Application for a Cultivated Oyster Mariculture Permit

APPLICATION INSTRUCTIONS

There are two types of Cultivated Oyster Mariculture (COM) Permits a Grow-Out Facility (Farm) permit and a Nursery-Only Permit. This application is used for both permits.

Applicants are strongly encouraged to coordinate with Texas Parks and Wildlife Department (TPWD) before completing the natural resource survey and COM permit application. During this pre-application coordination, TPWD will evaluate your proposed site using the department's Spatial Planning Tool, which can help avoid investing effort into a site that may be denied during the permitting process.

The application process should be considered a two-step process, first step to get a Conditional Permit and second step to get the Final Permit. If you have questions about the application or permitting process, please email us at oyster.mariculture@tpwd.texas.gov

Step 1 – Conditional Permit

- Select your site (again, we encourage you to consult with TPWD).
- Conduct the Natural Resources Survey of proposed site.
- Submit all the elements of the permit application:
    - Cultivated Oyster Mariculture Permit Application
    - Natural Resources Survey of Proposed COM site
    - Non-refundable COM Application Fee ($200)
- Upon receipt of application documents and fee, a TPWD COM Official will review the application and get in-touch with you about any changes or clarifications needed.
- A public meeting will be held by TPWD to provide an opportunity for public comments regarding the proposed oyster mariculture site. The meeting will be held in the municipality closest to the proposed site and/or virtually.
    - Information on the meeting will be made available through the posting of site-specific information on the TPWD web site.
    - The applicant must also post a meeting announcement in a local daily newspaper at their own cost and provide proof of doing so to TPWD.
- After the review and consideration of public comments, applicants will be issued a Conditional Permit that authorizes them to proceed to the second step in the application process.
- Construction and COM activities are NOT allowed until the Final Permit has been issued.

Step 2 – Final Permit

- Step two of the process involves obtaining any required permits, leases, and/or written approvals for conducting oyster mariculture activities from other agencies (see below). Many of the agencies will ask you to provide a copy of your Conditional Permit to issue your documents.
- When you have acquired an appropriate document submit an electronic copy to your TPWD COM Official contact. You can submit a document as you get it, or you can submit them all at once.
- After all the documents have been submitted and the department has reviewed them, applicants will be notified, in writing, of their permit approval.
- The first year's annual permit fee will be due at this time (see fee schedule below).
- Once payment is received you will be issued a copy of your permit, permit conditions, and permit boat plates.

Non-TPWD Authorizations

Final authorization of the Cultivated Oyster Mariculture (COM) Permit is contingent upon receiving the appropriate permits, leases and/or written authorization for oyster mariculture activities from the following agencies (*These documents should be obtained* ***after the Conditional TPWD COM permit is issued***):

- ☐ Texas General Land Office Lease (Surface Lease, Commercial Pier Lease, etc.):
- ☐ Texas Commission on Environmental Quality – wastewater (Copy of TPDES Level V Certificate or, for exempt and Level I facilities, completed and signed Notice of Water Quality Authorization form from the Aquaculture General Permit TXG130000)
- ☐ Texas Commission on Environmental Quality – water rights (Completed and signed Exempt Mariculture Operation Form 10219, if pumping water)
- ☐ Texas Department of State Health Services – Shellfish Handler Certification
- ☐ U.S. Army Corps of Engineers – Nationwide Permit 48 Designation
- ☐ U.S. Coast Guard Private Aids to Navigation Marking Determination

Agency Contacts

- Texas General Land Office
  - Permitting Assistance
    Permitting.assistance@glo.texas.gov
    866-894-7664 (Toll Free)
    409-741-4057 (Upper Coast Applicants-north of Colorado River)
    361-886-1630 (Mid and Lower Coast Applicants)
  - Programmatic Questions
    Danielle DeVacque
    361- 886-1605
    Danielle.DeVacque@glo.texas.gov
- Texas Department of State Health Services
  - Seafood and Aquatic Life Group
    Seafood.Regulatory@dshs.texas.gov
    512-834-6757

- Texas Commission on Environment Quality
  - Wastewater
    Mónica Vallin-Báez
    Industrial Wastewater Permits Team - Water Quality Division
    512-239-5787
    Monica.baez@tceq.texas.gov
  - Water Rights
    Chris Kozlowski
    Water Rights Permitting Team - Water Availability Division
    512-239-4691
    Chris.kozlowski@tceq.texas.gov

- U.S. Army Corps of Engineers
  - General Number: 409-766-3869
  - Upper Coast Field Station:
    Kristi McMillian
    409- 766-3083
    Kristi.N.McMillian@usace.army.mil
  - Lower Coast Field Station:
    Matt Kimmel
    361-814-5847
    Matthew.L.Kimmel@usace.army.mil

- U.S. Coast Guard
  - Timothy Boriskie
    Private Aids to Navigation
    D8oanPATON@uscg.mil

Annual Permit Fees (paid yearly on your issuance date)

- Grow-out site
  - $450 per acre in public waters
  - $170 per acre on private property
- Nursery site
  - $170 per acre in public waters + $0.010 per square foot surcharge ($435.60 per acre per year)
  - $170 per acre on private property

Cultivated Oyster Mariculture Application

Part A. APPLICANT AND SITE INFORMATION

Name: *Social Security #:

Date of Birth:

Driver's License #: Driver's License State

Email: Primary Phone:

Facility/Business Name:

Mailing Address:

Street City State Zip

*Effective September 1, 2015, Texas Parks & Wildlife is required to collect Social Security numbers for the purpose of child support enforcement under the Texas Family Code, Section 231.302 and Federal Statute 42 U.S.C. §666. Missing or incomplete information may delay application processing time.

This application is for (check one of the following):

☐ Cultivated Oyster Mariculture Grow-Out Facility (Farm)

☐ Cultivated Oyster Mariculture Nursery-Only Facility

This facility will be located on/in:

◯ Private Land ◯ Public Waters ◯ Both

County: Closest Town:

Waterbody (Bay System):

Texas Department of State Health Services (TDSHS) Shellfish Harvest Area and Designation:

TX- Designation:

*Grow-out operations will only be permitted in areas designated as "Approved" or "Conditionally Approved" by the TDSHS. Harvest Area can be found on the TDSHS website:
https://www.dshs.texas.gov/seafood/shellfish-harvest-maps.aspx

Total Acreage Requested:

Private Property Public Waters Total

Please list the corner coordinates of the proposed lease area using decimal degrees (01.23456) and provide the datum (e.g., NAD 83, WGS 84, etc.). Coordinates should be provided to 5 digits to the right of the decimal.

Mapping datum used:

1. _____ N, W
2. _____N, W
3. _____N, W
4. _____N, W

Additional Corner Coordinates (if more than 4):

5. _____N, W
6. _____N, W
7. _____N, W

Facility address (Nursery):

Street City Zip Code County

A nursery operation should have both coordinates and a physical address, even if address is associated with an up-weller on a barge tied to a pier (e.g., address of the property).

Part B. MAPS

Attach to your application the following maps, please title appropriately:

1) Vicinity Map
   Attach an accurate 8-½ by 11-inch map of the site with a background of either the County Appraisal District map, NOAA chart, aerial imagery (Google Earth Image), or topographic map, with a maximum scale of 1:24,000 (USGS Quad Sheet). The Vicinity Map should show the location of the proposed permit area and the surrounding waters and adjacent properties. Mark the entire boundary, including the corners, of your proposed permitted area on the map, ensuring that the area is easy to identify. See example pages.

