DEPARTMENT OF THE ARMY
US ARMY CORPS OF ENGINEERS
NEW ENGLAND DISTRICT
696 VIRGINIA ROAD
CONCORD MA 01742-2751

March 19, 2021

Regulatory Division
File Number: NAE-2020-02621

Ms. Jennifer Anderson
Protected Resources Division
National Marine Fisheries Service
55 Great Republic Drive
Gloucester, Massachusetts 01930

Dear Ms. Anderson:

We have received an application to permit a proposed project expansion submitted by SoundWaters, Inc. for installation of aids to navigation, lines, buoys, and anchors associated with establishment of a mariculture farm to rear a winter crop of sugar kelp (*Saccarina lattissima*). We request that the National Marine Fisheries Service (NMFS) concur with our attached determination that the proposed activity may affect, but is not likely to adversely affect, any species listed as threatened or endangered by NMFS under the Endangered Species Act (ESA). Our supporting analysis is provided on the following page.

Please have your staff contact Ms. Cori M. Rose of my staff, at (978) 318-8306 if further information is required.

Sincerely,

for

Michael S. Wierbonics
Acting Chief, Permits and Enforcement Branch
Regulatory Division

Enclosure

Copies Furnished:
R. Mesa, NOAA GARFO NMFS (via email)
S. Kelly/D. Carey, CT DABA (via email)
S. Jacobson/K. Czapla, CT DEEP LWRD (via email)
K. Madley, NOAA RAC (via email)
M. Bagley (via email)

File Number: NAE-2020-02621
Project Name: SoundWaters, Inc. Seaweed Mariculture Project (2016-SW#20)

Proposed Project

We received a permit application from SoundWaters, Inc. for the installation of lines, buoys, anchors, and regulatory aids to navigation for the cultivation of a winter crop of native sugar kelp/seaweed in waters of Long Island Sound. The project site is located approximately 3,200 feet southwest of Stamford Ledge Light and 4,000 feet northeast of red nun "34" at South Reef/Woolsey Rock. The work will occur at a State of Connecticut Department of Agriculture 4.2-acre seaweed lease identified as 2016-SW#20 in the vicinity of 41.008335 ° N and -73.552768 ° W, in water depths estimated at 29-feet mean high water and 22-feet mean lower low water. The work is depicted on the attached plans entitled "SoundWaters, Mike Bagley, 2016-SW#20, Stamford, CT" dated "9/24/2020" and "SoundWaters, Inc. Kelp Farm Figure 2. Site Plan Diagram" dated "9/10/20".

The purpose of the proposed structures is to grow seaweed (sugar kelp) for both educational purposes and commercial sale. The educational project component will allow for student research, funded by NOAA, focused on bioremediation and the effects of removing excess nitrogen from the Long Island Sound. After harvest the kelp will be sold as agricultural fertilizer or to local breweries.

The work proposed involves the installation of lines, buoys, anchors, and regulatory aids to navigation for the cultivation of a winter crop of native sugar kelp/seaweed (*Saccarina lattissima)*. Gear installation at the 4.2-acre area will commence on/after November 1st and the crop harvest and 5 horizontal longlines associated with the project will be removed no later than May 30th of each calendar year. The culture gear will be deployed in a 700-foot long by 260-foot wide area as described below and the entire 4.2-acre gear area will be marked with a minimum of eight (8) 48-inch diameter regulatory "aid to navigation" buoys that read "DANGER SURFACE GEAR AREA" spaced at a maximum interval of 300 feet, per State of Connecticut Department of Energy and Environmental Protection (CT DEEP) navigation agency requirement.

The regulated structures will include the placement of five (5), 600-foot long (anchor to anchor) horizontal seaweed lines held in place at each end with ¾-inch chain affixed to a 100-pound Danforth© standard fluke anchor that is rated for 3500-pounds of holding power. The gear will be set in water depth of approximately 22-feet mean lower low water (MLLW) and 29-feet mean high water (MHW). Each anchor line will be attached to an 11 or 12-inch diameter black retrieval buoy affixed to ½-inch diameter sinking (weighted) tow line. Between the pair of terminal anchors and associated anchor line will be affixed a 310-foot long seaweed growing line, strung approximately 4 to 6-feet below the water's surface. Along each of the 310-foot long lines, there will be two (2) 16 to 18-inch diameter white buoys (anchor line buoys on each end of the main line), two (2) 11 to 12- inch diameter black tension buoys and seven (7) 11 to 12-inch diameter black flotation buoys which are intended to accommodate the weight of the increased seaweed density throughout the growing season. There will be approximately 50 to 75 feet between each surface buoy and a minimum of 40 feet of space between each of the set longlines.

When the horizontal lines are installed the project will accommodate 1,550 linear feet of seaweed growing line within the 4.2-acre gear area encompassed within the coordinates above. Once the horizontal growing lines are seeded the gear area will be tended at least once a week, weather permitting, by the project team using an existing 25-foot boat, the R/V SoundWaters to ensure that the lines and associated equipment are maintained at constant tension at all tide levels. The vessel will travel to the project site from its berth location at SoundWaters Harbor Center at John J. Boccuzzi Park, 200 Southfield Avenue in Stamford, Connecticut, a round trip of approximately 4.5 miles. Travel speed will be limited and when at the site speed is expected to be idling but always less than 1 knot. The captain and crew will ensure that any lines that are damaged, have moved or are not tensioned will be repaired immediately. Buoys will be incrementally added/shifted throughout the growing season, as discussed above, to accommodate the increasing weight of the seaweed to ensure adequate buoyancy and line tension. Additionally, the growing kelp will be thinned and/or trimmed as needed to ensure that at least 5-feet of clearance will be present between the seaweed and the sea floor at MLLW. After the last harvest of the season (sometime between mid-May and the end of May) the horizontal arrays, lines and tensioning buoys will be removed and brought to the land-based facility at Boccuzzi Park for inspection and/or repair, as needed, leaving only the 10 mooring anchors, their associated vertical lines (10 lines) and marker buoys (10 buoys) in the water for the summer season. In addition, the eight (8) aids to navigation and associated anchor mooring line/buoys will remain in the water throughout the year to designate the permitted gear boundary. These mooring lines will be checked bi-weekly to ensure tension is maintained on the line at all times. As proposed the project will cumulatively possess five (5) horizontal longlines, ten (10) anchors and associated vertical lines, ten (10) 16 to 18-inch diameter white mooring buoys, ten (10) 11 to 12-inch diameter black tension buoys, thirty-five (35) 11 to 12-inch diameter black flotation buoys and eight (8) regulatory “aids to navigation” markers with associated vertical line/chain and anchors.

Proposed Special Conditions

The following conditions are proposed to be included as part of the final permit to provide additional measures for added protection of aquatic resources and/or habitat:

1. The permittee shall ensure that a copy of the project authorization (including its drawings, plans, appendices and other attachments) is present on the vessel that attends the work site (and the project office), and that all appropriate personnel performing work at the site are fully aware of its terms and conditions.

2. The horizontal seaweed growing lines shall be installed no earlier than November 1 and removed no later than May 30. This condition is to minimize conflict of horizontal seaweed longlines with seasonal abundance of listed marine animals and seasonal navigation and to mitigate the potential presence of obstruction to navigation.

3. All gear, including buoys and lines shall be marked and maintained with the file number “NAE-2020-02621,” as well as the permittee's name and contact information. Markings shall stand up to the elements over time and allow for gear recovery and identification.

