Shell by Shell:
Community-Based Oyster Gardening for Ecosystem Recovery

Texas A&M AgriLife Extension

Texas Master Naturalist™ Mid-Coast Chapter

Sea Grant Texas at Texas A&M University

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Mentimeter

What words come to mind when you hear oyster gardening?

Menti

Question 2

Choose a slide to present

WHAT IS
OYSTER GARDENING?

- **Community-driven conservation** program focused on growing juvenile oysters (spat) for restoration.
- Oysters are **grown in cages** suspended from docks, piers, or other secure waterfront structures. (No permits required)
- Once mature, oysters are **relocated to restoration sites** to help rebuild wild oyster reefs.
- Supports **water quality** by filtering water and removing excess nutrients. (Adult oysters filter 50 gallons of water/day)
- Enhances **coastal resilience** by stabilizing shorelines and providing habitat for marine life.
- Not for consumption – strictly for **ecological restoration and education**.
- Encourages **citizen science** and public engagement in coastal stewardship.
- Creates opportunities for **hands-on learning**, data collection, and environmental outreach.

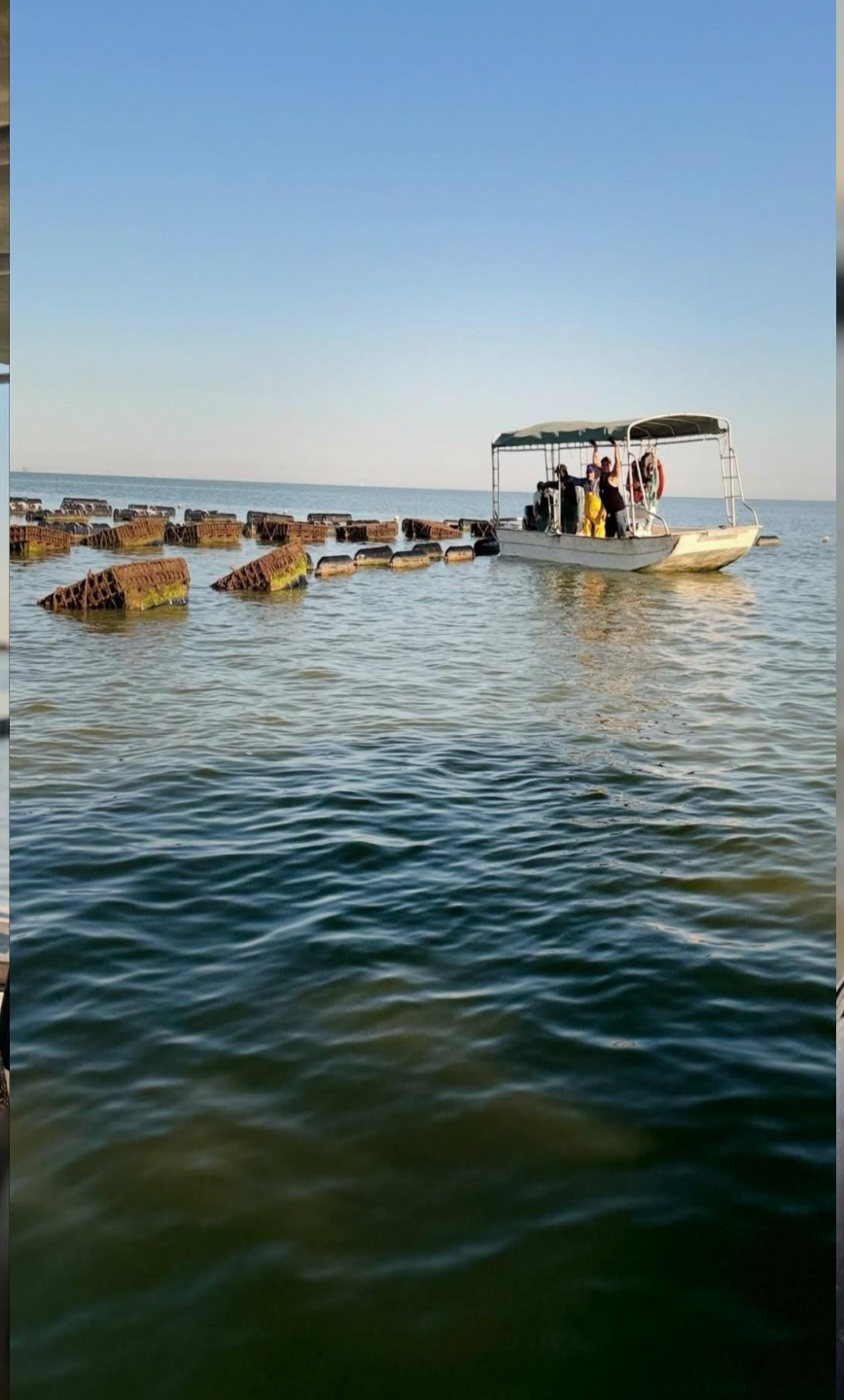
Oyster Gardening
is **NOT** for
CONSUMPTION!

