



**AGENDA
HARBOR AND WATERWAYS BOARD MEETING
THURSDAY, APRIL 24, 2025
5:30 PM
DESTIN CITY HALL ANNEX CHAMBERS**

- 1. CALL TO ORDER/ROLL CALL/PLEDGE OF ALLEGIANCE**
- 2. AGENDA APPROVAL**
- 3. APPROVAL OF MINUTES**
 - A) March 27, 2025 Minutes**
- 4. CURRENT BUSINESS**
 - A) Monroe County (FL) Pump Out Regulations**
- 5. MEMBER DISCUSSION/QUESTIONS**
 - A) Jim Green- Chair**
 - B) John Stephens- Vice Chair**
 - Work Plan**
 - C) Guy Tadlock**
Water Quality Update
 - D) Bill McKissick**
 - E) Jerod Hayden**
 - F) Ryan Holloway**
- 6. PUBLIC COMMENTS**
- 7. NEXT MEETING DATE: May 22, 2025**

Any person requiring a special accommodation at this hearing because of a disability or physical impairment should contact the City Clerk at (850) 837-4242 at least 48 hours prior to the hearing. If a person decides to appeal any decision made with respect to any matter considered at such meeting, such person will need a record of the proceeding and for such purpose may need to ensure that a verbatim record of the proceeding is made, which record includes the testimony and evidence upon which the appeal is to be based. (Sec. 286.0105, Florida Statutes)

**MINUTES OF THE
HARBOR AND WATERWAYS BOARD MEETING
DESTIN CITY HALL ANNEX
MARCH 27, 2025 - 5:30 P.M.**

1. CALL TO ORDER:

Vice Chairman Stephens called the meeting of the Thursday, March 27, 2025 Destin Harbor and Waterways Board meeting to at approximately 5:30 p.m., at Destin City Hall Annex, with the Pledge of Allegiance immediately following.

2. ROLL CALL:

Member Present:

John Stephens
Guy Tadlock
Bill McKissick
Jarod Hayden

Members Absent

Jim Green

Staff:

Kim Montgomery Deputy City Clerk
Daniel Butler Principal Planner
Ashley Dominguez Planner
Kim Kopp City Attorney

3. AGENDA APPROVAL:

Motion to change the order of the day, move item 4 to follow item 6 position on the agenda was made by Board member Tadlock, with Board member McKissick providing the second. The motion was carried with a 4-0 vote for approval.

4. APPROVAL OF MINUTES:

➤ **February 27, 2025 Minutes**

Motion by Vice Chair McKissick, seconded by Board member Tadlock, to approve the minutes of the February 27, 2025 meeting as written. The motion passed 4-0.

5. OLD BUSINESS:

A) 600 Magnolia Drive, Single Family Residential Dock and Boatlift Marine Construction, HWB-001506-2024

Ms. Ashley Dominguez Planner for the city explained to the members the details of the request, which is also reflected in their staff report, and explained further that part of the applicant's request is to replace everything that is currently in place. Additionally, the applicant provided approval from the Florida Department of Environmental Protection (FDEP), Permit No.: 0454834-001-EI/46 and the Army Corps of Engineers (USACE) proof of submittal, application No: SAJ-2008-01592. City Staff reviewed the application and determined that the plans comply with LDC Section 11.05.00, Marina Siting, and the Coastal Management Element of the City's Comprehensive Plan (Coastal Management Element Policy 6-1.1.6), and staff recommend approval of the project and all applicable federal or state approvals need to be submitted with the

Marine Construction Permit application. Additionally, all regulations of the city's marina, citing LDC section 11.05, must be adhered to and followed at all times.

Questions were posed regarding how the placement of the ties backs and what type of materials would be used for the decking and what the total square footage would be afterwards. The applicant's agent explained that the walls are moving out so there is plenty of room for the tie backs, and the decking will be made of composite wood, and that there would not be a change to the square footage to what is currently in place.

Motion by Board member Tadlock, seconded by Board member McKissick the members voted 4-0 to recommend the approval of the request for the Residential Marine Construction project proposed at 600 Magnolia Drive, for the replacement of an existing single-family residential marginal dock and a boat lift, with the following conditions:

- 1. All applicable Federal or State approvals shall be submitted with the Marine Construction Permit application; and**
- 2. All regulations of the City's Marina Siting LDC Section 11.05.00 shall be adhered to and followed at all times.**

B) 84 Indian Bayou Dr, Residential Marine Construction, HWB-001554-2025

Ms. Ashley Dominguez Planner for the city explained to the members the details of the request, which is also reflected in their staff report, for a new single family dock and covered boat lift.

Board member Hayden made the recommended motion that the Harbor and Waterways Board recommends City Council approve the proposed residential marine construction project at 84 Indian Bayou Drive for the construction of a new single-family residential dock and a covered boat lift with the following conditions.

- 1. All applicable federal and state approval shall be submitted with the marine construction permit application; and**
- 2. All regulations of the city marinas citing LDC section 11.05.00 shall be adhered to and followed at all times.**

In discussion, Board member McKissick asked if the entire project includes the total square footage as stated in the agenda item or is it more. According to Mr. Butler the project's square adds up to the amount indicated in the request of 1,350 square feet. **With no further comments, Chairman Stephens called for the vote and the motion passed with a unanimous vote of 4-0.**

6. BOARD MEMBER COMMENTS/QUESTIONS

A) Jim Green- Chair

- US Army Corps of Engineers Harbor Capacity Study-Requested Copy**
 - THIS ITEM WAS NOT HEARD**

B) John Stephens- Vice Chair

➤ **Wastewater/Pump Out USA- Donnie Brown**

- Mr. Brown provided a historical overview of his career and environmental efforts in the Destin Harbor, beginning with snorkeling tours and leading to the creation of the first pump-out boat service in Florida.
- He emphasized the longstanding issue of untreated sewage from vessels accumulating in the local waters and the Destin Harbor and the need for comprehensive, fully funded pump-out programs.
- He cited success his initial success in Monroe County, where a seven-year program prevented beach closures and included over 4,000 boaters with pump-outs reaching 3,000 vessels per month.
- He shared that many tour boats in Destin are not Coast Guard-certified to travel offshore and legally discharge waste, leading to assumptions that raw sewage is being dumped locally.
- Previous free services in Destin showed significant demand, but the inability to find a sustainable and affordable discharge location caused the project to cease.

