Connecticut Department of
Energy & Environmental Protection
Bureau of Water Protection & Land Reuse
Land & Water Resources Division

# LWRD License Application Form C

## Check Application Type:

- ☒ **Structures, Dredging & Fill (SDF)**
- ☐ **Structures, Dredging & Fill & Tidal Wetlands (TW)**
- ☐ **Structures, Dredging & Fill & Section 401 Water Quality Certificate (WQC)**
- ☐ **Structures, Dredging & Fill; TW; Section 401 WQC**
- ☐ **Section 401 Water Quality Certificate** **(Tidal Waters, Federal Agency Activity only)**

All sections of the LWRD application, when applicable, must be posted to the DEEP LWRD FTP site as instructed on Part VII of the LWRD Transmittal Form. See LWRD Application Instructions for general guidance.

Application Number (as assigned in CPPU e-mail): 202010912

Applicant Name (same name used on Part III of the LWRD Transmittal Form): Thimble Island Ocean Farm, LLC

## Part I: Pre-Submission Consultations

The application process requires preliminary coordination and input from other agencies/groups depending on the activity and the location. Consultations with other agencies must occur prior to application submission. Please allow 6-8 weeks for the necessary coordination. For this application, the applicant should start with these consultations, as applicable (See Part VI for further guidance).

**Attachments:**

| | | | |
|---|---|---|---|
| 20 | NDDB | 24 | Bureau of Aquaculture |
| 21 | Wildlife- osprey | 25 | Harbor Management Commission |
| 22 | Dredging Projects | 26 | Shellfish Commission |
| 23 | Fisheries | 27 | USACE |

## Part II: Notifications

1. **PUBLIC NOTICE OF APPLICATION – Attachment 1**
   One notice for any combination of these programs is acceptable. Please refer to the *Public Notice Requirements for Permit Applications* (DEEP-INST-005A). The public notice of application must be published prior to submitting an application, as required in CGS section 22a-6g. Refer to the LWRD Application Instructions for public notice language. A copy of the published notice of application and the completed Certification of Notice Form (DEEP-APP-005A) must be included as Attachment 1 to this application. Your application will not be processed if Attachment 1 is not included.

2. **ADJACENT PARCEL OWNER NOTIFICATION – Attachment 3**
   *(REQUIRED for Structures, Dredging and Fill & Tidal Wetland applications only)*
   The "*Certification of Notice Form - Notice of Application*" (Attachment 3) has to be mailed to any land owner of record for any property that is located five hundred (500) feet or less from the property line where the activity is proposed. See Part VI for further guidance.

3. **MUNICIPAL NOTIFICATION OF TIDAL WETLAND APPLICATION – Attachment 4**
   *(REQUIRED for Tidal Wetland applications only)*
   The applicant shall mail or e-mail a copy of the application to the chief administrative officer and the chairmen of the conservation and shellfish commissions. See Part VI for further guidance.

## Part III: Site and Resource Information

**1. SITE ADDRESS**

Street: [redacted] City/Town: [redacted] State: [redacted] Zip Code: _____

**2. MUNICIPAL ZONING**

Is the proposed work consistent with municipal zoning requirements?

☒ Yes ☐ No If no, explain: _____

**3. WATERBODY/WATERCOURSES/WETLANDS**

List names of all waters impacted by the proposed activity: [redacted]

**4. INDIAN LANDS**

Is the activity that is the subject of this application located on federally recognized Indian lands? ☐ Yes ☒ No

**5. AQUIFER PROTECTION AREAS**

Is the site located within a mapped Level A or Level B Aquifer Protection Area, as defined in CGS section 22a-354a through 22a-354bb?

☐ Yes ☒ No If yes, check one: ☐ Level A or ☐ Level B

If Level A, are any of the regulated activities, as defined in RCSA section 22a-354i-1(34), conducted on this site? ☐ Yes ☒ No

If yes, and your business is **not** already registered with the Aquifer Protection Program, contact the aquifer protection agent or DEEP to take appropriate action. For more information on the Aquifer Protection Area Program, contact the program at 860-424-3019 or visit the website at www.ct.gov/deep/aquiferprotection. See LWRD Application Instructions for further guidance.

**6. CONSERVATION OR PRESERVATION RESTRICTIONS**

Will the activity which is the subject of this application be located within a conservation or preservation restriction area? ☐ Yes ☒ No

If yes, provide proof of written notice of this application to the holder of such restriction, and/or or a letter from the holder of such restriction verifying that this application is in compliance with the terms of the restriction, as Attachment 8.

**7. LICENSE HISTORY**

Indicate the number and date of issuance of any previous state permits or certificates issued by DEEP or USACE which authorized work at the site, and the names to whom they were issued.

| *License/Permit/COP Authorization Number and Name of Agency* | *Date Issued* | *Name of Permittee/ Certificate Holder* | *Brief Description of Work Authorized* |
|---|---|---|---|
| See Attached | _____ | _____ | _____ |
| _____ | _____ | _____ | _____ |
| _____ | _____ | _____ | _____ |
| _____ | _____ | _____ | _____ |

## Part III: Site and Resource Information (continued)

**8. SOIL AND/OR GROUNDWATER REMEDIATION**

Does the site work include soil and/or groundwater remediation? ☐ Yes ☒ No

If yes, please provide reference documentation including a) plan views of the site showing the area of contamination and b) a summary of remediation with chemical analysis, clean-up status, and remediation program identification, as Attachment 9.

**9. ENFORCEMENT HISTORY**

Is this application associated with a formal or informal enforcement action that is pending with DEEP?

☐ Yes ☒ No

If yes, please provide the enforcement action reference number and name of the DEEP staff contact:

Enforcement Action #: _____

DEEP Division/Program: _____

DEEP Staff Contact: _____

If the property was the subject of any historical enforcement actions known to the applicant, explain:

_____

**10. Regulatory Limit** – See Reference Guide for Regulatory Jurisdiction for further explanation if necessary. Indicate the landward extent of the State's regulatory jurisdiction by checking one box:

☐ **Coastal Jurisdiction Line** (CJL)− for CJL information, refer to the Coastal Jurisdiction Fact Sheet and Chart.

☐ **Mean High Water** (MHW) − for projects located upstream of a tide gate, dam or weir (structure must be shown on project plans).

☐ **Tidal Wetland Boundary** – To be used if tidal wetlands are located landward of CJL or MHW. Include one foot above local extreme high water, if applicable.

**11. Tidal Elevations**

Provide site elevations for CJL, MHW, Mean Low Water (MLW) and the High Tide Line (HTL)* in NAVD88. For general elevation reference, refer to USACE Tidal Flood Profiles:

CJL = 4.3' MHW = 2.66' MLW = -3.19' HTL = N/A

*The HTL is necessary for USACE jurisdiction and required as part of the USACE application.

## Part III: Site and Resource Information (continued)

**12. Coastal Resource Impact Table**

Check the applicable boxes below to identify coastal resources to be impacted by the proposed activity at the project site. Describe the impacts, as applicable. For definitions, refer to the Connecticut Coastal Management Manual.

| Resource Type | square feet | | | Describe Impacts |
|---|---|---|---|---|
| | Permanent impact | Temporary impact | Mitigation | |
| ☐ Beaches/Dunes below HTL below CJL | | | | |
| ☐ Tidal Wetlands | | | | **Identify if existing vegetation is salt, brackish or freshwater wetland.** |
| ☐ Nearshore waters | | | | |

| Resource Type | Describe Impacts (temporary and permanent) |
|---|---|
| ☒ Benthic Habitat | Embedment anchors on the sea bottom |
| ☐ Intertidal Flats | |
| ☐ Submerged Aquatic Vegetation (SAV) | |
| ☐ Rocky Shorefront | **Include rocky intertidal areas.** |
| ☐ Finfish | |
| ☐ Wildlife | |
| ☐ Shellfish Areas | **Maps available at The Aquaculture Mapping Atlas.** |
| ☐ Coastal Hazard Area | **Discuss FEMA compliance.** |
| ☐ Bluffs/Escarpments | **Describe impacts associated with flood and erosion control structures.** |
| ☐ Islands | **If new access is proposed, describe how island resources will be impacted.** |
| ☐ Coastal Flooding | **Describe how tide gates/fill/seawall height increases will impact flooding.** |
| ☐ Water Circulation Patterns | **Describe impacts from groins/abutments/jetties.** |
| ☐ Drainage Patterns | **Describe impacts from impervious surfaces/outfalls/weep holes and stormwater modifications.** |
| ☐ Visual Quality | **Only applies to public views of statewide scenic significance.** |
| ☐ Water Quality | **Discuss sediment and erosion controls, water handling, and stormwater treatment.** |

## Part IV: Project Information

Please note: Upon adoption of the Long Island Sound Blue Plan, the policies of the Blue Plan will be factors for consideration for projects in the Blue Plan Policy Area boundary. The Policy Area boundary can be found on the Blue Plan Map Viewer, while the policies are located in Chapter 4 of the Blue Plan document.

1. Describe, briefly, the existing structures within state regulatory jurisdiction, and their conditions and uses at the site of the proposed work. **Provide photographs showing resources and existing site conditions as Attachment 10.**
   See attachment 10

2. a. Describe the proposed regulated work and activities in a detailed narrative, including the number and dimensions of structures and the volume and area of fill or excavations. See LWRD Application Instructions for required information.

   See Transmittal Form, Part II, Item 1a.

   b. Describe the construction activities involved for the project in detail, including methods, sequencing, equipment, and any alternative construction methods that might be employed. For coastal dredging projects, identify the type of equipment with bucket and barge capacity and, for upland disposal, provide containment facility details (See Reference for Coastal/Tidal Dredging).

   N/A

   c. Describe any erosion and sedimentation or turbidity control installation and maintenance schedule and plans in detail. Such plans should be prepared in accordance with the 2002 Connecticut Guidelines for Soil Erosion and Sediment Control, as revised, established pursuant to CGS section 22a- 328.

   N/A

   d. Anticipated date of project initiation: 11/01/20
   Indicate the length of time needed to complete the project and identify any anticipated time restrictions:
   N/A

3. For **new** structures, activities or encroachments, discuss project alternatives which were considered and indicate why they were rejected. After all measures to eliminate or minimize adverse resource impacts have been incorporated in the proposed project, describe why any adverse impacts that remain should be deemed acceptable by the Land & Water Resources Division. For projects involving stormwater management, low-impact development practices should be incorporated to the greatest extent practicable. Explain any reasons for not using a low-impact development practice. See LWRD Application Instructions for further guidance.

   _____

## Part IV: Project Information (continued)

4. The proposed work is associated with which of the following uses? (Check all that apply)

   ☒ Marine commercial/industrial use including aquaculture

   ☐ Flood and erosion control

   ☐ Residential boating access

   ☐ Shared residential boating access

   ☐ Public access

   ☐ Infrastructure improvement

   ☐ Other – explain: _____

5. If the site is a marina or yacht club, provide the following:

   a. Number of boat slips and moorings: _____ (should be consistent with plans submitted as Attachment 14)

   b. Type of marine sanitation service provided at the facility. _____

   c. ☐ Check here to confirm that at least one plan view notes the location of upland support including adequate parking, a marina office, and restrooms.

   d. Check the applicable services provided:

   ☐ boat repair/maintenance ☐ winter storage

   ☐ gas/fuel hook-up ☐ electric hook-up

   ☐ fishing amenities ☐ boating and/or equipment sales

6. If local/municipal review has or will require a Coastal Site Plan Review for activities at this site, please explain the associated upland work. _____

7. If a new or expanded flood and erosion control structure (e.g. seawall) is proposed, it would provide for the protection of:

   ☐ an infrastructural facility ☐ cemetery or burial grounds

   ☐ a water-dependent use ☐ a pre-1995 commercial or residential structure

   Please make sure Item 3., above, documents that there are no feasible, less environmentally damaging alternatives and include Attachment 18, Engineering Report Cover Sheet. Also, the municipality must forward the related Coastal Site Plan Review to LWRD. See LWRD Application Instructions for further guidance.

8. Identify and evaluate any potential beneficial or adverse impacts to:

   a. Navigation (include federal and local navigation channels and distance to nearby docks):
   See Transmittal Form, Part II, Item 1a.

   b. Public access to, and public use of, public trust lands and waters waterward of Mean High Water:
   See Transmittal Form, Part II, Item 1a.

## Part V: Engineering Support Documentation and Certification

Certain types of projects require documentation of engineering design. If you answer yes to questions 1 or 2 below, you must submit a completed ***Engineering Report Cover Sheet*** (DEEP-LWRD-APP-001R) as Attachment 18 along with the relevant engineering report(s).

1. Does the proposed activity include engineered structures such as bridges, culverts, stormwater management systems, detention basins, and/or flood & erosion control structures?

   ☐ Yes ☒ No

2. Is the proposed activity located in a FEMA flood zone? ☐ Yes ☐ No

   a. If yes, indicate the type of zone:

      ☐ Floodway ☐ Riverine Floodplain ☐ New Engineered Structure in Coastal Floodplain

   b. If yes, provide documentation in the Engineering Report to demonstrate that the relevant hydraulic analysis has been found to be in compliance with FEMA's National Flood Insurance Program requirements and the local flood ordinance for the municipality.

   c. For activity in a Floodway, the Engineering Report must include a copy of a No-Rise Certification signed by a registered professional engineer. The No-rise Certification must be supported by technical data that is derived from a standard step-backwater computer model utilizing source data from the Flood Insurance Rate Map (FIRM) or Flood Boundary and Floodway Map (FBFM)

The *Engineering Report Cover Sheet* shall be signed and sealed by a Professional Engineer licensed in the State of Connecticut. Supporting documentation as identified in the checklist may consist of engineering studies and other documentation, as appropriate, in order to describe the hydrologic and hydraulic effects of the proposed actions.

