

Manatee River Oyster Restoration Potential

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Ecological and Marine Resources Division



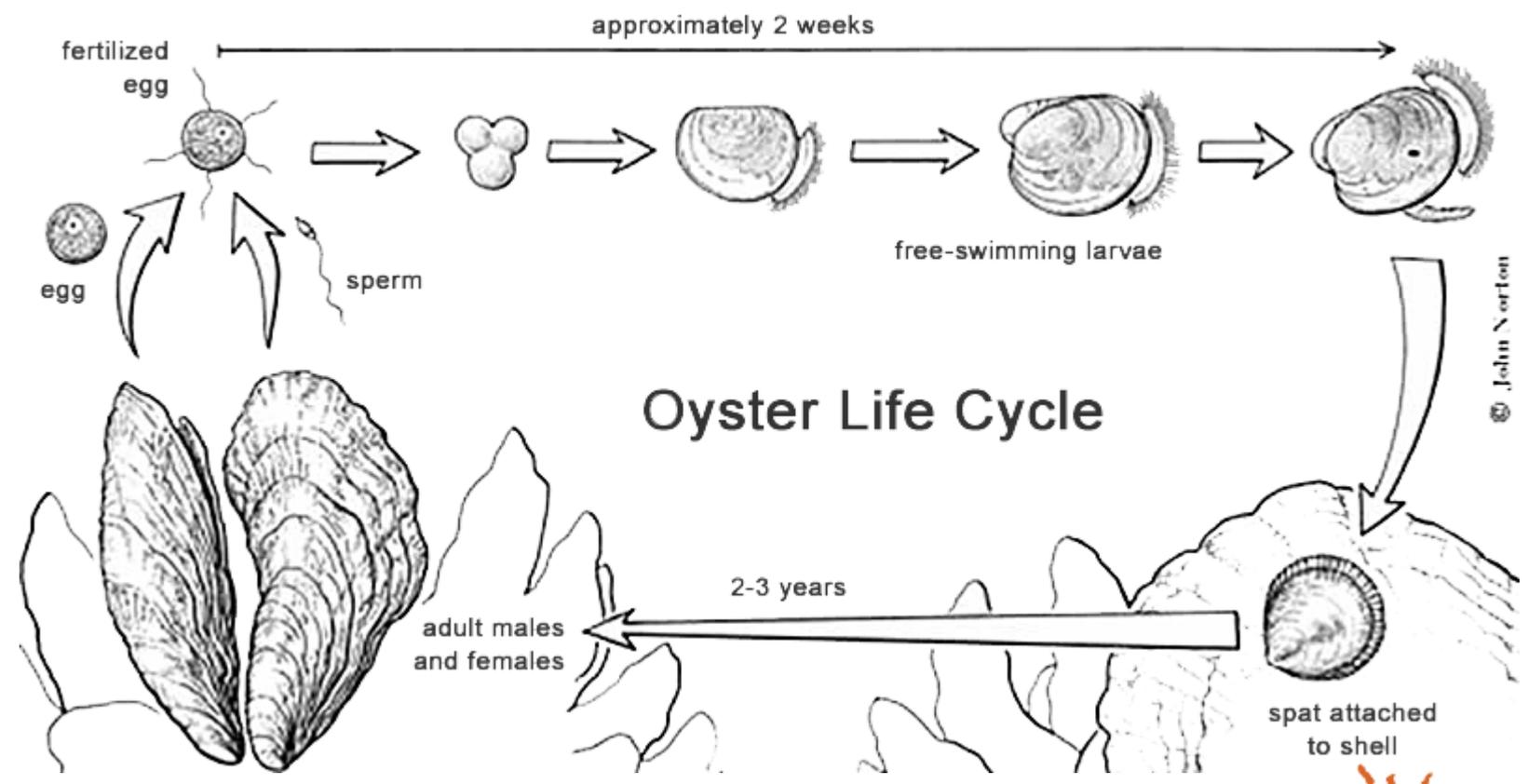
What are we going to go over?

I will talk about:

1. A brief historical overview of oyster habitats in the Manatee River
2. Some recent Oyster projects by Manatee County
3. Conceptual plans for large scale restoration of oyster habitat in the Manatee River
4. My wish list as a practitioner to the scientific community 😊



Quick Bio Lesson



Historical Overview



Cut from J.L. William 1837 Map. Note Manatee River is referred to as "Oyster R."

