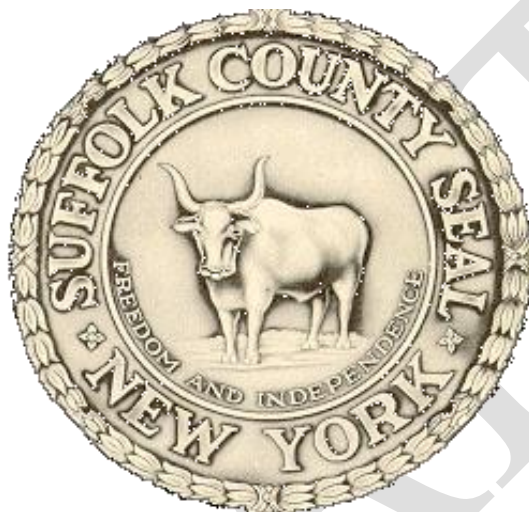


**SHELLFISH AQUACULTURE LEASE PROGRAM
IN PECONIC BAY AND GARDINERS BAY
SUFFOLK COUNTY, NY**



**Steven Bellone
Suffolk County Executive**

**Ten Year Review
Revised Administrative Guidance**

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RAG-1 Introduction

“The program has proven to be an excellent tool to promote shellfish economic development, and, in the process, improve water quality in Suffolk County Bays.”

-Suffolk County Executive Steve Bellone

Pursuant to Chapter 425, Laws of New York 2004 (2004 Leasing Law), as codified in New York State Environmental Conservation Law §13-0302, the State of New York ceded title to approximately 110,000 acres of underwater lands in Peconic Bay and Gardiners Bay to Suffolk County for the purpose of shellfish cultivation, and authorized the County to prepare, adopt and implement a shellfish aquaculture lease program for this region.

The Suffolk County Shellfish Aquaculture Lease Program (Lease Program) in Peconic Bay and Gardiners Bay established a framework for the leasing of underwater lands for the purpose of encouraging and supporting the growth of the shellfish aquaculture industry. The Lease Program was adopted by Suffolk County Local Law No. 25-2009 and codified in Chapter 475, Article II of the Suffolk County Code. Implementation of the Lease Program began in 2010 and the successful execution of the first Shellfish Aquaculture Lease Agreement by the December 31, 2010 sunset provision, fulfilled the requirement stipulated in the New York State Environmental Conservation Law §13-0302 (2004 Leasing Law); thus securing the County’s title to approximately 110,000 acres of underwater land in Peconic Bay and Gardiners Bay.

Since the implementation of the Lease Program in 2010, Suffolk County has conducted nine lease application cycles; the demand for new leases always exceeding the lease acreage that was available under the annual cap limit of 60 acres per year. While the County has executed over 80 Shellfish Aquaculture Leases, as of November 5, 2020, 58 shellfish cultivation leases are in place covering a total of 810 acres in Peconic and Gardiners Bays. Under provisions of the Lease Program, the County was able to add back to the acreage cap, lease acreage that originated from the acreage cap and was subsequently terminated. Each of the 58 leases has provided the opportunity for the establishment of private shellfish farming operation on which the leaseholders are able to cultivate oysters, hard clams and/or bay scallops. The level of interest in the Lease Program continues to grow, and the demand for new leases from a diverse pool of applicants remains strong.

Also codified in Chapter 475 Article II of the Suffolk County Code, is the document entitled, “Suffolk County Shellfish Aquaculture Lease Program in Peconic Bay and Gardiners Bay Program Administrative Guidance,” dated May 20, 2009, prepared by the Department, incorporated by reference and made a part of as Exhibit A. This document constitutes the regulations of the Lease Program; outlining the administrative procedures, implementation of the Lease Program, and directives for conducting Shellfish Aquaculture under the program. Included in the Law is a provision for the periodic administrative review of the Lease Program and the adopted Shellfish Cultivation Zone, which would allow the County to identify and propose revisions to the program based on the experience gained during the first ten years of operation; as well as changed environmental and socio-economic conditions.