➤ **Challenges Presented:**

- DWU (Destin Water Users) is unable to accept concentrated sewage from pump-out boats due to system limitations.
- Current infrastructure and costs (e.g., \$1,000 per dump at Fort Walton Beach transfer system) are the barriers to a successful implementation in the city of Destin.
- Insurance and FDEP permits are challenges.
- Monroe County's similar program ended due to internal politics, despite its initial success.

➤ **Recommendations:**

- Mandatory participation for all harbor vessels.
- Free pump out service to encourage compliance.
- Explore grant funding at state and federal levels to support operations and logistics.
- Consider sticker-based tracking programs for boat pump-outs.
- Investigate alternative discharge solutions and/or encourage DWU cooperation.

C) Guy Tadlock - Water Quality Update/Harbor Pump Progress

- **Water Quality Testing:**
 - Concerns were raised regarding Enterococci and coliform bacteria spikes in the water of the harbor.
 - Sampling limitations noted, data is merely a snapshot, not continuous metrics.
 - Committee members encouraged to pursue trend analysis, possibly visualized in charts.
 - The harbor pump, after being rebuilt and operational, circulates 16.8 million gallons nightly from March to the end of October.

- **DWU Response (Sandy Trammell, Board Member):**
 - DWU's treatment plant cannot handle highly concentrated or chemically treated waste from vessels.
 - Existing marina pump-outs are not tied into DWU; waste is trucked offsite.
 - Emphasized that DWU is member-owned and not city-run; taxes cannot fund infrastructure expansion projects.
 - Raised fairness concerns, boat operators should pay for sewage processing just like everyone does individually at their home.
- **Committee Member Comments:**
 - Several members expressed personal experiences with harbor-related infections (e.g., MRSA).
 - Acknowledged the need for cooperation from DWU, possibly with either assistance from state intervention or outside haulers.
 - Interest in Monroe County's ordinances and enforcement model as a blueprint.
 - Discussion about establishing infrastructure before implementing laws and vice versa.

❖ **Chairman Stephens opened the public to speak**

Mr. Craig Cole, marine contractor, echoed concerns about the harbor's black sludge on the bottom and the frequent health issues among his workers that are in the water for any length of time and urged swift action on the sanitation.

6. Council member Sandy Trammell - Sunshine Law, Public Records Act & Ethics Training

- Topics covered included:
 - **Public Records Act:** Everything related to committee work is public record, including notes, emails, and informal conversations.
 - **Sunshine Law:** Board discussions must be public. Ex parte communications must be disclosed at meetings.
 - **Voting Conflicts:** Members must abstain and file a disclosure form if they or close family have financial interests.
 - **Quasi-Judicial Conduct:** Committee acts like judges in dock applications and similar matters. Must remain impartial.
 - **Committee Procedures:**
 - Goals and objectives must be measurable and submitted before budget deadlines.
 - Resolutions should be sought to earmark grant funds for specific uses.
 - Work plans can be created or added mid-year with council approval.

➤ **Staffing - Code Compliance – Mr. Butler**

- Currently short-staffed; only three officers on shift at a time.
- Two positions recently vacated and interviews underway for replacements.
- Committee members discussed enforcement limitations and the need for a Harbor Master.

10. ADJOURNMENT:

With there being no further discussion, the meeting adjourned at 7:40 p.m.

Adopted and approved this _____ day of _____ 2025.

John Stephens, Vice Chairman

Kim Montgomery, Deputy City Clerk

CITY OF DESTIN – COMMUNITY DEVELOPMENT



AGENDA ITEM

MEETING DATE: April 24, 2025
BOARD/COMMITTEE: Harbor & Waterways Board
TYPE OF AGENDA ITEM: Presentation
OUTLINE NUMBER: 4.A.

TO: Harbor & Waterways Board

THRU: Kimberly Kopp, City Attorney
David Prichard, Community Development Director
Steve O'Connor, Deputy Community Development Director

FROM: Daniel Butler, Principal Planner

DATE: April 15, 2025

SUBJECT: Monroe County (FL) Pump Out Regulations

I. BACKGROUND: At the regularly scheduled Harbor and Waterways Board (HWB) meeting on Thursday, March 27, 2025, the Board requested Staff provide the adopted Pump Out Regulations for Monroe County, FL.

II. DISCUSSION: Staff have provided the adopted Pump Out Regulations for Monroe County, FL within your packet.
The items within the ordinance to note are the following:

- **Policy 202.3.1**
 - Prohibits living on board vessels and floating structures except at marine facilities that provide on-site fixed pump-out systems
 - Requires that any new and/or existing marine facilities (including marinas) that contain 10 slips or more, or one live-aboard slip, provide on-site fixed pump-out systems.
 - Requires all marinas to provide signage at docking sites regarding education and directions to the nearest pump out location.

- **Policy 202.3.2**
 - Existing marine facilities that do not have an on-site fixed pump out system are required to construct a fixed on-site pump out system and associated signage

(and remain operational).

- **Policy 202.3.3**

- Ensure management practices are coordinated with NOAA to ensure consistency with their local Management Plan.

- **Policy 202.3.4-202.3.6**

- These policies are geared towards ensuring the County retains the right to update their code in relation to live aboard vessels, whether in mooring fields or free-anchored, as well as potentially developing a plan for providing pump out facilities at County-owned locations, and to encourage new and/or existing marinas to adopt BMPs as recommended by FDEP Clean Marina Program

A. Link to Strategic Goals / Objectives: II) Enhanced quality of life and safety for families.

III) Economic development and revitalization

VI) A green and sustainable environment

B. Effect on Budget (EOB): N/A

C. Level of Service (LOS): N/A

D. Legislative Sponsor:

E. Business Impact Statement:

III. CONCLUSION: As requested at the regularly scheduled Harbor and Waterways Board (HWB) meeting on Thursday, March 27, 2025, staff have provided the Pump Out Regulations for Monroe County, FL to the HWB for review and discussion.