Historical Overview

Bulletin of the United States Fish Commission. "The Oyster-
Bars of the West Coast of Florida: Their depletion and
restoration. By: A Smeltz. Vol. XVII. 1897. Washington, D. C.

U.S.G.P.O. 1898

"In 1876 I came to the west coast of Florida from one of the largest oyster growing sections in the world, Chesapeake Bay. I landed at Cedar Keys and at once became interested in the oyster beds of Florida. After spending three weeks at Cedar Keys, I cruised southward, examining the most prominent oyster beds, such as Crystal River Bay, the bars of the Cootie region, Clearwater Harbor, Point Pinellas, Hillsboro Bay, Old Tampa Bay, and on to a hamlet I found at the mouth of the Hillsboro River known as Tampa; thence I continued southward to the Alafia River, Big and Little Manatee, Sarasota, Boca Grande oyster bars and 100 miles farther south, and on every hand I found the same condition - oysters, oysters everywhere. How little did I then think that in less than twenty five years every one of these bars would be partially or totally depleted.



Historical Overview

Savannah Morning News.

J. H. ESTILL, PROPRIETOR.

SAVANNAH, TUESDAY, JANUARY 11, 1876

ESTABLISHED 1850.

CEDAR KEYS AND SURROUNDING COUNTRY.

A weekly line of steamships to New Orleans and Havana, and a semi-weekly line of steamers to Tampa, Manatee and Key West, with the oyster and fish trade, combine to make Cedar Keys a lively place during the winter season. The distance to Fernandina, on the Atlantic coast, is 155 miles, which is traversed by the A., G. & W. I. T. Company's Railroad. Levy county, of which Cedar Keys is the most important town (having a population of about eight hundred), contains some of the best hammock lands in Florida. That it is desirably situated is seen in the fact that it is nearly surrounded by Hernando, Marion and Alachua, three of the finest counties in the State. LaFayette county, on the opposite side of the Suwan-



Historical Overview

Savannah Morning News.

ESTABLISHED 1838.
Editor and Proprietor.

SAVANNAH, TUESDAY, FEBRUARY 15, 1887.

PRICE
& CO.

FLORIDA.

Three families located in Ogden last week.

Heavy shipments of oysters are being made from Palma Sola.

Six brothers of G. W. Holland, the Postmaster at Fort Reed, are spending a few weeks with him.

Thirty miles of wire have been used to complete the electric bell service in Hotel Ponce de Leon, at St. Augustine.

C. W. Andrews reports sale of the J. E. Parker farm and grove one-half mile out of Plant City for \$6,000 to the Canada colony.

Over 1,000,000 brick have been thus far used in the construction of chimneys, arches, etc., in Hotel Ponce de Leon, at St. Augustine.

Upwards of fifty signatures have been obtained to the telephone service, thus insuring its introduction in St. Augustine, though not in time for use this winter.



Historical Overview

The Morning News.

SAVANNAH, GA., WEDNESDAY, APRIL 25, 1900.

will in all probability be the Democratic nominee for Governor. Others who have hornets in their hats had just as well stand aside and let the Beggs procession pass.

Manatee Journal: **Oyster** culture should receive large attention by property owners on the waters of **Manatee** county. The natural beds have been destroyed, and for several years the supply must be very limited.

News comes from Cleveland, Tenn., of the death of Mr. E. H. Cheney, for years a resident of Orlando, but who sold his home in the eastern portion of that town and removed to Cleveland about a month ago. Mr. Cheney was quite well known at Orlando. He was a prominent G. A. R. man.



Historical Overview

For Reference

King, Carl (1910-1984)
The Story of Bradenton

CL MM 41
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Not to be taken

from this library

MANATEE COUNTY HISTORICAL SOCIETY
"The Story of Bradenton" [*Centennial Program*]
By Carl D. King
May 17, 1978
J

John Glazier remembered that Manatee Avenue was originally a sandy road which was eventually paved with live oyster shells which were taken from the river. Fie said that for several months after this paving the oyster meat rotted and Manatee Avenue was the most odiferous street in the whole United States.