The development of the Lease Program was funded under Capital Project # 7180.110 (Res. No. 150-2005; Into. Res. No. 2226-2004, Amending the Adopted 2005 Operating Budget to Transfer Funds from Fund 477 Water Quality Protection, Amending the 2005 Capital Budget and Program, and Appropriating Funds in Connection with the Aquaculture Leasing Program [CP 7180]). The remaining funds from this original allocation (\$100,000) was utilized to conduct the required Ten Year Review of the Lease Program, as required under the Administrative Guidance that was adopted in August of 2009. The Ten Year Review included the evaluation of the Lease Program in light of early operational experience; the review and amendment of the Shellfish Cultivation Zone and associated maps; and the development of recommendations specifying how the Lease Program should be implemented when the annual acreage cap limit expired after 2019; all which would be considered and adopted by the County.

This Revised Administrative Guidance contains a full description of all aspects of the Lease Program, revised in accordance with the Shellfish Aquaculture Lease Program in Peconic Bay and Gardiners Bay Ten Year Review. As such, it provides the basis to continue the Lease Program beyond the first ten years. This document also contains all the updated definitions, procedures, forms, and required information etc. needed by a potential applicant to apply for a commercial or non-commercial shellfish aquaculture lease in Peconic Bay and Gardiners Bay, Suffolk County, New York. As such, it provides a detailed “road map” with steps and instructions to be used by new lease applicants when they apply for a shellfish aquaculture lease. Responsibilities and performance requirements of existing leaseholders and prospective lease applicants have also been updated and are described herein.

The Department will continue to be proactive in implementing the Lease Program, e.g., by encouraging prospective shellfish farmers to start new businesses; reducing the burden of administrative and regulatory permit constraints; and responding to changes in the knowledge base relating to shellfish aquaculture in coastal waters.

The next ten years of the Lease Program is expected to increase private investment in shellfish aquaculture businesses. This, in turn, will expand the marine-based economy of Suffolk County and create jobs that contribute to the quality of life and sense of place in East End communities. The production of large numbers of oysters, hard clams and bay scallops in dense populations on shellfish farms will augment the spawning potential of native shellfish populations. The millions of filter feeding bivalves on shellfish farms will also exert a positive influence on water quality by helping to control nutrient cycling and contributing to the prevention of noxious plankton blooms, such as brown tide. These and other ecosystem services associated with shellfish farms are provided on a sustainable basis at little to no cost to the general public.

RAG-2 Definitions

- 2.1 Annual Acreage Cap Limit:** the total acreage of new shellfish aquaculture leases entered into during the second ten years of the Lease Program, also known as Phase 2, shall not exceed 600 acres; however, any unused acreage during a particular year shall be carried over to the next year and made available for leasing. Leases for new shellfish aquaculture operations shall consist of 10-acre parcels. This limitation shall result in the lease of 60 additional acres per year. This rate of growth for the second ten-year period is consistent with that of the first ten-year period.
- 2.2 Approved Waters:** waters which have been classified by the New York State Department of Environmental Conservation (NYSDEC) as certified for the taking of shellfish for human consumption on a regular basis.
- 2.3 Aquaculture:** the cultivation of shellfish for human use, consumption, resource restoration or other beneficial use.
- 2.4 Aquaculture Lease Board:** a board established pursuant to Section 475-18 of the Suffolk County Code that shall determine which proposed lease sites within the Shellfish Cultivation Zone will be eligible for leasing.
- 2.5 Aquaculture Lease Sites Map:** the map that shows the Shellfish Cultivation Zone (as revised in 2020), portions of which have been subdivided by a grid system into 20-acre plots, each of which has been assigned a unique identifying number. Ten-acre leases are located within each plot. The grid system on this map does not apply to oyster grants, which have been identified using a separate numbering system.
- 2.6 Department:** Suffolk County Department of Economic Development and Planning.
- 2.7 Equipment:** rakes, cages, mesh bags, trays, racks, marker floats, buoys, rafts, anchors, chains, ropes, nets and any other goods, supplies, furnishings, apparatus, etc., used for and in support of shellfish cultivation.
- 2.8 Expansion of Lease:** acquisition of additional shellfish lease acreage under the Lease Program may be obtained in some instances by certain eligible lessees through one of the following methods; expansion of lease premises acreage from a five (5) acre lease to a ten (10) acre lease within the lease site, or for an oyster grant owner with a lease covering only a portion of his/her grant, an application to expand the lease to the entire grant parcel.
- 2.9 Floating Objects:** shall mean any anchored marker or platform floating on the surface of the water other than aids to navigation and shall include but not be limited to, bathing beach markers, speed zone markers, information markers, swimming or diving floats, mooring buoys, fishing buoys, and ski jumps (NYS Navigation Law Article 1, Section 2).
- 2.10 Floating Shellfish Culture Gear:** floats, cages, baskets, mesh bags, trays, nets, tubes or other containers used to contain shellfish or seaweed (as applicable) located at or near the

surface of the water; or within the water column; but not including floating markers, buoys and similar equipment used to mark lease site boundaries or submerged equipment.