4. If the authorized gear is inadvertently shifted to a location outside of the bounds of the approved perimeter (as a result of adverse environmental conditions, breakage or other unforeseen event), the permittee must submit the enclosed Aquaculture Gear Recovery

Form to the Dept. of Agriculture, Bureau of Aquaculture within 48 hours of discovery (phone: 203-874-0696; facsimile: 203-783-9976; email: lori.scianna@ct.gov) and submit a courtesy copy to the Corps (phone: 978-318-8688; facsimile: 978-318-8303; email: cenae-r-ct@usace.army.mil). This condition is to facilitate notification of marine safety police and regulatory agencies so that the public can be alerted to the presence of free-floating gear and to prompt mitigating action before the lost gear becomes a threat to either navigation, marine animals or the environment, either individually or cumulatively.

5. Seasonal seed lines, buoys and associated gear shall be removed during the offseason or when not in use. The gear shall be stored in upland areas to minimize the effects of habitat exclusion, loss or alteration for essential fish habitat and fishery resources.

6. The applicant will maintain all project equipment, including vertical mooring lines, to ensure that constant tension is kept on the line at all tides. This requirement for counterweight on the vertical lines is intended to minimize the likelihood that the lines will entangle as they will hang straight down and will be less likely to wrap around appendages of endangered marine sea turtles/mammals.

7. In season, the gear site shall be visited by an attendant surface vessel at least once a week, site conditions permitting. During the off season the vertical mooring lines will be visited bi-weekly. Any noticeable difference in surface buoy or line tension such as any gaps in the horizontal line or movement of vertical lines will prompt an investigation into the tension of that line. If a problem is identified, it will be corrected that day. This condition has been included to ensure that if an entanglement or other issue related to the stability of the system arises, that it will be expeditiously addressed by the permittee.

8. Each sighting of a federally listed threatened or endangered sea turtle or fish shall be recorded and the following information shall be provided:
   a. Date, time, coordinates of vessel
   b. Visibility, weather, sea state
   c. Vector of sighting (distance, bearing)
   d. Duration of sighting
   e. Species and number of animals
   f. Observed behaviors (feeding, diving, breaching, etc.)
   g. Description of interaction with aquaculture facility

9. If any listed species of sea turtle is observed to be entangled or otherwise interacting with the facility structure, the permittee (or onboard staff) shall immediately contact NOAA Stranding Hotline at (866) 755-NOAA (6622) and email incidental.take@noaa.gov. The permittee should also contact the NOAA Fisheries Protected Resources Division, Gloucester, MA at (978) 281-9328. This condition is included to ensure that the proper authorities will be consulted in case of gear interaction with protected resources.

Description of the Action Area

The action area is defined as "all areas to be affected directly or indirectly by the Federal action and not merely the immediate area involved in the action" (50CFR§402.02). For this project, the action area includes waters within Stamford Harbor, Stamford, Connecticut, including the subject lease site where the aquaculture gear will be located and the immediate area where vessels may transit to and from this location while tending the gear. Included is the surface area delineated within the coordinates shown on the enclosed plans, as well as the entire water column, the benthos where the anchors will be placed, and the area below the longlines to the bottom where the vertical anchor lines will extend.

The proposed aquaculture gear will be set in water depths between 22-feet at mean lower low water and 29-feet at mean high water over a bottom of silt/mud/clay in a saline environment. There is no documented submerged aquatic vegetation, natural shellfish beds or state-local designated shellfish beds at, or near, the project site. The lease is in the nearshore environment of western Long Island Sound (LIS) known as the "Western Basin" and the sedimentary environment is generally that of sediment sorting and mud reworking contiguous with broad areas of fine-grained deposition. The area consists of relatively flat sea floor that is broken by topographic highs and lows oriented generally north to south across the sound (Knebel & Poppe, 2000). Nontidal estuarine circulation exists within LIS throughout the year with residual bottom currents toward the west and southwest with currents of between 6 to 8 cm/s (Signell, et. al., 2000). Wind- and wave-driven bottom currents are locally variable, depending on wind speed, direction, and duration. The tidal amplitude is roughly 7.0 feet and the salinity generally will range between 23 and 27 during the summer months. Infaunal community structure evaluations have shown that fauna is not distributed as discrete, well defined communities, but rather as a continuum. In general, fauna species in the vicinity of the site are expected to be dominated by early to mid-successional stage common to mud and shallow sand (e.g. *Mulinia lateralis, Nephtys incisa, Yodia limatula, Nucula proxima,* etc.) maintained by frequent natural or anthropogenic disturbances (Zajac et. al. 2000, Rhodes and Germano 1982). The coastal fishery is dominated by cold temperate fish classes with seasonal presence of warm temperate species (CT DEEP 2019).

NMFS Listed Species (and Critical Habitat) in the Action Area

There are four species of sea turtles and two species of fish listed under the ESA that occur, or have the potential to occur, in the action area and that may be adversely affected by the proposed work. There is no designated critical habitat in, or near, the action area (See enclosed Section 7 Consultation Area and Species List). The ESA species expected to be present at the site include:

Sea Turtles:

Kemp's Ridley Turtle (*Lepidochelys kempii*) (35 FR 18319; Recovery plan: NMFS et al. 2011)

Leatherback Turtle (*Dermochelys coriacea*)(35 FR 849; Recovery plan: NMFS & USFWS 1992)

Loggerhead Turtle (*Caretta caretta*) (76 FR 58868; Recovery plan: NMFS & USFWS

2008)
Green Turtle (*Chelonia mydas*) (81FR20057; Recovery plan: NMFS & USFWS 1991)

Fish:
Atlantic Sturgeon (*Acipenser oxyrinchus oxyrinchus*) (77 FR 5880 and 77 FR 5914)
Shortnose Sturgeon (*Acipenser brevirostrum*) (32 FR 4001; Recovery plan: NMFS 1998)