2) Access Route Map
   Attach an accurate 8-½ by 11-inch map of the site with a background of either the County Appraisal District map, NOAA chart, aerial imagery (Google Earth Image), or topographic map, with a maximum scale of 1:24,000 (USGS Quad Sheet). The Access Route Map should have the

planned access route to the site clearly drawn. *** If the access route is included on the Vicinity Map, a separate Access Route Map is not required***
For Nursery locations, please include directions to the proposed site in the footer of the Access Route Map. Please provide directions to the site from a known location or landmark. Include highway and street numbers as well as names. Also provide distances from known locations and any other information that would assist in locating the site.

3) Site Layout Overhead View Map, include
    a. Maximum gear array, including moorings
    b. Length and width of project area
    c. Approximate spacing between gear
    d. Permitted area boundaries, location of proposed corner markers and any additional gear markers that may be used
4) Site Layout Cross-Section View Map, include
    a. Profile of gear in cross-section as it will be deployed
    b. Gear dimensions with units (10 in, 10-ft, etc.)
    c. Show mooring gear with type, scope (length), hardware, and line type and size (diameter)
    d. Location of gear in relation to water's surface at mean low water
    e. Note: Please include an additional cross-sectional view, depicting the elements above, if there will be seasonal changes to gear layout, including any temporary gear submersion activities during hurricane events.

Part C. OPERATION PLAN

The answers to the following questions and information in the gear table will be considered your operation plan. This plan should describe the details of the mariculture operation including site location and layout, type of gear to be used, seed source and operational details. Examples of Operation Plan answers can be found in Appendix A.

Directions: If a question does not pertain to your proposed operations, please write "not applicable" or "N/A." Please use additional sheets if necessary and attach with this section.

Question 1 – Please describe how the gear presented the Gear Table is configured and operated. E.g., how do buoys, anchors, and cages attach to mainline? If using floating cages, are bags inserted into cages? This information can be supplemented by product brochures describing the operation of the gear, if so please indicate.

Question 2 - Please describe your proposed tending/maintenance and harvesting activities (i.e., elevating or flipping cages, methods for cleaning cages or raceways, tumbling, sorting, and harvesting, etc.). Please be sure to include the following information: will gear be tended from boat or by wading, the frequency with which you will visit the site for routine tending/maintenance (elevating or flipping cages, cleaning cages, tumbling, sorting, etc.), and how frequently you will visit the site for harvesting. Finally, please describe how you will comply with current pre-harvest re-submersion stipulations.

Question 3 – Please describe how gear will be tagged. What material will be used and how will tags be affixed to the gear?

Question 4 - Please explain your proposed seeding/stocking activities. What months will seeding/stocking occur and how often do you anticipate being onsite during this time? What quantity of seed are you planning on stocking and how often?

Question 5 – Please provide information about the expected source of oyster seed to be cultivated. Include name and address of source hatchery or hatcheries. Include the bay system of origin of the broodstock. If the hatchery does not currently have the broodstock, please describe how the broodstock will be collected and sent to the hatchery. Please include whether you will be using diploid or triploid oysters. If using triploids, please note the method of triploid creation (induction or cross with tetraploid). If the seed is coming from an out-of-state hatchery, where will it be sent for pathogen testing?

Question 6 – Please describe your response plan if disease is identified in your farm. What will be done with diseased oysters? Note; if disease conditions other than dermo are identified within the farm, TPWD must be notified within 24 hours.

Question 7 – Please describe your plans for the sale of your product. Do you plan on selling to a Certified Shellfish Dealer, or will you be seeking a wholesale certification license from the TDSHS for the direct sale of your product?

Select: ☐ Sell to a Certified Dealer ☐ Direct Sale

Question 8 – How will you access the proposed site? If from the adjacent shore, please describe how you will avoid negative impacts to sensitive shoreline habitats (if present). This description should be consistent with your Access Route Map.

Question 9 – How will your proposed activities affect ingress and egress of adjacent property owners? How far is the proposed site from the emergent shoreline?

ADJACENT PROPERTY OWNER'S LIST

Please provide a list of the names, addresses, and lot number, as shown on the latest county tax assessment roll, of each adjacent property owner within 1,000-feet of the proposed oyster mariculture site.

Question 10 – Please provide details of your Hurricane/Tropical Storm Plan. Plan should include management details for the protection of all equipment and oysters within your permitted area beginning 72-hours before projected landfall. Plan should include what specific factors will be considered when deciding to execute the plan (e.g. what triggers will be used for sinking the cages? Hurricane Category? Cone of Impact? etc.)

Question 11 – Please describe any predator or bird deterrents you will use. How do you plan to mitigate or minimize the potential pollution impact of birds? Predator deterrents should also be included in the gear list and gear drawings. Note – only deterrents that are listed and approved in the operations plan will be allowed; a permit amendment will be required for additional predator deterrents.

Question 12 – Please describe the gear (buoys, anchor, line, pilings, etc.) that will be used to demarcate the site boundary.

Question 13 – Nursery-Only Permit – If your location is in or uses restricted waters, describe what you will do with oyster seed over 1" (according to Texas Administrative Code Ch. 58, SubCh. E, all oyster nurseries operating in restricted waters must depurate oysters once they reach 1" in approved waters). Alternatively, if your location is in or uses non-restricted waters, describe what you will do with oysters over 2.5" (note that a nursery permit does not authorize you to sell oysters over 2.5", Texas Administrative Code Ch. 58, SubCh. E).

Gear Information

Provide information on all gear (cages, bags, trays, moorings, mooring lines, buoys, etc.) that will be used at your farm/facility. Some gear will need to have drawings/photos. All gear should be entered into a gear table. This table will be included in your permit and will be used during yearly inspections and other checks of your site. Only gear listed in the permit will be allowed on site.

A. Gear drawings/photos:

Top and cross-sectional view of each gear type that will hold oysters in your permitted area. If gear is to be purchased, please provide the brand and model number of each piece of gear provided. See example pages.

B. Gear table:

List and describe each individual gear type that you will use in a table, like the one below, and attach to your application. You should have at least one entry for each drawing/photo provided and more entries for all other gear used (ropes, anchors, buoys.

Specific Gear Type	Dimensions	Time of year gear will be deployed	Maximum amount of this gear type that will be deployed
OysterGro "HiFlo" Cage, 6 bag system	60" W x 36" D x 23" H	Year round	Max Operation 4,059 cages
Helix Anchors, galvanized steel	6' long x 1.25" rod, 10" helical screw on one end, eye on other end	Year round	Max 198 anchors
Polyproylene line	209-linear ft per anchor line	Year round	Max 41,382 linear ft of line

Part D. NATURAL RESOURCES SURVEY

The Natural Resource Survey is designed to verify that the proposed permit area does not contain sensitive habitat such as seagrass, oyster habitat, etc. Survey protocols and required deliverables can be found in Appendix B.

Which Natural Resources survey did you complete? Please Check One:

☐ Sidescan Sonar with Ground-Truthing ☐ In-Situ (Grab Samples) Only

Attach a one-page summary of survey findings that includes:

- Who collected the data
- What date/time the data were collected
- What the environmental conditions were at time of collection (wind speed, wave height, rainfall, etc.)

  - What type of equipment was used to collect the data, and any appropriate specifications
  - The horizontal datum used for all spatial data and/or GPS coordinates
  - A narrative description of the general conditions at the site (including water depth), as well as a report of how many samples contained shell or seagrass materials, and the general location within the site where these materials were found.
- You will be contacted by your TPWD COM Official to receive a link to up-load the full survey files.