Historical Overview

TABLE 6. KNOWN PRODUCTION HISTORY OF LONG INACTIVE SHELL LEASE COMPANIES

LESSEE	LEASE NO.	INCLUSIVE DATES OF LEASE	REPLACED BY	ROYALTY RATE	YEAR	REPORTED PRODUCTION (cu yd)	ROYALTY PAID		
Bradenton Dredging & Shell Company	36	Oct. 23, 1931 to Sept. 30, 1936	144	5¢/cu yd	1931	unknown	unknown		
					1932	unknown	\$ 147.25 ¹		
					1933	unknown	182.00 ¹		
					1934	unknown	297.50 ¹		
					1935	unknown	127.70 ¹		
					1936	0	0 ²		
			Totals	unknown	\$ 754.45				
		144	Sept. 30, 1936 to Sept. 30, 1939	61	5¢/cu yd	1936	7,757	387.85 ²	
	1937					16,903	845.15		
	1938					17,930	896.48		
	1939					5,788	289.10		
	Totals					48,378	\$ 2,418.88		
		61	Sept. 30, 1939 to Sept. 30, 1940, extended to Sept. 30, 1961	1585 applied for	7.5¢/cu yd	1939	4,855	364.20	
	1940					6,250	497.10		
	1941					1,600	120.00		
	1942					1,467	110.00 ³		
	1943					unknown	110.00 ³		
	1944					unknown	110.00 ³		
	1945					2,260	226.00		
						10¢/cu yd	1946	13,370	1,337.00
	1947			22,600	2,260.00				
	1948			9,320	932.00				
	1949			4,032	403.00				
	1950			9,406	940.60				
	1951			7,970	797.00				
	1952			8,990	899.00				
				1953	17,623	1,762.30			
				1954	35,521	3,552.10			
				1955	40,592	4,059.22			
				1956	36,165	3,616.50			
			1957	28,992	2,899.20				
			1958	268,974	26,897.40				
			1959	30,887.1	3,088.71				
			1960	24,821.8	2,482.18				
			1961	11,978.6	1,197.06				
			Totals	587,705.5	\$57,215.27				
	1585 Not issued	—	—	15¢/cu yd	1961	11,783	1,767.45		
1962					3,387	508.05			
Totals					15,170	\$ 2,275.50			
					Grand Totals	651,253.5	\$62,664.10		



Mineralogy of Submerged Shell Deposits:
History and Status of Regulation and Production of
the Florida Industry
WILLIAM H. WHEELER, JR.

Florida Department of Natural Resources
Marine Research Laboratory
Number 11 October 1975



Lease number 1585 was applied for on July 12, 1961. The application was assigned number 1585 and the lease was approved by the Trustees on January 9, 1962. The lease was never issued and the application was withdrawn on March 10, 1962, by the company. Bradenton Dredging and Shell Company abandoned shell dredging after over 30 years operating in the Manatee River, Manatee County.