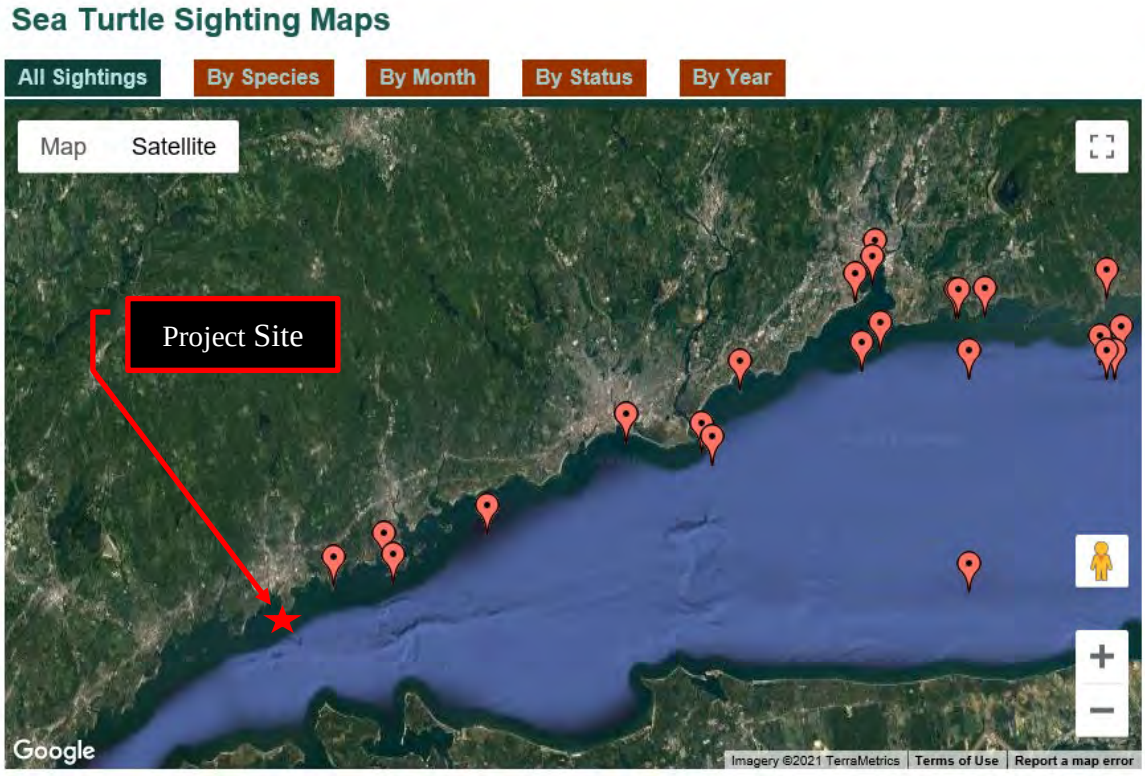
Sea Turtles

The four species of federally listed threatened or endangered sea turtles that may be seasonally found in coastal waters of New England which includes LIS and the action area include the threatened Northwest Atlantic Ocean distinct population segment (DPS) of loggerhead and North Atlantic DPS of green and the endangered Kemp's ridley and leatherback. Sea turtles are generally distributed in coastal Atlantic waters from Florida to New England. As water temperatures of coastal New England rise in the spring, sea turtles begin to migrate north from their overwintering waters in the south. They are expected to be found in the action area from the late spring through the fall months (May through November) when the water temperatures are at least 59° F (Shoop and Kenney 1992). Highest turtle concentrations are expected to be present from June through October (Morreale 1999, Morreale and Standora 1998, Morreale and Standora 2005) but their presence is where individuals move opportunistically between foraging areas.

The sea turtles most common in LIS waters are typically loggerhead and Kemp's ridley juveniles, although sub-adult and adult leatherback and loggerhead turtles are also present. Studies in New York estuarine waters have indicated that during the warmer months, the juvenile turtles were mainly found in areas where the water depth was between 16 and 49 feet, with water velocity less than 2 knots (Morreale and Standora 1992). Juvenile turtles are known to use shallow water benthic areas as forage habitat. One study of juvenile Kemp's ridley turtles in LIS waters of New York found that the dominant dietary component for these juvenile turtles was crab species (Burke et al. 1994). The juvenile green and loggerhead turtles are generally omnivorous, whereas the leatherbacks prefer pelagic jellyfish. As there is no long-term population assessment of turtles in these waters, documentation of their presence is limited to citizen monitoring reports and stranding network documentation. Mass Audubon's Sea Turtle Sighting Hotline/Maps for Southern New England (https://seaturtlesightings.org/maps.html) has been recording the locations of all reported sightings of sea turtles since their sea turtle hotline began in 2002.

The website indicates that since observation reporting a single turtle (loggerhead) was spotted dead on the eastern shoreline of Long Neck Point, approximately 4.92 miles to the east of the project site in July of 2020 (see maps below):


Sea Turtle Sighting Maps
All Sightings
By Species
By Month
By Status
By Year
Map
Satellite
Project Site
Species: Loggerhead
Sighting Date: 7/25/2020
Status: dead
4.92 miles
Google
Imagery ©2021 , Bluesky, Landsat / Copernicus, Maxar Technologies, New York GIS, USDA Farm Service Agency
Terms of Use
Report a map error


Sea Turtle Sighting Maps
All Sightings
By Species
By Month
By Status
By Year
Map
Satellite
Project Site
Google
Imagery ©2021 TerraMetrics
Terms of Use
Report a map error

As, the maps show there have been very few instances of sea turtle observations in this portion of Long Island Sound. However, it is possible that they could still be present and just may not have been observed. The seaweed component of the farm will be actively operational from November 1 through May 30 until the product is harvested and the horizontal growing lines are removed. Consequently, the project's timeframe is expected to overlap slightly with the potential presence of federally listed protected sea turtles, both adults and juveniles (Shoop and Kenney 1992, Remond et. al. 2014, Flavin et.al. 2013).

Atlantic Sturgeon

There are four DPSs of Atlantic sturgeon listed as endangered (New York Bight, Chesapeake Bay, Carolina, and South Atlantic) and one DPS listed as threatened (Gulf of Maine) under the ESA. Available information on the distribution of Atlantic sturgeon indicates that stock in LIS may be comprised, in larger part, of adult sub-adult individuals from the New York Bight DPS (Dunton et. al 2016, Waldman et. al. 2013). However, individuals from the Gulf of Maine, Chesapeake Bay, Carolina, and South Atlantic DPSs may also be represented (Damon-Randall et al. 2012, Savoy and Pacileo 2003, Grunwald, 2008). Two LIS river systems possess documentation of a historical fishing industry for Atlantic sturgeon (Savoy and Howell 2016, Coffin 1947). They are the Connecticut River and the Housatonic River, and both have been designated as Critical Habitat for the species. The project site is not close to these waterways or the proposed Critical Habitat designation, so the proposed project will have no effect on critical habitat for the conservation of the species.

Atlantic sturgeon spawning and early life stages occur in freshwater rivers. It is not until about three years of age that Atlantic sturgeon sub-adults leave their natal rivers and begin migration into saline waters (Bain et al. 1997). After emigration from the natal river/estuary subadults, along with adult Atlantic sturgeon, travel within the marine environment, typically in waters less than 50 meters in depth, using coastal bays, sounds, and ocean waters (ASSRT 2007). In estuaries, such as LIS, Atlantic sturgeon typically use the deepest waters available. However, they can occur over shallow (2.5 meter), tidally influenced flats and mud, sand, and mixed cobble substrates and their occurrence in these shallow waters is thought to be tied to the presence of benthic resources for foraging (Savoy and Pacileo 2003).

Atlantic sturgeon are bottom feeders that draw food into a ventrally located protrusable mouth (Bigelow and Schroeder 1953). The diet of adult and subadult Atlantic sturgeon includes mollusks, gastropods, amphipods, decapods, isopods, and fish (Bigelow and Schroder 1953, ASSRT 2007, Guilbard et al. 2007, Dropkin et. al. 1997, McLean 2013, Savoy 2007). Multiple studies have shown that soft substrates, such as sand and mud, and the proximity to the salt front of tidally influenced rivers constitutes ideal forage conditions for Atlantic sturgeon (Bigelow and Schroeder 1953, Brundage and Meadows 1982, Dadswell, et. al. 1984, Collins *et al*. 2000, Savoy and Pacileo 2003, NMFS and USFWS 2007, Guilbard *et a*l. 2007, Savoy 2007, Dzaugis 2013, McLean *et al*. 2013). Atlantic sturgeon presence is strongly associated with the availability of prey, and as a result sturgeon may occur in any marine or estuarine location or at the proposed gear site if suitable forage and habitat are available.

Shortnose Sturgeon

Shortnose sturgeon occur in rivers and estuaries along the east coast of the U.S. and Canada (SSSRT 2010). There are 19 documented populations of shortnose sturgeon, with the population in LIS closest to the action area occurring approximately 70 miles to the east in the Connecticut River. There is no critical habitat designated for this species. In fall 2014, a shortnose sturgeon of Connecticut River DPS was caught in the Merrimack River (Mass.) carrying a tag which was implanted in the Connecticut River in 2001 (NMFS comm. with Kieffer and Savoy 2014). However, the available tagging and tracking information is too limited to determine if Hudson and Connecticut River shortnose sturgeon are making regular movements outside of their natal rivers and whether movement as far as the Merrimack River is a normal behavior. The genetic differentiation between these populations is thought to reflect the rarity of these types of movements (Walsh et. al. 2001). However, the movement of a shortnose sturgeon from the Connecticut River to the Merrimack River, does indicate that occasional transient adult shortnose sturgeon moving between the Hudson and Connecticut or Merrimack Rivers could pass through the action area while gear is in the water.

