviously it's going to have an environmental benefit," Commissioner Stephen R. Deutsch said of the proposed (Manchester Waterway dredging project. Stormwater and wastewater do not make for good water quality. Degraded water quality leads to an unhealthy estuary which is bad for the environment, bad for the economy and bad for community lifestyles.

More on this in the Impacts section, later in the report. It is time to return to the history lesson, and then go into details on Florida stepping in to stop the carnage.

Damage Stopped – In Part

In his report on Tippecanoe, Dr. Luer goes on to explain that environmental legislation of the late 1960s and 1970s stopped some of the large-scale habitat destruction, at least in the Tippecanoe Bay area. In the late 1970s some damage was lessened by plugging the part of the Flamingo Waterway that drained into Tippecanoe Bay and dredging a large water retention lake just east of Tippecanoe Bay. These steps to curb rapid and high-volume run-off into Tippecanoe Bay were part of a wider effort to protect the fragile water quality and estuarine life of Charlotte Harbor.

Table 3 - Intent of State Legislation 1970s

Intent: curb rapid and high-volume nutrient run-off into Tippecanoe, and wider effort to protect the fragile water quality and estuarine life of Charlotte Harbor

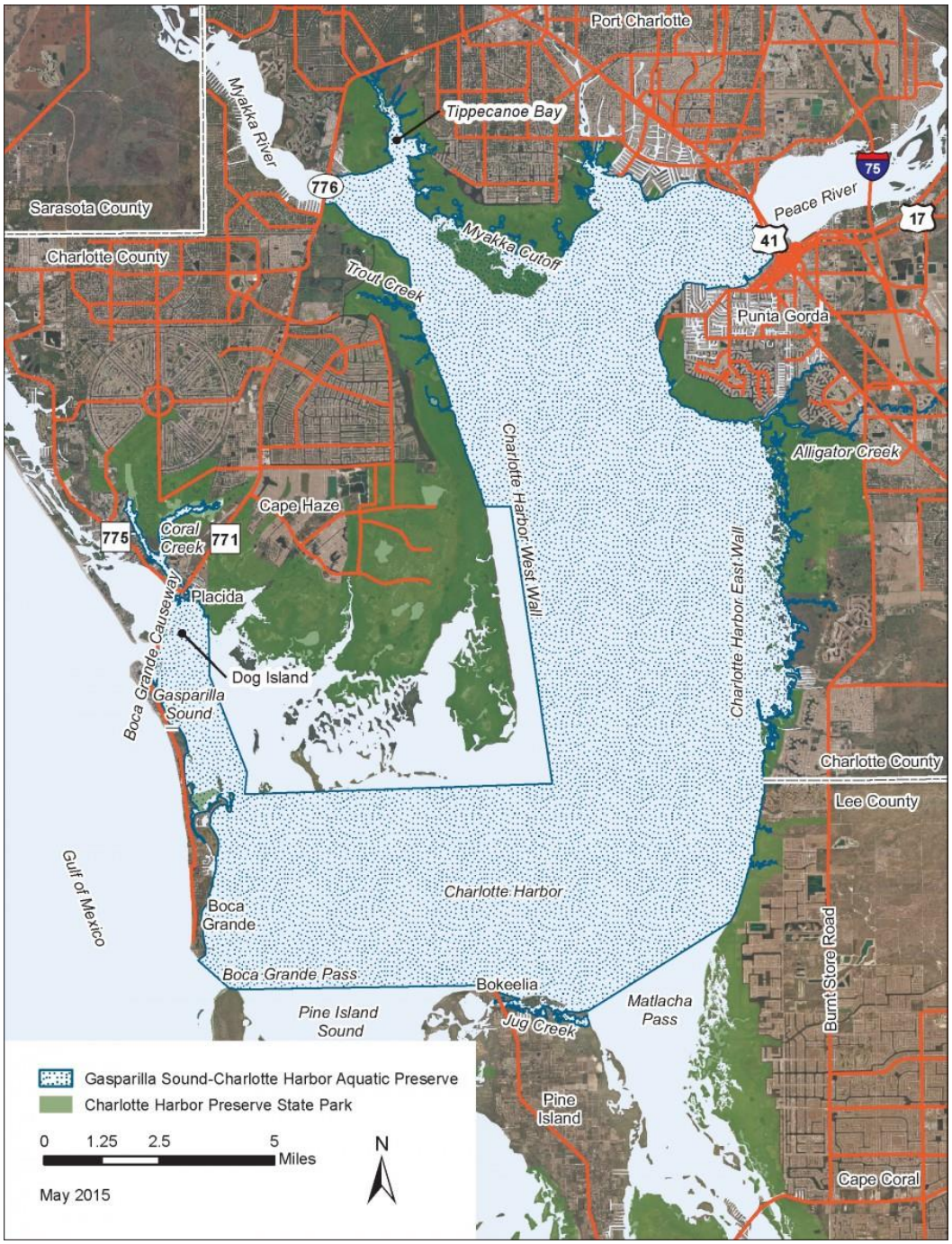
Nancy Semon, writing in the *Port Charlotte Sun* April 18, 2021 (New book reveals how sellers, scammers built modern Florida) tells us the state of Florida "began to regulate the environment in the mid-1970s. Until then, land development was a free-for-all."