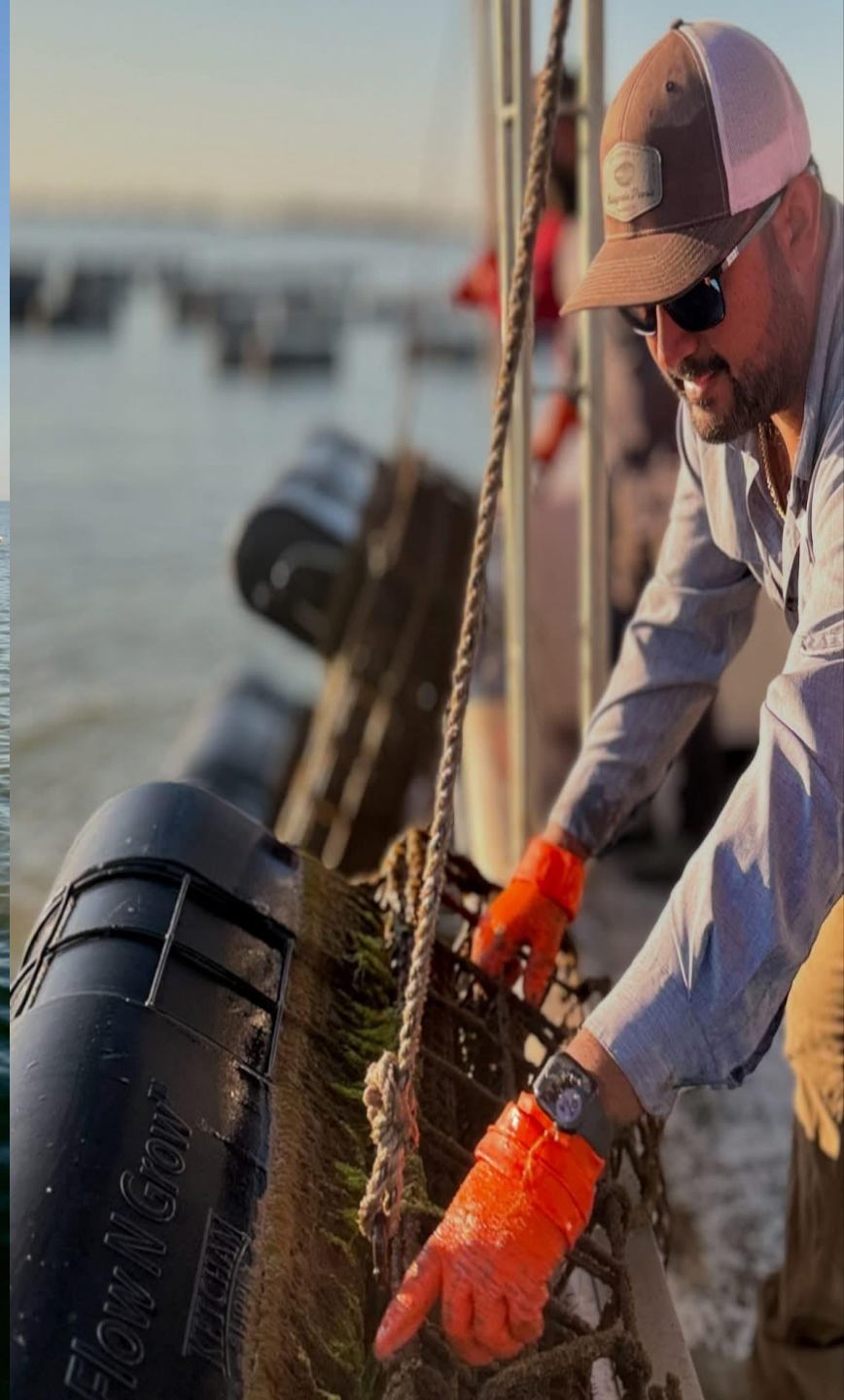
WHAT IS
OYSTER FARMING?