As with the Atlantic sturgeon, spawning and early life stages of the shortnose sturgeon only occur in freshwater habitats. However, adult shortnose sturgeon do not overwinter in the estuary, instead spending the winter season in freshwater portions of large rivers. Because the action area consists solely of an estuarine environment, the best available information suggests that no life stages other than salinity tolerant adult shortnose sturgeon undertaking migratory movements are expected to occur at the lease location. Because adult shortnose sturgeon will feed on mollusks, crustaceans and other organisms on the estuarine bottom, and such may be present at or transiting through the aquaculture lease site, it is feasible that shortnose sturgeon could opportunistically feed on a seasonal basis in the action area, during the duration of any permit and associated aquaculture lease.

Effects Determination of the Action

Gear Interactions

Coastal aquaculture activities often include the use of vertical and horizontal lines, anchoring systems and floats and buoys that may pose an entanglement risk to ESA listed species such as sea turtles, while the gear is deployed. In the case of sea turtles, especially adult turtles, loose lines (non-tensioned) with floats/buoys on or near the surface could wrap around flippers or their neck while they are foraging and/or pursuing prey. This may result in drowning and increased vulnerability to boat collisions (Lutcavage et al. 1997). As size appears to be correlated with the likelihood of entanglement in such gear, the leatherback turtle's size, along with its preference to forage for jelly fish in the upper water column, suggests this species is at the highest risk (Davenport 1987) though entanglement can occur to any sea turtle.

In the case of the project configuration, the vertical anchor/pickup line and the surface growing line flotation buoys have the highest potential to be an entanglement concern. The applicant proposes to use lead-core sinking line and/or marine chain to provide counterweight on the vertical lines where possible. Because the project has been designed for vertical lines to be maintained under constant tension in all tidal conditions, it is less likely that a sea turtle would

become entangled. The number of vertical lines has been minimized such that only the minimum number of vertical lines necessary to buoy the horizontal seed line and demarcate the anchors, will be used. The majority of the gear, lines and buoys will only be in the water from November through May of the calendar year; thus the probability of sea turtle interaction is reduced. Finally, historical documentation indicates that sea turtles, especially adults, are uncommon this far west in Long Island Sound. Consequently, we expect that the entanglement effect of the proposed lines and floats, when considered in addition to existing baseline condition installed and maintained as described above, is extremely unlikely to occur and thus discountable.

In addition to sea turtles, both salinity tolerant stages of Atlantic sturgeon and shortnose sturgeon may be present on a seasonal basis in the action area. However, the buoy lines and the horizontal mainline associated with the seaweed gear is not considered an entanglement risk to these species. The basis for this conclusion is that the gear and associated seaweed will be maintained in the upper half of the water column. Sturgeon, if present, will most likely be foraging or transiting along the bottom where there are no lines other than the anchor. Thus, the presence of the gear, when added to existing baseline conditions, will not function as a potential impediment and we conclude that any effects of the presence of gear on sturgeon passage are too small to be meaningfully measured or detected, and are therefore, insignificant.

Habitat Modification

Activities that disturb the sea floor or the water column may also affect benthic and pelagic communities and can cause effects to listed species by reducing the availability of prey or altering the composition of the species upon which listed species forage. Although the action area does not possess submerged aquatic vegetation or commercially productive or densely populated shellfish beds, it does support prey items, such as annelids and crustaceans that would be suitable as forage for both sea turtles and sturgeon.

In the case of this project, the only work that will directly affect the sea floor, and thus potentially result in the loss of foraging resources for listed species, are the anchors that will be used to hold the longlines and aids to navigation. Each of the five long lines will have one 1500-pound mooring anchor on each end. The entire rectangular boundary around the long lines would be marked with eight safety aids to navigation (hazard buoys) each supported by similar mooring anchors. Impacts from the anchors will include localized, temporary benthic disturbance during initial installation of the project's anchoring system. Resuspension of sediment during their placement is possible, but it's expected to be confined to a small area central to the anchor location. If such suspension is discernible, it will be less than that which occurs during natural storm events and water clarity will quickly return to the background level. Setting of the anchors will also result in a reduction in benthic area, but not necessarily a loss of surface area.

The expected dimension of the anchors in this weight category will be in the four-foot diameter range (12.56 square feet). Thus, the 18 anchors may temporarily displace up to 226.1 square feet of benthic habitat. However, the increase in surface area available for attachment of marine invertebrates such as tunicates, sponges, corals, and Bryozoa is expected to enhance habitat complexity and will largely mitigate the impact of habitat displacement. The footprint of impact will result in modification of 0.001% (.004-acre) of the 4.2-acre state leased gear area.

The habitat modification effects, specifically, the temporary loss of foraging habitat from the installation of anchors, when added to the existing baseline condition at the site, will be too small to be meaningfully measured or detected, and are therefore, insignificant.

The size of the gear area ensures that there remains an expanse of foraging habitat available in LIS adjacent to the proposed project. Also, those sturgeon and sea turtles that do choose to opportunistically forage in the action area will be able to continue to do so or will be physically able to shift to other nearby areas in the estuary where the preferred benthic community is readily accessible. Given the small area of bottom to be occupied by the anchor features (226.1 square feet), we do not expect that their presence will add any detectable obstruction over that of existing conditions to sea turtles or sturgeon that may transit the area. Taking these factors into consideration, we have concluded that all effects from the placement of the anchors on the benthic habitat of LIS, when added to that of the existing condition, will be too small to be meaningfully measured or detected and, therefore, the project as proposed will have an insignificant impact on ESA-listed species.

Vessel Traffic

Collision with vessels is a source of anthropogenic mortality and injury for sea turtles and sturgeon if they are struck by the hulls or propellers of passing vessels. Because any of these resources may occur in the action area where the work vessel, a 25-foot long research vessel, will travel we have considered whether there would be an increased risk of a vessel strike.

Limited information is available regarding the incidence of vessel strike and the factors contributing to vessel strike events. However, we consider the factors determining an appreciable or likely risk for both sea turtles and sturgeon to be stricken by a vessel to include vessel speed, limited navigational clearance (i.e., depth of draft of the vessel relative to water depth) in the area where the vessel is operating, high activity or volume of vessels, and high numbers or density of individuals in the area (e.g., areas used for foraging, migrating, or overwintering).

The applicant has indicated that they will tend the longlines weekly to inspect the tension of the lines. Also, the lines will be hauled in at least one per month to check for warp and headline depth and to add or remove buoyancy to maintain line tension. The project will result in a net increase of one trip a week, above that of the existing baseline, between the docking facility at Boccuzzi Park and the lease site (a round trip of approximately 4.5 miles). These trips will occur only between November 1 and May 30 with minimal overlap (months of May and November) with the anticipated presence of the species. Additionally, the existing vessel is small, will not draw a lot of water and will be mostly stationary or drifting when the project gear is being tended, which shall reduce the potential for a strike.

Although vessel strikes are extremely unlikely any authorization for the project will be cautioned to maintain a vigilant watch for protected resources during all transits. Accordingly, the captain and crew of the support vessel will ensure that all measures above to avoid protected resources (sea turtles and sturgeon) are taken and that speeds are kept to a minimum when transiting the waterway. These measures, the negligible increase in vessel traffic above existing level in the action area and the size of the coastal action where listed species can disperse widely,

lends itself to a conclusion that the risk of vessel strike is extremely unlikely. As a result, the effect of the action on the risk of a vessel strike in the action area, when added to baseline conditions, is discountable.

Conclusions

Based on the analysis that all effects of the proposed action, when added to existing baseline conditions within the action area, will be insignificant and/or discountable, we have determined that the proposed SoundWaters Seaweed Mariculture Project is not likely to adversely affect any listed species and will have no effect on critical habitat under NMFS' jurisdiction. We certify that we have used the best scientific and commercial data available to complete this analysis and we request your concurrence with this determination. If you have any questions concerning this matter, please contact Ms. Cori M. Rose of my staff at (978) 318-8306 or cori.m.rose@usace.army.mil.