The free-for-all included the Tippecanoe Bay area, and by extension the Tidal Myakka River and Charlotte Harbor estuaries were protected from direct nutrient pollution and water quality degradation.

Creation of the Charlotte Harbor Aquatic Preserve

In 1979, Tippecanoe Bay and the southern portion of the eastern shore became part of the Charlotte Harbor State Aquatic Preserve. In simple terms, the law says these lands and waters are **To be preserved in essentially natural conditions for future generations to enjoy** (FS 258.36 FS).

Figure 16 - Charlotte Harbor Aquatic Preserve and State Park



As shown in Figure 16, there are two parts the aquatic preserve and state park organization: Charlotte Harbor Aquatic Preserve (CHAP) and Charlotte Harbor Preserve State Park (CHPSP). After establishment of the aquatic preserve (submerged lands up to the high tide mark), the state park was created to protect the aquatic preserve from upland runoff into the aquatic preserve. The map shows that the land and water in and around Tippecanoe Bay, Deerfly Bay. the Myakka Cutoff – and much more – is all intended to be preserved in its natural state. Two sub organizations of DEP work together on this effort: the land is owned by the DEP CHPSP, and water and submerged land is managed by the state DEP CHAP.

A special feature of the aquatic preserve is the ambient (existing) condition concept and legal wording.

Table 4 - Ambient Condition Rule

Ambient Condition Rule: water quality in the preserve cannot be diminished beyond the condition when established. FDEP Part 2, Chapter 10

Basically, this ambient condition rule means that for Tippecanoe Bay and the surrounding estuary, actions cannot be taken which would make things worse than they were in 1979.

Manchester Waterway

Development of the Manchester Waterway continued with enthusiasm into the 1980s (the bridges over the Christopher Waterway and along O'Hara Drive were completed in 1981). For reasons explained by history and science, the Manchester's development does not infringe on the resources of Tippecanoe Bay.

Charlotte County Steps Up – Temporarily

Dr. Luer's report also explains how Charlotte County stepped up in 1995 to help fund the purchase of 275 acres of Tippecanoe Scrub to create Tippecanoe Scrub Preservation Area (TSPA), now called the Tippecanoe Environmental Park . The TSPA is shown in below in Figure 17 from the National Weather Service map.

Figure 17 - Charlotte sports Park and Tippecanoe Environmental Park

One can go to this Weather Service Map to zoom in and scan around for more detail.

Tippecanoe Environmental Park was created after part of the area was destroyed in the mid-1980s to create a ball field and parking lot. At that time, it was recognized that the remaining tract containing scrub flatwoods (natural habitat supporting the endanger Florida scrub Jay), was clearly in need of preservation. TSPA was created to help the county meet its comprehensive plan goals that require preservation of open space and natural habitat.

Table 5 - Charlotte County 1990s Commitment to the Natural World

Preservation of open space and natural habitat
- Comprehensive plan goals (George Luer, 1997)

Geographically, it is worth noting the county's environmental park is adjacent to the northern part of what is now called the Flamingo Waterway – which proceeds north from the Manchester Waterway under El Jobean Road to Northport. This park represents the county's commitment to habitat preservation. It physically joins the Charlotte Harbor Aquatic Preserve to the south, and buffers Tippecanoe Bay from developed areas, nutrient runoff and other human activity.

Recap of the Historical and Science Perspectives

Taking a historical perspective, we can understand that Tippecanoe Bay and adjacent natural habitat has been isolated from nutrient runoff and other human activity, for good reasons. The area has been recognized by the state and the county as vital habitat to be preserved in its natural state for future generations to enjoy. Indeed, to have allowed this area to be subject to the unavoidable human-caused nutrients from stormwater and wastewater would have threatened its water quality with degradation – similar to the impaired Manchester Waterway. By the Ambient Condition Rule, the state protects the water quality in the Charlotte Harbor Aquatic Preserve to what it was in 1979.

This perspective is in marked contrast to the claim that the current project is "good for the environment." Opening Tippecanoe Bay up to the stormwater and wastewater nutrient runoff from adjacent developed areas will increase algae blooms, reduced oxygen and dead zones in the immediate area, and eventually degrade the estuary at large. And that's not taking into account what this proposed project will do the fisheries, mangroves, seagrasses, and other important characteristics of the preserve. We will address these cumulative adverse impacts in the next section: Beaches and Shores Advisory Committee – Conditions for Approval.