- A **sustainable aquaculture practice** that grows oysters in floating cages in coastal waters.
- Farms are **state-permitted** and carefully sited to ensure environmental compatibility and water quality.
- Oysters are raised from hatchery seed to harvest size, 3 inches. (As few as 5-6 months)

The Texas Legislature enacted oyster farming legislation in 2019. House Bill 1300, signed into law by Governor Greg Abbott on May 27, 2019, authorized the Texas Parks and Wildlife Department (TPWD) to establish a regulatory framework for cultivated oyster mariculture, including farming oysters for human consumption.. The law became effective on September 1, 2019, making Texas the last coastal state in the U.S. to legalize oyster farming.


OYSTER
BROS





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Mentimeter

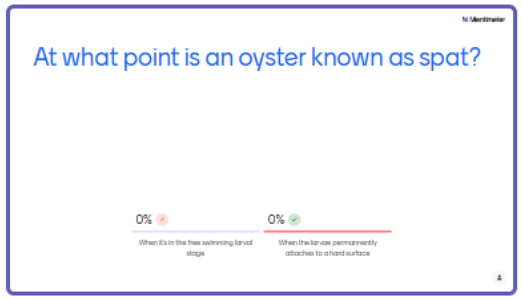
AN

At what point is an oyster known as spat?