IV. RECOMMENDED MOTION: Informational Only

Attachments:

1. Monroe County Pump Out Regs

Exhibit I Evaluation and Appraisal Review Amendments

with other canals or near shore waters, flow improvement in plugged canals that are not currently open to tidal flow, and utilization of weed restriction devices in canal systems. [F.S. § 163.3177(6)d.2.b., e.]

Objective 202.2

Monroe County shall develop and implement permitting, inspection, and enforcement procedures designed to reduce pollutant discharge into surface waters.

Policy 202.2.1 Monroe County shall maintain regulations in the Monroe County Code pertaining to the disposal of fish and shellfish by-products from seafood processing facilities, including the following:

1. by-products shall not be dumped into surface waters or wastewater disposal systems;
2. by-products shall be disposed of as solid waste; and
3. consideration shall be given to suitable reuse of by-products. [F.S. § 163.3177(6)d.2.b., e.]

Policy 202.2.2 ~~Within one (1) year after adoption of the 2030 Comprehensive Plan,~~ Monroe County shall continue to evaluate options for reducing the amount of fish and lobster cleaning offal that is discharged into canals. This evaluation should include public facilities such as marinas and private areas such as private backyard docks.

Options to be considered shall include, but not be limited to:

- (a) encouraging carcasses be macerated for chum (put in bags and frozen for a subsequent trip), deposited in an air-tight container for routine refuse pickup, or hauled away by a commercial chum or trap fisherman on contract; and
- (b) encouraging the public through an educational signage and awareness program on water quality.

Objective 202.3

Monroe County shall support existing vessel discharge regulations, including the No Discharge Zone regulations of the Florida Keys National Marine Sanctuary, and encourage use and expansion of sewage pump-out facilities throughout Monroe County to reduce pollutant discharges into nearshore surface waters from live-aboard vessels and increase the total number and availability of pump out opportunities for both shoreside and anchored vessels throughout the Florida Keys. [F.S. § 163.3177(6)d.2.b., e.]

Policy 202.3.1

~~Within one (1) year after the adoption of the 2030 Comprehensive Plan,~~ Monroe County shall adopt and maintain regulations pertaining to docked or moored to land live-aboard vessels which:

1. prohibit living on board vessels and floating structures of any type except at marine facilities, including marinas, and within commercial fishing areas and commercial fishing special districts, with on-site fixed pump-out system facilities; and
2. require that new and existing marine facilities, including marinas, with ten slips or more, or one live-aboard slip, provide an on-site fixed pump-out system station; and
3. require all marinas, regardless of size, to provide signage conspicuously posted at dockage sites educating the live-aboard public about the importance of pumping out and giving clear directions to the nearest pump-out location stations. [F.S. § 163.3177(6)d.2.b., e.]

Policy 202.3.2

Existing marine facilities, including marinas, which do not have an on-site fixed pumpout system stations, as identified through the Monroe County Marine Facility Survey or other best available data sources, shall be notified in writing of the requirements for on-site fixed pumpout system facilities and signage (and any available funding assistance, such as the DEP Clean Vessel Act grant program) ~~within 18 months after the adoption of the 2030 Comprehensive Plan.~~ Such marine facilities and marinas shall have 12 months from the written notification to provide an on-site fixed pumpout system station and associated signage. All marine facilities and marinas which are required to provide on-site fixed pumpout system stations are required to keep those pumpout system stations operational, and ensure that pumpout service is available to the patrons of those marine facilities and marinas.

Policy 202.3.3

Exhibit I Evaluation and Appraisal Review Amendments

Development of the management recommendations for live-aboard vessels shall be coordinated with NOAA to ensure consistency with recommendations of the Florida Keys National Marine Sanctuary Revised Management Plan. [F.S. § 163.3177(6)d.2.b., e.]

Policy 202.3.4

~~Within one (1) year after the adoption of the 2030 Comprehensive Plan, Monroe County shall adopt revisions to maintain and update, as needed, the Monroe County Code pertaining to live-aboard vessels, either in mooring fields or free-anchored, which establish the following (regulations pertaining to free-anchored vessels may require additional authorization by state statute):~~

1. Minimum depth criteria;
2. Availability of appropriate shoreside access (except for short-term recreational mooring sites - See Policy 203.5.2);
3. Pumpout service availability;
4. Availability or provision of shoreside facilities (such as parking and solid waste disposal);
5. Registration and fee structure for live-aboard mooring fields; ~~and~~
6. Impact fee provisions for long-term free-anchored live-aboards; and.
7. Proof of Pumpout [F.S. § 163.3177(6)d.2.b., e.]

Policy 202.3.5

~~Within one (1) year after the adoption of the 2030 Comprehensive Plan, Monroe County will evaluate if there is a need to develop a plan for providing pump-out services at county-owned facilities, beyond the mobile vessel pumpout service.~~ [F.S. § 163.3177(6)d.2.b., e.]

Policy 202.3.6

The County shall encourage new and existing redeveloping or expanding marinas to adopt Best Management Practices as recommended by Florida Department of Environmental Protection's Clean Marina Program.

Objective 202.4

Monroe County shall maintain land development regulations which implement county policies controlling pollutant discharges into surface waters from dredge and fill activities. [F.S. § 163.3177(6)d.2.b., e.]

Policy 202.4.1

Monroe County shall support state and federal policies and regulations concerning the permitting of dredge and fill activity, except in those instances where more stringent regulations adopted by Monroe County shall be maintained. [F.S. § 163.3177(6)d.2.b., e.]

Policy 202.4.2

No new dredging shall be permitted in Monroe County. [F.S. § 163.3177(6)d.2.b., e.]