## Part VI: Supporting Documents

The following attachments correspond to Form C. **If the Attachment name is followed by "REQUIRED", the attachment must be submitted with every application.** When submitting any supporting documents, please label the documents as indicated in this part (e.g., Attachment 1, etc.) and be sure to include the same applicant name used on Page 1 of this application form. Please check the box next to the attachments listed to indicate that they have been submitted, and provide the applicable attachments following this form. NOTE: Attachment numbering is NOT consecutive as the attachments relate to multiple LWRD program applications.

| Attachment ID | Attachment Description |
|---|---|
| ☒ **Attachment 1** | **Public Notice of Application REQUIRED**<br>A copy of the published notice of permit application, as described in the instructions, attached to a completed "*Certification of Notice Form- Notice of Application*" (DEEP-APP-005A) |
| ☒ **Attachment 3** | **Adjacent Parcel Notification REQUIRED**<br>*(Structures, Dredging and Fill & Tidal Wetland applications only)*<br>The "*Certification of Notice Form - Notice of Application*" (Attachment 3) has to be mailed to any land owner of record for any property that is located five hundred (500) feet or less from the property line where the activity is proposed. If the proposed work is entirely waterward of Mean High Water, but within the apparent riparian/littoral area of a shoreline property, that property should be used to compile the list of the names and addresses of all land owners of record located within five hundred feet from the property lines. Include any known claimants of water rights adjacent to the project and owners or lessees of shellfish grounds or franchises within the work area. Provide the names and mailing addresses for these individuals and a certified mail receipt to document that a copy of the Notice of Application was sent to each. |

## Part VI: Supporting Documents (continued)

☒ **Attachment 4** **Application Copy to Municipality**

**(REQUIRED for Tidal Wetland applications only)**
In accordance with CGS section 22a-32, the applicant shall mail or e-mail a copy of the application to the chief administrative officer and the chairmen of the conservation and shellfish commissions of the town or towns where the proposed work is located. Provide documentation such as a return receipt email or certified mail receipt to prove that such notification was completed. The applicant is also responsible for providing a copy of any substantive revisions made during the application review process.

☒ **Attachment 7** **Executive Summary REQUIRED**

Summarize the information contained in the complete application which must include a description of the proposed regulated activities and a synopsis of the environmental and engineering analyses of the impact of such activities. Include a list of the titles of all plans, drawings, reports, studies, appendices, or other documentation which are attached as part of the application.

☐ **Attachment 8** **Conservation or Preservation Restriction Information, if applicable.**

☐ **Attachment 9** **Remediation Documentation**, if applicable.

☒ **Attachment 10** **Photographs showing existing conditions of the site REQUIRED**

☐ **Attachment 13** **A-2, T-2 survey less than 5 years old REQUIRED**
Reference/FAQs for Survey Requirements

☒ **Attachment 14** **Project Plans,** use *Project Plan Checklist* for requirements **REQUIRED**

☐ **Attachment 18** ***Engineering Report Cover Sheet*** (DEEP-LWRD-APP-001R)

☐ **Attachment 20** **Natural Diversity Data Base (NDDB)**
If the proposed activity is within an NDDB area, complete and submit a *Request for NDDB State Listed Species Review Form* (DEEP-APP-007) to the address specified on the form, **prior** to submitting this application. For NDDB maps and more information, visit the DEEP website at www.ct.gov/deep/nddbrequest or call the NDDB staff at 860-424-3011.

Please note NDDB review generally takes 4 to 6 weeks and may require the applicant to produce additional documentation, such as ecological surveys, which must be completed prior to submitting this permit application. A copy of the NDDB Final Determination response letter that has not expired ***must*** be submitted as Attachment 20. Include a copy of any mitigation measures or management plan developed for this activity and approved by NDDB. Be aware that you must renew your NDDB Determination if it expires before project work commences.

☐ **Attachment 21** **DEEP Wildlife Division – Osprey Consultation**

If the proposed activity will occur within 300 feet of an osprey platform, please note that work will be prohibited between May 1st and July 31st unless a DEEP waiver is obtained. If this seasonal prohibition conflicts with the proposed work schedule, please contact the DEEP Wildlife Division's Wildlife Diversity Program staff at deep.wildlife@ct.gov or 860-424-3011 for technical assistance before submitting your application. If you are seeking a seasonal prohibition waiver, documentation of the waiver issued by Wildlife Diversity Program staff must be submitted as Attachment 21. For known nesting locations, reference the Osprey Map at:

https://www.google.com/maps/d/viewer?mid=1GyxnB-UAGxmselecH9Zj4UdH1ug&usp=sharing or https://www.ctaudubon.org/citizen-science.

## Part VI: Supporting Documents (continued)

☐ **Attachment 22** Dredging **Consultation Form**
*(**REQUIRED** for dredging activities only.)*
If dredging is proposed, please refer to Reference for Coastal/Tidal Dredging and submit a completed *Dredging Consultation Form*.

☐ **Attachment 23** **Fisheries Consultation Form**
If your project involves one or more of the following activities, check the applicable box(es) below and submit a completed *Fisheries Consultation Form* (DEEP-FISH-APP-007).

- ☐ new public/fishing access;
- ☐ beach nourishment;
- ☐ new docks and marinas on the Connecticut River;
- ☐ coastal/tidal dredging projects;

Note: Fisheries consultation is **not required** for docks and marinas on Long Island Sound.

☒ **Attachment 24** **Department of Agriculture/Bureau of Aquaculture Consultation**
If your project falls within one the categories below, check the box and submit a completed *Department of Agriculture/Bureau of Aquaculture Consultation Form*.

- ☒ any project in a municipality directly on Long Island Sound
- ☐ any project on the Connecticut River in Old Saybrook or Lyme
- ☐ any project on the Housatonic River in Stratford or Milford
- ☐ any project on the Thames River in New London, Waterford, Montville, Ledyard or Groton
- ☐ dredging projects only in Lyme, Essex, Orange, Derby/Ansonia, Norwich or Preston

☐ **Attachment 25** **Harbor Management Consultation Form**
If your town has a Harbor Management Commission, submit a completed *Harbor Management Commission Consultation Form*.

☒ **Attachment 26** **Shellfish Commission Consultation Form**
If your town has a Shellfish Commission, submit a completed *Shellfish Commission Consultation Form*.

☒ **Attachment 41** ***Applicant Compliance Information Form*** (DEEP-APP-002) **REQUIRED**.

☒ **Attachment 42** ***Applicant Background Information Form*** (DEEP-APP-008) **REQUIRED**.

☒ **Attachment 43** **Other Information:** Any other applicable information the applicant deems relevant or is required by DEEP.

# Form C Part III Item #7: License History

| License/Permit/COP Authorization Number and Name of Agency | Date Issued | Name of Permittee/Certificate Holder | Brief Description of Work Authorized |
|---|---|---|---|
| CT DEEP Permit #201201062-SJ | [redacted] | [redacted] | 2 experimental lines in 200-foot by 300-foot gear area on shellfish lease bed |
| USACE permit NAE-2007-2555 | [redacted] | [redacted] | 2 experimental lines in 200-foot by 300-foot gear area on shellfish lease bed |
| CT DEEP *De Minimis Approval to* Permit #201201062-SJ | [redacted] | [redacted] | Authorization under the existing permits to add five additional kelp lines to the farm (7 lines total) |
| USACE Amendment to permit NAE-2007-2555 | [redacted] | [redacted] | Authorization under the existing permits to add five additional kelp lines to the farm (7 lines total) |
| CT DEEP *De Minimis Approval to* Permit #201201062-SJ | [redacted] | [redacted] | To add oyster flip bags to kelp long lines on the farm |
| CT DEEP Re-authorization Permit #201201062-SJ | [redacted] | [redacted] | 7 long lines in the 200-foot by 300-foot gear area |
| USACE Re-verification of permit NAE-2007-2555 | [redacted] | [redacted] | 7 long lines in the 200-foot by 300-foot gear area |

| | | | |
|---|---|---|---|
| CT DEEP License #201910721-COP (Certificate of Permission) | [redacted] | [redacted] | Installation of five 150’ longlines, and two 160’ 5-line arrays for kelp cultivation; License #201910721-COP supersedes Permit #201201062-SJ |
| USACE modification to permit NAE-2007-2555 | [redacted] | [redacted] | installation of five 150’ longlines, and two 160’ 5-line arrays for kelp cultivation |

# List of Attachments

Attachment 1: Public Notice

Attachment 3: List of Adjacent Landowners

Attachment 4: Municipal Notification of Tidal Wetland Application

Attachment 7: Executive Summary

Attachment 10: Photographs

Attachment 14: Project Plans

Attachment 24: CT DEEP Department of Agriculture, Bureau of Aquaculture Pre-Submission Consultation Form

Attachment 26: Shellfish Commission Consultation Form

Attachment 41: Applicant Compliance Form

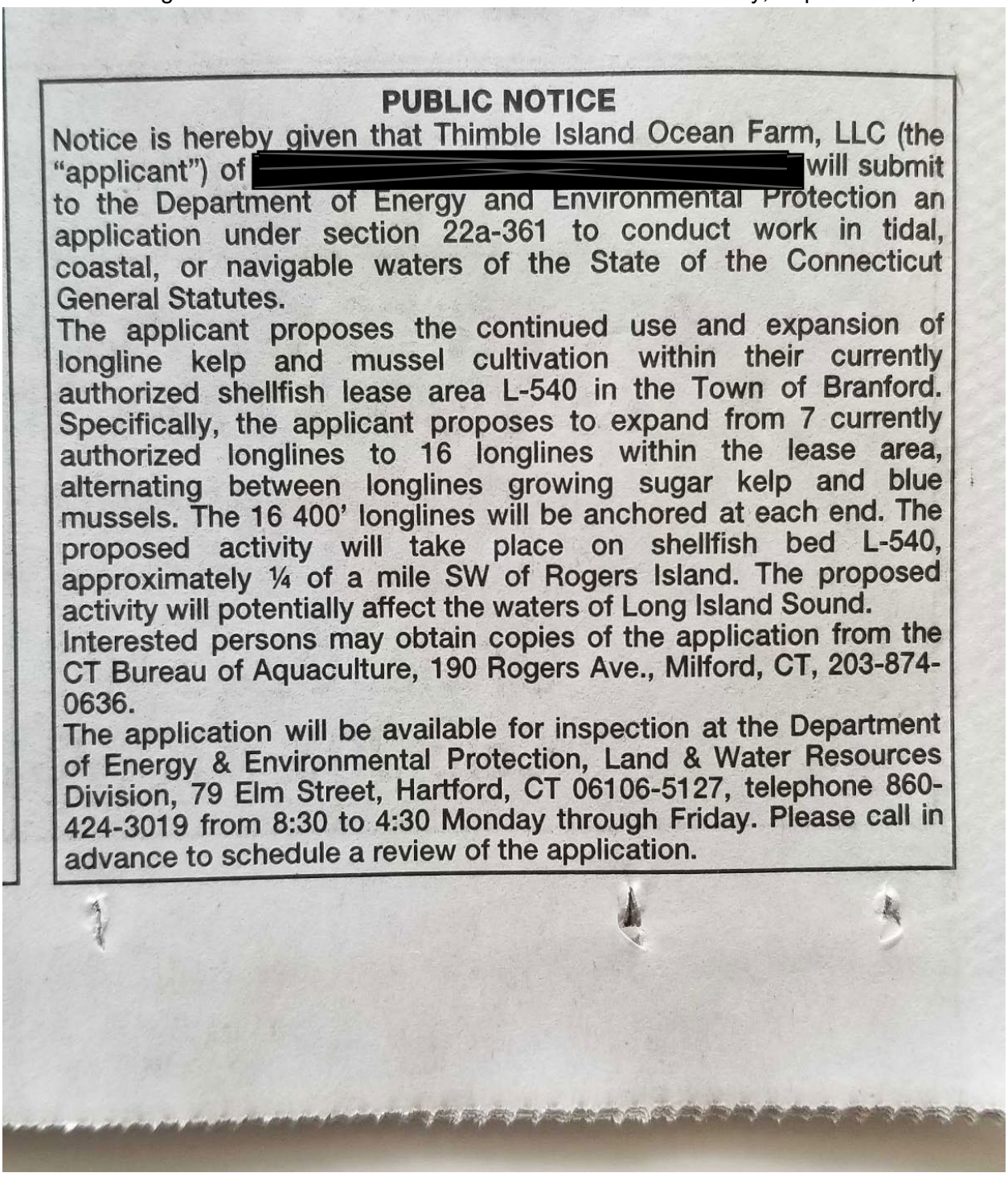
Attachment 42: Thimble Island Ocean Farm Background Information

Attachment 43: Other Information

- Town of Branford lease for L-540
- TIOF Monitoring/Maintenance and Ice Contingency Plan
- GreenWave response letter to CT DEEP Department of Agriculture, Bureau of Aquaculture July 9, 2020 letter

# Attachment 1: Public Notice

New Haven Register Friday, September 4, 2020



**PUBLIC NOTICE**

Notice is hereby given that Thimble Island Ocean Farm, LLC (the "applicant") of [redacted] will submit to the Department of Energy and Environmental Protection an application under section 22a-361 to conduct work in tidal, coastal, or navigable waters of the State of the Connecticut General Statutes.