Menti

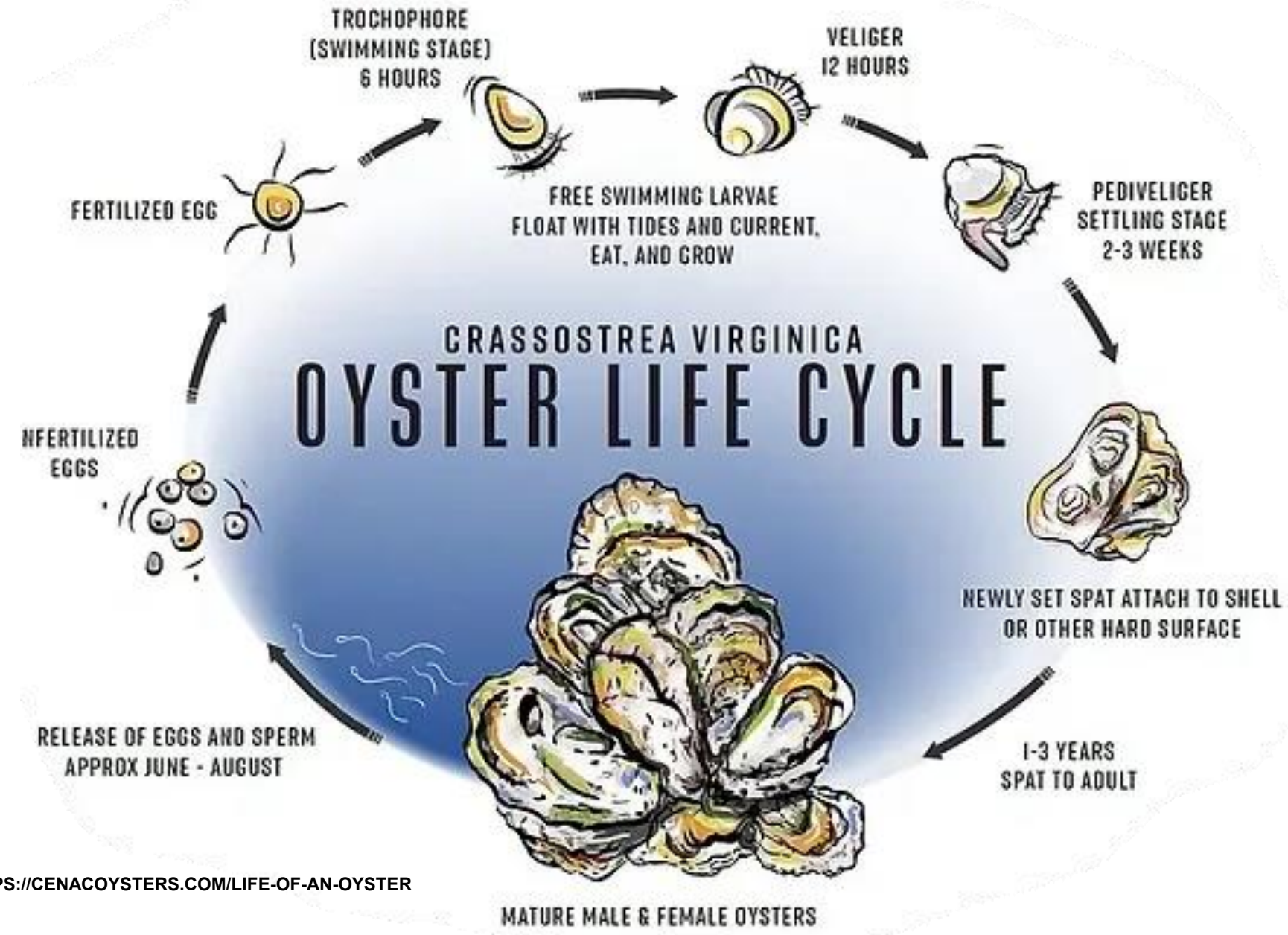
Question 5

Choose a slide to present



0% When it's in the free swimming larval stage

0% When the larvae permannently attaches to a hard surface



HTTPS://CENACOYSTERS.COM/LIFE-OF-AN-OYSTER

SPAT

THRIVING OYSTERS

IDEAL CONDITIONS

- Good Water Circulation
- Water Temperature (68-86 Fahrenheit)
- Salinity (10-30ppt)
- Nearby Oyster Reefs

GARDENING REQUIREMENTS

AT A GLANCE

- Two to three cages are recommended per gardener. Place about 15-20 oyster shells inside each habitat (cage) to grow your spat.
- Hang habitats from a private dock, pier, or bulkhead at an optimal depth with rope.
- Maintain the habitats free of predatory organisms by pulling them out of the water and rinsing them off at least once a week. (Leave your habitats out in the sun, up to 1 hour to prevent biofouling)
- Garden your oysters until collection is conducted for restoration. (Approximately 8-10 months.)
- Record data and information on the animals and algae that colonize your habitat.
- Collect water quality measurements. (Optional)
- Return the cages with the oysters and collected data at the end of the gardening season.






OYSTER
BROS


MATAGORDA BAY
FOUNDATION

HABITAT MAINTENANCE

Once your habitats (cages) are in the water, organisms will start to colonize and live on them. It is recommended to check and clean your habitats **weekly**.

•Lift the habitats up and down in the water until all sediment is rinsed off.

•Place the habitats directly into a tub or small pool. As organisms begin to crawl, you can collect them for identification. Be sure to return live organisms to the water after you are done.

•Shake or tap cages gently to encourage oysters to close their shells and detach from the wire mesh.

•Gently spray your habitat with a garden hose to remove algae and additional sediment, being careful not to harm the spat. Note: Let the water from the hose run a few minutes before spraying to avoid using hot water.

•Clean the outside of the cages with scrub brushes, only if needed.

•Leave your habitats out up to one hour. Exposing them to air and sunlight will help prevent biofouling.

•Remove any remaining animals, especially predators and be sure to record your findings.

•Repair any damaged rope before returning to the water.