Policy 202.4.3

No maintenance dredging shall be permitted within areas vegetated with seagrass beds or characterized by hardbottom communities, except for maintenance in public navigation channels; in canal restoration projects pursuant to Policy 202.4.7; or in the manmade artificial canals of Duck Key (MM 61), pursuant to Florida Department of Environmental Protection and U.S. Army Corps of Engineers permits, to restore navigational access obstructed by natural depositions, subject to the requirements in Policy 202.4.4. [F.S. § 163.3177(6)d.2.b., e.] (Ord. No. 010-2018 , § 1, 5-16-2018)

Policy 202.4.4

Within the manmade artificial canals of Duck Key (MM 61), maintenance dredging within areas vegetated with seagrass beds or characterized by hardbottom communities may be permitted to restore navigational access, provided that:

1. Shoaling or natural deposition has obstructed or reduced reasonable access to open water;
2. The maintenance dredging cannot be used to dredge natural barriers (areas that have not been previously dredged) separating canals from adjacent wetlands and/or other surface waters;



City of Destin Breakwater/Snorkeling location & Oyster Farming FY-2025 Work Plan

Strategic Focus:

Enhancing marine and coastal ecosystems through the development of artificial reefs, oyster farms, and living shorelines to improve water quality, protect shorelines, and promote marine biodiversity. Providing a safer swim area & a safe snorkeling area.

Organizational Goal:

Establish a comprehensive marine habitat restoration initiative starting with Clement Taylor Park. Eventually expanding to other parks and waterfront areas in Destin.

Performance Objective:

- Implement oyster gardens, in conjunction with Choctawhatchee Basin Alliance with educational signage at all city docks/piers.
- Encourage participation from local waterfront businesses and waterfront private/commercial property owners with docks to participate in the Oyster Farming program.
- Develop a breakwater/living shoreline with modular units or limestone boulder clusters & mature oysters to enhance marine biodiversity and protect the shoreline, starting with Clement Taylor Park. This will provide a safe protected barrier to the current swim area.
- Once oysters are matured (in 1 year), relocate these oysters to breakwaters/ living shorelines of our choosing, with the recommendation being Clement Taylor Park.
 - If Clement Taylor Park project is not ready, then recommend relocating the oysters to Mattie Kelly Outfall.
 - Then the following year, relocate the next batch to Clement Taylor Park
- Establish a snorkeling area at these breakwater/living shorelines along city-owned waterfront parks, starting with Clement Taylor Park, to support safe areas to learn to snorkel and conservation awareness.

PRIORITY: CRITICAL IMPORTANT DESIRABLE

Measurable Outcome(s):

Outcomes	Fiscal Year			
	2025	2026	2027	2028
Installation of oyster farms at city-owned docks and piers	N/A	1 location	2 locations	More than 3 locations

Participation of local businesses/ private/ commercial property owners in the oyster farming program	N/A	2 private/ commercial properties	5 private/ commercial properties	At least 10 private/ commercial property
Creation of a pilot living shoreline/ breakwater project using limestone boulder clusters at Clement Taylor.	Discussion/ Planning	Design/ Permitting	Development	start process for a new location
Establishment of an official snorkeling area at a coastal park, such as Clement Taylor Park).	Discussion/ Planning	Design/ Permitting	Development	N/A

Action Plan:

Task	Resource Needs (persons/organization)	Target Completion Date	Done
Develop concept educational signage for oyster gardens at City Properties	John Stephens	2025	X
Design concept drawings for living shoreline/breakwater project	John Stephens	2025	X
Develop concept signage for snorkeling area	John Stephens	2025	X
Present CBA's Oyster Gardening Program & Breakwater/ Living Shoreline Idea to the Harbor & Waterways Board committee and seek approval	John Stephens/ (maybe CBA)	April/May 2025	
Present CBA's Oyster Gardening Program & Breakwater/ Living Shoreline Idea to Harbor CRA Committee and seek approval	John Stephens/ (maybe CBA)	May 2025	
Introduce Parks & Rec committee to CBA's Oyster Gardening Program & Breakwater/ Living Shoreline Idea and seek approval	John Stephens/ (maybe CBA)	2025	
Have concept signage/designs reviewed	Harbor CRA, Harbor & Waterways Board, Parks & Rec Committee	2025	
Department of Environmental Protection Pre-application Meeting to confirm permit type for Clement Taylor Park. CBA is leading this task.	John Stephens, CBA, DEP	May 2025	
Army Corp of Engineers Pre-application Meeting for Clement Taylor Park	John Stephens, CBA, ACE		
Okaloosa County Pre-application Meeting for Clement Taylor Park	John Stephens, CBA, Okaloosa County Coastal Resources	2025	
Site visit & combined Seagrass Survey during the growing season	John Stephens, CBA, DEP, ACE	June 2025	
Identify city docks/piers for oyster farms	Harbor & Waterways Board	2025	
Identify current Oyster Gardeners with CBA that are in Destin.	John Stephens/ CBA	2025	

Determine if using Modular Units or Limestone Rocks	??	2025	
Present concept design/plan to Destin Council & seek approval	Harbor & Waterways Board, Destin Council	Q4 of 2025/ Q1 of 2026	
If Council approves, then get Council to direct City engineer to design engineered drawings	City Planner/ City Engineer	Q1 of 2026	
Apply for Permits	Planning, DEP, ACE	Q1 of 2026	
Figure out Costs	??	Q1 of 2026	
Apply for Grants	Harbor & Waterways Board/ City Grants Manager	Q1 of 2026	
Coordinate with Council to direct Destin's PIO for awareness of Oyster Gardening Program to citizens/ businesses	Council/Destin PIO	April of 2026	
Training/implementation of Oyster Gardener Volunteers with CBA	Volunteers/ CBA	May 2026	
Begin installation	Contractor, CBA (in conjunction with Force Blue)	Q1 of 2027	
Mature Oyster relocation to Clement Taylor Park Living Shoreline Project with CBA. (contingency plan if not ready - Mattie Kelly outfall livery shore line idea)	Volunteers/ CBA	May 2027	
Coordinate with Council to promote and launch snorkeling area	Council/ Destin PIO	2027	
Monitor and assess marine biodiversity impact. CBA will need to add another monitoring site.	CBA	2027	
Find new City-owned Waterfront Location for Living Shoreline & mature oyster garden	Harbor & Waterways Board/ Parks & Rec Committee	2028	

Commented [1]: would this be Council?

Commented [2]: who?