The applicant proposes the continued use and expansion of longline kelp and mussel cultivation within their currently authorized shellfish lease area L-540 in the Town of Branford. Specifically, the applicant proposes to expand from 7 currently authorized longlines to 16 longlines within the lease area, alternating between longlines growing sugar kelp and blue mussels. The 16 400' longlines will be anchored at each end. The proposed activity will take place on shellfish bed L-540, approximately ¼ of a mile SW of Rogers Island. The proposed activity will potentially affect the waters of Long Island Sound.

Interested persons may obtain copies of the application from the CT Bureau of Aquaculture, 190 Rogers Ave., Milford, CT, 203-874-0636.

The application will be available for inspection at the Department of Energy & Environmental Protection, Land & Water Resources Division, 79 Elm Street, Hartford, CT 06106-5127, telephone 860-424-3019 from 8:30 to 4:30 Monday through Friday. Please call in advance to schedule a review of the application.

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# ATTACHMENT 3
# ADJACENT PROPERTY OWNER INFORMATION

All adjacent shellfish grounds are owned by the Town of Branford, Connecticut under jurisdiction of the Branford Shellfish Commission. The Branford Shellfish Commission contact is Mr. Anthony Pulcinella, 70 Seaview Avenue, Branford, CT 06405. TIOF has notified the Branford Shellfish Commission of the application and proposed farm expansion (see **Attachment 26: Shellfish Commission Consultation Form**).

# Attachment 4: Municipal Notification of Tidal Wetlands Application

[redacted]

James Cosgrove
First Selectman
Town of Branford
1019 Main Street
Branford, CT 06405

**Re: Provision of Notice of Permit Application Pursuant to CGS 22a-6g**

Dear James Cosgrove,

Pursuant to CGS 222a-6g, I am herewith providing your office with a copy of a Notice to Permit Application which appeared in today's edition of The New Haven Register.

[redacted] will be filing an application with the State of Connecticut's Department of Energy and Environmental Protection (DEEP) for the continued use and expansion of longline kelp and mussel cultivation within [redacted] currently authorized shellfish lease area L-540 in the Town of Branford, approximately ¼ of a mile SW of Rogers Island. Specifically, the [redacted] proposes to expand from 7 currently authorized longlines to 16 longlines within the lease area, alternating between longlines growing sugar kelp and blue mussels. As with the currently authorized gear area, the expansion, if approved, will be operational year round.

Information will be provided to the Town of Branford's Shellfish Commission and Harbor Master under separate cover and as required by DEEP's application process.

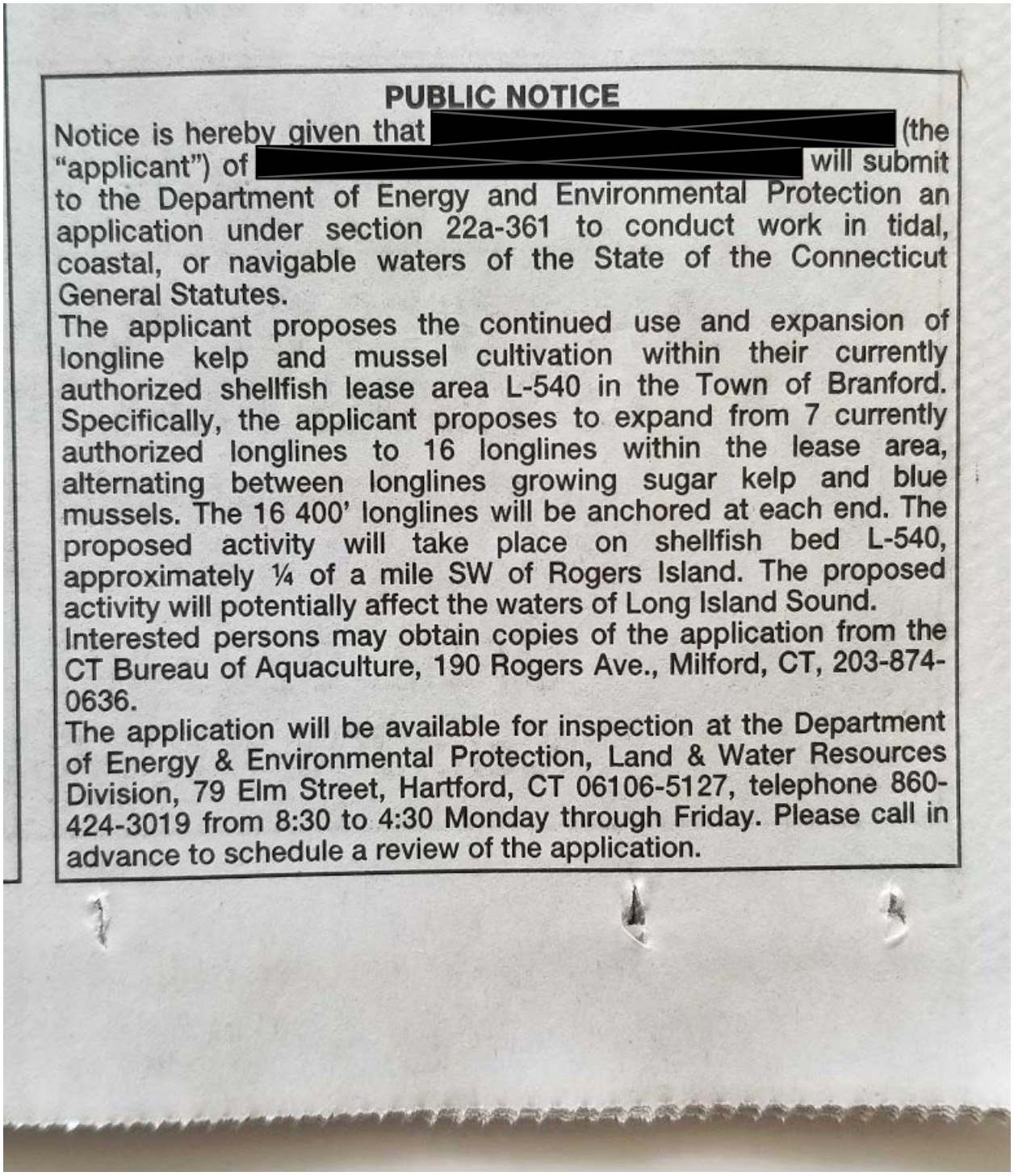
If you would like further information about the project, please do not hesitate to contact [redacted], designated permit manager for [redacted]

Sincerely,

[redacted]

[redacted]

Enc. Copy of Published Public Notice to New Haven Register and Publisher's Certificate



**PUBLIC NOTICE**

Notice is hereby given that [redacted] (the "applicant") of [redacted] will submit to the Department of Energy and Environmental Protection an application under section 22a-361 to conduct work in tidal, coastal, or navigable waters of the State of the Connecticut General Statutes.

The applicant proposes the continued use and expansion of longline kelp and mussel cultivation within their currently authorized shellfish lease area L-540 in the Town of Branford. Specifically, the applicant proposes to expand from 7 currently authorized longlines to 16 longlines within the lease area, alternating between longlines growing sugar kelp and blue mussels. The 16 400' longlines will be anchored at each end. The proposed activity will take place on shellfish bed L-540, approximately ¼ of a mile SW of Rogers Island. The proposed activity will potentially affect the waters of Long Island Sound.

Interested persons may obtain copies of the application from the CT Bureau of Aquaculture, 190 Rogers Ave., Milford, CT, 203-874-0636.

The application will be available for inspection at the Department of Energy & Environmental Protection, Land & Water Resources Division, 79 Elm Street, Hartford, CT 06106-5127, telephone 860-424-3019 from 8:30 to 4:30 Monday through Friday. Please call in advance to schedule a review of the application.

,

# Attachment 7: Executive Summary

The applicant, [redacted] currently has a permit (NAE-2007-02555) that authorizes seven long lines and 150 single buoy oyster cages, spaced 50 feet apart in L-540 (19.3 acres). TIOF has actively used L-540 year round for the past 15 years. Single buoy oyster cages have been on the farm the entire time and kelp longlines were added in 2012. This application is for the proposed expansion of the [redacted] gear area within L-540 to allow for additional long lines for growing Sugar Kelp (*Saccharina latissima*) and Blue Mussels (*Mytilus edulis*). The applicant is requesting:

- Expansion of the long line gear area from 200 feet by 300 feet (±1.3 acres) to 535 feet by 680 feet (±8.4 acres) within L-540
- 16 long lines that are ±530 feet long from anchor to anchor for growing kelp or mussels
- Continued use of kelp 5-line array system for kelp long lines
- No seasonal restriction on gear so mussels can be grown from the long lines in mussel socks

Eastern Oysters (*Crassostrea virginica*) are currently authorized to be grown in bottom cages in L-540 and will continue to be grown. The farm site is located in Long Island Sound, approximately 0.8 nautical miles to the southwest of the Stony Creek Marina in Branford, Connecticut. During the first year of the expanded farm we will have 8 kelp 5-line arrays and 8 single mussel lines. After that, we will adjust the number of kelp 5-line arrays versus single mussel lines annually based on market demand. Kelp and mussels will be grown on separate longlines and the timing of their deployment is not dependent on each other. Kelp will be outplanted from the hatchery (i.e., deployed) in November and December. Mussels will be deployed in the fall or late spring/summer depending on seed availability. Kelp will be grown between October and June; mussels and oysters will be grown year round. The gear area is a 680 foot by 535 foot rectangle which includes a 50 foot buffer perimeter around the entire gear area, marked by safe boating buoys 12 inch in diameter with 36 inch visual exposure areas that read "Danger: Surface Gear Area". The hazard buoys will be placed at the corners and midpoints no more than 300 feet apart.

The project will require the use of anchors, buoys, and lines, but will not require any permanent structures, dredging or fill. The project is located outside of any navigation channels, is not within an area mapped as a Natural Diversity Database (NDDB) area, is greater than 300 feet from an osprey platform and is not in an eel grass area. The farm will have no significant impact on recreational or other uses. There are no adverse environmental impacts associated with the proposed project. Sugar Kelp will remove carbon dioxide and nitrogen from the water and a positive environmental impact is expected. The applicant has worked with the interested

permitting agencies to reduce the potential for navigation-related impacts and to ensure that best practices are used in the construction of the farm.

**List of Attachments and Supporting Documentation**

Attachment 1: Public Notice
Attachment 3: List of Adjacent Landowners
Attachment 4: Municipal Notification of Tidal Wetland Application
Attachment 7: Executive Summary
Attachment 10: Photographs
Attachment 14: Project Plans

- Figure 1: General Location Map
- Figure 2: Site Plan Diagram
- Figure 3a: Cross Section View of 5-line Kelp Array
- Figure 3b: Cross Section View of Single Mussel Line

Attachment 24: CT DEEP Department of Agriculture, Bureau of Aquaculture Pre-Submission Consultation Form
Attachment 26: Shellfish Commission Consultation Form
Attachment 41: Applicant Compliance Form
Attachment 42: [redacted]Farm Background Information
Attachment 43: Other Information

- Town of Branford Lease for L-540
- TIOF Monitoring/Maintenance and Ice Contingency Plan
- GreenWave response letter to CT DEEP Department of Agriculture, Bureau of Aquaculture July 9, 2020 letter

# Attachment 10: Photographs

Photo #1: Traditional kelp longlines at site L-540.

Photo #2: Traditional kelp longlines at L-540. The white buoys are anchors and attached to the longline are 12” black floats that keep the line level in the water column.

Photo 3: The red arrows on the right indicate the surface buoys of a 5-Line kelp array at site L-540. The buoys to the left are traditional kelp longlines.


Photo 4: Underwater image of a 5-Line array. The 5 kelp longlines are attached to the 10’ spreader bar in the background of the photo.


Photo 5: Underwater image of the 5-Line with surface buoy and bridle system highlighted in black.