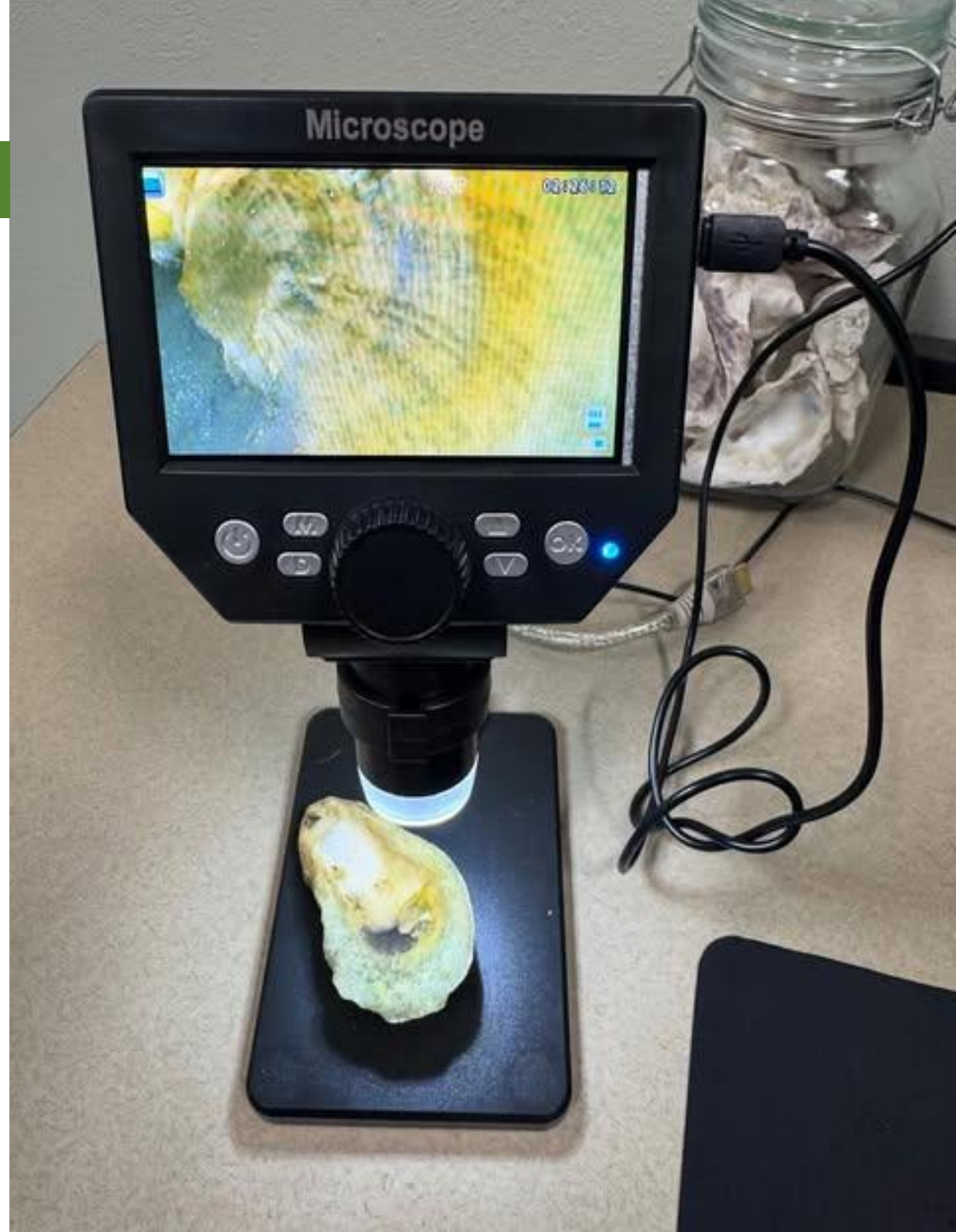
•When returning the cages to the water, shake them in the water to remove any trapped air.

PREDATORS

- Crabs and Skilletfish can contribute to spat loss in oyster gardening habitats through direct predation and habitat disturbance.
- Both species take advantage of the structure provided by the cages, using them as shelter and feeding grounds—making them regular visitors!
- Consistent husbandry is key to protecting your baby oysters!

DATA COLLECTION

- **Counting and Monitoring Spat Growth and Survival**: Helps track how well oysters are growing and surviving in different locations.
- **Assessing Environmental Conditions**: Provides insight into water quality, temperature, and salinity—factors that affect oyster health. (Optional)
- **Supporting Conservation**: Informs restoration strategies by identifying the most successful practices and habitats.
- **Enhancing Education**: Gives volunteers, students, and community members hands-on experience with scientific methods.
- **Contributing to Research**: Supplies valuable local data to scientists studying oyster populations and coastal ecosystems.



DATA SHEET

COUNTY **MATAGORDA**

NO	DATE	SPAT COUNT	ORGANISMS IDENTIFIED	TOTAL TIME (MINS)	OTHER: WATER TEMP, SALINTY (OPTIONAL)	NOTES:
1	5/7/25	0	2 CRABS, 3 SHRIMP, 1 JUVENILE PIN FISH	15	N/A	THIS COULD INCLUDE SPAT GROWTH OBSERVATIONS
2						
3						
4						
5						
6						


Week 5 - Spat Growth


Week 6- Spat Loss

GIS MAPPING

TEXAS A&M UNIVERSITY

DR. BETH SILVEY, TAMU
Instructional Assistant Professor
Department of Rangeland, Wildlife, and Fisheries Management

BRIAN METZ, GRADUATE STUDENT, TAMU

- GIS (Geographic Information System) mapping is a technology used to capture, store, analyze, and visualize spatial or geographic data.
- In oyster gardening, GIS mapping allows us to track cage locations, monitor environmental conditions, and identify patterns or trends in oyster growth and survival across different areas.
- It helps organize and communicate data in a visual way, making it easier to support research, planning, and conservation decisions.