Historical Overview

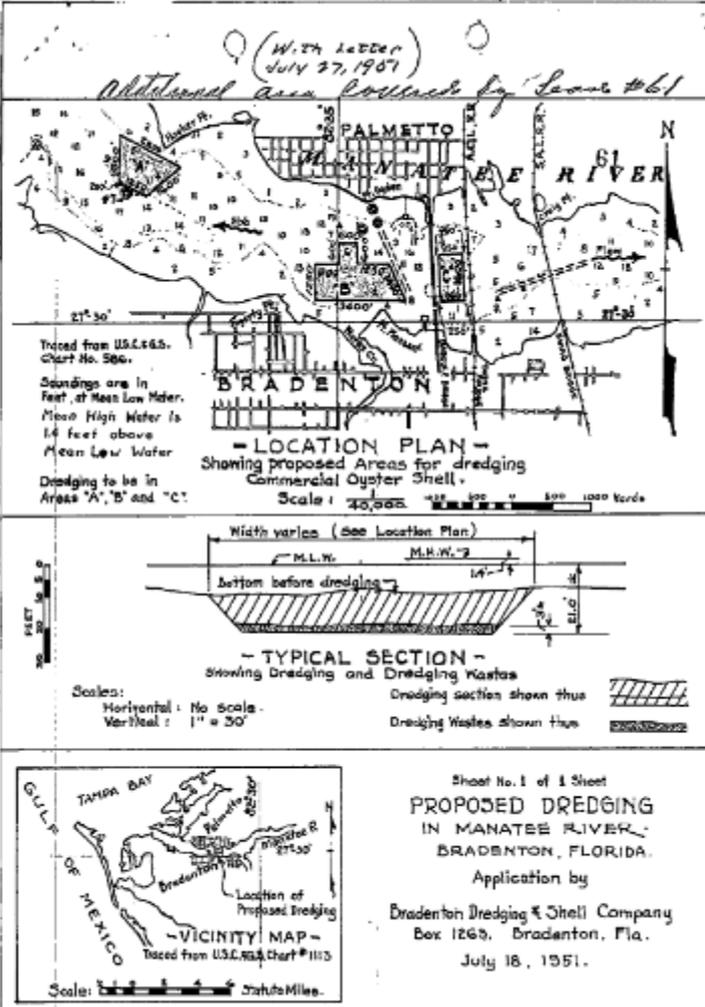


Fig. 2. Dredge No. 3 loading oyster shell on barge.

Shell Dredge in Tampa Bay
 (The Florida Anthropologist
 Volume 25 June 1972 No. 2 Part
 1 Commercial oyster Shell of
 Tampa Bay L.O. Warren)