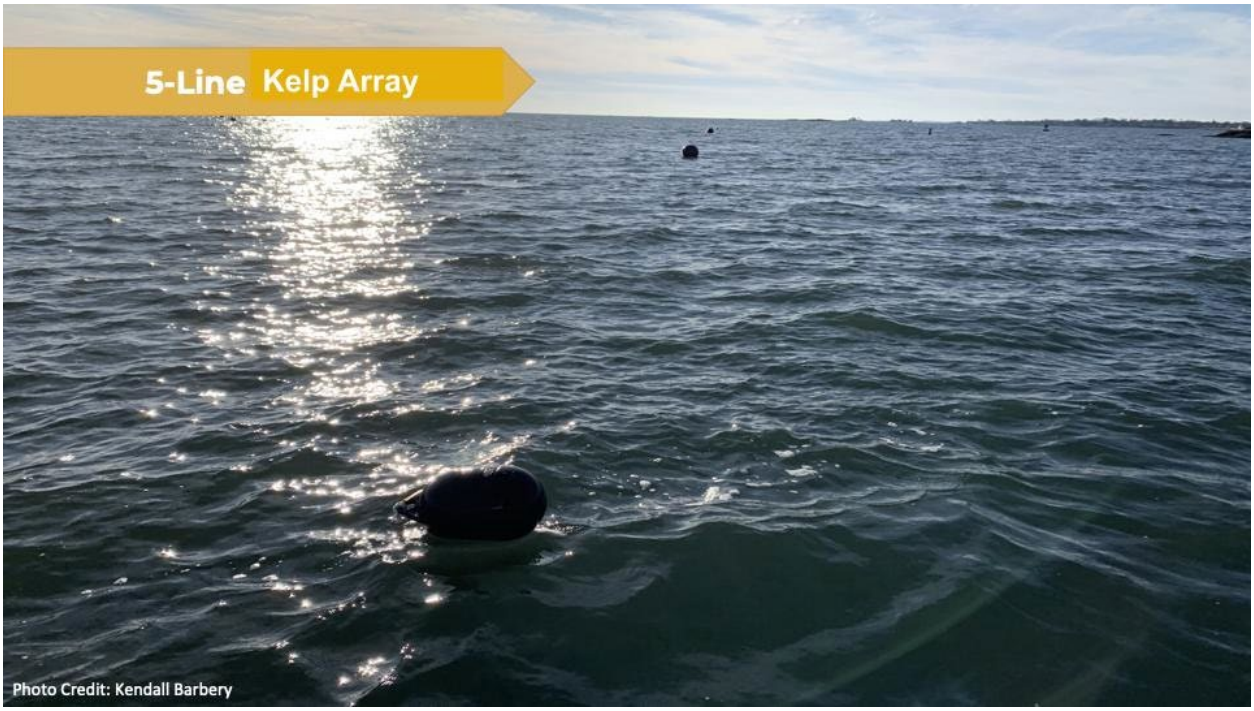
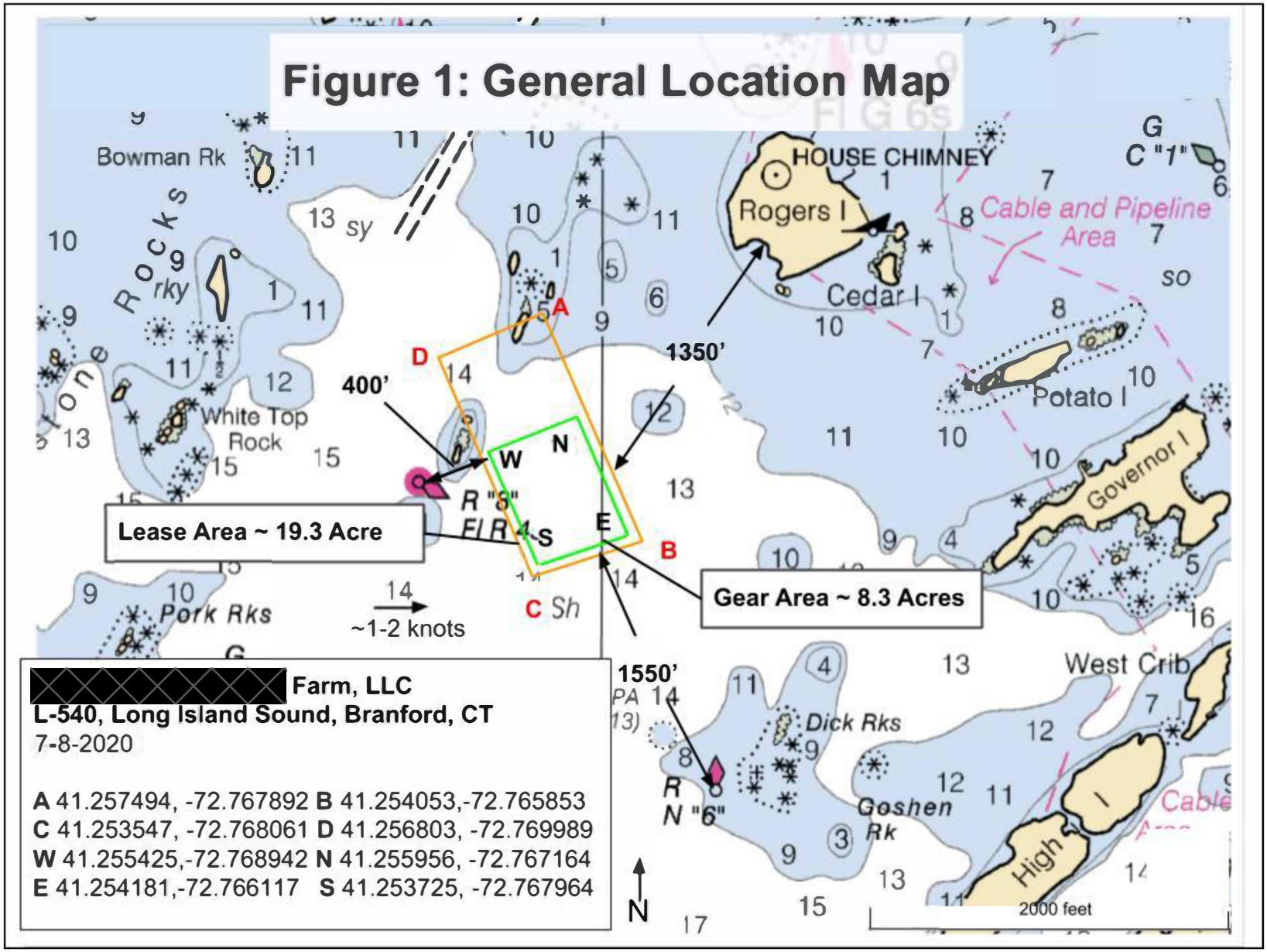



Photo 6: 5-Line array at the surface of the water. Fewer buoy on the array minimize the visual impact at the surface.

Photo 7: Mussel socks hung on a longline being pulled above the surface to inspect.

Photo 8: A 200-pound embedment anchor suspended and waiting to be deployed

# Attachment 14: Project Plans



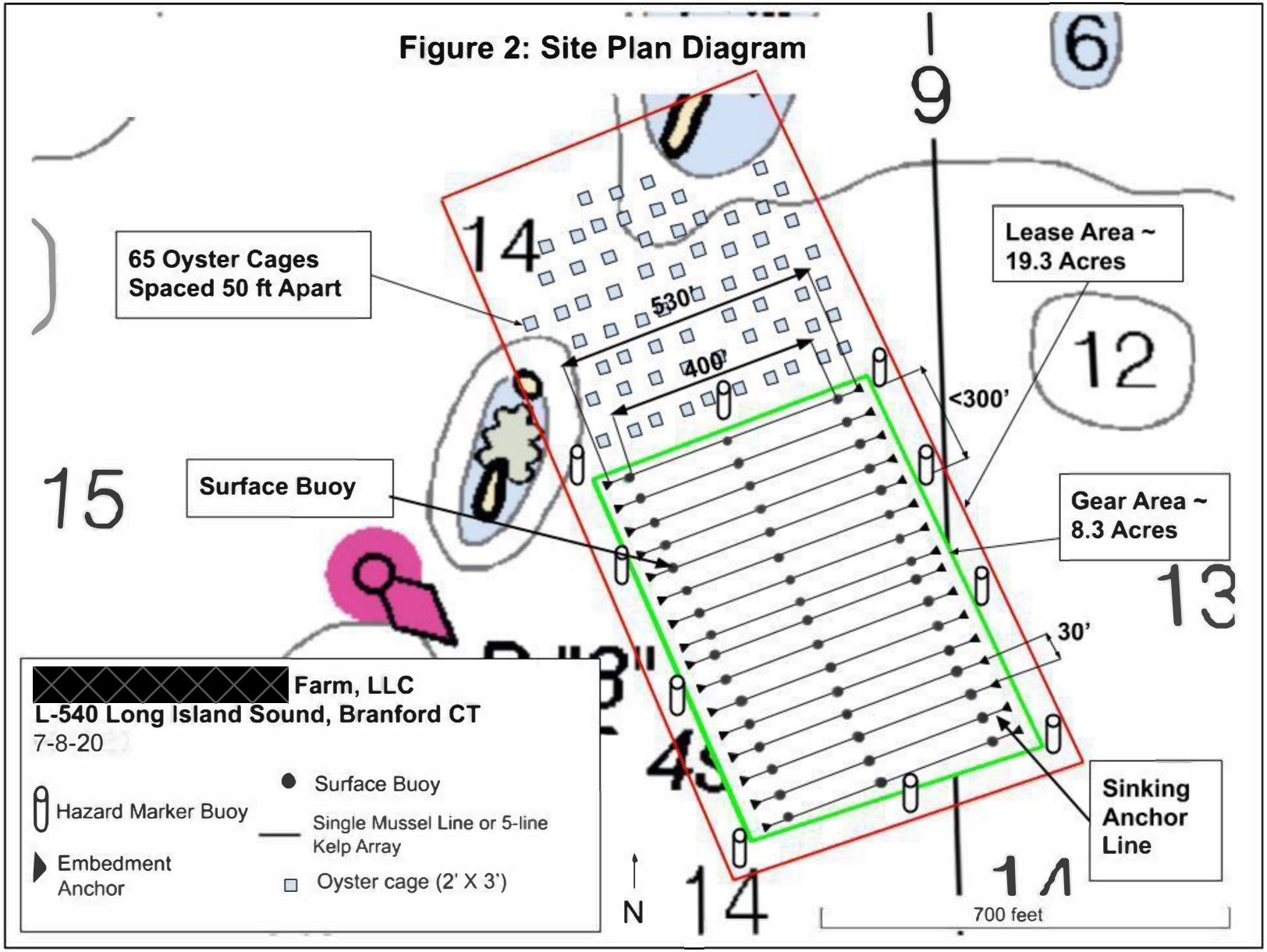
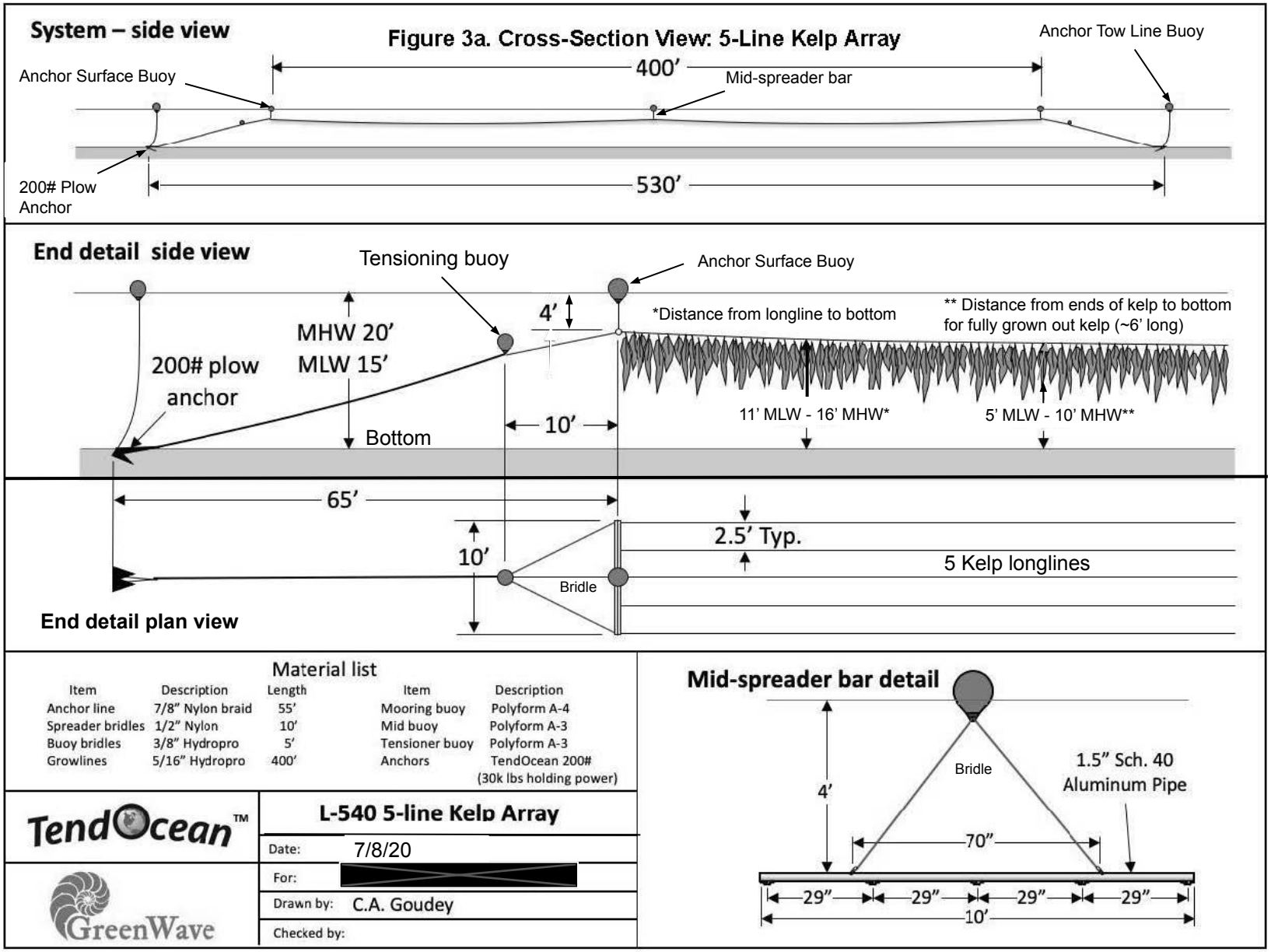
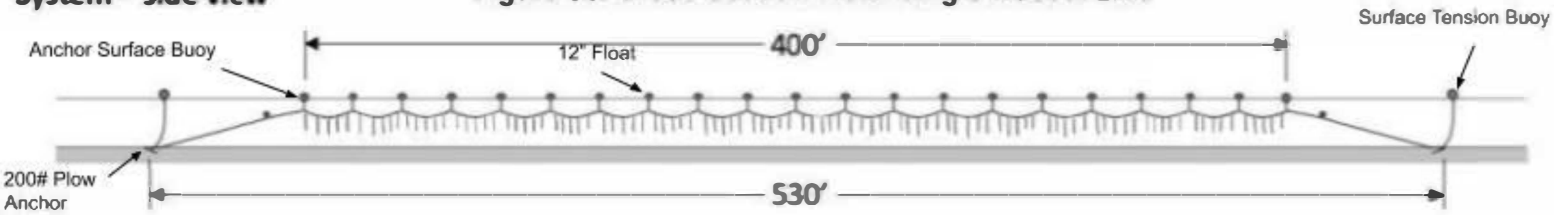