Process Improvement:

<p>Recommend to Council to have CBA add a new site for continuous monitoring and reporting on water quality improvements.</p> <p>Recommend to Council for public-private partnerships to ensure long-term sustainability of project.</p> <p>Recommend adding another city-owned waterfront location, once the pilot one is established.</p>

Stakeholders:

Internal	External
<input type="checkbox"/> City Planning	<input type="checkbox"/> Choctawhatchee Basin Alliance (CBA)
<input type="checkbox"/> City Engineer	<input type="checkbox"/> Destin High School Students - Volunteer hours

<input type="checkbox"/> Harbor & Waterways Board	<input type="checkbox"/> Okaloosa County Coastal Resources
<input type="checkbox"/> Harbor CRA Committee	<input type="checkbox"/> Force Blue (former Navy Seals that help CBA)
<input type="checkbox"/> Parks & Rec Committee	<input type="checkbox"/> Local Business that have access to docks
<input type="checkbox"/> City of Destin Public Information Officer	<input type="checkbox"/> Property Owners that have access to docks
<input type="checkbox"/> City of Destin Grants Manager	<input type="checkbox"/> Army Corp of Engineers
<input type="checkbox"/> Council	<input type="checkbox"/> Department of Environmental Protection
<input type="checkbox"/>	<input type="checkbox"/> Volunteers, such as Oyster Gardeners

Process Owner:

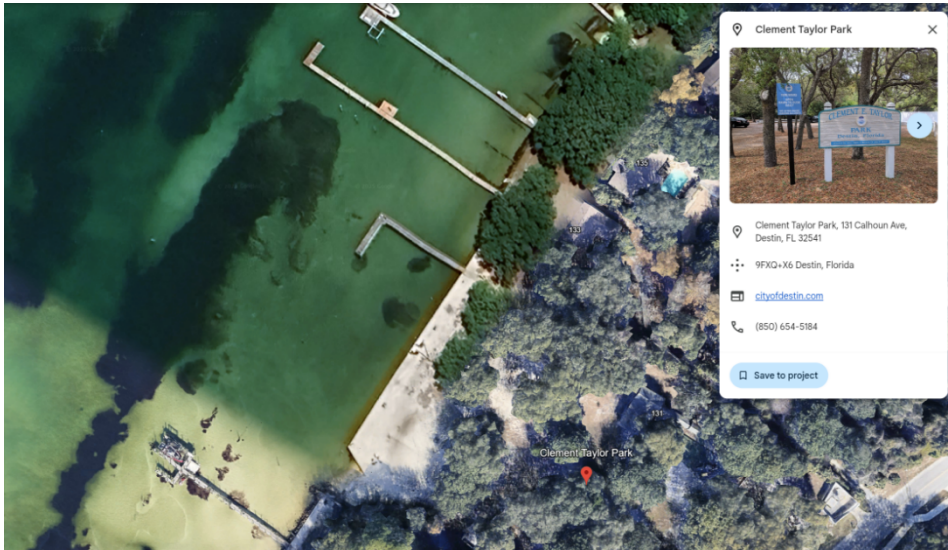
John Stephens

Example:

Current living Shoreline Project in Boca Raton:

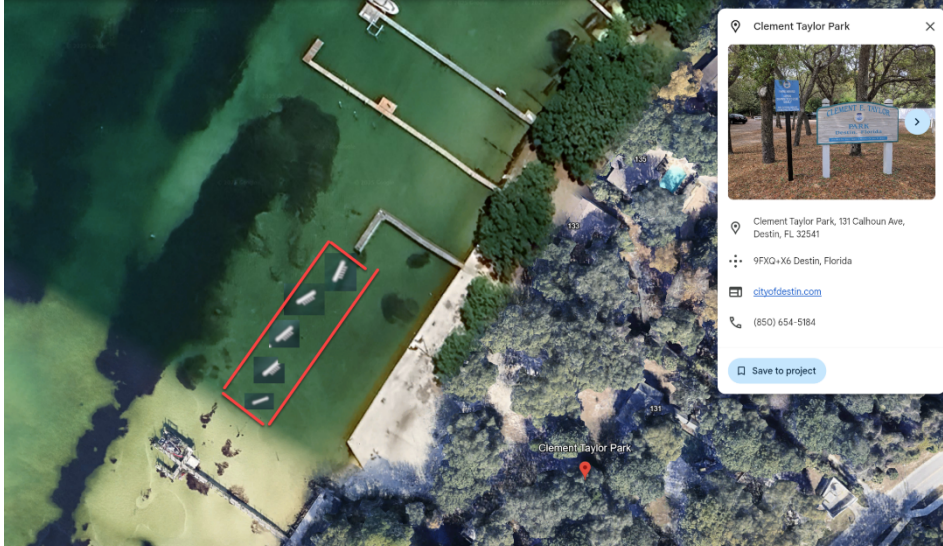
<https://www.instagram.com/citybocaraton/p/CUQT4K-r1O-/?locale=pl&hl=am-et>

Aerial View of Clement Taylor Park:



Concept Breakwater Limestone at Clement Taylor Park:

1. Breakwater/living shoreline must be at least 3ft away from seagrass



Commented [3]: not exactly sure where swim area lines are

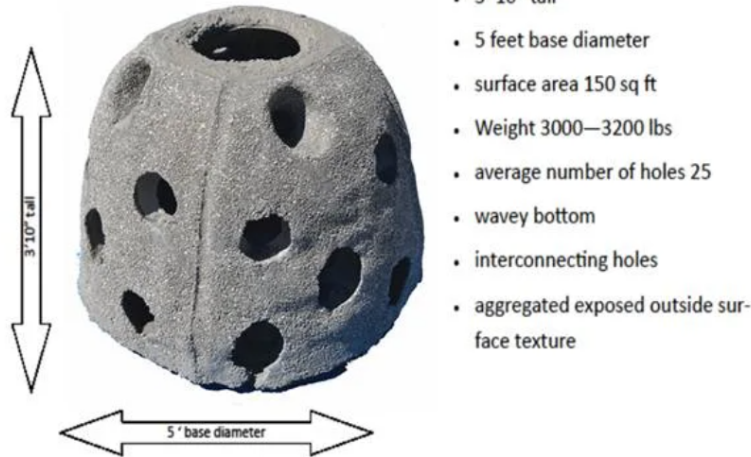
There are 2 methods. Modular Units or Rock mound Breakwaters