The "restoration" characterization of the proposed project is misleading, if not outright false. MWCA's website say's "Our mission: rehabilitation, enhancement and reclamation of the Manchester Waterway." History tells us that what is being proposed is not restoring the natural state. Before development, there was nothing but a shallow bay with creeks feeding it. What MWCA proposes to restore is that stage of the area's development (ditches and canals) that was harmful to the ecosystem. This is a stage that would have allowed rapid and high-volume nutrient run-off to Tippecanoe Bay – carrying stormwater and wastewater and nutrients feeding algae blooms and dead zones. What is being proposed is not a restoration project. It is an effort to permit a previously un-permittable dredged waterway and connection to the estuary which is an aquatic preserve with special water protections.

Even at height of the General Development's rampant habitat destruction, dredged canals were not accessible to deep water navigation. The claim that the government has blocked previously existing navigational access is not accurate, at best and false and misleading at worst.

History and science tell us that: (1) the proposed dredging project would be harmful for the Tippecanoe ecosystem and violate existing laws for preserving natural conditions; and (2) the proposed dredging project is being promoted by deceitful means.

Table 6-Recap of Historical and Science Perspective

- The Tippecanoe area has been preserved, isolated from nutrient runoff, for good reasons (it would be ruined by nutrient runoff from developed areas)
- Misinformation from proponents of the proposed project include (1) the false allegation that the project would be "good for the environment," (2) A "Restoration" characterization that implies restoration to the natural state. Instead, the proposal aims to restore a stage of the area's development that was harmful to the ecosystem. (3) a misleading claim that previous navigational access has been blocked (there never was any navigational access).
- It is the intent of the law that this area be preserved in its natural state.

Impacts

In this section, the impacts of the proposed Manchester Waterway dredging project on the Charlotte Harbor Aquatic Preserve and Preserve State Park are gauged in terms of water quality and ecosystem components, including mangroves, seagrasses and fisheries – especially the endangered Smalltooth Sawfish. In the paragraphs below, we discuss the conditional approval for the project that was voted on by the county's *Beaches and Shores Advisory Committee* in 2018. Spoiler: The current dredging project meets *none* of the conditions that the committee voted were needed before the project could move forward.

Table 7 below shows the approximate dredge lengths through the Charlotte Harbor Aquatic Preserve and Preserve State Park. In general, the boundary line between the Aquatic Preserve and the Preserve State Park is the high tide line.

Table 7 – Estimates of Dredging for the Three Cuts

Option	in Charlotte Harbor Preserve State Park (feet)	in Gasparilla Sound-Charlotte Harbor Aquatic Preserve (feet)	Total (feet)
Christopher WW thru Muddy Cove	500	7,500	8,000
O'Hara WW to Tippecanoe Bay	500	6,000	6,500
Como WW thru Deerfly Bay	2,000	4,000	6,000

Estimates are based on information available on the MWCA website and the proposal presented to the Beaches and Shores Advisor Committee in May 2018 (Appendix B) and taken to +5-foot depth in the Myakka River. Figure 9 shows the approximate location of the cuts. Distances were measured and tabulated using Charlotte County GIS and Google Earth.

Using these approximate distances and Figure 9 in the orientation section for visual reference, the longest proposed dredging option is between Christopher Waterway and Muddy Cove, totaling over

8,000 feet(>1.5 miles) when taken to 5 feet deep in the Myakka River. The shortest dredge option is from Como Waterway through Deerfly Bay, a distance of about 6,000 feet (1.1 miles).

Keep in mind there has been no formal statement of exactly where these dredged cuts are to go. The project scope is currently vague. It is relevant to note that the MWCA president is quoted in The Daily Sun as saying "one of the proposed cuts would be for sawfish, and the other, for manatees. Only one would be for boats." Knowing that, we use these numbers as a general frame of reference in the discussions below.

Beaches and Shores Conditions for Before Project Could Be Approved

On May 3, 2018, the Manchester Waterway Restoration Committee presented their project to the County's Beaches and Shores Advisory Committee. The presentation is shown in Appendix B.

The committee has no decision-making authority, but it's suggestions may be considered by the county commission. At the May 2018 meeting, the committee voted to support the proposal by the Manchester Waterway Restoration Committee subject to assurances that the west end of the waterway meets the Myakka River water quality standards as defined by the state for the tidal Myakka River and Estuary, and that it would be continually monitored. Other conditions for approval required the selected route to be based on a) disturbing minimal mangroves, c) creating a meandering channel and c) preserving the pristine ecosystem of the Tippecanoe Bay and Muddy Cove area.

Table 8 - May 2018 Conditions for Approval

Approval subject to • Assurances that west end of waterway meets tidal Myakka River estuary water quality standards • Program of continuous monitoring with aim of maintaining standards Route selection • Disturb minimal mangroves • Meandering channel • Preserve pristine eco-system of Tippecanoe Bay/Muddy Cove

Water Quality

At the time of its vote about the proposed dredging project, the Beaches and Shores Advisory Committee was not aware of the more stringent water quality rules in the aquatic preserve. Remember from information presented earlier in the *History* section of this report that, by law, water quality in the aquatic preserve cannot be diminished beyond ambient (background) conditions at the time the aquatic preserve was established (1979). The committed therefore did not set a tough enough standard for water quality.