Figure 2: Site Plan Diagram
65 Oyster Cages
Spaced 50 ft Apart
Surface Buoy
Lease Area ~
19.3 Acres
Gear Area ~
8.3 Acres
Sinking
Anchor
Line
530'
400'
<300'
30'
[redacted] Farm, LLC
L-540 Long Island Sound, Branford CT
7-8-20
Hazard Marker Buoy
Embedment
Anchor
Surface Buoy
Single Mussel Line or 5-line
Kelp Array
Oyster cage (2' X 3')
N
700 feet
6
9
14
12
15
13
14

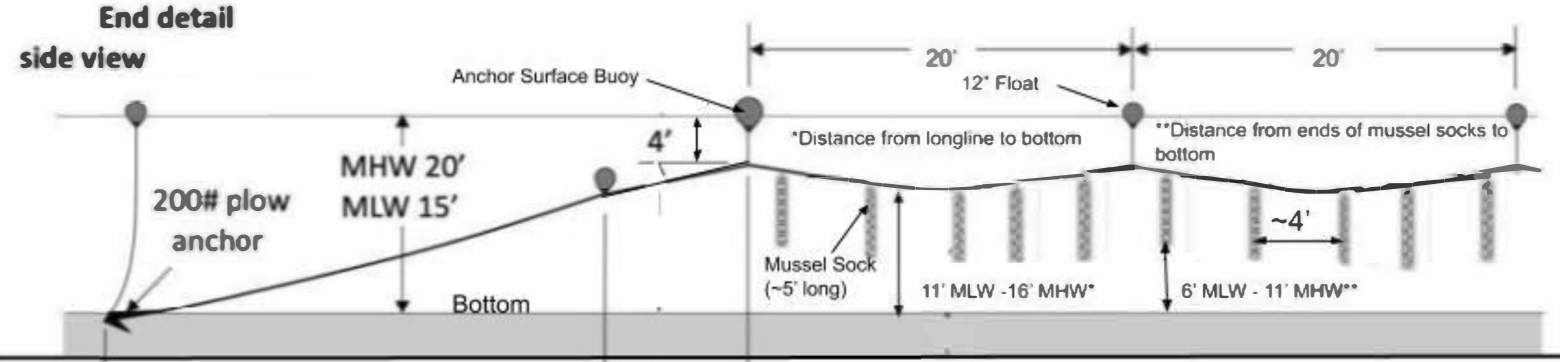

System – side view
Figure 3a. Cross-Section View: 5-Line Kelp Array
Anchor Tow Line Buoy
Anchor Surface Buoy
400'
Mid-spreader bar
200# Plow Anchor
530'
End detail side view
Tensioning buoy
Anchor Surface Buoy
4'
*Distance from longline to bottom
** Distance from ends of kelp to bottom for fully grown out kelp (~6' long)
MHW 20'
MLW 15'
200# plow anchor
Bottom
10'
11' MLW - 16' MHW*
5' MLW - 10' MHW**
65'
10'
2.5' Typ.
5 Kelp longlines
Bridle
End detail plan view
Material list
Item | Description | Length | Item | Description
Anchor line | 7/8" Nylon braid | 55' | Mooring buoy | Polyform A-4
Spreader bridles | 1/2" Nylon | 10' | Mid buoy | Polyform A-3
Buoy bridles | 3/8" Hydropro | 5' | Tensioner buoy | Polyform A-3
Growlines | 5/16" Hydropro | 400' | Anchors | TendOcean 200# (30k lbs holding power)
TendOcean™
L-540 5-line Kelp Array
Date: 7/8/20
For:
Drawn by: C.A. Goudey
Checked by:
GreenWave
Mid-spreader bar detail
Bridle
1.5" Sch. 40 Aluminum Pipe
4'
70"
29"
29"
29"
29"
10'

**System – side view**

## Figure 3b. Cross-Section View: Single Mussel Line




**End detail side view**





**End Detail Plan view**

### Material list

| Item | Description | Length | Item | Description |
|---|---|---|---|---|
| Anchor line | 7/8" Nylon braid | 55' | Mooring buoy | Polyform A-4 |
| Anchor line ext. | 7/8" Nylon braid | 10' | Tensioner buoy | Polyform A-3 |
| Anchor buoy pennant | 1/2" Hydropro | 5' | Mussel buoy | Polyform A-3 |
| Main line | 1/2" Hydropro | 400' | Mussel buoy line | 3/8" Hydropro |
| Anchors | TendOcean | 200# (30k lbs holding power) | | |

TendOcean™

**L-540** Single Mussel Line

Date: 7/8/20

For: [redacted]

GreenWave

Drawn by: C.A. Goudey

Checked by:

# Attachment 24

Connecticut Department of
Energy & Environmental Protection
Bureau of Water Protection & Land Reuse
Land & Water Resources Division

# LWRD License Application
# Pre-Submission Consultation Form

## State of CT, Department of Agriculture, Bureau of Aquaculture

A pre-submission consultation with Aquaculture is required for some of the LWRD license applications. Please refer to the application form for specific projects and locations which require consultation.

**To the applicant**- Prior to the submission of your license application to the Connecticut Department of Energy and Environmental Protection (DEEP) Land & Water Resources Division (LWRD), please complete Part I and submit this form to the Department of Agriculture, Bureau of Aquaculture ("DOA/BOA") by: hardcopy, P.O. Box 97, Milford, CT, 06460; facsimile, 203-783-9976; or e-mail, david.carey@ct.gov. Include a location map of your site and project plans. Once the DOA/BOA returns the completed form to you, please submit it along with your license application to DEEP.

### Part I: *To be completed by APPLICANT*

**1. Applicant/Registrant Information**

Name: [redacted] Ocean Farm, LLC (Owner: [redacted])
Mailing Address: [redacted]
City/Town: [redacted] State: [redacted] Zip Code: [redacted]
Business Phone: _____ Ext.: _____
Contact Person: [redacted] Title: [redacted] Ocean Farm Manager
Business Phone: _____ Ext.: _____
E-mail: [redacted]

**2. Engineer/Surveyor/Agent Information (list as applicable)**

Name: Cliff Goudey Title: Principal at C.A. Goudey & Associates
Mailing Address: 21 Marlboro Street
City/Town: Newburyport State: MA Zip Code: 01950
Business Phone: 978-914-1901 Ext.: _____
Contact Person: _____ Title: _____
Business Phone: _____ Ext.: _____
E-mail: cliff@cagoudey.com
Service Provided: _____

**3. Site Location:**

Name of Site : [redacted] Ocean Farm
Street Address: Shellfish lease L-540
City/Town: [redacted] State: [redacted] Zip Code: _____
Tax Assessor's Reference: Map _____ Block _____ Lot _____
Name of Waterbody: Long Island Sound

**4. ☐ Confirm location map and site plans are attached.**

Date of plans: 7/8/20

## Part I: *To be completed by APPLICANT (continued)*

**5. Provide or attach a brief, but thorough description of the project.**

**Introduction and History of Use of L-540: The applicant, [redacted] Ocean Farm, LLC [redacted] currently has a permit (NAE-2007-02555) that authorizes seven long lines and 150 single buoy oyster cages, spaced 50 feet apart in L-540 (19.3 acres). [redacted] has actively used L-540 year round for the past 15 years. Single buoy oyster cages have been on the farm the entire time and kelp longlines were added in 2012. The location of the [redacted] is such that it is outside of any existing channels and based on familiarity with the Thimble Islands L-540 receives very minimal recreational boat usage. During the time we have actively used L-540 we have experienced no conflicts with recreational or commercial boating. The current gear area where long lines are authorized is only 200 feet by 300 feet (±1.3 acres).**

**Description of Proposed Expansion of Gear Area within L-540: This application is for the expansion of the [redacted] gear area within L-540 to allow for additional long lines for growing kelp and mussels. [redacted], the operators of the [redacted], has a full time Farm Manager and additional staff that are fully capable of operating and maintaining the scaled up farm. [redacted] has also been working to establish and expand the kelp market and has sold all the kelp that was grown during the 2019/2020 season. The applicant is requesting:**

- **Expansion of the long line gear area to 535 feet by 680 feet (±8.4 acres) within L-540**
- **16 long lines that are ±530 feet long from anchor to anchor for growing kelp or mussels**
- **Continued use of kelp 5-line array system for kelp long lines**
- **No seasonal restriction on gear so mussels can be grown from the long lines in mussel socks**

**The plans and drawings of the proposed farm expansion are included in Attachment A as Figures 1, 2, 3a and 3b. Representative photographs of the farm gear are included in Attachment B. Kelp and mussels will be grown on separate long lines. During the first year of the expanded farm we will have 8 kelp 5-line arrays and 8 single mussel lines. After that, we will adjust the number of kelp 5-line arrays versus single mussel lines annually based on market demand. Kelp and mussels will be grown on separate longlines and the timing of their deployment is not dependent on each other. Kelp will be outplanted from the hatchery (i.e., deployed) in November and December. Mussels will be deployed in the fall or late spring/summer depending on seed availability.**

**A kelp 5-line array is depicted on Figure 3a and shown on Photos #1 and #2. This system was tested during the 2019/2020 growing season and was found to be very effective and has several advantages over traditional single kelp lines. First, it allows for growing more kelp in a smaller footprint. Second, there are fewer surface buoys minimizing potential visual impacts (see Photo #3). Lastly, the whole system is are under tension thus reducing the potential for entanglement of marine mammals and sea turtles. The mussel lines will be of similar length and anchoring to the kelp 5-line arrays (see Figure 3b) but will only be a single line. A representative photo of mussel socks is included as Photo #4.**

**[redacted] is currently authorized to use two different types of anchoring systems, 1) mushroom anchors and 2) embedment anchors. [redacted] used embedment type anchors during the 2019/2020 growing season for the kelp 5-line array line system experiment and found these anchors held very well throughout the growing season. We propose to use embedment type anchor systems on all kelp and mussel long lines because of their proven holding strength along with the ability for [redacted] staff and boat to be able to set and retrieve them without having to hire an outside contractor. A representative photo of an embedment anchor is included as Photo #5.**

**Monitoring and Maintenance: [redacted] will continue to implement its Monitoring/Maintenance and Ice Contingency Plan to assure that any gear related issues are identified and remedial measures to correct the issues are implemented in a timely manner.**

## Part II: *To be completed by DOA/BOA*

This consultation form is required to be submitted as part of an application for a Structures, Dredging & Fill license (Connecticut General Statutes (CGS) Section 22a-361) and/or Tidal Wetlands license (CGS Section 22a-32) and some of the General Permits to DEEP LWRD. The application has not yet been submitted to DEEP. Please review the enclosed materials and determine whether the project will significantly impact shellfish beds. You may also provide comments or recommendations regarding the proposal. Should you have any questions regarding this process, please call DEEP LWRD at 860-424-3019. **Please return the completed form to the applicant.**

CGS Section 22a-361(b) requires that the Commissioner of DEEP shall hold a public hearing on license applications submitted pursuant to CGS section 22a-361 provided that a petition requesting such hearing signed by 25 or more persons is received **and** if the project will significantly impact any shellfish area, as determined by the DOA/BOA.

**DOA/BOA DETERMINATION**:

Project located on (check one): ___ natural bed ___ state bed XX ___ local bed ___ none

___ other, please specify: _____

If project is located upon a franchised or leased shellfish bed, please provide the owner or lessee's contact information below.

Check one of the following:

X ___ I have determined that the work described in Part I of this form and attachments **WILL NOT** significantly impact any shellfish area.

___ I have determined that the work described in Part I of this form and attachments **WILL** significantly impact any shellfish area and that a public hearing must be held if the DEEP issues a public notice for the project as currently designed and a qualified petition is received.

COMMENTS/RECOMMENDATIONS (or check here if attached: ___ ):

Bureau of Aquaculture staff will continue to work with DEEP, USACOE and the applicant to move the proposed project to its conclusion with any necessary changes needed to address any issues raised during the review process.

| David H. Carey sk | 9/3/2020 |
|---|---|
| Signature of Commission Representative | Date |
| David H. Carey | Bureau of Aquaculture Director |
| Print Name of Commission Representative | Title |

**Connecticut Department of**
**Energy & Environmental Protection**
Bureau of Water Protection & Land Reuse
Land & Water Resources Division

# LWRD License Application
# Pre-Submission Consultation Form
# Shellfish Commission

***You need to complete and submit this form only if your town has a Shellfish Commission.***

**To the applicant** - Prior to the submission of your license application to the Connecticut Department of Energy and Environmental Protection (DEEP) Land & Water Resources Division (LWRD), please complete Part I, below, and submit this form to your local shellfish commission (contact the town for the appropriate contact person) with a location map of your site and project plans. Once the commission returns the completed form to you, please submit it along with your license application to DEEP.