Part E. SIGNATURE

I,_____, hereby affirm that all the information provided above is accurate and complete and that I have read the rules pertaining to Cultivated Oyster Mariculture, including:

- Texas Administrative Code Title 31 Ch. 58 Subchapter F
- Parks and Wildlife Code Chapter 75
- TPWD COM Biosecurity and Disease Certification Protocols

I understand that under Texas Penal Code §37.10, it is a felony to make a false statement on this form.

_____ _____

Signature of Applicant Date

Please return completed application to:
Coastal Fisheries
Texas Parks and Wildlife Department
4200 Smith School Road Austin, Texas 78744

To process your request more efficiently, you may email completed forms to
oyster.mariculture@tpwd.texas.gov

Application Submission Checklist

Please note: *This checklist is provided for the applicant's reference and does not need to be returned with the application.*

I. Content

_____ Part A – Applicant and Site Information and signature page

_____ Part B – Maps

- _____ One (1) Vicinity map with required items shown, containing a drawing of the site boundary.
- _____ One (1) Access Route map, showing the access route to the site (can be combined with Vicinity Map)
- _____ One (1) Site Layout Overhead View Map, with an overhead view depicting the layout of the gear across the proposed site
- _____ One (1) Cross-section view depicting gear and moorings from the side

_____ Part C – Operation Plan

- _____ Answers to Questions 1-13, clear and detailed.
- _____ One (1) Gear drawing for each type of gear to hold oysters.
- _____ Gear table.
- _____ Names and addresses of adjacent property owners.

_____ Part D – Summary of Findings from Natural Resource Survey (see Appendix B)

_____ Part E – Signature

_____ Check for non-refundable application fee ($200), payable to Texas Parks and Wildlife Department.

II. Formatting

_____ Make sure your name appears on every document that's submitted as part of your packet.

_____ All pages (including attachments) are numbered sequentially.

_____ All attachments are clearly labeled and legible.

_____ Drawings and maps are legible, labeled properly, and include all required elements.

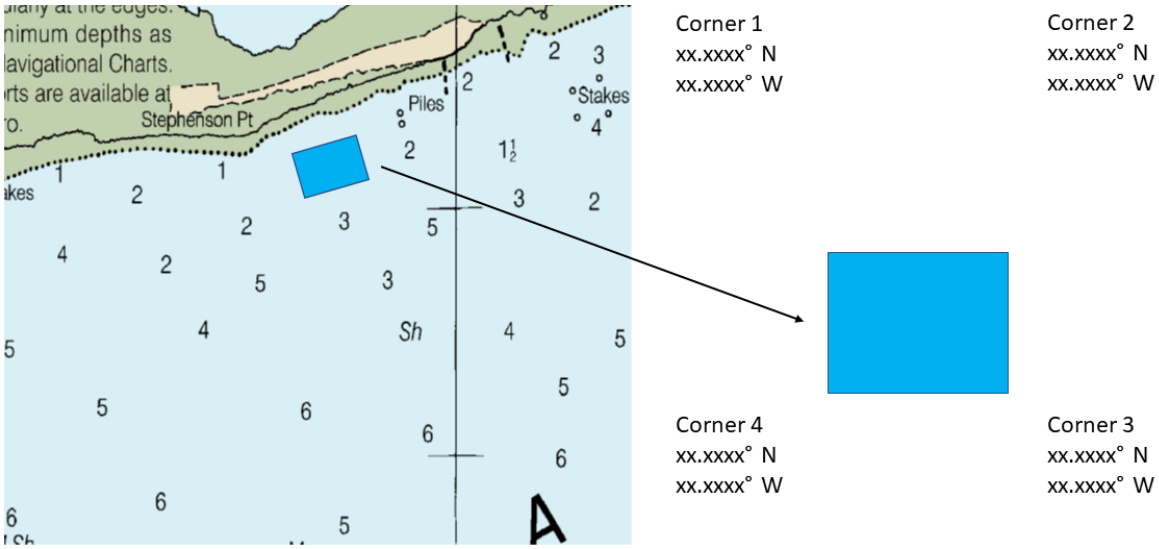
_____ Please do not staple applications.

- Before submitting your application make sure you have answered all questions in parts A, B, C, and, and signed your application. Failure to do so may result in significant delays in processing time.

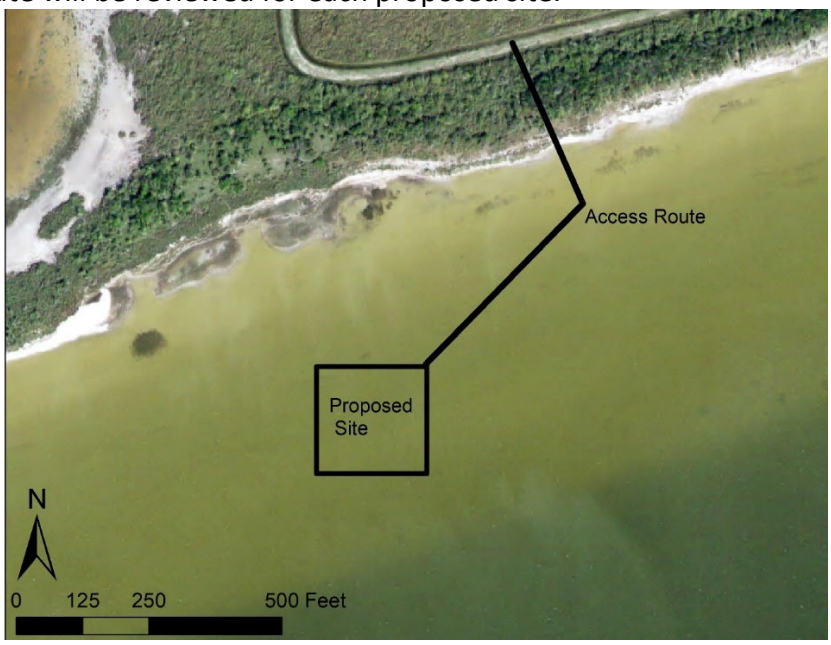
Appendix A: Examples

The following are examples of the various diagrams that must be included in your Operation Plan. These diagrams can be hand-drawn on separate sheets of paper but must be legible.

Example 1: Vicinity Map
Corner numbering should start at the NW most point and move in a clockwise direction. Number designation here should also be consistent with your cross-section diagrams.

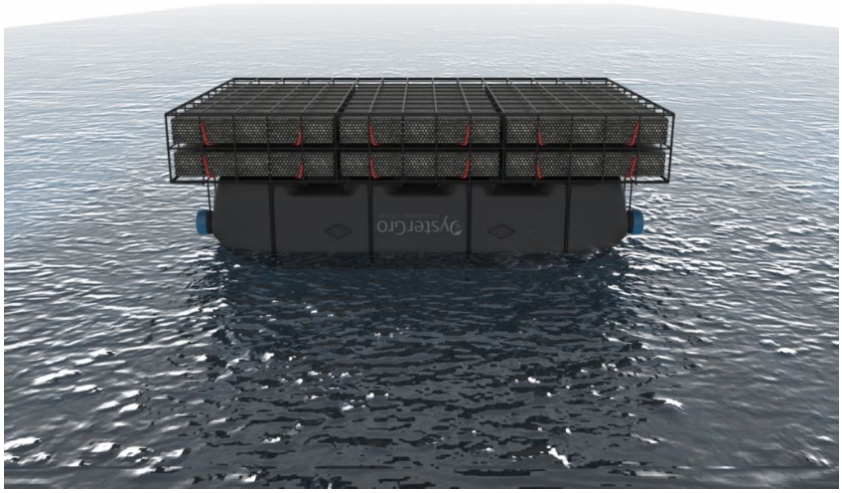


Example 2: Access Route Map
Note how the access route is planned to avoid tidal flats, salt marshes and seagrasses that are in the vicinity (to the northwest) of the site. The impact to natural resources within the site footprint and along the access route will be reviewed for each proposed site.