Regardless of the aquatic preserve rule, water quality in the Manchester Waterway does not meet current state standards set by FDEP. As noted earlier in the *History* section, the Manchester Waterway is currently on the impaired list for Chlorophyll -*a*, an indicator of high algae, nutrient enrichment and degraded water quality. Based on water quality impacts alone, the proposed dredging project should be rejected.

In 2015, then Charlotte Harbor National Estuary Program (CHNEP) Director Lisa Beever offered to partner with Charlotte County to develop a volunteer water monitoring program throughout this area

because: “Port Charlotte is the largest urbanized area in the coastal CHNEP area that isn’t included in a routine water quality monitoring program.”

The next assessment date for the state Impaired Waters list is scheduled for summer 2021, with the list to be adopted in summer 2022. MWCA has been conducting limited water quality sampling at some locations within its boundaries for a few years. Informal discussions with the water sampling team suggests that their results are not being entered into the state’s Watershed Information Network (WIN) system, so the data will not be considered in the FDEP updated Impaired Waters list. Recent sample analysis indicates Manchester Waterway has continuing elevated chlorophyll -*a* levels.

For the reasons listed below, Manchester Waterway ***nutrient levels are anticipated to only get worse***. Factors supporting this forecast include:

- More people: Additional homes in this relatively sparsely settled area will lead to more stormwater and more wastewater.
- Climate change: Warmer water leads to more algae blooms; more frequent storms and severe weather cause more precipitation which creates more runoff.
- No efforts are underway to reduce nutrient enrichment of waterways: No septic to sewer conversions or sewer system upgrades are budgeted or scheduled for this area of the county. No active educational and awareness programs are being developed about water quality, native landscapes, fertilizer rules, minimizing yard clippings into the canals, etc.

Based only on water quality criteria alone, the proposed dredging project should *not* be approved.

Compounding evaluation of the proposed dredging proposal is that *the same underlying problem exists when assessing water quality within the Manchester Waterway as throughout all of Charlotte County inland canals and waterways*: the county lacks the capability to monitor and report overall water quality. The county choosing not to accept the 2015 CHNEP offer to develop a volunteer water monitoring program still haunts us today.

In a comprehensive report presented to the county in 2019, the lack of routine water quality monitoring and reporting program was one the critical problems limiting effective management of water quality in our estuaries. Other concerns include:

- The county has not publicly acknowledged that our estuaries are degrading rapidly and are at a tipping point –thus putting our economy and lifestyles at risk.
- The county has not taken responsibility or made a commitment to manage our overall water quality in our estuaries, nor has it set restoration and maintenance goals for our estuaries, which state water quality standards.

Charlotte County recently hired a water quality manager, who stated that his first task is to create a county water quality monitoring plan. These is a positive step. Hopefully, we will soon see the county acknowledge the state of our estuaries’ degraded health and a make a financial commitment to restoring and maintaining these estuaries to state standards. This will require significant investment in not only the monitoring and reporting program, but upgrades to stormwater and wastewater systems. The long-term economic effects of the investments will be invaluable to our community’s future.

As the new water quality manager rightly concludes, the first step is to create the system that will provide the data and information necessary for all aspects of water quality to function effectively. **The water quality monitoring programs’ purpose** should be to collect, analyze, evaluate and report representative water quality data to decisions makers and the public so that it can be used to direct

management actions towards the priority locations and problems needed to protect and restore waterways.

The **components of a complete program** should include a well-planned design which compliments and fills gaps in locations, frequency and parameters of existing water monitoring programs. It should include:

- Regular sampling throughout our estuaries and adjoining waterways.
- Laboratory analysis for specified parameters.
- Analysis, interpretation, evaluation and reporting of resulting water quality data to county water resource (stormwater, wastewater departments, etc.) managers and the public.
- Routine review of water quality reports by county water resource (stormwater, wastewater and other) resources managers who have the authority, responsibility and funding to direct restoration actions and projects in response to the monitoring data.
- Readily available and understandable reports which are provided to elected officials, the water resource managers, the public and elected officials.

The county's lack of effective water quality management is worth noting, as it relates to the county potentially advocating for a dredging project through the Charlotte Harbor Aquatic Preserve and Preserve State Park – which will negatively impact on water quality in the estuaries. Meanwhile the county does not have the capability to fully assess water quality in either the estuaries or the interior waterways, nor it is prepared to proactively manage stormwater and wastewater to restore and maintain local waters to state standards. To decide in favor of dredging, without full knowledge of all the adverse impacts, would put our estuaries, economy and lifestyles at risk – a foolish choice.

Impacts on Tippecanoe and Muddy Cove Ecosystems

To assess whether the proposed dredge project meets the criterion of preserving the pristine ecosystem of Tippecanoe Bay and Muddy Cove, we can look at the swath the dredging might cut through the natural resources of the area. The potential dredge distances through the different habitats, based on available MWCA and county GIS websites, are shown in Table 9 below.