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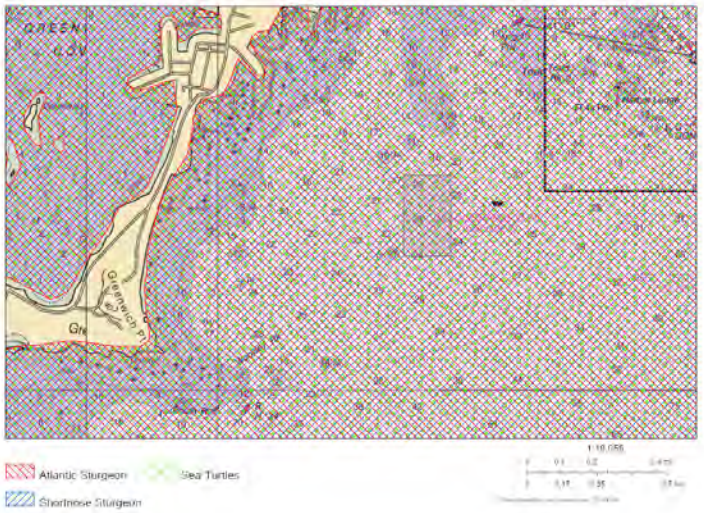
Drawn Action Area & Overlapping S7 Consultation Areas

Area of Interest (AOI) Information

Area : 23.72 acres

Mar 18 2021 17:23:39 Eastern Daylight Time



Summary

Name	Count	Area(acres)	Length(mi)
Atlantic Sturgeon	2	47.43	N/A
Shortnose Sturgeon	1	23.72	N/A
Atlantic Salmon	0	0	N/A
Sea Turtles	4	94.87	N/A
Atlantic Large Whales	0	0	N/A
In or Near Critical Habitat	0	0	N/A

Atlantic Sturgeon

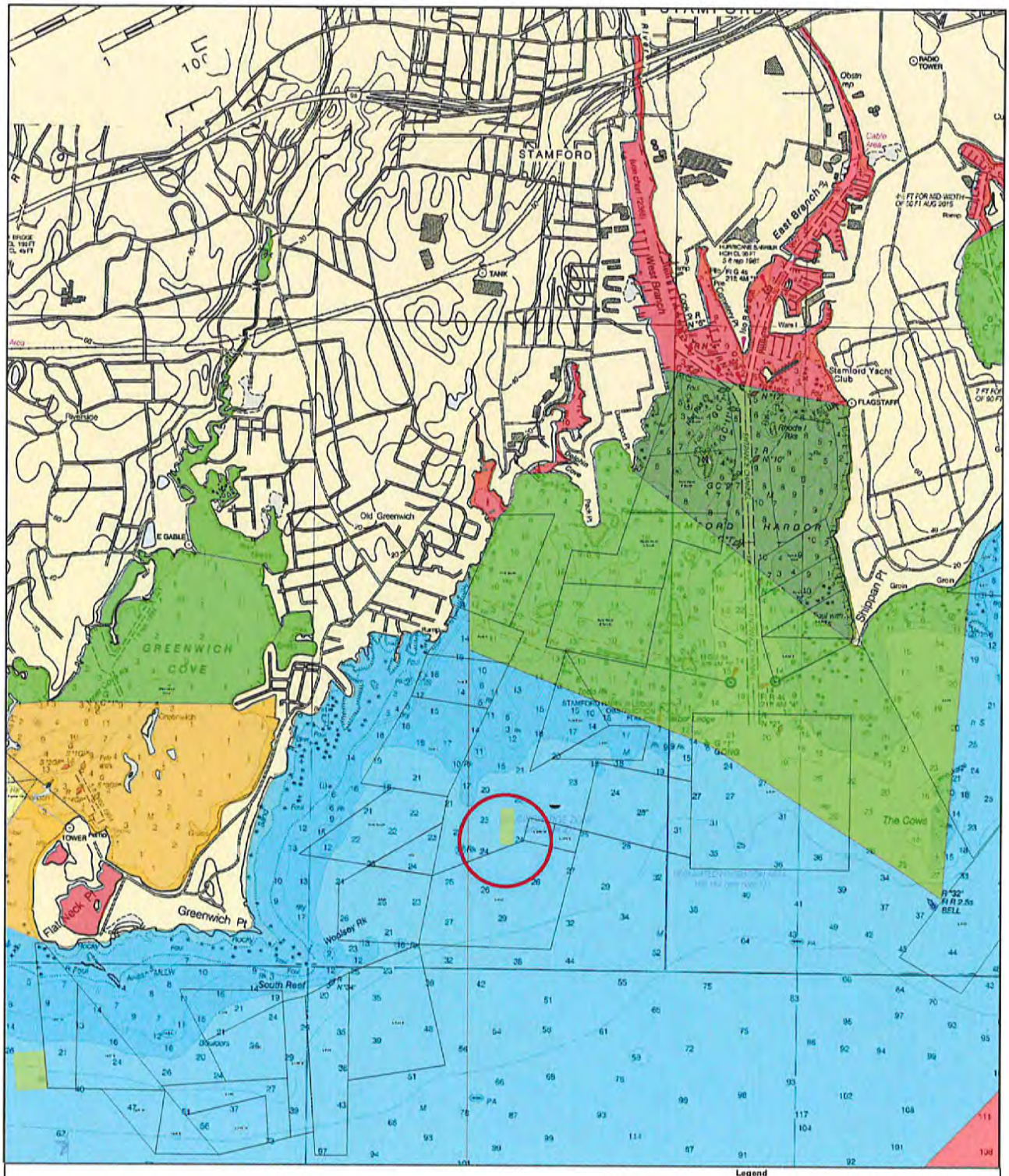
#	Feature ID	Species	Life Stage	Behavior	Zone	From	Until	From (2)	Until (2)	Area(acres)
1	ANS_LIS_ADU_MAF	Atlantic sturgeon	Adult	Migrating & Foraging	Long Island Sound	01/01	12/31	N/A	N/A	23.72
2	ANS_LIS_SUB_MAF	Atlantic sturgeon	Subadult	Migrating & Foraging	Long Island Sound	01/01	12/31	N/A	N/A	23.72

Shortnose Sturgeon

#	Feature ID	Species	Life Stage	Behavior	Zone	From	Until	From (2)	Until (2)	Area(acres)
1	SNS_LIS_ADU_MAF	Shortnose sturgeon	Adult	Migrating & Foraging	Long Island Sound	04/01	11/30	N/A	N/A	23.72