Example 3: Gear Information

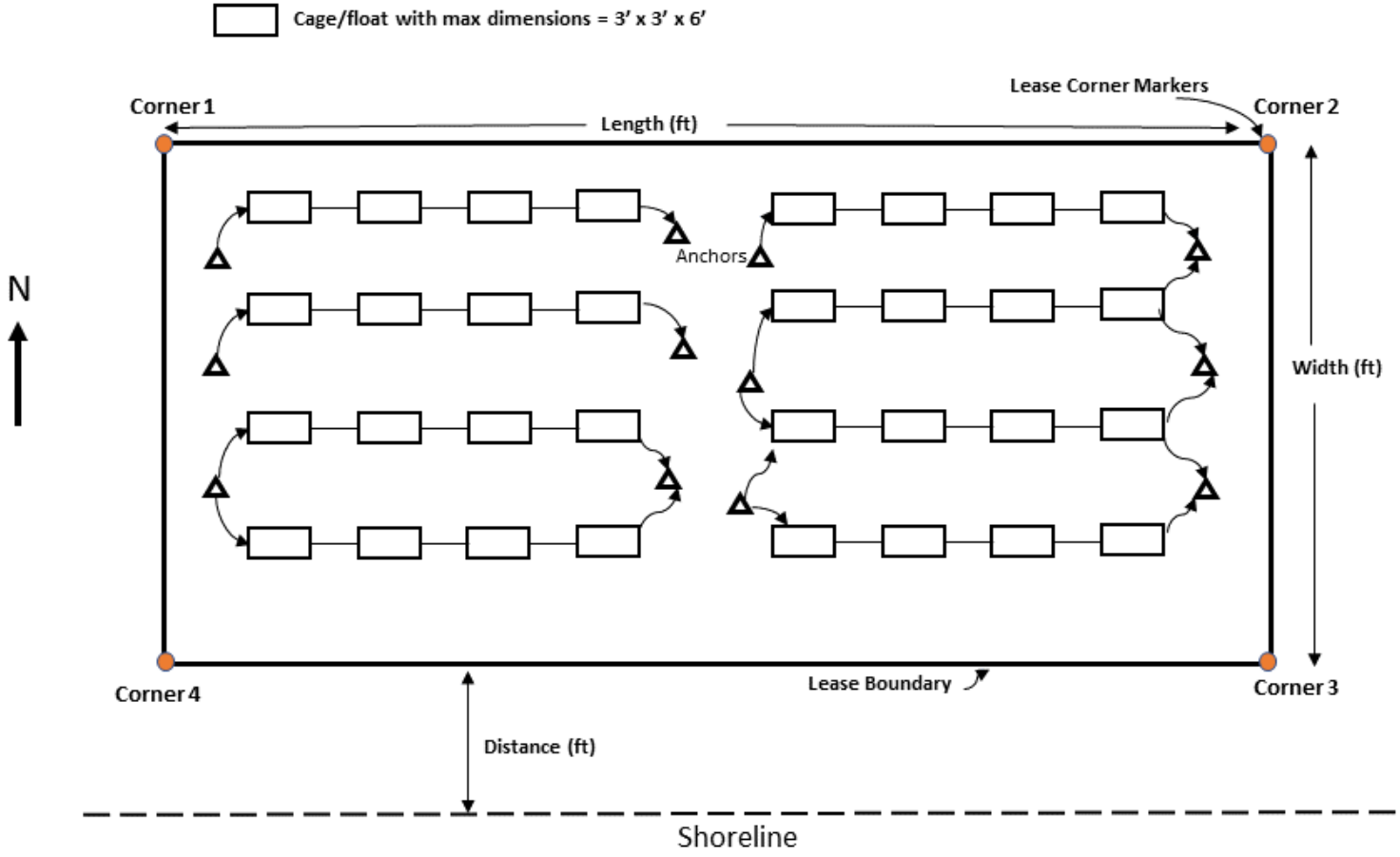
An example photo/drawing of a cage and oyster grow bag



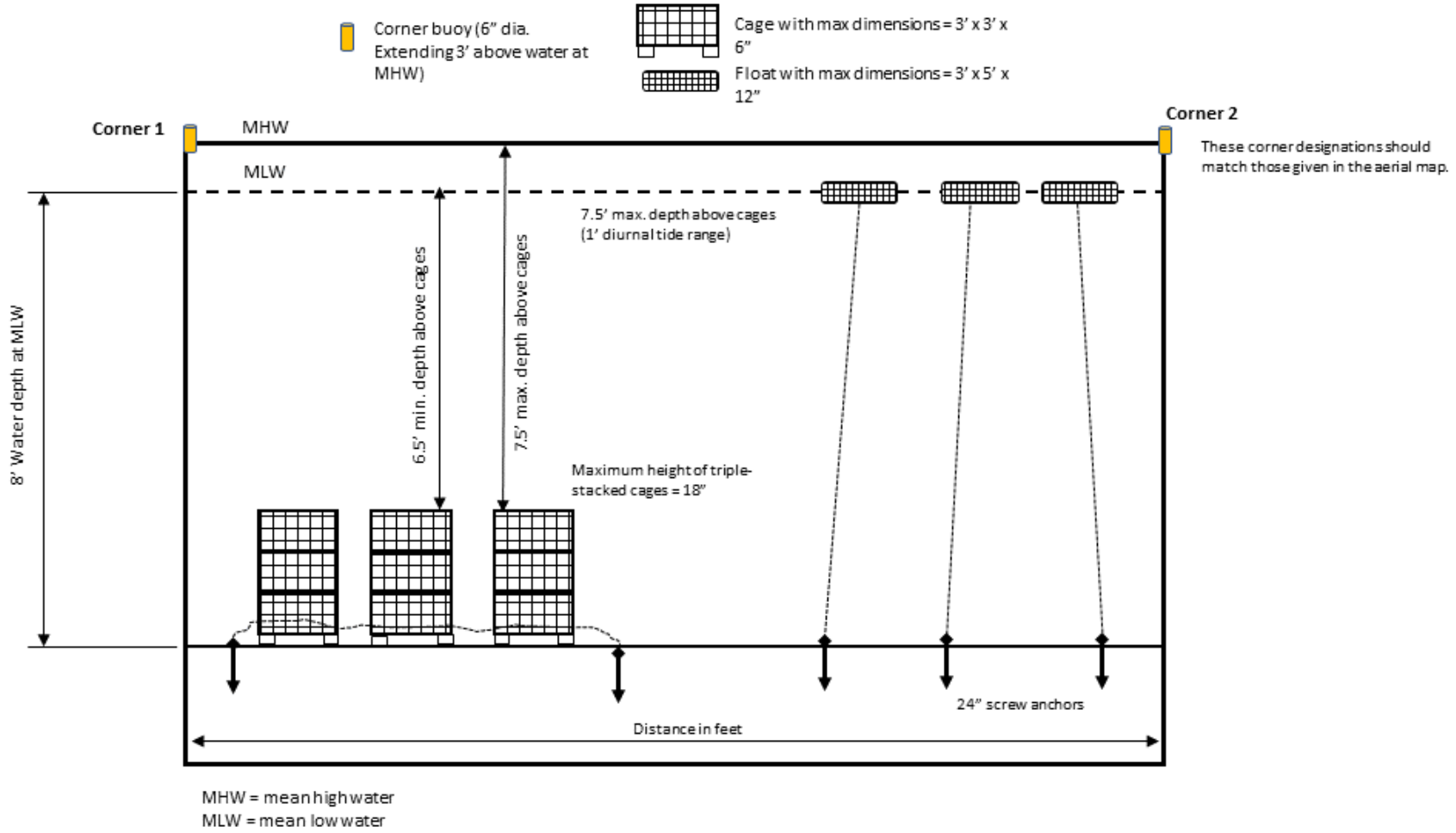
Example 4: Site Layout Map - Overhead

*Note how the maximum gear array is displayed and not a subset of the proposed site.