Table 9 - Estimated Dredge Lengths through Mangroves, Seagrasses and Sawfish Habitat

Option	Uplands	Mangroves	Seagrass	Smalltooth Sawfish Habitat	Open Water	Total (feet)
Christopher WW thru Muddy Cove	500	500	400	3,800	2,800	8,000
O'Hara WW to Tippecanoe Bay	200	700	400	2,400	2,800	6,500
Como WW thru Deerfly Bay	500	1,500	400	2,800	800	6,000

Estimates are based on the information available on the MWCA website and the proposal presented to the Beaches and Shores Advisor Committee in May 2018 (Appendix B) and taken to +5-foot depth in the Myakka River. Table 9 shows the approximate location of the dredging. Distances were tabulated using Charlotte County GIS and Google Earth.

Mangroves

Based on the estimates shown in Table 9, dredging will destroy up to 2,700 feet (<.5 miles) of mangroves. For a 50-foot-wide channel, the dredge area would be greater than 3 acres (135,000 square feet) of mangroves destroyed – lost forever in Tippecanoe Bay as fish and wildlife habitat, storm buffer, water filter, nutrient recycler, and carbon sink.

As explained in the *Orientation* section of this report, destroyed mangroves will not be replaced in Charlotte County. They are lost forever, and the carbon released will go directly to the atmosphere and worsen the climate crisis. Any loss of mangroves is bad, 3 acres is way beyond "minimal"; for many reasons, destruction of a single acre of mangroves is unacceptable.

Fisheries – Including Smalltooth Sawfish

Based on the estimates shown in Table 7, there is the potential dredging of 17,500 feet (3 1/3 miles) through the Charlotte Harbor Aquatic Preserve, including mangroves, seagrass, tidal flats and juvenile fish habitat. Visualize the young redfish protected in shallow waters nurseries that would become vulnerable to predators following newly dredged deep-water access. Channels represent the loss of shallow water habitats required by the juvenile endangered Smalltooth Sawfish. For a 50 – foot-wide channel, the estimated 9,000-foot-long channel would equate to 10 acres of shallow habitat lost.

Seagrasses

As explained in the *Orientation* section, seagrasses are "pretty important." While a good portion of Tippecanoe Bay is open water, the estimated loss of 600 lineal feet of seagrasses through dredging is significant.

Summary – Conditions Not Met

When we sum it all up, the proposed project does not meet the criteria of the Beaches and Shores Committee.

Table 10 - Proposed Project Does NOT Meet Beaches and Shores Conditions

Condition	**Meets Condition?**	**Rationale**
Water quality	No	Currently impaired. No capability for continuous monitoring. Growth, climate change and the absence of any programs to reduce nutrients in wastewater and stormwater are predictors of the impairment growing worse.
Ecosystem preservation	No	Dredging destroys mangroves, seagrasses, and fisheries habitat including habitats required by juvenile endangered Smalltooth Sawfish.

It is important to note that the Beaches and Shores Advisory Committee has no decision-making authority regarding the proposed Manchester Waterway dredging project. However, the evaluation criteria developed by the committee have been useful for accessing potential impacts of the proposed project on both human and natural communities. It is also important to note that the project proponents recently said that two of the dredged cuts would be for the benefit of manatees and sawfish (see interview by the Charlotte Sun, March 23, 2021). However, information presented in this report

demonstrates that the proposed dredging would be harmful to a variety of fish and wildlife and their habitats, including juvenile sawfish and manatee foraging areas. The proposed Manchester Waterway dredging project would degrade the water quality in the Tippecanoe, Myakka River and Charlotte Harbor estuaries, and would permanently alter the mosaic of diverse habitats our fishing, outdoor economy and lifestyles depend on. We can appreciate the insights to guide us toward the right decision that the Manchester Waterway dredging proposal is not in the best interest of the greater Charlotte County community.

We want to be clear that this evaluation has been done by the authors, using the conditions established by the Beaches and Shores Advisory Committee in 2018. The Beaches and Shores Advisory Committee has not dealt with the MWCA dredging proposal recently. The matter was on the committee agenda for the April and May 2021 meetings, but not discussed.

Stakeholder Interests

There is conflict between the interests of some MWCA boaters and the long-term interests of the community at large. This conflict is compounded by the special interest advantage gained by MWCA campaign contributions.

Residents at the west end of the Manchester Waterway want the new dredge "cuts" so they can get their boats to open water more quickly. Boaters living at the east end of the Manchester are relatively close to the existing access. Indeed, it can take upwards of an hour for west-end boaters to get to the existing access to Alligator Bay and on to the northwest part of Charlotte Harbor. A new dredge "cut" at the west end of Manchester Waterway would have them into the Myakka River, and on to the northwest part of Charlotte Harbor in much shorter time. MWCA's website claims that west end access would reduce average travel distance from 5 miles to less than 2 miles. However, review of the proposed dredge "cut" locations and distances does not support this claim.