1. Modular Units

1. <https://reefinnovations.com/>
2. A modular reef ball is an artificial reef structure designed to mimic natural coral reefs and provide habitats for marine organisms. Reef balls are made of a specially designed, pH-neutral concrete that is environmentally safe. Our reef balls come in various shapes and sizes but most are dome-shaped with holes or slots to allow water and marine life to pass through.
3. Ultra Reef Ball Module



Ultra Reef Ball Module

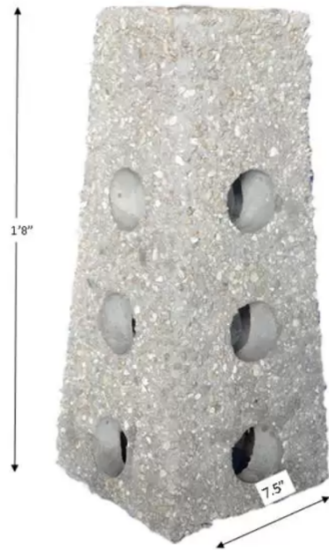


- a.
- b. An ultra reef ball module is a type of artificial reef that is designed to be highly durable and resistant to wave action. It is made of a concrete mixture that is specially formulated to be strong and durable.
- c. Ultra reef ball modules are typically larger than traditional reef balls, and they have a more streamlined shape. This makes them more resistant to wave action and more likely to stay in place on the seabed.
- d. Ultra reef ball modules are often used in deep water, where they can provide habitat for fish and other marine life that prefer deeper waters. They are also used in areas with high wave action, such as nearshore reefs and breakwaters.

4. IJV Habitat



IJV Habitat



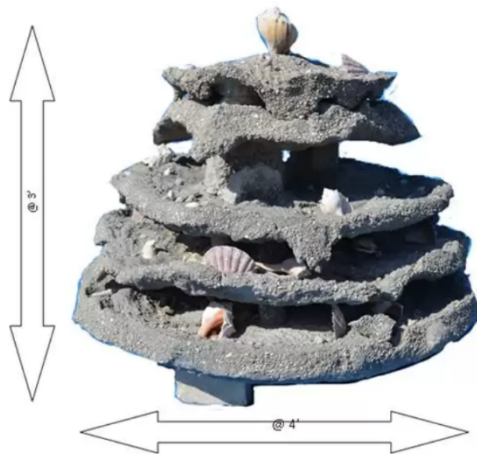
- The Internal Juvenile habitat is a module designed as an addition to our Reef Balls.
- Adding 1 or more inside a Reef Ball can provide additional surface area and small connecting holes.
- aggregated exposed outside surface texture
- Height 1'8"
- Width at the base 7 1/2"
- Base is 7 1/2" square
- Top 5" square
- Internal hole 6 1/2" ---> 2 1/2 "
- Side holes 2 1/2 "

- a.
- b. IJV Habitats are a valuable tool for reef restoration and fisheries management. They can be used to create new habitat for juvenile fish and increase their survival rates. This can help to boost fish populations and improve fisheries yields.

5. Pallet Layer Cake



Pallet Layer Cake



- 3' tall
- 4' max. diameter
- surface area sq ft
- weight 1300 lbs
- layers allowing more surface area
- interconnecting holes
- aggregated exposed outside surface texture
- various decorative material, shells provide a unique habitat.
- complex design increases marine diversity
- weight will vary between modules

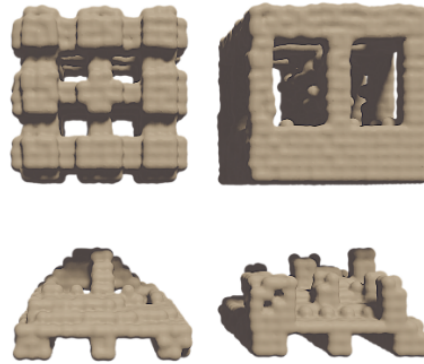
- a.
- b. A pallet layer cake is a type of artificial reef that is made up of a series of recycled pallets that are stacked on top of each other. Pallet layer cakes are typically made of a lightweight material, such as wood or plastic, and they are designed to be placed in shallow water.
- c. Pallet layer cakes are a popular choice for reef restoration projects because they are easy to deploy and maintain. They are also a good choice for areas where there is limited funding for reef restoration.
- d. Here are some examples of how pallet layer cakes have been used:
 - i. The Reef Ball Foundation has used pallet layer cakes to restore damaged reefs in the Florida Keys and the Caribbean Sea.
 - ii. The National Oceanic and Atmospheric Administration (NOAA) has used pallet layer cakes to create artificial reefs in areas off the coast of California.
 - iii. The California Department of Fish and Wildlife has used pallet layer cakes to protect shorelines from erosion and improve water quality.
- e. Pallet layer cakes are a versatile and effective tool for reef restoration and coastal protection. They can be used to create new reef habitat, improve water quality, reduce erosion, and restore damaged reefs.

6. More options & Pricing can be found here:

<https://reefinnovations.com/products-specs/product-price-list/>

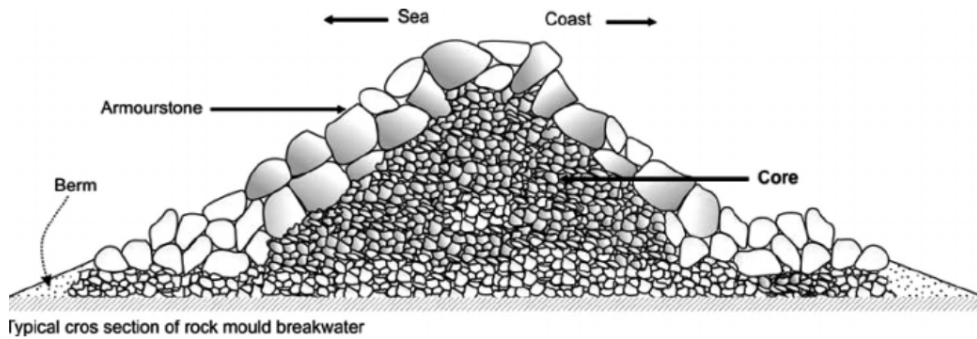
2. Natrx has other types of modular units

a. Natrx ExoForms™



- i. Natrx ExoForms™ are designed to leverage nature to provide more benefits than traditional methods with far less material.
- ii. And because ExoForms™ are a nature-based system, they promote new habitat growth right away and grow even stronger over time.
- iii. ExoForms™ can be customized to best benefit the specific demands of each project.
- iv. Digital design allows for rapid prototyping to explore the best approach to creating resilience and habitat-positive benefits.
- v. <https://natrx.io/more/natrx-tech-overview-natrx-exoforms>
- vi. <https://natrx.io/natrx-exoform-modules>