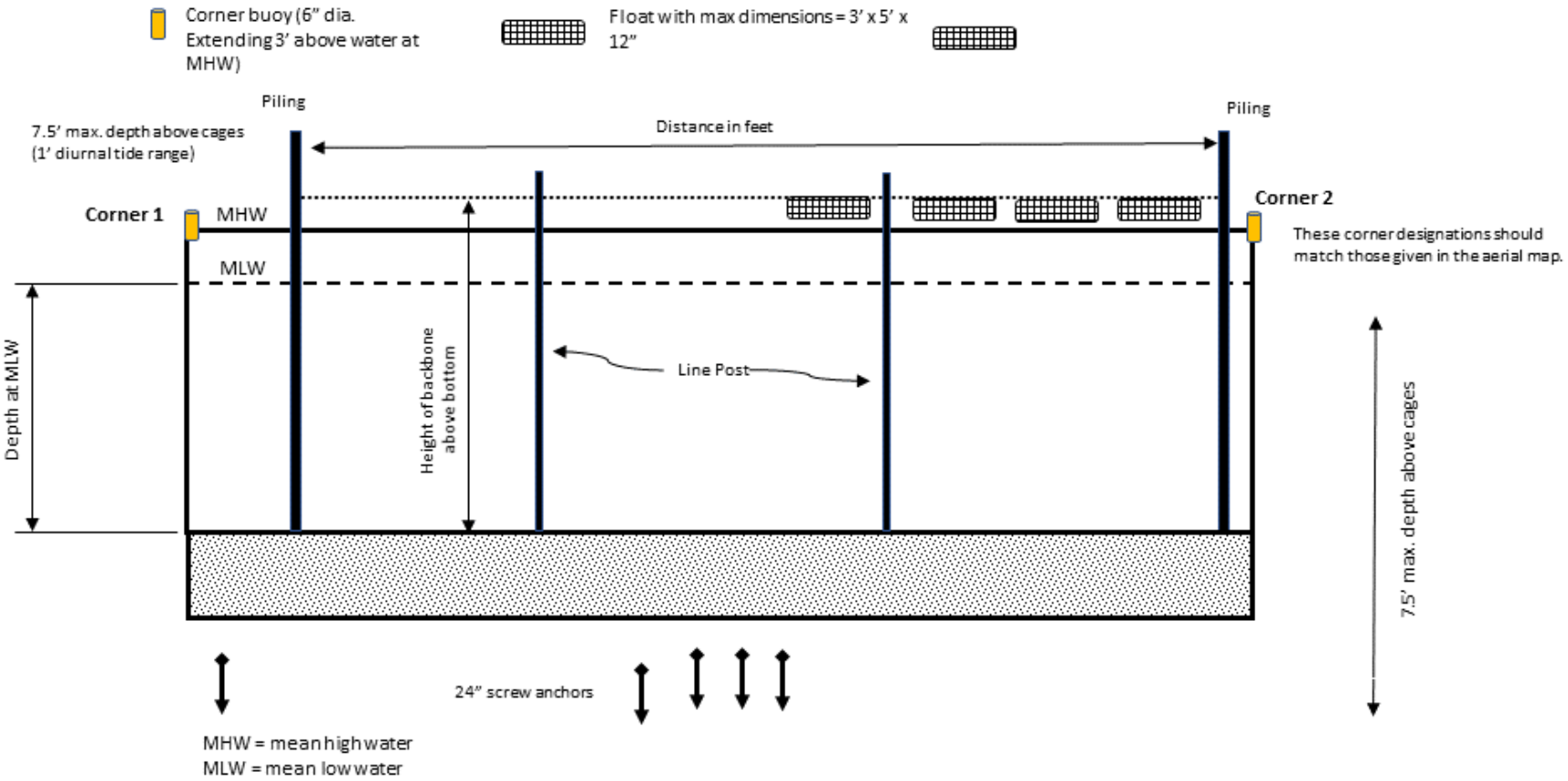
Spacing between individual cages/racks/floats:___feet
Spacing between arrays of cages/racks/floats:___feet
Maximum number of cages/racks/floats to be used:____



Example 5: Cross-Sectional View Map, floating cages



Example 6: Cross-Sectional View Map, adjustable long line system



Appendix B: Natural Resources Survey

Survey purpose

The purpose of the natural resources survey is to ensure no sensitive habitats or natural resources will be negatively impacted by Commercial Oyster Mariculture operations. Sensitive habitats include seagrasses, oysters, and other biogenic reefs (Rangia, serpulid, etc.), as well as intertidal habitats such a saltmarsh, mangroves, and tidal flats. Natural resources include areas that are essential for fish and wildlife species, such as bird rookeries, designated Threatened and Endangered (T&E) species critical habitats, and protected conservation areas.

To minimize impacts to sensitive habitats, the following buffers have been established:

- 200-feet for seagrass habitat
- 500-feet for oyster habitat
- 2,000-feet for bird rookeries
- Avoid serpulid reefs within proposed area

Applicants are strongly encouraged to coordinate with Texas Parks and Wildlife Department (TPWD) before completing their field natural resource survey and COM permit application. During this pre-application coordination, TPWD will evaluate your proposed site using the department's Spatial Planning Tool (STP), which can help avoid investing effort into a site that may be denied during the permitting process.

The field survey (to be completed by applicant) will ONLY investigate the presence of seagrass and oyster habitats (see Field Survey Protocols below on how these are to be conducted). The remainder of the sensitive habitats and natural resources will be evaluated by TPWD staff using their SPT and/or site visits at their discretion.

Desktop Analysis with TPWD Spatial Planning Tool (Strongly Encouraged)

Coordination with TPWD before commencing the field survey is strongly encouraged, the staff will use the SPT with all submitted applications, prior consultation will reduce the chances of applicants having to conduct more field surveys. TPWD staff will review the proposed location using SPT that has been developed to identify current and historic natural resource concerns along the Texas coast. The SPT also identifies additional concerns that may be identified by other agencies later in the permitting process where TPWD is not the coordinating agency (navigation concerns, conflicting use, etc.). Reviewing sites with TPWD and the SPT may prevent unnecessary expenditures on field surveys and subsequent permit applications by preemptively identifying excluded sites. Spatial data from previous habitat mapping efforts have been curated into the SPT to expediate site review, and the tool will be updated annually with new data.

The SPT includes information on:

- Sensitive subtidal habitats (seagrass, oyster, other hard reefs)
- Sensitive intertidal habitats (saltmarsh, mangrove, tidal flats)
- Bird rookeries
- T&E species critical habitats*
- Restoration and mitigation sites*
- Conservation areas*
- Conflicting uses (such as spoil areas, sand sources, etc.) *
- Oil and gas infrastructure*
- Navigation concerns*
- Environmental conditions, including bathymetry, water quality (dissolved oxygen and salinity), and Health Department area designations*
- High-resolution imagery
    - Because mapping efforts in Texas have been limited, free and publicly available aerial imagery should be evaluated by a trained analyst to see if seagrass can be identified at the site. Imagery from multiple years should be used due to intra-annual variability in seagrass extent. Imagery should only be used if water clarity was sufficient to visually examine the bottom. TPWD will use the 2009 and 2015 Texas Orthoimagery Program imagery and the 2018 National Agriculture Imagery Program (NAIP; found on the Texas Natural Resource Information System (TNRIS) website), and any additional imagery that may be available and be of sufficient quality (no turbidity, glare, etc.).