The interests of the community at large would be better served by keeping the Tippecanoe Bay area in its current preserved condition – a shallow, mangrove filled habitat for juvenile and adult fish and other wildlife, isolated from pollutant laden runoff of developed areas. This pristine preserve serves to buffer the entire estuary at large from degradation. The whole Charlotte County economy and lifestyle depends on a healthy estuary, as explained in detail in the earlier section, *Estuary's Economic Importance* on page. The estuaries in turn, depend in large part on the preservation of the Charlotte Harbor aquatic Preserve and Preserve State Park, as well as the Tippecanoe Environmental Park. The intent of the environmental laws that saved this area from development was, after all, to prevent nutrient runoff from reaching Tippecanoe Bay, and protect the fragile water quality and estuarine life of the greater Charlotte Harbor estuaries. Those decisions were, and remain, in the long-term interest of the community.

One of the county commissioners acknowledged to me in an April 6, 2021 meeting that he accepted campaign donations from MWCA members at a fundraiser held at the MWCA president's home. This commissioner has actively advocated for the proposed west end access. At the commission workshop on March 16, 2021, his public statements mimicked the MWCA misinformation regarding restoring previously available channels into Tippecanoe Bay. And as reported in the Charlotte Sun, "Last but not least, obviously it's going to have an environmental benefit," Commissioner Stephen R. Deutsch said of the proposed project to cut into the Tippecanoe Bay area. There is nothing illegal about citizens donating to candidates for public office. But it is not ethical to mislead the public. Moreover, the public at large can be disadvantaged when a public official serves the interest of a special few, at the expense of the general community's well-being.

West end access from the Manchester Waterway will make some resident boaters happy, but it would put the estuaries – which our economy and lifestyles depend on – at grave risk. The right thing to do in this case is to favor the interests of the whole community and not the special interests.

The county should not be using the taxpayers' money and staff resources to pursue special interests like the MWCA dredging project. This would be supporting a dredging project that puts the community interest at risk. Instead, we should be spending the money, time and energy on activities that enhance the ecosystems: upgrading stormwater and wastewater system to reduce nitrogen runoff and creating a water quality monitoring and reporting system to provide sound scientific information on which to base and direct use of public funding for resource protection and restoration.

Conclusions

Tippecanoe Bay, and the entire Charlotte Harbor Aquatic Preserve and Preserve State Park must be preserved for the long-term economic and lifestyle benefit of our overall community. The Aquatic Preserve and Preserve State Park were created by the state for the express purpose of buffering the natural world from the harmful impacts of human development. If we allow projects like the Manchester Waterway dredging proposal to go forward, the water quality of the entire estuary will be at increased risk of further degradation by virtue of the nutrient laden stormwater and wastewater from an area of growing population, with no planned improvements to its stormwater and/or wastewater infrastructure. Dredging will also impact negatively on the rich fishery nursery habitats in the area, a resource vital to the lifestyles and economy of our region. Most of us live in Charlotte County because of our estuaries – and most of us would not want to live here if algae blooms persist and fish disappear. This is what is likely to happen if we do not invest in actively preserving our natural world by not investing in detrimental projects like the Manchester Waterway proposed dredging.

Advocates for the Manchester Waterway dredging proposal have been broadcasting misleading information in their eagerness to gain quicker boating access to deeper water. The public should be aware that this project does not aim to restore the area to its natural state, as implied. Instead, it proposes to restore us to a damaging stage in the history of the development of our area. It was a dark stage where nutrient runoff would have overcome the fragile ecosystems of Tippecanoe Bay, and then endangered the greater estuaries if it were not for intervention by state, federal and environmental organizations. Remember also, that history photos show that a navigable channel never existed at the west end of the Manchester waterway, as proponents would lead us to believe.

The interests of the greater community benefit from preserving Tippecanoe Bay and the Charlotte Harbor Aquatic Preserve and Preserve State Park. However, special interests are working to gain a political advantage through campaign contributions. A commissioner, who has gone on record in favor of the proposed dredging using the misinformation noted in the previous paragraph, has been the recipient of donations at a fundraiser at the home of the Manchester civic association president. This commissioner has also promoted the false narrative that the water inside the Manchester Waterway is cleaner than the water outside (see Appendix A). Our county government should be serving the interests of the overall community, and not special and/or donor interests, especially when those interests are in are in conflict. The county should not be supporting the quicker access to open water interests of a few, at the expense of the long-term estuary, economic and fishing interests of the community at large.

In the background of this specific dredging project looms the reality that our estuaries are at a tipping point, and that the county is not presently equipped to manage the needed resource restoration and

protection. Significant investment is needed – now – to establish this capacity. The county needs the capability to monitor, evaluate and report water quality throughout our interior waterways, as well as a commitment to upgrade wastewater, stormwater and other systems so we can meet state standards.

In hindsight, we can see it was a good decision in the late 1970s to seal off the west end of the Manchester Waterway from the rampant dredging that was occurring at the time. This historic, sound management step kept nutrient laden runoff out of our estuaries for the last 50 years. Let us not undo those past successful efforts by promoting special interests, false information, and ignorance of science. We must keep the Charlotte Harbor Aquatic Preserve, Preserve State Park and Tippecanoe Environmental Park intact for the benefit of local citizens for the next 50 years – and beyond.