3. Typical cross section of rock mound breakwater:



FUNDING/GRANT INFORMATION:

1. TDC
2. FWC Florida Artificial Reef Program
 - a. Deadline is March of each year
 - b. Website: <https://myfwc.com/fishing/saltwater/artificial-reefs/>
3. NOAA
 - a. \$100 million in funding for transformational projects that restore coastal habitat and strengthen community resilience
 - b. Deadline is April of each year

- c. Website: <https://www.noaa.gov/legislative-and-intergovernmental-affairs/noaa-tribal-resources/grant-education-opportunities>
- 4. **National Fish and Wildlife Foundation (NFWF)**
 - a. Coastal Resilience Grants (supports living shorelines and marine biodiversity projects)
 - b. Website: <https://www.nfwf.org/>
 - c. Gulf Fund:
 - i. Website: <https://www.nfwf.org/gulf-environmental-benefit-fund>
- 5. **Corporate & Foundation Partnerships**
 - a. Engage companies in eco-tourism, seafood, water sports, DWU, FPL, High Speed Internet Provides for sponsorship opportunities.
- 6. Explore community-driven funding initiatives, such as the Friends of Destin Parks

Concept Snorkeling Area Signage:



Concept Oyster Gardening Signage:

- 1. Provide this sign with each Vertical Oyster Garden



Oyster Gardening Program to restore our bay, one oyster at time.

Please leave oysters in their current state.

To learn more or to get involved:



In partnership with:



2. QR code will go to City of Destin Website link that will show contents:
 - a. What is Oyster Gardening, 101

Discover Oyster Gardening with the Choctawhatchee Basin Alliance

Calling all City of Destin residents! Help restore our bay—one oyster at a time.

The **City of Destin**, in partnership with the **Choctawhatchee Basin Alliance (CBA)** invites you to be part of a hands-on, rewarding environmental program: **Oyster Gardening**. Whether you're passionate about protecting our coastal ecosystems or just love being on the water, this is your chance to make a real impact in your own backyard.

What is Oyster Gardening?

Oyster gardening is a community-driven initiative where volunteers grow juvenile oysters on Vertical Oyster Gardens suspended from private docks. These oysters help improve water quality, support marine life, and eventually get placed on living shoreline restoration projects throughout the Choctawhatchee Bay. This project in particular, will have all mature oysters benefitting the City of Destin's shorelines. Now is the time to make your impact on our bay.

What is a Vertical Oyster Garden?

A **Vertical Oyster Garden (VOG)** is a simple, space-efficient method for oyster gardening, especially well-suited for Destin's residential & commercial docks. This project is low-maintenance, but highly effective. Here's how it works:

- **Recycled oyster shells** are threaded vertically along ropes and suspended from your dock into the bay.
- During the warm summer months—typically from **late May through August—free-swimming oyster larvae**, or spat, naturally settle out of the water column.
- These spat are drawn to hard surfaces and begin attaching to the recycled oyster shells in your vertical garden.
- Once attached, the spat will begin to grow into juvenile oysters, creating a thriving habitat right under your dock!
- Once these oysters mature and a date is set (usually in May), everyone will be part of "Move your Mollusk" to relocate their oysters to a TBD shoreline restoration project location.
 - Your oysters can be transported to the site in a cooler on ice with a damp cloth or newspaper covering your oysters. They should even be fine if you put them on ice the night before.
 - If you would like to help place your oysters on the reefs, please wear clothes you can get wet in and closed toed shoes.
- You will be receiving your new Vertical Oyster Garden and instruction on how to maintain it for the upcoming year, if you're interested in continuing the program.

Vertical gardens attract juvenile oysters naturally and also serve as shelter for small fish, crabs, and other marine life—making them a mini-ecosystem right at your fingertips!

Why It Matters

- One oyster can filter up to **50 gallons of water per day**.
- Oyster reefs protect shorelines from erosion and storm surge.
- Vertical gardens increase biodiversity and restore damaged habitats.

How to Get Involved

If you have access to a dock or waterfront property, you can become an oyster gardener! CBA provides all materials—including the vertical garden setup—and teaches you how to care for your oysters over the season. It's a great activity for families, classrooms, or anyone who loves our bay.

- b. Oyster Gardening info diagram:
 - i. http://www.flseagrant.org/wp-content/uploads/2022/07/Aquaculture_Infographic_oystergardening_2.jpg

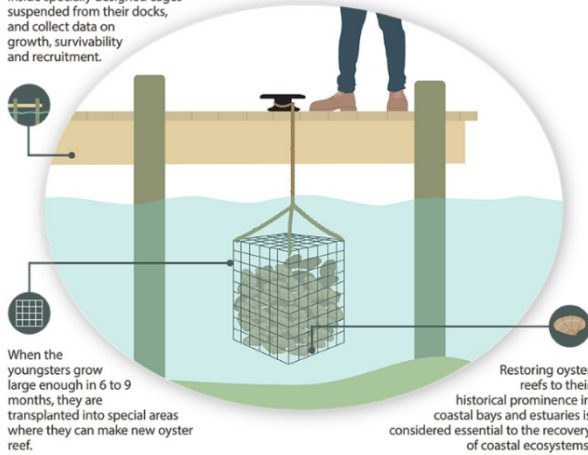
OYSTER GARDENING

One adult oyster can filter up to 50 gallons of water each day, a capacity that UF/IFAS and Florida Sea Grant are using as part of a larger strategy to help restore water quality at imperiled waters in Florida, such as the Indian River Lagoon.

How does it work?

Thousands of residents thus far have signed up to turn their backyard docks into garden plots that will raise baby oysters from newly hatched larvae, or seed.