## Part I: *To be completed by APPLICANT*

**1. Applicant/Registrant Information**

Name: [redacted] Ocean Farm, LLC
Mailing Address: [redacted]
City/Town: [redacted] State: [redacted] Zip Code: [redacted]
Business Phone: [redacted] Ext.: _____
Contact Person: [redacted] Title: Farm Manager
Business Phone: [redacted] Ext.: _____
E-mail: [redacted]

**2. Engineer/Surveyor/Agent Information (list as applicable)**

Name: Cliff Goudey Title: _____
Mailing Address: 21 Marlboro Street
City/Town: Newburyport State: MA Zip Code: 01950
Business Phone: _____ Ext.: _____
Contact Person: _____ Title: _____
Business Phone: _____ Ext.: _____
E-mail: cliff@cagoudey.com
Service Provided: _____

**3. Site Location:**

Name of Site : [redacted] Ocean Farm, LLC (L-540)
Street Address: _____
City/Town: [redacted] State: [redacted] Zip Code: _____
Tax Assessor's Reference: Map _____ Block _____ Lot _____
Name of Waterbody: _____

**4.** ☒ **Confirm location map and site plans are attached.**
Date of plans: _____

**5. Provide or attach a brief, but thorough description of the project.**

Introduction and History of Use of L-540: The applicant, [redacted] Ocean Farm, LLC [redacted] currently has a permit (NAE-2007-02555) that authorizes seven long lines and 150 single buoy oyster cages, spaced 50 feet apart in L-540 (19.3 acres). [redacted] has actively used L-540 year round for the past 15 years. Single buoy oyster ca es have been on the farm the entire time and kelp longlines were added in 2012. The location of the [redacted] is such that it is outside of any existing channels and based on familiarity with the Thimble Islands L-540 receives very minimal recreational boat usage. During the time we have actively used L-540 we have experienced no conflicts with recreational or commercial boating. The current gear area where long lines are authorized is only 200 feet by 300 feet (±1.3 acres).

Descri tion of Proposed Expansion of Gear Area within L-540: This application is for the expansion of the [redacted] gear area within L-540 to allow for additional long lines for growing kelp and mussels. [redacted], the operators of the [redacted], has a full time Farm Mana er and additional staff that are fully capable of operating and maintaining the scaled up farm. [redacted] has also been working to establish and expand the kelp market and has sold all the kelp that was grown during the 2019/2020 season. The applicant is requesting:

- Expansion of the long line gear area to 535 feet by 680 feet (±8.4 acres) within L-540
- 16 long lines that are ±530 feet long from anchor to anchor for growing kelp or mussels
- Continued use of kelp 5-line array system for kelp long lines
- No seasonal restriction on gear so mussels can be grown from the long lines in mussel socks

The plans and drawings of the proposed farm expansion are included in Attachment A as Figures 1, 2, 3a and 3b. Representative photographs of the farm gear are included in Attachment B. Kelp and mussels will be grown on separate long lines. During the first year of the expanded farm we will have 8 kelp 5-line arrays and 8 single mussel lines. After that, we will adjust the number of kelp 5-line arrays versus single mussel lines annually based on market demand. Kelp and mussels will be grown on separate longlines and the timing of their deployment is not dependent on each other. Kelp will be outplanted from the hatchery (i.e., deployed) in November and December. Mussels will be deployed in the fall or late spring/summer depending on seed availability.

A kelp 5-line array is depicted on Figure 3a and shown on Photos #1 and #2. This system was tested during the 2019/2020 growing season and was found to be very effective and has several advantages over traditional single kelp lines. First, it allows for growing more kelp in a smaller footprint. Second, there are fewer surface buoys minimizing potential visual impacts (see Photo #3). Lastly, the whole system is are under tension thus reducing the potential for entanglement of marine mammals and sea turtles. The mussel lines will be of similar length and anchoring to the kelp 5-line arrays (see Figure 3b) but will only be a single line. A representative photo of mussel socks is included as Photo #4.

TIOF is currently authorized to use two different types of anchoring systems, 1) mushroom anchors and 2) embedment anchors. [redacted] used embedment type anchors during the 2019/2020 growing season for the kelp 5-line array line system experiment and found these anchors held very well throughout the growing season. We propose to use embedment type anchor systems on all kelp and mussel long lines because of their proven holding strength along with the ability for [redacted] staff and boat to be able to set and retrieve them without having to hire an outside contractor. A representative photo of an embedment anchor is included as Photo #5.

Monitoring and Maintenance: [redacted] will continue to implement its Monitoring/Maintenance and Ice Contingency Plan to assure that any gear related issues are identified and remedial measures to correct the issues are implemented in a timely manner.

## Part II: *To be completed by SHELLFISH COMMISSION*

This consultation form is required to be submitted as part of an application for a Structures, Dredging & Fill license (Connecticut General Statutes (CGS) Section 22a-361) and/or Tidal Wetlands license (CGS Section 22a-32) to DEEP LWRD. The application has not yet been submitted to DEEP. Please review the enclosed materials and determine whether the project will significantly impact shellfish beds. You may also provide comments or recommendations regarding the proposal. Should you have any questions regarding this process, please call DEEP LWRD at 860-424-3019. **Please return the completed form to the applicant within 60 days of receipt or no adverse impact will be assumed.**

**SHELLFISH COMMISSION DETERMINATION:**

Project located on (check one): — natural bed — state bed ✓ local bed #540 — none

— other, please specify: ____

If project is located upon a franchised or leased shellfish bed, please provide the owner or lessee's contact information below.

Check one of the following:

✓ I have determined that the work described in Part I of this form and attachments **WILL NOT** adversely impact a shellfish area.

— I have determined that the work described in Part I of this form and attachments **WILL** adversely impact a shellfish area. A summary of the Shellfish Commission's project-specific concerns/comments is described below or attached.

COMMENTS/RECOMMENDATIONS (check the box if attached: — ):

____

CHAIRMAN
Signature of Commission Representative

SEPTEMBER 10, 2020
Date

ANTHONY J. POLEINELLA
Print Name of Commission Representative

BRANFORD SHELLFISH COMMISSION
Title

# Attachment 41

Connecticut Department of
Energy & Environmental Protection

## Applicant Compliance Information

| DEEP ONLY |
|---|
| App. No. _____ |
| Co./Ind. No. _____ |

**Applicant Name:** [redacted]

Mailing Address: [redacted]

City/Town: [redacted] State: [redacted] Zip Code: [redacted]

Business Phone: [redacted] ext.:

Contact Person: Phone: ext.

*E-mail: [redacted]

If you answer *yes* to any of the questions below, you must complete the Table of Enforcement Actions on the reverse side of this sheet as directed in the instructions for your permit application.

A. During the five years immediately preceding submission of this application, has the applicant been convicted in any jurisdiction of a criminal violation of any environmental law?

☐ Yes ☒ No

B. During the five years immediately preceding submission of this application, has a civil penalty been imposed upon the applicant in any state, including Connecticut, or federal judicial proceeding for any violation of an environmental law?

☐ Yes ☒ No

C. During the five years immediately preceding submission of this application, has a civil penalty exceeding five thousand dollars been imposed on the applicant in any state, including Connecticut, or federal administrative proceeding for any violation of an environmental law?

☐ Yes ☒ No

D. During the five years immediately preceding submission of this application, has any state, including Connecticut, or federal court issued any order or entered any judgement to the applicant concerning a violation of any environmental law?

☐ Yes ☒ No

E. During the five years immediately preceding submission of this application, has any state, including Connecticut, or federal administrative agency issued any order to the applicant concerning a violation of any environmental law?

☐ Yes ☒ No

## Table of Enforcement Actions

| (1) Type of Action | (2a) Date Commenced | (2b) Date Terminated | (3) Jurisdiction | (4) Case/Docket/ Order No. | (5) Description of Violation |
|---|---|---|---|---|---|
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |

☐ Check the box if additional sheets are attached. Copies of this form may be duplicated for additional space.

# Attachment 43: Other Information

**Town of Branford Lease for L-540**

**TIOF Monitoring/Maintenance and Ice Contingency Plan**

**GreenWave response letter to CT DEEP Department of Agriculture, Bureau of Aquaculture July 9, 2020 letter**

ORIGINAL

[redacted] 1 PAGE 60

12

SHELLFISH GROUNDS LEASE

SHELLFISH RECORD BOOK _____, PAGE _____ THRU _____

FOR SHELLFISH BED(S) NUMBER 540

THIS LEASE, made this 31st day of DECEMBER, 2010 by and between the Branford Shellfish Commission, STATE OF CONNECTICUT, acting herein by its Commissioners duly authorized, hereinafter referred to as Commissioner and THE THIMBLE ISLAND OYSTER CO. LLC [redacted] of the town of [redacted] County of [redacted] and State of Connecticut, hereinafter referred to as Lessee. WITNESSETH, that the said Lessee has made application to said Commissioner for a lease for planting, cultivating and harvesting of shellfish in and upon the grounds hereinafter described. AND WHEREAS, no valid objection has been made thereto, and said grounds having been surveyed, located and delineated on the map of said Commissioner, as on file in the town's Clerk Office. NOW THEREFORE, know all men by these presents, that the Commissioner, in consideration of the rents, covenants and stipulations hereinafter mentioned, does hereby lease to the said Lessee a total of 19.3 acres, for a term of FIVE (5) years from JUNE 1, 2011 to MAY 31, 2016 at the annual rate of FIFTY ($ 50.00 ) Dollars per acre. The total annual payment for said 19.3 acres shall be NINE HUNDRED, SIXTY FIVE & XX/100 ——— Dollars ($ 965.00 ) payable, in advance to the "Branford Shellfish Commission" at the office of the Branford Town Clerk' Office, 1019 Main St., Branford, CT 06405. Late payments received after 30 days from the due date will be subject to a LATE CHARGE of 1½% per month ( 18% Per Annum ) and if said " Past Due" Rent is not brought current and remains unpaid for a period of 90 days, the Branford Shellfish Commission may declare this Lease in DEFAULT with the whole remaining balance of the FIVE year Lease amount becoming DUE AND PAYABLE IN FULL. All costs incurred for the collection of the "Past Due" Rent, or the whole Lease amount, including reasonable attorney fees shall be the obligation of the Lessee and paid by the Lessee.

The leased Shellfish Grounds are described herein as follows: (SEE SCHEDULE "A" ATTACHED HERETO)

Said Shellfish Grounds as described herein consist of a total of 19.3 acres which are all located within the meridian and jurisdictional boundaries of the Town of Branford.

TO HAVE AND TO HOLD the same unto the said Lessee and to its legal representatives; provided that the said Lessee shall actually use and occupy said described grounds in good faith for the purpose of planting, cultivating and harvesting shellfish and for no other purpose; and that this lease is accepted by said Lessee, subject to all the provisions of the Connecticut General Statutes, and any amendments thereto, and also subject to any rule or rules now in effect or hereafter made by the Commissioner, regarding the marking of said grounds by buoys or otherwise, and subject to such other and further rules as may be, from time to time, made by the Commissioner. And provided, further, that if the Lessee shall be declared insolvent or adjudicated bankrupt, or make an assignment for the benefit of creditors, the Commissioner at his option may terminate this lease and immediately take possession of the aforesaid oyster grounds. And provided, further, that if the Lessee shall use the aforesaid described grounds for any other purpose or purposes whatsoever or shall neglect to pay the rent hereinbefore provided for a period of sixty days after the same shall become due and payable, or shall default in any of the other covenants herein contained, then this lease, at the option of the Commissioner at any time thereafter may be immediately terminated and all rights in and to the aforesaid grounds shall thereupon by virtue of this express stipulation revert to the State of Connecticut. In exercising its options to terminate this lease, the Commissioner shall give to the Lessee written notice of termination, by registered or certified mail, postage prepaid, and addressed to the Lessee at its address as set out in this lease, or at such other address as the Lessee may file with the Commissioner subsequent to the signing hereof, It is further provided that the Lessee herein

upon the expiration of the term of this lease has the option to apply for a renewal of said lease upon the terms and conditions as set out in Section 26-257a, Chapter 491, of the General Statutes of Connecticut, as amended. It is further provided however, that the aforesaid option to renew shall be null and void in the event that the Lessee herein at the time of filing such application for renewal is in default in the payment of rent or in default in any of the other covenants herein contained.

It is further provided that subject to the approval of the Commissioner, the Lessee or its legal representatives may assign or transfer this lease, provided that such assignment or transfer shall be first approved by the Commissioner and subsequently recorded in the official records of the Commissioner on forms provided by the Commissioner, and kept at the Office of the Branford Town Clerk's Office. Any assignment or transfer which is made without the approval of the Commissioners and is not recorded by the Lessee shall, at the option of the Commissioner terminate this lease. In case any dispute shall arise concerning the boundaries of the aforesaid leased grounds, the Lessee agrees and stipulates that such dispute shall be determined by the Commissioner, and the determination made by such Commissioner shall be binding upon all the parties in interest unless an appeal as provided by statute is taken within ten days of such determination of the Commissioner.

It is expressly understood by the Lessee that the Lessee's rights within this lease are for the planting, cultivation and harvesting of shellfish within said leased area. Furthermore the Lessee shall have no rights whatsoever to enter into any agreement written or verbal of any nature whereby the Lessee would receive any form of monetary or other compensation from any person, corporation, company or entity that may desire the right to encroach upon the leased shellfish ground for reasons other than the planting, cultivation or harvesting of shellfish. The Branford Shellfish Commission shall have the sole right to allow others to encroach upon the leased area for the purpose of conducting activities other than the planting, cultivating and harvesting shellfish that may render said ground temporarily or permanently incapable of being used for the said purpose of planting, cultivating and the harvesting of shellfish. Should the Commission execute their right and allow others to encroach upon the leased ground to conduct unrelated activities to shell fishing and that encroachment does render the ground or a portion of the ground temporarily or permanently incapable of shell fishing by the Lessee, in which event the Branford Shellfish Commission shall compensate said Lessee by the return of rent paid subject to adjustment on a prorated basis of the area encroached upon and or also adjusted for any shellfish harvested within the encroached area. Should the Lessee violate any of the terms and conditions contained herein, said violation shall immediately void this lease, thereby immediately terminating all rights, powers and privileges granted the Lessee. The Lessee upon such violation surrenders his right of notice to quit and any rights to any pro-rated refund. Furthermore the Lessee may be subject to a fine equal to twice the amount of any monies or value received from the sale of shellfish harvested from said grounds during the violation period.