The county should not agree to become the lead agency for this project. Instead, it should invest equivalent funding and efforts – at the very least – into monitoring and restoring water quality. The county should use its limited resources to effectively manage the health of our invaluable estuaries by fully funding a comprehensive water quality monitoring and reporting program and investing in the stormwater and wastewater upgrades needed to restore and maintain our estuaries to state standards. The county would also do well at serving our community at large by re-committing to the mid-1990s vow to preserve our natural world, estuaries and water quality.

Table 11 - Conclusions

- The Manchester Waterway dredging proposal is *NOT* in the best interest of the overall community - which needs the Charlotte Harbor Aquatic Preserve and Preserve State Park intact to prevent harmful nutrient laden water from reaching Tippecanoe Bay and the greater Charlotte Harbor Estuaries.
- Our region's economic vitality and residents' lifestyles depend on healthy estuaries. Excess nutrients released through the proposed dredging project would increase algae blooms, reduced oxygen and potentially create dead zones with no oxygen for fisheries and invertebrates.
- The public is being misled by false information from advocates for the proposed dredging project. The proposal does not aim to restore the natural state as implied, instead it would "restore" to an historically harmful stage of development. The claim that the west end the Manchester Waterway was once navigable is false.
- Boaters' interests in quick access to deep water have been advanced by campaign donations to a county commissioner who is promoting the false claims of restoration and environmental benefit of the dredging proposal. Special interests such as these should not have leverage over the interest of the community at large – which is to preserve the natural habitats and healthy estuaries of Tippecanoe Bay and Charlotte Harbor.
- The county has neglected to manage our estuaries' health. In the interest of our economy and lifestyles the county should invest in water quality management starting with a comprehensive monitoring and reporting system, followed by upgrades to overdue stormwater and wastewater systems.
- History and science prove the wisdom of the late 1970s decisions to buffer Tippecanoe Bay from development. Let us honor that choice and keep the Charlotte Harbor Aquatic Preserve, Preserve State Park and Tippecanoe Environmental Park intact.
- Our community, economy, lifestyles and fisheries need mother nature on our side. The county should re-commit to its mid-1990s vow to preserve our natural world for the benefit of our community at large, not cater to a small group of special interests.

References

As explained in the *Introduction* section of this report, our intent is to make the sources of information used in the report clear. References are included as imbedded links throughout the report. The links take readers directly to the information sources. To access the links, it is best to read this document from an online device. The online version of this document is available at www.tinyurl.com/Tippybay.

If you have any questions about the references, difficulty accessing the links, or find inconsistencies, please let us know so we can resolve the issues. Contact Dr. Keller at wckeller@earthlink.net for additional information, questions and corrections.

Appendix A – Myth: The Water Inside Manchester Waterway is Cleaner than Outside

There is a saying being perpetuated by Manchester Waterway dredging proponents that the water inside the waterway is cleaner than it is outside. The saying originated more than two decades ago as justification for removing the lock at the eastern end of the Manchester Waterway. Lately, the phrase is being used to support the proposal to open the west end of the waterway into Tippecanoe Bay and the tidal Myakka River.

As widespread as this saying is, no documentation exists supporting the statement. A county commissioner, a fellow YMCA member, is fond of using the saying. Every time he is asked to share the documentation behind the statement, he says he will ask for and share it. To date, the documentation has not been presented.

Based on the information presented in this report, it appears safe to say that the documentation does not exist. The county has no way of knowing these the actual water quality conditions inside vs outside the Manchester waterway because: “Port Charlotte is the largest urbanized areas in the coastal CHNEP area that isn’t included in a routine water quality monitoring program.” – as noted by CHNEP Director Lisa Beever in 2015. This lack of a comprehensive water quality monitoring and reporting program is a problem in itself as discussed in the body of this report. We absolutely need a comprehensive study to compare the urbanized canal waters in our region to the estuarine system of Tippecanoe Bay, which is currently isolated from direct nutrient runoff from within the Manchester Waterway canal system.

With or without comprehensive water quality reporting, wildlife have their own way of choosing the best (“cleanest”) habitat to be in. As FWC’s Corey Anderson explained in a recent Charlotte Sun interview, “Wildlife is abundant in Tippecanoe Bay. It’s a very good fishing location. Snook come into Tippecanoe Bay and spend the winter in the deep areas. Juvenile red fish thrive in the shallows. Manatees feed on the seagrasses in Muddy Bay — a part of Tippecanoe”, he said. The area is considered to be a critical habitat for juvenile Endangered Smalltooth Sawfish, which live in the mangrove shallows until they reach 7 feet. “In contrast, there is not much wildlife living in the Manchester Waterway”, Anderson said, “because fish, plants and manatees don’t like sea walls or dredged waterways with no seagrasses.”