** Indicates that TPWD is not the coordinating agency for these concerns but is providing the information as a courtesy. These concerns will be officially coordinated by other agencies during the permitting process.*

If seagrass or oyster habitats are identified within the boundaries of the buffer around the site using any of the above data sources, then the site will be rejected for COM activities. If seagrass or oyster habitats are absent from the above analysis, then a field survey must be completed to confirm seagrass/oyster absence at the proposed site.

To schedule a site coordination meeting, please contact: oyster.mariculture@tpwd.texas.gov

Field Survey Protocols

Applicants have the option of completing either a sidescan sonar survey (with in-situ sediment grab ground-truthing) or a higher density in-situ sediment grab survey – the decision for which type of field survey should be based on logistic considerations (project size, equipment availability, etc.) and time of the survey. Sidescan SONAR surveys (with ground-truthing) will only be an accepted if conducted during the seagrass growing season (May 1 – November 30). Natural resources surveys should be completed within 1 year prior to submitting the permit application. Sites that were surveyed greater than 1 year prior to the application will need to be re-surveyed.

It is suggested that applicants visually inspect the site by boat (if water clarity allows) to ensure no seagrass or oyster habitats are present before commencing the field survey, and to adjust the footprint of their proposed site accordingly. Visual boat surveys alone will not be accepted as 1) some habitat features will not be visible from that boat regardless of water clarity (seagrass rhizome presence) and 2) sufficient water clarity for accurate habitat identification cannot be guaranteed. If seagrass is visible from the boat, it is strongly recommended that the applicant reconsider the location of the site and resulting survey.

NOTE: If seagrass or oysters are identified in a sample during the survey, all COM activities will be rejected within the appropriate buffer distance of the sample or detected sonar feature (200’ for seagrass, 500’ for oysters).

Sidescan SONAR Survey (with Ground-Truthing)

Sidescan SONAR surveys can be cost-effective when surveying large areas (>5 acres). They provide full-coverage images of the survey area and thus can have better spatial resolution than in-situ surveys alone. A sidescan survey can be used to identify seagrass above-ground biomass and oyster habitat features but cannot be used to verify presence of below-ground seagrass biomass (rhizomes). For this reason, additional in-situ sampling at a reduced density is required to validate the results of SONAR surveys and confirm absence of seagrass rhizomes.

Limitations: Sidescan sonar surveys may be limited by water depths and are not suggested in less than 3’ of water. Sonar surveys for seagrass are also limited by season and are only appropriate for identifying seagrass during the growing season (May 1 – November 1). **Outside of this season, the in-situ method (below) is required to confirm absence of seagrass.**

Surveys can be completed using recreational units (e.g. Hummingbird, Garmin, Lowrance, etc.) as long as the equipment and product meets the specifications outlined below.

<u>Survey and Equipment Specifications:</u>

- SONAR Frequency: 200-1200 kHz
- SONAR Range: Maximum of 10x water depth
- SONAR Coverage Overlap: 15%
- SONAR data should be collected concurrently with integrated GPS data

- Survey boats should be operated at < 4 mph.
- SONAR surveys must be ground-truthed using the methods outlined in the next section
- SONAR surveys should not be conducted if wave height is >2.0 ft or during rainfall as these conditions will negatively impact the quality of the SONAR data.
- SONAR surveys should encompass the entirety of the proposed COM site and the maximum required 500 ft buffer (i.e., oyster habitat buffer) surrounding the site. Note, that it may be beneficial to survey a larger area so that the location of the proposed COM site can be altered to avoid conflicts if they are found in the proposed project area.

Ground truthing

Sidescan sonar surveys must be verified using in-situ sediment grab ground-truthing observations. Samples can be collected with any grab sampler that penetrates to a depth of 3-5 inches, including Ponar, post-hole digger, or other grab samplers. If the sample is on a consolidated oyster reef, penetration to 3-5" is not required. Sample diameter should be 4 – 6" at a minimum. Sampler should retain enough sediment to be able to detect presence of seagrass rhizomes.

For each grab sample a photo must be taken, GPS coordinates given, and bottom classification recorded. Classifications should include, at a minimum: oyster habitat, above ground seagrass, below ground seagrass (rhizomes), or unconsolidated sediments (see Habitat definitions).

In-situ ground-truthing coverage pattern must adhere to the following specifications:

- In the proposed permit area:
    - Sixteen (16) samples should be collected per acre.
    - Samples should be collected every 69' along transects that are spaced 69' apart (Figure 1)
- In the 200-ft buffer surrounding the permit area:
    - Nine (9) samples should be collected per acre.
    - Samples should be collected every 104' along transects that are spaced 104' apart (Figure 1)
- In the 500-ft buffer surrounding the permit area:
    - Only features that are identified in the SONAR survey need to be sampled with 3 samples per acre per feature.
- All features identified in the sidescan imagery (seagrass or oyster) shall be sampled to verify habitat type using a minimum of 3 samples per feature.
    - If any features in the sidescan imagery are not sufficiently sampled using the methodology above (i.e. 69' x 69' sampling pattern), additional samples should be taken.
    - If any ground-truthing samples in a feature detect the presence of habitat, the entire feature will be classified as that habitat and the appropriate buffers will be enforced from the delineated edge of the feature.