Sea Turtles

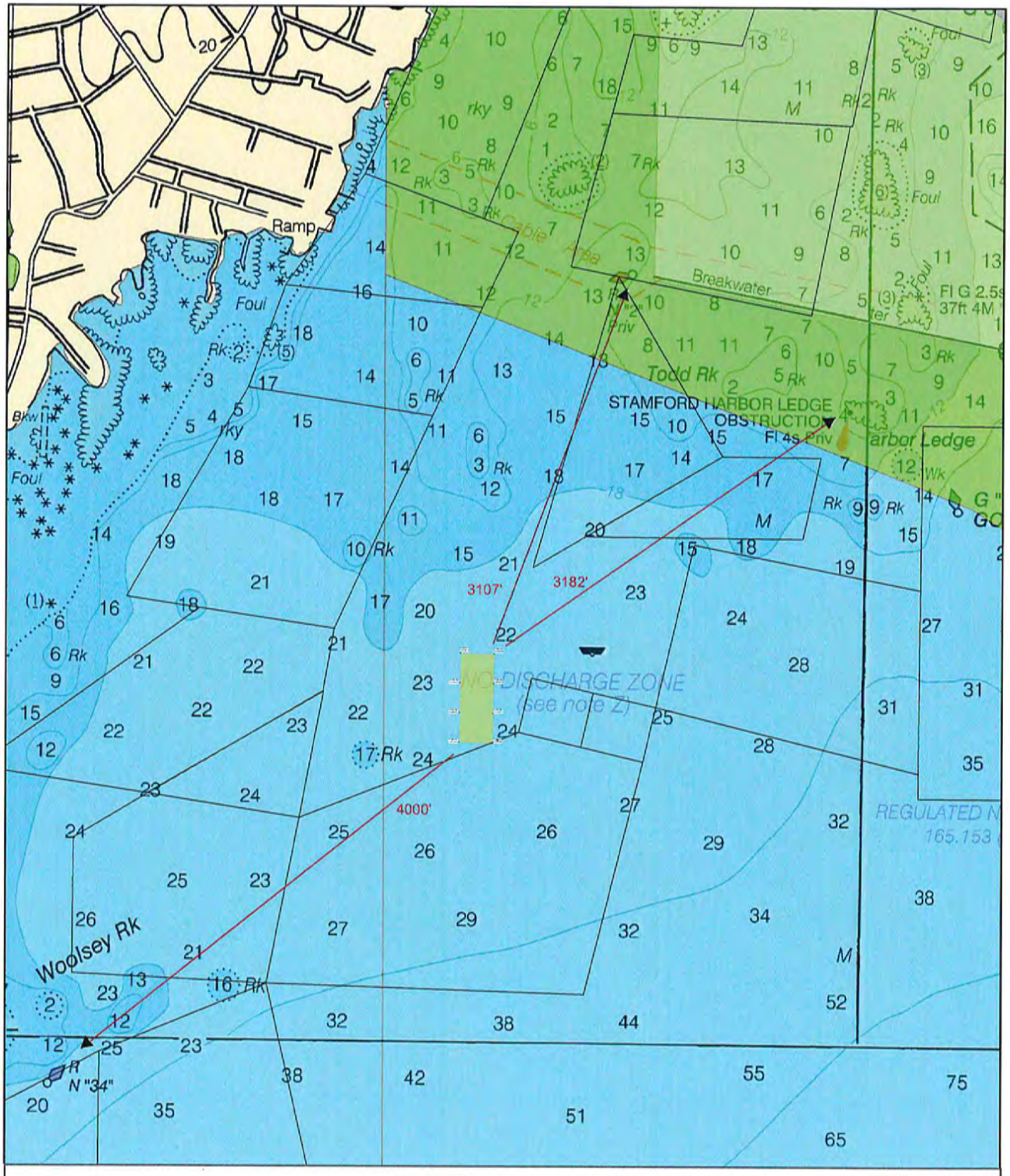
#	Feature ID	Species	Life Stage	Behavior	Zone	From	Until	From (2)	Until (2)	Area(acres)
1	GRN_STS_AJV_MAF	Green sea turtle	Adults and juveniles	Migrating & Foraging	Massachusetts (S of Cape Cod) through Virginia	5/1	11/30	*No Data*	*No Data*	23.72
2	KMP_STS_AJV_MAF	Kemp's ridley sea turtle	Adults and juveniles	Migrating & Foraging	Massachusetts (S of Cape Cod) through Virginia	5/1	11/30	*No Data*	*No Data*	23.72
3	LTR_STS_AJV_MAF	Leatherback sea turtle	Adults and juveniles	Migrating & Foraging	Massachusetts (S of Cape Cod) through Virginia	5/1	11/30	*No Data*	*No Data*	23.72
4	LOG_STS_AJV_MAF	Loggerhead sea turtle	Adults and juveniles	Migrating & Foraging	Massachusetts (S of Cape Cod) through Virginia	5/1	11/30	*No Data*	*No Data*	23.72



SoundWaters
Mike Bagley
2016-SW#20
4 acres
(5) 310' kelp long lines
Stamford, CT
Fig. 1

Date: 9/23/2020

Coordinate System: NAD 1983 StatePlane Connecticut FIPS 0600 Feet
Projection: Lambert Conformal Conic
Datum: North American 1983
False Easting: 1,000,000.0000
False Northing: 500,000.0000
Central Meridian: -72.7500
Standard Parallel 1: 41.2000
Standard Parallel 2: 41.8667
Latitude Of Origin: 40.8333
Units: Foot US



SoundWaters
Mike Bagley
2016-SW#20
4.2 acres
(5) 310' kelp long lines
Stamford, CT

Fig.1a

Date: 9/24/2020

Coordinate System: NAD 1983 StatePlane Connecticut FIPS 0600 Feet
Projection: Lambert Conformal Conic
Datum: North American 1983
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False Northing: 500,000.0000
Central Meridian: -72.7500
Standard Parallel 1: 41.2000
Standard Parallel 2: 41.8667
Latitude Of Origin: 40.8333
Units: Foot US