OYSTER COLLECTION & RELOCATION

- Once mature, the oysters are carefully **REMOVED** and **RELOCATED** to designated reef sites where they help rebuild oyster reefs, improve water quality, and support marine habitats.
- This process is coordinated with regulatory and conservation partners to ensure ecological benefit and sustainability.
- Permits through TPWD are required! (No Fees Permit)
- Matagorda Bay Vs. Aransas Bay (Separate Sites)
- Habitat Cages will be **REPURPOSED** for the next oyster gardening season!

TEXAS PARKS & WILDLIFE

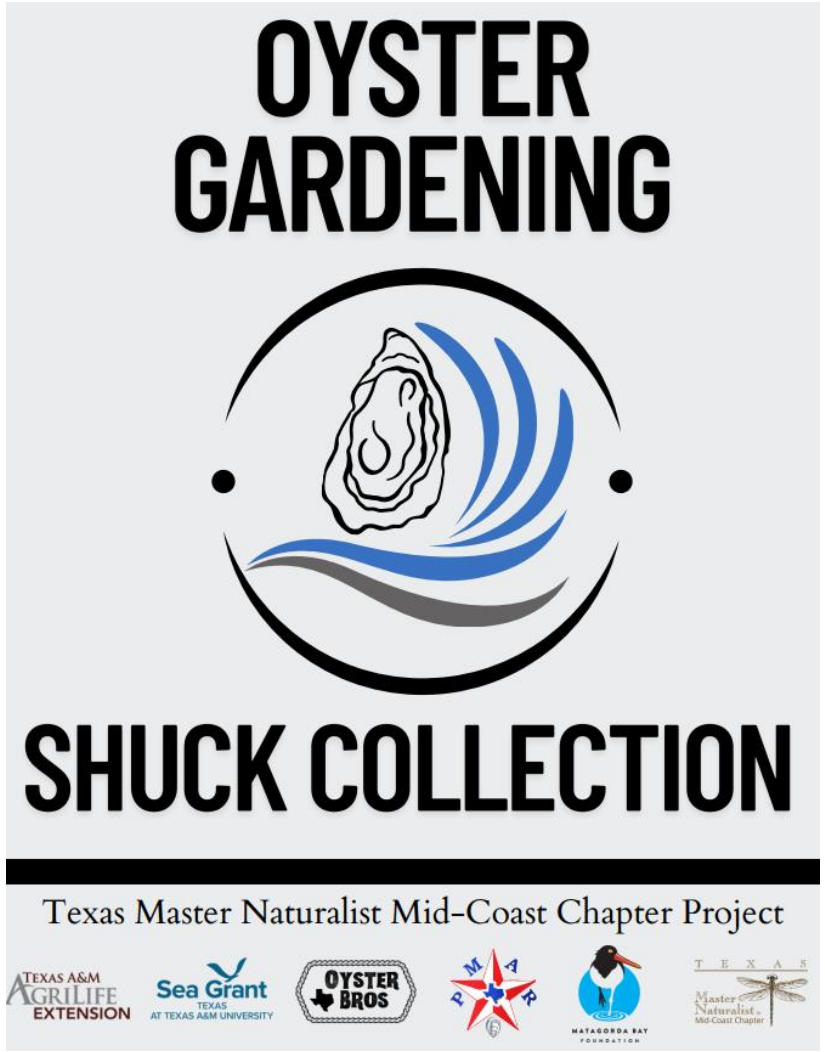
TIMELINE
AT A GLANCE

January-April	Volunteer recruitment & registration, cage construction workshops, training, and assistance with garden preparation.
May-November	Maintenance, monitoring, identifying spat, data collection, water quality (optional). Oysters will spawn mostly in May!
August-September	Confirm active TPWD & USACE permits for all transport sites, secure boats and volunteers as needed.
October-November	Garden collection events and spat transplants/relocation sites.
December	End of Season Annual Report: Lessons Learned and Celebrations!

PARTICIPATION

WAYS TO HELP

- Save Your Shells! (Collaborate with local restaurants)
- Education: EcoSystems
- Outreach & Recruitment
- Construction
- Collection
- Relocation
- Volunteer Gardener
- Public Piers (Community Oyster Gardens)



Thank You!

Amy Nowlin

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https://matagorda.agrilife.org/coastal-marine-resources/

OYSTER GARDENING

IN PROGRESS