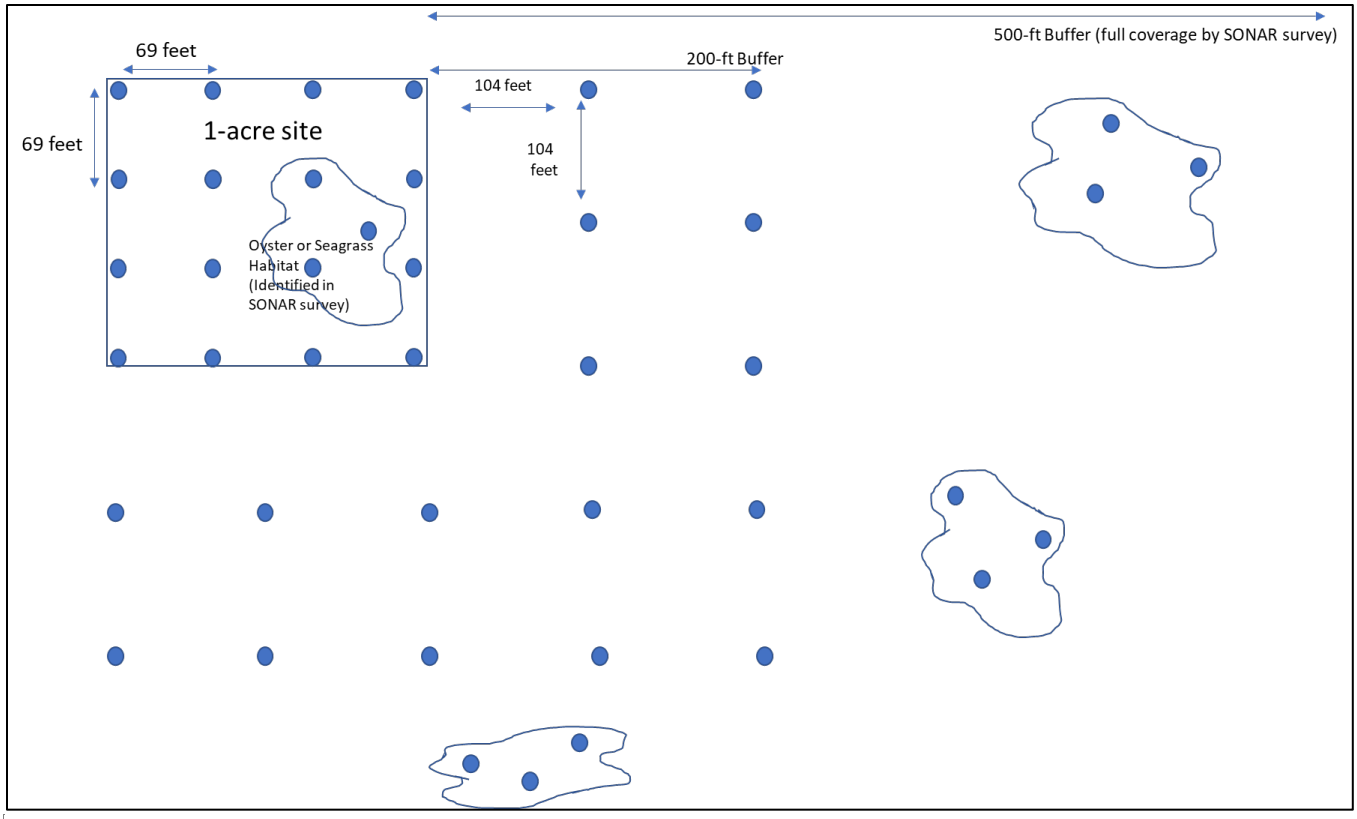


Figure 1. Sample spacing for ground-truthing SONAR surveys. Sixteen (16) samples per acre should be collected within the proposed permit site area, with samples collected every 69' along transects that are spaced 69' apart. In a 200' buffer area around the proposed site, nine (9) samples should be collected per acre, with a sample every 104' along transects that are spaced 104' apart. Between the 200' buffer area and 500' buffer area, only features that are identified in the sidescan need to be verified with 3 in-situ samples per acre per feature.

<u>Products/reporting</u>

Applicant should provide the following in the report:

- Survey metadata (word document), which should include
    - Who collected the data
    - What date/time the data were collected
    - What the environmental conditions were at time of collection (wind speed, wave height, rainfall, etc.)
    - What type of equipment was used to collect the data, and any appropriate specifications
        - Includes a description of the sonar unit and specifications listed above (frequency, range, transect spacing, etc.)
        - Includes a description of the grab sampler and grab size
    - The horizontal datum used for all spatial data and GPS coordinates

    - A summary of findings. This should include a narrative description of the general conditions at the site (including water depth), as well as a report of how many samples contained shell or seagrass materials, and the general location within the site where these materials were found.
- A processed and mosaicked SONAR image of the proposed site in GeoTIFF format
- A polygon file (.shp or .kml) of all delineated habitat features. Please provide a single shapefile or KML with all observations if possible.
- Ground-truth observations, provided as point shapefile (.shp) or excel spreadsheet, including sampling coordinates and sample results (reporting requirements described below). Please provide a single shapefile or KML with all observations if possible.
- Photographs should be provided of each grab sample

In-Situ Grab Sample Only Survey

Higher density in-situ sediment grab sample surveys may be effective for smaller sites (< 5 acres) and are required if the survey is completed during December through April.

Samples can be collected with any grab sampler that penetrates to a depth of 3-5 inches, including Ponar, post-hole digger, or other grab samplers. If the sample is on a consolidated oyster reef, penetration to 3-5" is not required. Sample diameter should be 4 – 6" at a minimum. Sampler should retain enough sediment to be able to detect presence of seagrass rhizomes.

For each grab sample a photo must be taken, GPS coordinates given, and bottom classification recorded. Classifications should include, at a minimum: oyster habitat, above ground seagrass, below ground seagrass (rhizomes), or unconsolidated sediments (see Habitat definitions).

In-situ grab sample coverage pattern must adhere to the following specifications:

- <u>In the proposed permit area</u>:
    - 49 samples should be collected per acre.
    - Samples should be collected roughly every 35' along transects that are spaced 35' apart (Figure 2) starting at the corner coordinate of the site. This allows for habitat detection at a threshold of 1/36th of an acre, which allows habitat (if detected) to be delineated for avoidance.
- <u>In the 500-ft buffer surrounding the permit area</u>:
    - Sixteen (16) samples should be collected per acre, which allows for habitat detection threshold of ~1/10th acre.
    - Samples should be collected every 69' along transects that are spaced 69' apart (Figure 2)