These volunteers grow oysters inside specially designed cages suspended from their docks, and collect data on growth, survivability and recruitment.



FLSEAGRANT.ORG/RESTORATION/



Florida Sea Grant is a member of the National Sea Grant College Program network which is supported by the National Oceanic and Atmospheric Administration.

Florida Sea Grant
FOSTERING RESPONSIBLE AQUACULTURE

ii.

3. Oyster Gardening Information:

a. Volunteers must

i. get training

1.

ii. fill out [form for FWC Special Activities License](#)

b. Need a way to store volunteer name, cell phone, & email for updates

c. Volunteers must "Move you Mollusks" on a certain date TBD

i. coordinate with Tucker Reynolds with CBA

1. Office: 850-200-4175

2. Reynol59@nwfsc.edu

Commented [4]: Waiting on more details from Tucker from CBA

Location 2				Location 4B				
EntCocci	Fecal Coli	Total Coli	CBOD	EntCocci	Fecal Coli	Total Coli	CBOD	EntCocci
1.0	13.0	49.0	4.0	1.0	7.8	7.8	4.0	63.0
1.0	2.0	13.0	3.0	1.0	1.8	4.5	2.0	1.0
1.0	1.8	4.0	6.0	1.0	14.0	110.0	6.0	1.0
1.0	4.0	94.0	1.0	1.0	49.0	110.0	2.0	10.0
	110.0	920.0			7.8	79.0		
	24.0	>1600			1.8	2.0		
	27.0	220.0			23.0	350.0		
	13.0	240.0			7.8	79.0		

Sampling Location

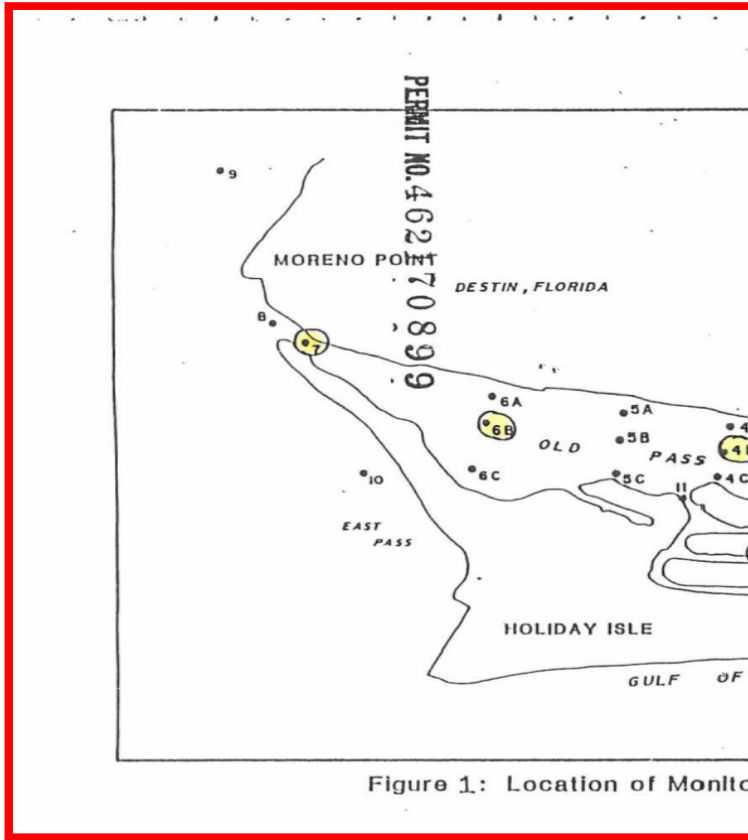
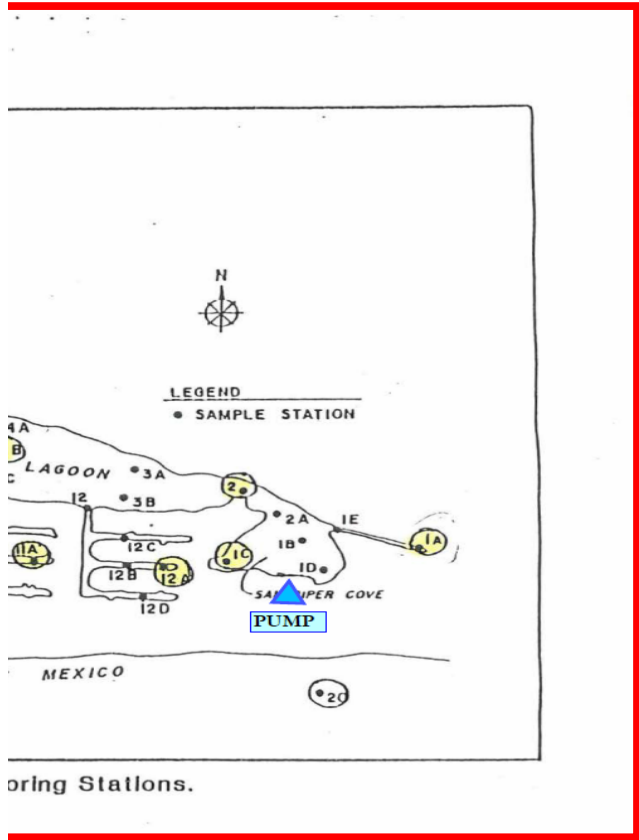


Figure 1: Location of Monitoring

Location 6B				Location 7				Location	
Fecal Coli	Total Coli	CBOD	EntCocci	Fecal Coli	Total Coli	CBOD	EntCocci	Fecal Coli	
4.5	11.0	3.0	41.0	33.0	240.0	4.0	435.0	23.0	
1.8	14.0	2.0	1.0	140.0	1600.0	2.0	10.0	9.3	
31.0	31.0	4.0	1.0	13.0	110.0	4.0	10.0	12.0	
22.0	79.0	1.0	1.0	33.0	130.0	1.0	1.0	4.5	
13.0	70.0			920.0	1600.0			1.8	
3.6	46.0			1.8	17.0			2.0	
11.0	350.0			4.5	350.0			1.8	
210.0	49.0			2.0	33.0			1.8	

ons Map



oring Stations.