It is understood and agreed by the Lessee that the grounds herein leased are subject to such prior rights as may exist in the State or such rights, if any, as may be possessed by littoral property owners. The contractor agrees and warrants that in the performance of this contract he will not discriminate or permit discrimination against any person or group of per sons on the grounds of race, color, religious creed, age, marital status, national origin, sex, mental retardation or physical disability, including, but not limited to, blindness, unless it is shown by such contractor that such disability prevents performance of the work involved, in any manner prohibited by the laws of the United States or of the State of Connecticut. If the contract is for a public works project, the contractor agrees and warrants that he will make good faith efforts to employ minority business enterprises as subcontractors and suppliers of materials on such project. The contractor further agrees to provide the Commission on Human Rights and Opportunities with such information requested by the commission concerning the employment practices and procedures of the contractor as relate to the provisions of this section and section 46a-56.

It is also understood by the Lessee that pursuant to Connecticut General Statute 26-204, the Connecticut Lobsterman's Association has an established right of fishing in the above described area during the following periods: April 1$^{ST}$ through August 21$^{ST}$ and October 1$^{ST}$ through December 31$^{ST}$. Shellfishing shall not conflict with the established right of fishing as set forth above and any member of the public shall have said right.

This lease is subject to all applicable provisions of law.

IN WITNESS WHEREOF, the parties have set their hands and seals.

WITNESSETH:

Sandra Johnson
SANDRA JOHNSON

BY: BRENDON L. SMITH Lessee L.S
ITS MANAGING PARTNER
DULY AUTHORIZED

KATY DILLMAN

By _____ Commissioner L.S.

By Text _____ Commissioner L.S.

By _____ Commissioner L. S

By _____ Commissioner L. S.

By _____
Approved: First Selectman---- Branford

# Schedule "A"

On a map filed in the tow clerk's office entitled: Town of Branford, Town Owned Leased Shell Fish Beds, dated August 16, 2005, scale 1-inch = 1,200 ft, prepared by Joseph Kardos, Wallingford, CT 06492, approved and adopted by the Branford Shellfish Commission, August 16, 2005.

Said leased shell fish bed(s) are herein described by the latitude and longitude of its pertinent boundary points as follows:

Starting at the most northeastern point and running clockwise.

Bed number 540

NE point: Latitude 41° 15' 26.981" Longitude 72° 46' 04.405"

Latitude 41° 15' 14.592" Longitude 72° 45' 57.070"

Latitude 41° 15' 12.773" Longitude 72° 46' 05.021"

Latitude 41° 15' 24.494" Longitude 72° 46' 11.960"

Latitude _____ Longitude _____

Latitude _____ Longitude _____

Latitude _____ Longitude _____

Latitude _____ Longitude _____

Latitude _____ Longitude _____

Latitude _____ Longitude _____

Latitude _____ Longitude _____

VOL. 1 PAGE 64

# ADDENDUM TO LEASE

## FOR SHELLFISH BED NUMBER 540

As part of the consideration for this Lease the Branford Shellfish Commission has approved, hereby allows and licenses the [redacted] LLC ( Lessee ) to transfer and move it's shellfishing/aquaculturing apparatus and equipment from shellfish bed #547, which it now operates on, to shellfish bed #540

Said transfer and move was approved by the Branford Shellfish Commission because of the unsuitable bottom conditions that exist on Bed #547 for the Lessee's current shellfishing operation.

Said transfer and leasing fee shall credited fr[redacted]s current "Paid Up" Lease on Bed #547 to May 31ST 2011 and upon the commencement and implementation of the transfer hereby surrenders and relinquishes all his Rights, Title and/or interest he has or aught to have in shellfish bed #547.

Dated this 31st Day of DECEMBER 2010

WITTNESSETH:

Sandra Johnson
SANDRA JOHNSON

KATY DILLMAN

[redacted]
ITS MANAGING PARTNER
DULY AUTHORIZED

Approved and accepted by a majority of the Branford Shellfish Commission:

By: _____ By: _____

By: _____ By: _____

RECEIVED FOR RECORD Mar 21, 2011
at 12 h 39 m P M, AND RECORDED BY
MARIANNE KELLY
BRANFORD TOWN CLERK


**Thimble Island Oyster Co.**

January 31, 2019

Branford Shellfish Commission
Town Hall
1019 Main Street
Branford, CT 06405

RE: Lease Renewal Request for Shellfish Bed Number 540 and Renewal Payment

Dear Branford Shellfish Commission,

I, [redacted], LLC, would like to renew the five-year lease for shellfish bed number 540. The shellfish grounds consist of a total of 19.3 acres, which are all located within the meridian and jurisdictional boundaries of the Town of Branford. Below are the coordinates for L-540.

| | | |
|---|---|---|
| NE point: | Latitude 41°15'26.981" N | Longitude 72°46'04.405"W |
| | Latitude 41°15'14.592" N | Longitude 72°45'57.070"W |
| | Latitude 41°15'12.773" N | Longitude 72°46'05.021"W |
| | Latitude 41°15'24.494" N | Longitude 72°46'11.960"W |

Also, enclosed please find check no. 383 in the amount of $5,755.00 for renewal payment for shellfish bed numbers 540 and 544 for the following years:

| | |
|---|---|
| Bed 540 ($965/year): | 2018 & 2019 |
| Bed 544 ($1,275/year): | 2017, 2018, 2019 |

If you have any questions or need additional information please contact me at [redacted]

Thank you,

[redacted]

[redacted]

# Monitoring/Maintenance and Ice Contingency Plan
# Thimble Island Ocean Farm – L-540 Branford, Connecticut
# October 2, 2018

## Introduction

The Monitoring/Maintenance and Ice Contingency Plan (the Plan) for the [redacted] Ocean Farm ([redacted]) will assure that any gear related issues are identified and remedial measures to correct the issues are implemented in a timely manner during the kelp growing season. [redacted] has a full time Farm Manager whose responsibility is to implement the Plan.

## United States Coast Guard Local Notice to Mariners Information Form

The attached USCG Local Notice to Mariners Information Form will be filled out and submitted to the USCG at least two weeks prior to installation of the gear.

## Gear Monitoring and Maintenance

All kelp long lines and hazard buoys will be inspected at least once a week during the kelp growing season. The weekly inspections will include checking:

- kelp line connections to the mooring buoys
- kelp line float connections
- kelp seed line connections
- hazard marker buoys connections
- hazard marker buoy locations

The results of the weekly monitoring and maintenance inspections will be recorded in a log that includes the name of the person conducting the inspection, date of inspection, any gear issues identified and corrective measures taken. An example of the monitoring and maintenance log is attached. If any gear is missing and not immediately located an Aquaculture Gear Recovery Form will be submitted to the United States Army Corps of Engineers (USACE). A copy of this form is attached.

## Ice Contingency Plan

An Ice Contingency Plan will be implemented during times of ice to ensure that the farm does not shift in a severe ice event. The Ice Contingency Plan includes the use of spar buoys (winter moorings) in place of traditional round buoys. Spar buoys have proven effective for decades in mooring fields during winter. Based on our experience on [redacted], it is important to have an alternative buoy system ready to deploy as a risk mitigation strategy.

## Yearly Monitoring and Maintenance Report

At the end of the kelp growing season a Monitoring and Maintenance Report will be submitted to the USACE. The Monitoring and Maintenance Report will include the weekly logs compiled on a monthly basis and if needed the Aquaculture Gear Recovery Forms.

# Attachments

## USCG Local Notice to Mariners Information Form

## Monitoring and Maintenance Log

## Aquaculture Gear Recovery Form

Homeland Security

U.S. COAST GUARD

First Coast Guard District

# LNM Information Form

DATE: _____

NAME: _____

PHONE NUMBER: _____

EMAIL ADDRESS: _____

COMPANY NAME: _____

TYPE OF WORK: _____

_____

LOCATION WHERE WORK WILL BE DONE: _____

_____

LAT/LONG: (degrees, minutes, seconds & thousandths) _____

_____

BEGINNING/ENDING DATES: _____

HOURS OF OPERATION: _____

EQUIPMENT ON SCENE: _____

_____

RADIO FREQUENCY VESSELS CAN BE CONTACTED ON (IF USED): _____

_____

PASSING ARRANGEMENTS/Time to move vessels to not impede navigation: _____

**Pease fax form two weeks before the work is to begin to: Mary Swanson @ 617-223-8094 or email: lnm@uscg.mil . The LNM (Local Notice to Mariners) can be found on the following website: http://www.navcen.uscg.gov**

| **September 2018** | | | | | |
|---|---|---|---|---|---|
| **Date** | | | | | |
| | | | | | |
| **Name** | | | | | |
| | | | | | |
| **Kelp Line** | | | | | |
| Connections | ☐ | ☐ | ☐ | ☐ | ☐ |
| Location | ☐ | ☐ | ☐ | ☐ | ☐ |
| **Floats** | | | | | |
| Connections | ☐ | ☐ | ☐ | ☐ | ☐ |
| Location | ☐ | ☐ | ☐ | ☐ | ☐ |
| **Seed Line** | | | | | |
| Connections | ☐ | ☐ | ☐ | ☐ | ☐ |
| | | | | | |
| **Marker buoys** | | | | | |
| Connections | ☐ | ☐ | ☐ | ☐ | ☐ |
| Location | ☐ | ☐ | ☐ | ☐ | ☐ |
| Identified Issue and Corrective Measure Taken | | | | | |
| Identified Issue and Corrective Measure Taken | | | | | |
| Identified Issue and Corrective Measure Taken | | | | | |
| Identified Issue and Corrective Measure Taken | | | | | |
| **Comments** | | | | | |

US Army Corps of Engineers®
New England District

# AQUACULTURE GEAR RECOVERY FORM

**MAIL / FAX TO: Cori Rose, Project Manager (Fax 978-318-8303)**

U.S. Army Corps of Engineers, New England District
Regulatory Branch
696 Virginia Road
Concord, Massachusetts 01742-2751

A Corps of Engineers Permit (No. NAE-2007-2555) was issued to Thimble Island Oyster Company c/o Bren Smith to install and/or retain and maintain the following aquaculture equipment on Lease-540 in Branford, CT:

- (7) 240-foot long longlines, 150-feet of which will possess vertical drop lines
- (4) 400 pound mushroom anchors
- (4) 30-inch diameter terminus buoys
- (18) 15-inch white flotation buoys
- Regulatory Marker Buoys

The permit requires that, in the event that the authorized gear is lost, and/or inadvertently shifted, to a location outside of the bounds of the permitted perimeter, as a result of adverse environmental conditions, entanglement, or other unforeseen event, you notify the U.S. Army Corps of Engineers within 48 hours of discovery of the gear loss or relocation by completing and submitting this form.

**PLEASE PRINT OR TYPE**

Person Reporting: _____ Telephone: (____)_____

What type of gear has been lost/shifted? _____

_____

Has some or all of the gear been recovered? Please be specific at to what has or has not been recovered:

_____

_____

_____

Have you notified the U.S. Coast Guard? _____

Explain the circumstances which may have led up to loss or relocation of the gear (storm conditions, wind/waves, entanglement, line severed, anchor pulled or dragged, ballasted cage/net dragged etc):

_____

_____

_____

_____

PERMITTEE'S SIGNATURE: _____ DATE: _____

July 29, 2020
**(Sent via email)**

Ms. Shannon Kelly and Mr. David Carey
State of Connecticut Department of Agriculture
Bureau of Aquaculture & Laboratory Services
P.O. Box 97
Milford, CT 06460

RE: Response to July 9, 2020 Letter with Questions on Joint Application to Conduct Marine Aquaculture– [redacted]Ocean Farm (L-540) Proposed Expansion, Branford, CT

Dear Ms. Kelley and Mr. Carey,

Thank you for reviewing our Joint Application to Conduct Marine Aquaculture and providing us with feedback along the way to help ensure our success with the permitting process. Also, thank you for meeting with me and Kendall on July 20, 2020 to provide clarification on some of the questions. This letter is in response to your July 9, 2020 letter's questions on our Joint Application to Conduct Marine Aquaculture submitted on July 8, 2020. In addition to responding to your comments, we will further explain how our permit application fits into GreenWave's growth strategy.

**Q1:** What is the purpose of the project – commercial, educational, experimental?

**R1:** The purpose of the proposed expansion of the [redacted]Ocean Farm, LLC ([redacted]) is to expand the farm commercially with increased sales o e p an s ellfish while continu ng o have the farm serve as a floating classroom for people in the GreenWave's Farmer Training Program. Additionally, GreenWave will continue to work with the University of Connecticut (UConn) and Woods Hole Oceanographic Institute (WHOI) and the National Oceanic and Atmospheric Administration (NOAA) Milford Lab on kelp and shellfish experiments. The proposed farm expansion will bring the gear area of TIOF to a size that is consistent with other farms in Connecticut.