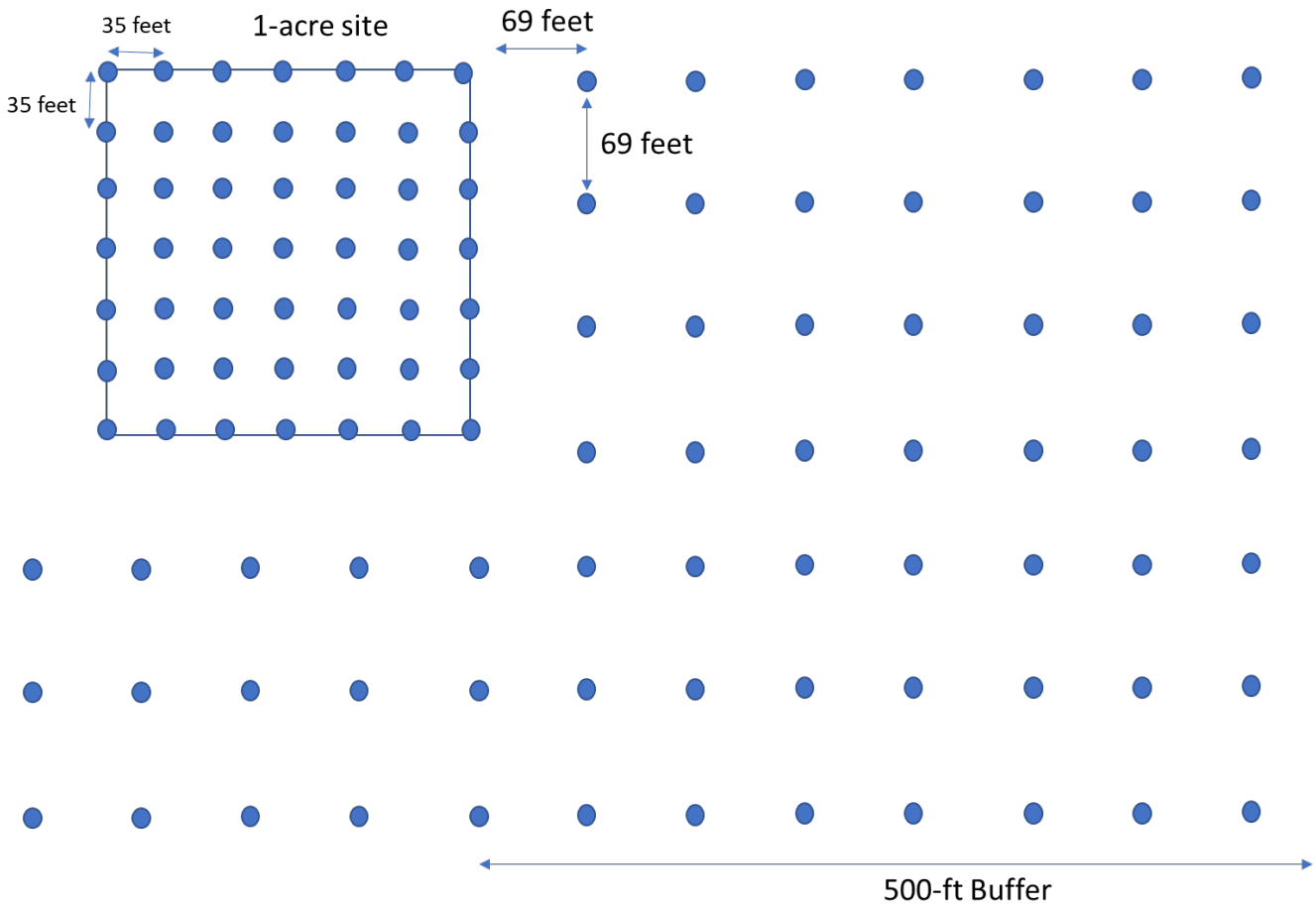


Figure 2. Sample spacing for in-situ surveys. Forty-nine (49) samples per acre should be collected within the proposed permit site area, with samples collected every ~35' along transects that are spaced 35' apart. Sixteen (16) samples per acre should be collected within the 500-ft buffer area, with samples collected every 69' along transects that are spaced 69' apart.

Applicant should provide the following in the report:

- Survey metadata (word document), which should include
    - Who collected the data
    - What date/time the data were collected
    - What the environmental conditions were at time of collection (wind speed, wave height, rainfall, etc.)
    - What type of grab sampler was used to collect the data, description, and grab size
    - The horizontal datum used for all GPS coordinate data
    - A summary of findings. This should include a narrative description of the general conditions at the site (including water depth), as well as a report of how many samples

contained shell or seagrass materials, and the general location within the site where these materials were found.

- Observations should be provided as point shapefile (.shp) or excel spreadsheet. For each sample, provide 1) the sampling coordinates, 2) the water depth, and 3) the bottom characteristics. Please indicate if shell material or seagrass material are present within the sample.
- Photographs should be provided of each grab sample

Habitat definitions

"Seagrass habitat" is defined as the presence of above-ground or below-ground (rhizome) biomass of any of the 5 species of seagrasses that occur in Texas, including Shoalgrass (*Halodule beaudettei*), Widgeongrass (*Rupia maritima*), Manatee grass (*Syringodium filiformes*), Turtle grass (*Thalassia testudinum*), and Star grass (*Halophila engelmanii*). In a grab sample survey, this would be any sample that has rooted seagrass material present. In a sidescan survey, this would be any feature that is visible in the imagery where in-situ grabs confirm the presence of rooted seagrass – in this case, the entire seagrass feature would be avoided using a 200' buffer. Using TPWD's Spatial Planning tool, this habitat definition also includes any seagrass habitats that have been identified in the past 20 years by accurate mapping efforts. If seagrass is present at a single sampling location, that location should be avoided with a 200' buffer.

"Oyster habitat" is defined as the presence of live oysters OR the presence of consolidated oyster shell substrates OR shells greater than 25 mm. In a grab sample survey, this would be any sample that is dominated by shell substrates, or contains shell fragments greater than 25 mm. In a sidescan survey, this would be any feature that is visible in the imagery where in-situ grabs confirm the presence of shell material – in this case, the entire oyster feature would be avoided using a 500' buffer. Using TPWD's Spatial Planning tool, this habitat definition also includes any oyster habitats that have been identified in the past by accurate mapping efforts. Live oysters do not need to be present in order to define the area as "oyster habitat" due to seasonal variation in oyster production and mortality. If oyster habitat is present at a single sampling location, that location should be avoided with a 500' buffer.

"Other biogenic habitats" include all remaining hard reefs that are formed by living organisms, such as Rangia clams or serpulid worms. If serpulid reef presence is suspected at the site, please consult with TPWD and the SPT before completing in-situ sampling – serpulid reefs are fragile and can be negatively impacted by in-situ sampling. Sensitive intertidal habitats include all vegetated intertidal habitats (vegetation, including *Spartina* marsh, mangroves, or other saltmarsh plants present between the high tide and low tide lines) as well as vegetated and non-vegetated tidal flats. *These habitats will not be surveyed as part of the field survey but* will be assessed using the optional Desktop Analysis by TPWD. Potential impact to these habitats is dependent on the operations plan (e.g. if the site will be accessed through sensitive habitats).

NOTE: There is no threshold of density required to classify an area as a “sensitive habitat”. The department will evaluate each application separately based on the most current data available through the Spatial Planning Tool, the Natural Resource Survey and input from local department staff. TPWD reserves the right to use our discretion when habitats are not clearly discernable based on the results of the natural resource survey.

Rookeries must be avoided with a 2000’ buffer. Rookeries are defined as any site that supports breeding activity from any of the bird species listed in Table 1. Sites that have been inactive for more than 20 years, are degraded (e.g. fully submerged) so that they can no longer support bird activity and are not priorities for restoration may be reviewed on a case-by-case basis to determine if the 2000’ buffer is applicable. *These habitats will not be surveyed as part of the field survey but* will be assessed using the optional Desktop Analysis by TPWD.

Table 1. Colonial waterbird species whose rookeries should be avoided.

Colonial Waterbird species list
Pelicaniformes
American White Pelican, *Pelecanus erythrorhynchos*
Brown Pelican, *Pelecanus occidentalis*
Neotropic Cormorant, *Phalacrocorax brasilianus*
Wading Birds
Great Blue Heron, *Ardea herodias*
Great Egret, *Ardea alba*
Snowy Egret, *Egretta thula*
Reddish Egret, *Egretta rufescens*
Tricolored Heron, *Egretta tricolor*
Little Blue Heron, *Egretta caerulea*
White Ibis, *Eudocimus albus*
White-faced Ibis, *Plegadis chihi*
Glossy Ibis, *Plegadis falcinellus*
Roseate Spoonbill, *Ajaia ajaja*
Gulls, Terns, Skimmers
Laughing Gull, *Larus atricilla*
Caspian Tern, *Sterna caspia*
Royal Tern, *Sterna maxima*
Forster's Tern, *Sterna forsteri*
Least Tern, *Sterna antillarum*
Gull-billed Tern, *Sterna nilotica*
Sooty Tern, *Sterna fuscata*
Sandwich Tern, *Sterna sandwicensis*
Black Skimmer, *Rynchops niger*
Black-crowned Night-Heron, *Nycticorax nycticorax*
Yellow-crowned Night-Heron, *Nyctanassa violacea*
Shorebirds
American Oystercatcher, *Haematopus palliatus*
Inland/Other
Anhinga, *Anhinga anhinga*
Green Heron, *Butorides virescens*
Cattle Egret, *Bubulcus ibis*
Double-crested Cormorant, *Phalacrocorax auritus*
Black-necked Stilt, *Himantopus mexicanus*

Please return completed application to:
Coastal Fisheries
Texas Parks and Wildlife Department
4200 Smith School Road Austin, Texas 78744.

To process your request more efficiently, you may email completed forms to

oyster.mariculture@tpwd.texas.gov

Texas Parks and Wildlife Department maintains the information collected through this form. With few exceptions, you are entitled to be informed about the information we collect. Under Sections 552.021 and 552.023 of the Texas Government Code, you are also entitled to receive and review the information. Under Section 559.004, you are also entitled to have this information corrected. For assistance call 800-792-1112.