Historical Overview



Bradenton 10th Street
1951



Historical Overview



Bradenton 10th Street
Now



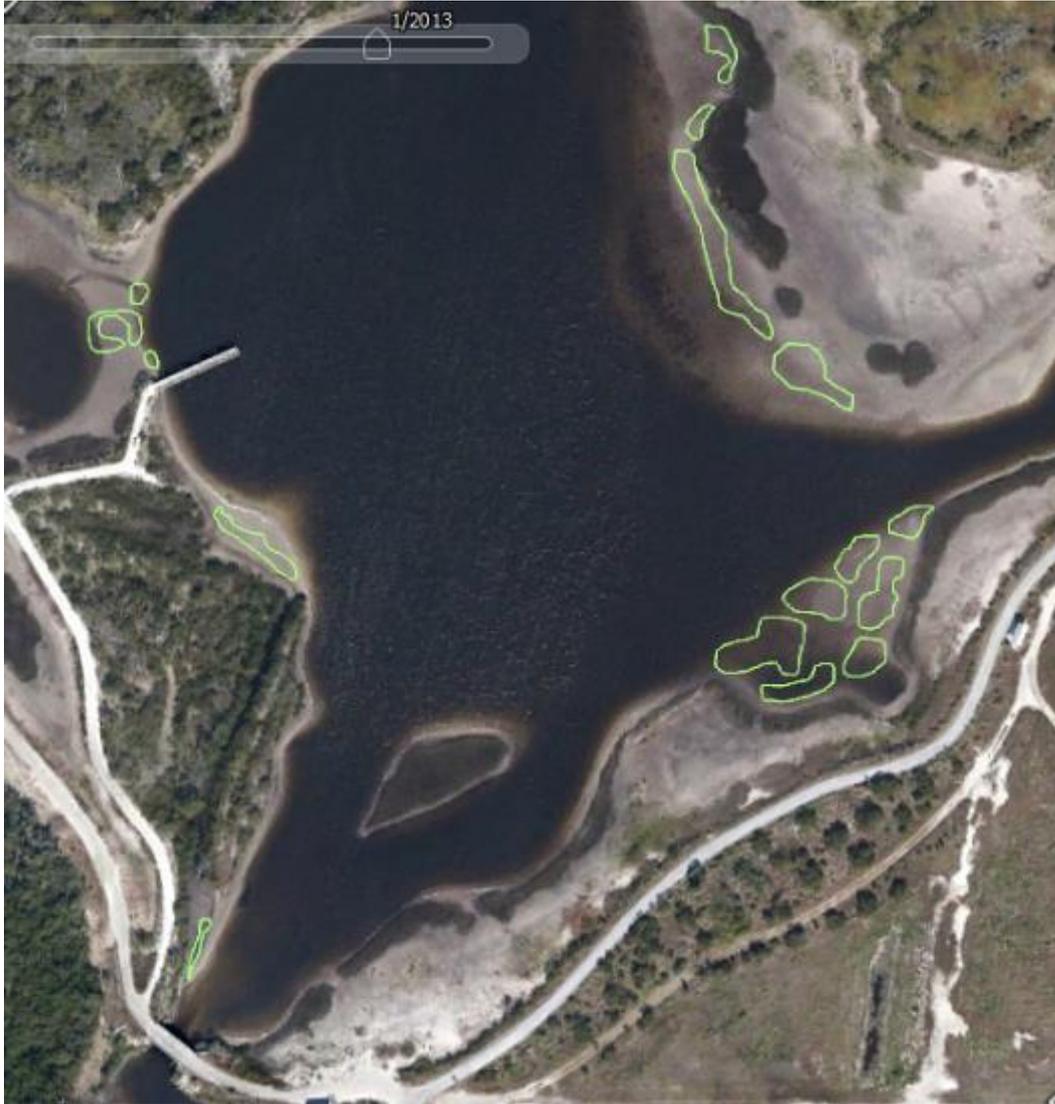
Robinson Preserve Project



2004 – Before any
ecological enhancements



Robinson Preserve Project



2013 – After ecological enhancements, but before oyster habitat creation



Robinson Preserve Project



2019 – After ecological enhancements, and after oyster habitat creation establishment



Robinson Preserve Project



Robinson Preserve Project



Robinson Preserve Project



Healthy Live Oysters
January 2018 @ 11.89 live
oysters/square foot.

THANKS
TBERF!!



Robinson Preserve Project



Both tanks in this photo are full of water from the same source, but the tank on the right has oysters in it. A single adult oyster can filter as much as 50 gallons of water a day.



Robinson Preserve Project

- Robinson Project = about 1 Acre of oyster beds
- 1 Acre = 43,560 Square Feet
- Assume 10 live oysters per square feet
- An acre of oyster bed gives us 435,600 Oysters!
- Those oysters can filter 21,780,000 gallons PER DAY!
- That's 33 Olympic Swimming Pools of water PER DAY!!



Conceptual Future Plans



GO BIG!!!!!!



Conceptual Future Plans



Pictometry of area along south shore of Manatee River west of I-75. This is a typical large area with high potential for oyster restoration. (Manatee County GIS 2016)



Conceptual Future Plans



2015 aerial shows the location of the area highlighted (Figure 1 Area) in context of large shallow sand areas with the same aerial signature. (Manatee County GIS 2016)



Conceptual Future Plans



475 Acres identified as **POTENTIAL** oyster restoration areas



Conceptual Future Plans

- Manatee River Potential = about 475 Acres of oyster beds
- 475 Acres = 21,691,000 Square Feet
- Assume 10 oysters per square feet
- 475 acres of oyster bed gives us about 207 million Oysters!
- Those oysters can filter 10.345 BILLION gallons PER DAY!
- That's 15,669 Olympic Swimming Pools of water PER DAY!!



Conceptual Future Plans



- It is approximately 51,000 feet from I-75 to Tampa Bay Down the Manatee River
- The River has an average width of approximately 4,500 from I-75 to the Bay
- Assume 10' average depth
- That's 17.17 Billion Gallons of Water
- 475 Acres of Oyster bed could filter all of that less than 2 days.



Other Oyster Benefits

- Habitat for fish, shrimp, clams, crabs, snails, and so on.
- Expands seagrass growth
- Nitrogen removal
- Shoreline Protection
- Carbon Sequestration?
- Jobs
- Tourism
- Commercial & Recreational Fishing
- Cultural Heritage



Practitioner's Wish List.

To guide restoration design, and make it easier to get that money:

- A locally applicable value for volume of water filtered/day and a real definition of what “filtered” accomplishes in the water.
- Any quantifiable water quality improvement parameter; Especially connections to reduction in red tide\$\$.
- Any quantifiable benefits related to wave attenuation and shoreline protection, especially intertidal, and subtidal bars. Do Oysters really protect infra\$tructure?
- Locally applicable ROI metrics.



Remember, I said conceptual.

THANKS FOR LISTENING