**Q2:** Why does it need to be so large –

- 8x increase in acreage over the existing kelp farm
- 15x increase in kelp vol. by longline length and number

[redacted]

**R2:** The existing gear area was approved 8 years ago and is only 200 feet by 300 feet (±1.4 acres). We need to grow beyond our current 200 x 300 footprint in order to increase profitability and to meet growing market demand. The proposed expansion would increase the gear area to 535 feet by 680 feet (±8.4 acres), less than half of TIOF's 19.3 acre lease on bed L-540 in Branford. This expansion will bring the farm up to an acreage that is consistent with other approved kelp gear areas in Long Island Sound. Expanding the farm design to include a combination of 5-line kelp arrays and single backbone mussel lines will enable us to significantly scale production within a small footprint.

The 5-line kelp array and mussel backbone was designed by Cliff Goudey and Associates in coordination with partners at WHOI. TIOF received a Certificate of Permission to deploy two 5-line arrays on our existing lease during the 2019-2020 farm season; we were impressed by the systems' stability, ease of maintenance, and density of production.

The anchor system in our proposed design is sized to allow for use with both crops and gear types. This design will allow us to significantly increase kelp and mussel production within our small site footprint over time, as market demand increases.

Once permitted, we anticipate phasing the deployment of kelp and mussel lines until we reach full-scale buildout, concurrent with the market demand.

**Q3:** What is public benefit/tradeoff?

- Stony Creek
- Branford
- CT
- World at large

**R3:** One of GreenWave's goals for the [redacted] is to become a model multi-species ocean farm, and to continue to use the farm as a platform or research and education in addition to being a working commercial operation. The [redacted] currently does, and will continue to bring local, State, and national awareness to the ecological and economic benefits of growing kelp and multi-species ocean farms. Additionally, [redacted] has provided economic support to Stony Creek, Branford, and Connecticut by purchasing gear locally and having boats serviced locally.

**Q4:** No sales reported in last 3 years of kelp, oysters, mussels

- What is the volume of kelp, mussels that have been sold in the past 3 years?

No shellstock shipper license for past 2 years to harvest and sell shellstock. DOAG has issued a SS1 license for July 1, 2020.

- Will this be sold raw, processed?
- Where will it be packaged, processed?
- Who is supplying the seed?

[redacted]

    - In the past couple of years there has not been enough kelp seed for CT growers with small scale operations
- Has a market survey been done & what were the results? Where is the market for the volume of kelp and mussels that could be produced?

**R4:** For the last several years, [redacted] has operated as a training and research platform for GreenWave. GreenWave has conducted musse research on behalf of the NOAA and WHOI; tested farm designs and supported seedstrain trials in coordination with the UConn and WHOI; and collected data for a kelp nutrient bioextraction study with partners at UConn. Most of the crops grown during this time were provided to our research partners for analysis and were not sold to commercial buyers; compensation was provided through grant contracts. There was a lapse in the shellfish shippers permit as a result.

In 2018/2019 we experienced significant crop loss due to ice. Crops harvested during this season were used in research for market development (mostly on land-based farms for fertilizer and compost research). GreenWave spent the 2019/2020 growing season increasing capacity and developing markets. In 2020, [redacted] renewed their shellfish shipping license and sold kelp and oysters. Out of 4000lbs of kelp harvested in 2020, 2150lbs were sold to commercial buyers (more below). The rest was used for product development and research as part of several grant-funded projects. 7,300 oversized oysters were harvested and sold to CT SeaGrant to support a shellfish restoration initiative in Branford, CT.

In 2020, GreenWave launched a Kelp Buyers Program and hired a Market Innovation Strategist to run it. Despite COVID-19, it was a successful pilot year in that it facilitated the sale of 3,500 lbs of or raw, unprocessed kelp (a total of $13,000) from 3 producers (our farm among them) to 3 buyers, at prices ranging from $3.00 to $10.00 per pound wet weight. This pricing stands in contrast to recent prices secured by Maine kelp farmers, who without such assistance realized $0.40 to $0.70 per pound for bulk unprocessed seaweed. We have demand for next season for 15,000+ lbs from a bioplastics company based in NY/CT and a kelp burger company, among others. We feel confident about scaling our farm to meet the demand we're seeing in the market and will scale our Buyers Program next year to sell all of the kelp on GreenWave's farm in addition to supporting more farmers in our network.

Revenue generated by crop sales will support GreenWave's growing farmer-training program, which supports emerging kelp and shellfish farmers in southern New England and across U.S. coastal states.

GreenWave will be providing the kelp seed that is grown in their hatchery in Fairhaven.

**Q5:** Who has the experience with gear of this type, scope, and number

**R5:** In addition to Bren Smith, GreenWave has a full time Farm Manager (Jill Pegnataro) who is experienced with operating and maintaining all the gear on the farm including the 5-line kelp array. GreenWave has additional staff (Ron Gautreau and Kendall Barbery) who are also experienced with all aspects of the farm. Prior to joining GreenWave as programs director, Kendall worked extensively on

[redacted]

commercial fishing and research boats in Alaska and Antarctica, and gained experience using anchor systems and line setups similar to those proposed in this application. GreenWave staff work closely with WHOI, UConn, and a marine engineer (Cliff Goudey) who are leading experts in kelp and shellfish mariculture.

**Q6:** Site for gear:

- storing gear, loading gear onto boat(s) for transport out to site, maintenance of gear
- Location, landing site for gear, oysters & mussels –All done by TIOF/GreenWave or will others be hired

**R6:** TIOF stores gear at the owners residence and at GreenWave headquarters in New Haven, CT, which is adjacent to a working marina. TIOF uses the commercial docks in Stony Creek to load gear on the boats and transport it to the farm. Kelp and shellfish will be offloaded from the boats to the commercial docks in Stony Creek. The work will be conducted by GreenWave staff.

**Q7:** Who is responsible? GreenWave or TIOF? Bonding?

- Who is responsible for gear maintenance/removal should one/both back out of the partnership?

**R7:** Bren Smith is the owner of TIOF, LLC and leaseholder for L-540 in Branford, CT. GreenWave has a right-to-use agreement with TIOF, LLC for the management of farming, research, and programmatic operations—such as hands-on training. Along with Bren Smith, GreenWave's programs director and farm managers oversee these operations. Per the agreement, GreenWave covers farm expenses and oversees farm management for the duration of the agreement, including lease, permit, and bond fees. TIOF, LLC will be responsible for expenses incurred after the expiration or termination of the agreement.

**Q8:** Has this plan been presented to the Shellfish and Harbor Management Commissions? Can you get a letter of support from them?

**R8:** TIOF and the GreenWave farm manager are in regular communication with the Town of Branford Shellfish Commission. TIOF has notified the Shellfish Commission and the Harbor Master of the proposed farm expansion within the boundaries of L-540, and will seek a letter of support prior to submitting the Structures, Dredge, and Fill (SDF) application. The Town of Branford does not have a Harbor Management Commission.

**Q9:** Have the local yacht clubs, boating groups, various Thimble Island and Stony Creek associations been contacted about the project?

**R9:** The GreenWave farm manager regularly attends Town of Branford Shellfish Commission Meetings and reports on activities on the farm. GreenWave has not specifically presented this project to the Thimble Islands Association or Stony Creek Association. However, GreenWave has made presentations and received positive feedback from local groups in Stony Creek and Branford—including a presentation at the Stony Creek Library in April 2019 sponsored by the Friends

of Outer Island, and to a group at St. George Catholic Church in March 2020, as a part of a series organized by the Schiller Shoreline Institute for Lifelong Learning.

A multi-species ocean farm has been established on L-540 since 2012, and many year-round and seasonal residents, boaters, and other stakeholders are familiar with the site and operation. Public notice will be issued prior to submitting the SDF application.

**Q10:** What information and professional engineering can you provide to support the functionality and feasibility of the experimental bridle system with 450-foot kelp lines rather than the 150 foot lines.

- Can you provide information about where this "bridle array" system of similar size has been used successfully?
- Can you provide information about where this proposed "embedment" anchoring system has been used successfully?

**R10:** The bridle system is not experimental. During the 2019/2020 growing system, TIOF used a 5-line array with 160' growlines, secured to bridles and embedment anchors at either end. The size of the growlines was limited to the dimensions of the previously approved 200 foot x 300 foot gear area. The 5-line system helps keep the growlines under tension and minimizes the need for vertical lines and excessive gear in the water. The growlines are stretched prior to putting them in the water to mitigate excessive line stretch once in the water (this is called "pretensioning"). The combination of pretensioned growlines, spreader bars with bridles, and embedment anchors improves stability and tension of the growlines at different tide stages, and prevents lines from going slack in the water column. The 5-line system allows the farmer to increase production without increasing the number of anchors, which minimizes impacts on bottom habitat and reduces cost for the farmer— relative to the gear needed to produce the equivalent amount of kelp on a single line system.

Ultimately, decisions about anchors are site and context specific. The ideal anchor type for this design is the drag embedment anchor, such as a claw, plow, or wing anchor, which is suitable for the bottom type on L-540. Drag embedment anchors have an exceptional holding power to size ratio (exceeding 20:1 in most cases). As a result, a relatively small anchor will provide the necessary holding power for the growout lines. Because of their small size to holding power ratio, drag embedment anchors are also easier to deploy and retrieve than other anchor types. Drag embedment anchors are optimal for gear types that are meant to be under tension; they rely on horizontal pull and perform best with longer scopes, which further improves the holding power but also leads to increases the overall dimensions of the gear area. Drag embedment anchors are well-suited to the 5-line array design proposed here.

This system was designed by Cliff Goudey, a marine engineer with over 30 years of experience in developing technologies for working on and under the ocean. Much of his career has been as a research engineer at the Massachusetts Institute of Technology (MIT) working with industry on problems confronting the fishing and aquaculture industries. The 5-line system was developed to withstand offshore conditions, but has numerous benefits for near-shore ocean farmers. Working with partners at

WHOI, Cliff deployed a similar array with 230' growlines was deployed in New Hampshire and in Alaska during the 2018-2019 and 2019-2020 kelp farming seasons. The farm in Alaska, located in waters off of Kodiak Island, is just under 19-acres. Cliff designed the proposed 400' growlines based on a combination of factors: 1) the success of the systems in all three locations, 2) modeling the performance of the system at longer lengths, and 3) the length of kelp seedstring produced on each seed spool (since a typical seed spool holds 200' of seedstring, most lines are designed in increments of 200').

The traditional single-line system deployed in Long Island Sound requires more buoys along the longline due to lack of tensioning. The 5-line array is under constant tension, which helps to keep the lines from sagging, but longer spans need additional support. The mid-point bridle and buoy proposed in the 400' 5-line array serves two purposes: 1) ensure the lines are marked and visible 2) keep the lines at the proper depth in the water column across the entirety of the span.

Bren and GreenWave staff have grown and maintained kelp on 500' long single-line systems in other locations. The 500' lines are often oversized, to provide extra space between the seedstring and connection points along each anchor line. This additional length is not necessary on the 5-line system, due to the nature of the connection points between the growline and spreader bar.

**Q11:** What protocols, procedures, contacts, company responders will be established with local harbor commission and marine patrol in response to a vessel stranded/entangled within the system?

**R11:** As required by the permit the appropriate number of hazard buoys alerting vessels to the presence of the farm will be deployed around the gear area. Boaters are warned about hazards, but not prohibited from passing through the gear area. Also as required for the permit a Local Notice to Mariners (LNM) form will be sent to the Coast Guard prior to deployment of the gear so that the location of the farm can be included in the Local Notice to Mariners. Barring extreme weather, Bren Smith and/or other GreenWave staff inspect all gear and connection points at least once per week to ensure gear is properly managed and maintained. All buoys are marked with identifying information. If GreenWave is made aware of any issues with vessels in the gear area we will respond immediately.

**Q12:** Would you consider setting the project up in phases where success/review of the project would be assessed before adding the next phase i.e. start with (4) 400' bridle arrays ((2) kelp, (2) mussel arrays) in the first year and then add as warranted/needed? Why not start with a single five line 450' bridle and anchors to determine effectiveness over the existing 150' system?

**R12:** The proposed action is for full buildout of the TIOF. Applying for full buildout of the farm was encouraged by the United States Army Corps of Engineers (USACE) in 2019 when we applied for a permit for the two 5-line arrays and again in 2020 during a pre-application meeting. Although TIOF may not implement full build out of the farm during the 2020/2021 growing season we do not want to

have to go back to the regulatory agencies again next year to ask for additional build out. We anticipate phasing in the farm expansion over several growing seasons, concurrent with growing market demand.

**Q13:** Experimental mussel culture in LIS has demonstrated that the warmer water temperatures and shallower depth production areas result in biofouling and trematode infection within mussels which diminishes quality and sales.

- How do you intend to address this issue? Is there a plan or alternate outlet for the mussels if the quality prevents sales for human consumption?

**R13:** The number of kelp longlines versus mussel longlines will be adjusted based on growth and market demand. We have experienced mussel losses due to high water temperatures and trematode infections in the past, and have also supported studies directed by WHOI and NOAA aiming to investigate trematode infection and improve cultivated stock of blue mussels in New England. We hope that with approval to cultivate mussels, we will have the flexibility to continue similar studies with partners at WHOI, NOAA, and other institutions, and the ability to bring a sustainable and delicious mussel product to market. We will be assessing decisions about cultivating mussels annually, depending on market conditions, environmental factors, and other considerations.

**Q14:** Is it part of a grant?

- What is the timeline?
- Title
- Purpose statement

**R14:** Although we frequently partner with research institutions to execute grant deliverables, and would like to increase our flexibility to support these efforts, this specific proposal is not a part of a grant funded project.

Should you have any questions regarding our responses please contact me via phone a [redacted] or via email at: [redacted]

Thank you,

[redacted]

cc: [redacted]

[redacted]