N

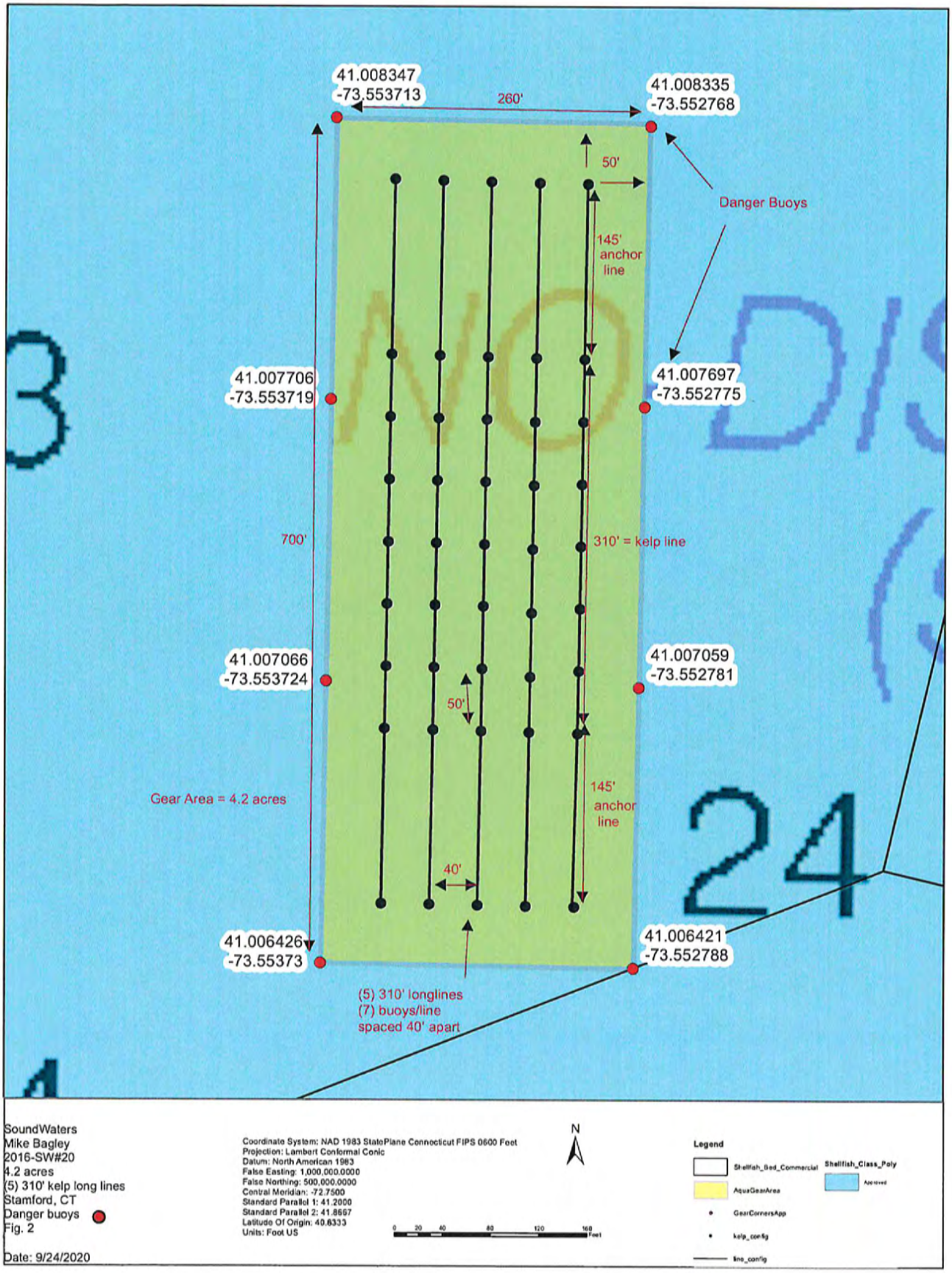
0 245 490 980 1,470 1,960 Feet

Legend

- Shellfish_Bed_Commercial
- AquaGearArea
- GearCornersApp

Shellfish_Class_Poly

- Approved
- Restricted
- Conditionally Restricted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-73.553713
260'
41.008335
-73.552768
50'
Danger Buoys
145'
anchor
line
41.007706
-73.553719
41.007697
-73.552775
700'
310' = kelp line
41.007066
-73.553724
41.007059
-73.552781
50'
Gear Area = 4.2 acres
145'
anchor
line
40'
41.006426
-73.55373
41.006421
-73.552788
(5) 310' longlines
(7) buoys/line
spaced 40' apart
SoundWaters
Mike Bagley
2016-SW#20
4.2 acres
(5) 310' kelp long lines
Stamford, CT
Danger buoys
Fig. 2
Date: 9/24/2020
Coordinate System: NAD 1983 StatePlane Connecticut FIPS 0600 Feet
Projection: Lambert Conformal Conic
Datum: North American 1983
False Easting: 1,000,000.0000
False Northing: 500,000.0000
Central Meridian: -72.7500
Standard Parallel 1: 41.2000
Standard Parallel 2: 41.8667
Latitude Of Origin: 40.8333
Units: Foot US
0 20 40 80 120 160 Feet
N
Legend
Shellfish_Bed_Commercial
Shellfish_Class_Poly
Approved
AquaGearArea
GearCornersApp
kelp_config
line_config

Figure 2. Site Plan Diagram

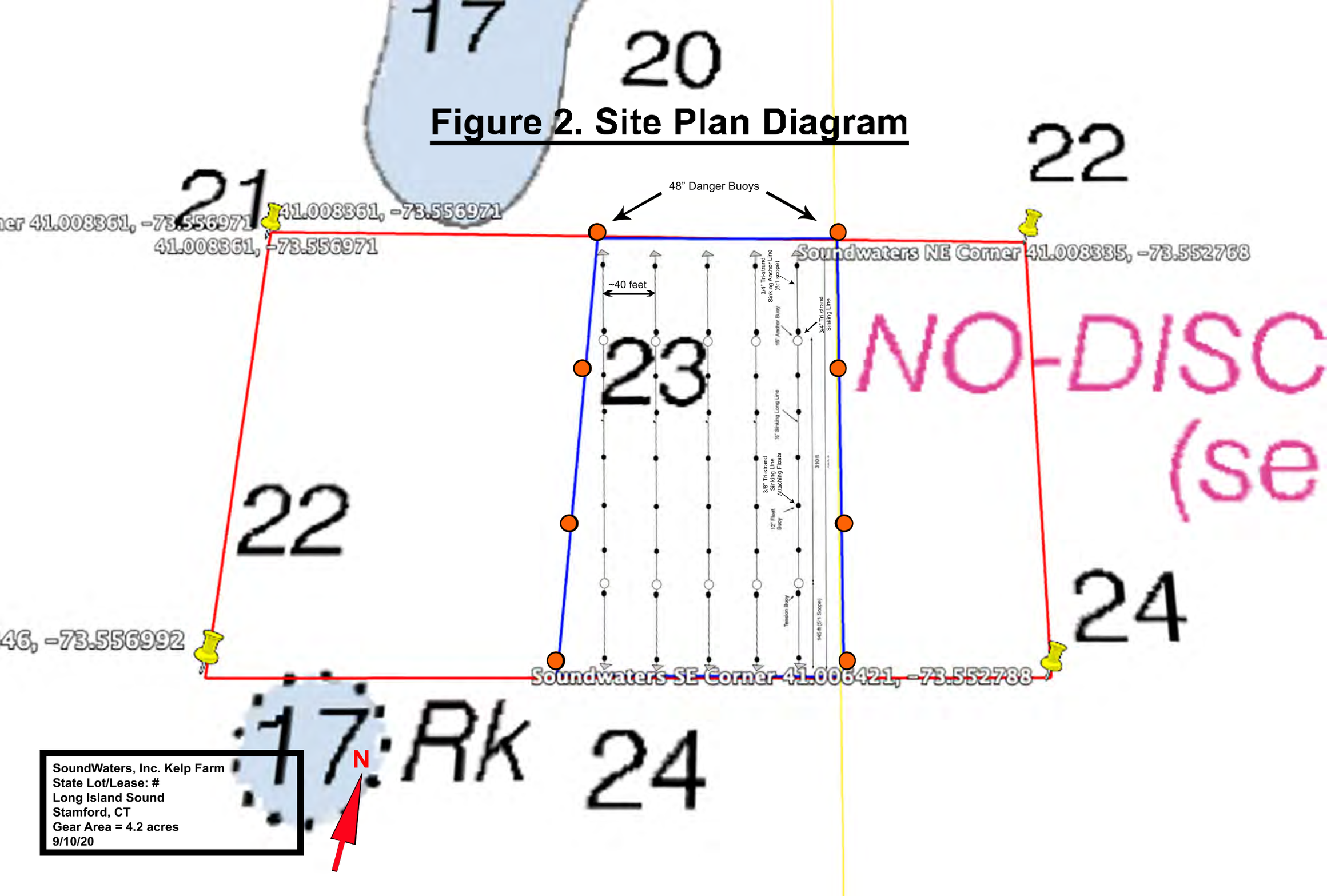
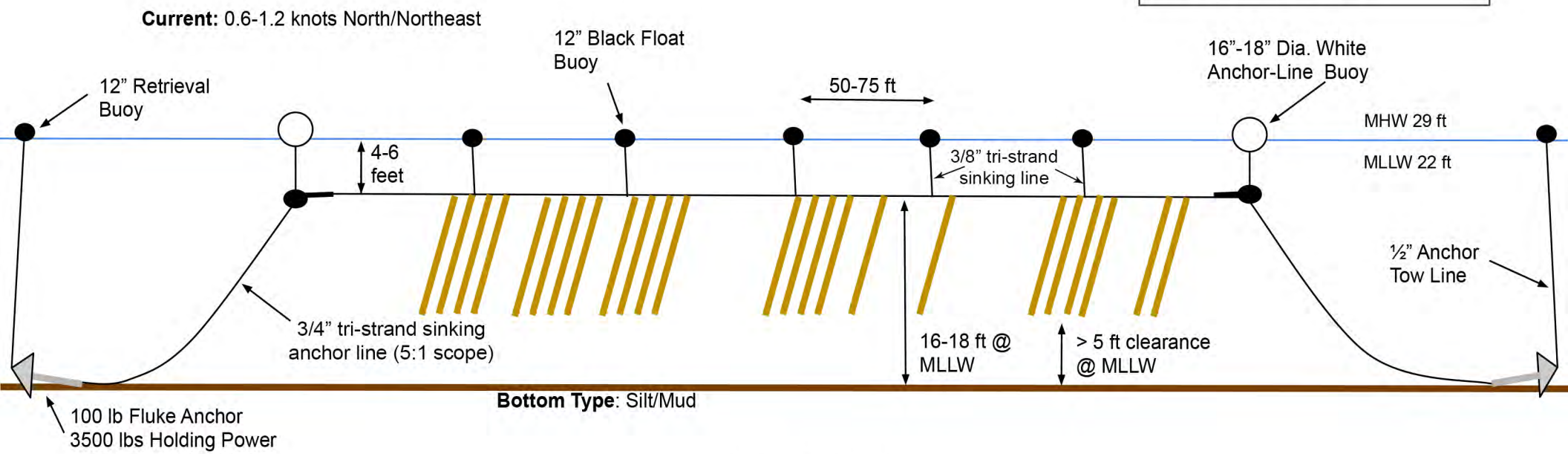
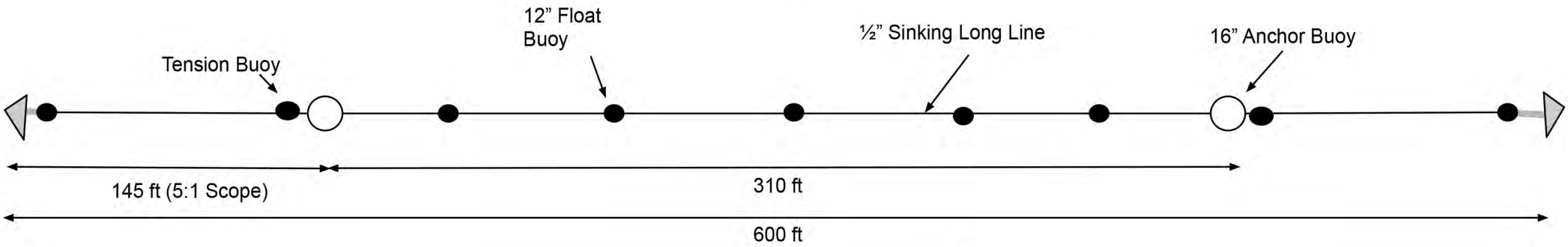