The term “clean” should be defined. For simplicity’s sake, the paragraphs below focus on the key parameters that do the most damage: (1) nutrients, which cause algae blooms, depleted oxygen and

dead zones; and (2) bacteria, which can be a threat to human health. These parameters need to be compared “inside” and “outside” the Manchester Waterway system.

The sources of excess nutrients to our waterways are wastewater and stormwater, as explained previously in the report. The primary sources of bacteria into our waterways are human waste – in large part from septic systems, and animal waste – via stormwater runoff. The Manchester Waterway contains all these sources: wastewater, including septic systems, and stormwater.

Figure 18 - Manchester Waterway Outflow

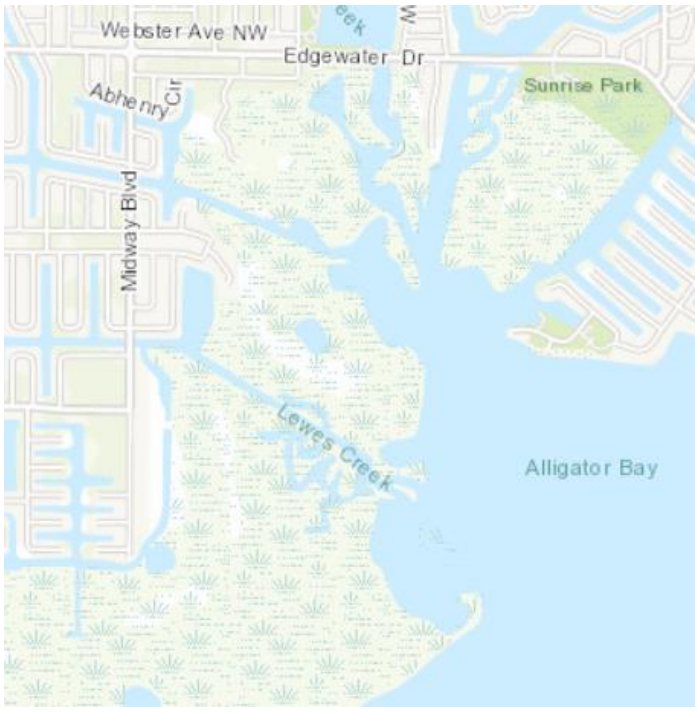
The outflow pipe shown in Figure 18 above, originates at the west end of O’Hara Drive and spills into the west end of the Manchester Waterway. This is representative of the all the stormwater conveyance systems “inside” in the Manchester Waterway.

The argument for lock removal in 2006 was a good one for the following reason. The waters east of the Manchester Waterway were more likely to have elevated nutrients and bacteria because the land was more densely developed and had more septic systems.

Lewes Creek, noted on the Weather Service illustration in Figure 19 below, is the connection point for waters from the Manchester Waterway into Charlotte Harbor. It also delivers water from the Ackerman Waterway to the west of Lewes Creek. Ackerman Waterway runs through highly developed neighborhoods where most homes are on septic systems. Like the Ackerman, the canals, and neighborhoods to the north of Lewes Creek are areas are all on septic systems with impervious surfaces providing a high volume of fast flowing stormwater runoff into the waterways. The stormwater carries heavy loads of sediment, nutrients, and bacteria. The nearby Port Charlotte Beach park complex is often closed for bacteria and health reasons.

Not surprisingly, the area outside the east end of the Manchester Waterway, including Alligator Bay, has low wildlife diversity and numbers. Anderson said, “They just don’t get the same number or sizes of sport fish.”

Figure 19- Waters East of the Manchester Waterway



Meanwhile, “outside” the west side of the waterway systems, in Tippecanoe Bay and the rest of the Charlotte Harbor Aquatic Preserve and Preserve State Park, there are no stormwater outflow pipes, no sewer lines to leak, or septic systems to leach into the estuaries directly. There are fewer primary sources of nutrients and bacteria outside the waterway than inside it – indicating that the water quality should be measurable better – if there was monitoring data.

Figure 20 - Waters West of the Manchester Waterway

Illustration source: Weather Service

As an indicator of more habitable conditions outside the Manchester Waterway system, fish and wildlife make it clear that prefer living "outside" in the Tippecanoe area. As FWC's Anderson explained, Snook come into Tippecanoe Bay and spend the winter in the deep areas. Juvenile red fish thrive in the shallows. Manatees feed on the seagrasses in Muddy Bay. "In contrast, there is not much wildlife living in the Manchester Waterway…. fish, plants and manatees don't like sea walls or dredged waterways with no seagrasses."

Only someone ignorant of water quality science or acting for special interests would say that the nutrient enriched Manchester Waterway water is "cleaner" than the waters of Tippecanoe Bay. Let us end this myth.

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Appendix B- MWCA 2018 presentation to Beaches and Shores May 2018

On May 3, 2018 Tom Delany and Michael Wilde, representing citizens withing the Manchester Waterway, presented a slide show to the Beaches and Shores Advisory Committee. The slide show is dated April 11, 2017.

The slide show can be seen by clicking here.

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