Figure 3 Cross-Sectional View: 310 ft Kelp Longline
Longlines to be Installed North-South

SoundWaters, Inc. Kelp Farm
State Lot/Lease: #
Long Island Sound
Stamford, CT
Gear Area = 4.2 acres

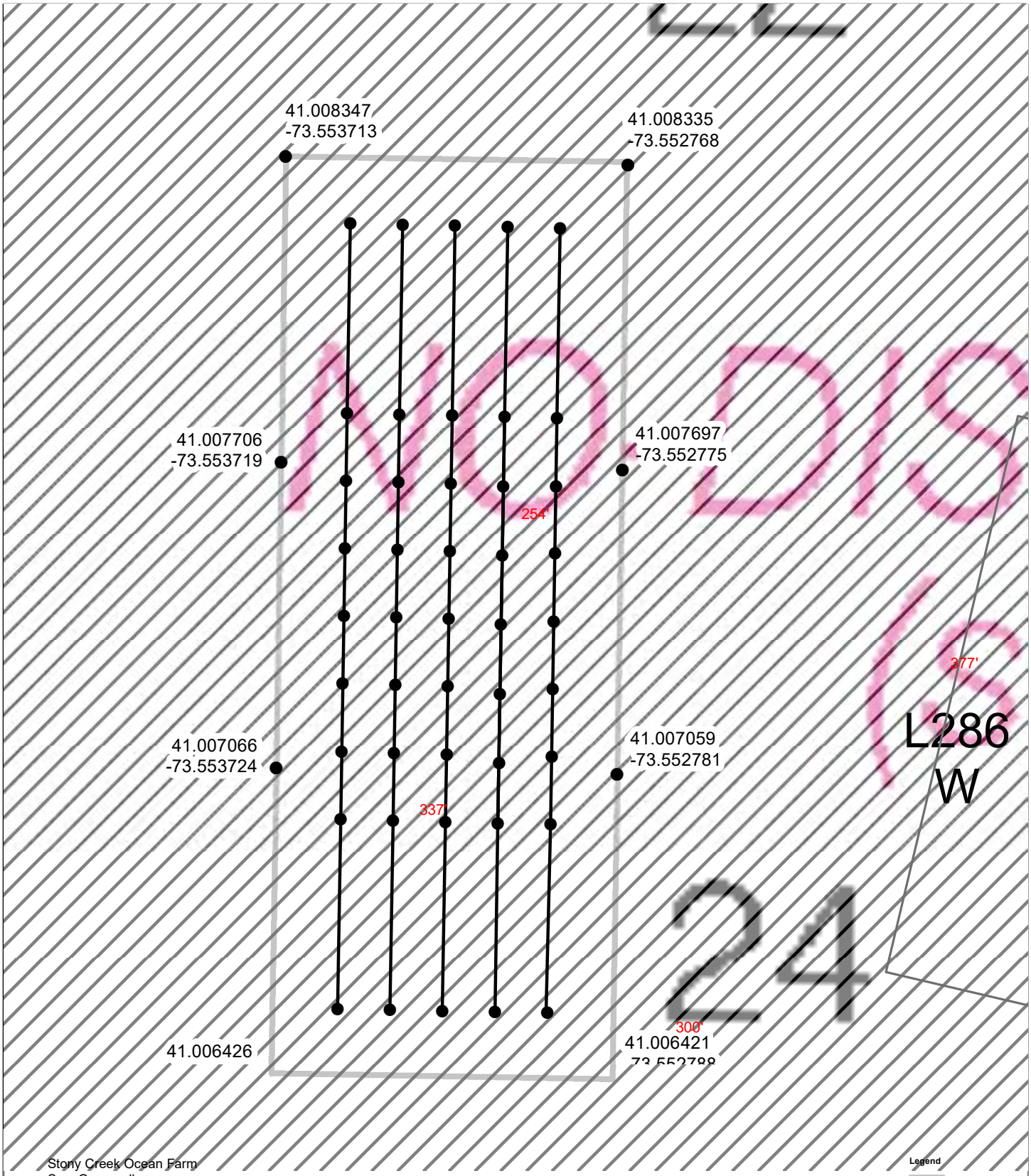


Longline Plan View



Project Features:
- Five 310 ft kelp longlines (600 ft anchor-to-anchor)
- Five 11-12 inch diameter (Polyform A-1 equivalent) black floatation buoys perline
- Two 16-18 inch diameter (Polyform A-3 equivalent) white buoys per line
- Two 100 lb Fluke Anchor (Danforth Standard or equivalent) with 3500 lbs holding power/ea

Project Notes:
- Growing season Nov 1 through June 1
- Seed lines and black buoys to be removed by June 15
- At full maturity, at least 5 ft of clearance will be between the bottom of kelp and the sea floor
- Anchor area on bottom - approx 2 ft x 3 ft/anchor
- The minimum amount of vertical end-line will be used



Stony Creek Ocean Farm
Sam Greenvall
Lot BIL-9
3.2 acres
(50-100) bottom cages
Branford, CT
sediment type

Fig.

Coordinate System: NAD 1983 StatePlane Connecticut FIPS 0600 Feet
Projection: Lambert Conformal Conic
Datum: North American 1983
False Easting: 1,000,000.0000
False Northing: 500,000.0000
Central Meridian: -72.7500
Standard Parallel 1: 41.2000
Standard Parallel 2: 41.8667
Latitude Of Origin: 40.8333
Units: Foot US

N

0 20 40 80 120 160 Feet

Legend
AquaGearArea
Shellfish_Beds_100620
GearCornersApp
kelp_config
line_config
Sediment_type
TEXTURE
silt-clay/sand

Date: 10/8/2020