- 2.11 Lease Area Boundary Survey:** a physical survey of the proposed lease area, conducted by a New York State licensed land surveyor, which establishes the perimeter of a lease area as it relates to a site’s legal description. The requirements and specifications for the lease site boundary surveys are described in Appendix A of the Revised Administrative Guidance.
- 2.12 Lease Site Boundary Survey Map:** a map prepared by a NYS licensed land surveyor that has been signed and sealed, which depicts the subject lease area and includes the site coordinates and a legal description of the lease site boundaries. The Lease Site Boundary Survey map must meet the specifications established by the County as described in Appendix A of the Revised Administrative Guidance.
- 2.13 Legacy Acreage:** lease cap acreage from the initial 2010 lease acreage cap that is available for leasing.
- 2.14 Off-Bottom Culture:** means the raising, breeding or growing of marine plant or animal life, including containment on, or in, any raft, rack, float, cage, box or other similar device or structure in any natural waters of the state (6 NYCRR Part 48.1).
- 2.15 On-Bottom Culture:** means the raising, breeding, growing or planting of marine plant or animal life on, or in, any natural underwater lands of the state (6 NYCRR Part 48.1).
- 2.16 Phase 2:** shall mean the second ten-year period of the Lease Program; beginning upon filing of the Local Law [insert number]-2021, “A Local Law to Amend, Update and Reorganize Chapter 475 Article II of the Suffolk County Code” with the Secretary of State. Phase 2 includes the consecutive years starting in 2021 and ending in 2030.
- 2.17 Private Oyster Grant:** the underwater lands previously granted to private individuals by Suffolk County during the mid 1800s to the early 1900s, for purposes of oyster cultivation, pursuant to Chapter 385, Laws of 1884, and subsequent amendments.
- 2.18 Seaweed Cultivation:** the controlled or partially controlled growing of seaweeds or other macro-algae as permitted by New York State, Suffolk County or other governmental authorities in accordance with applicable Federal, State and local laws and regulations.
- 2.19 Sensitive Area:** an environmentally and socio-economically sensitive area identified through literature search, existing reports/studies, and public outreach, such as scallop harvest areas, submerged aquatic vegetation beds, uncertified shellfishing areas and other areas unsuitable for aquaculture, as identified on *Public Comment and Focus Group Map 2* (Environmentally Sensitive Areas) of the Ten-Year Review.
- 2.20 Shellfish:** means oysters, scallops, and all kinds of clams and mussels (ECL Article 11, §11-0103).

- 2.21 Shellfish Aquaculture Lease:** the document that conveys a leasehold interest and the right to conduct shellfish aquaculture activities on Suffolk County owned underwater lands.
- 2.22 Shellfish Aquaculture Lease Lands:** those lands conveyed by Suffolk County under a shellfish aquaculture lease document.
- 2.23 Shellfish Cultivation:** the controlled, or partially controlled, raising, breeding, growing, and containment of Shellfish in any marine hatchery or through on-bottom or off-bottom culture as permitted by the County of Suffolk, New York State Fish and Wildlife Law (N.Y. Environmental Conservation Law Article 11), and other applicable Federal, State and local laws and regulations. Shellfish Cultivation is the equivalent of Shellfish Aquaculture.
- 2.24 Shellfish Cultivation Zone:** the area in Peconic Bay and Gardiners Bay within which shellfish aquaculture leases may be issued. These areas are shown on the Ten-Year Review Revised Shellfish Cultivation Zone Map dated November 20, 2020, adopted by the County of Suffolk. The zone includes private oyster grants and other areas where the impacts of shellfish aquaculture activities will be minimal.
- 2.25 Shellfish Cultivation Zone Map:** the map, dated November 20, 2020, prepared by the Department, depicting the Shellfish Cultivation Zone.
- 2.26 Shellfish Seed:** any shellfish measuring less than legal size as established under New York State law or regulation.
- 2.27 Substantial Shellfish Aquaculture Activity:** a good faith effort to prepare an aquaculture site; acquire financing, equipment and/or seed; plant, cultivate, or harvest cultivated product; or show other shellfish aquaculture-related activity on a shellfish aquaculture lease. In addition to shellfish cultivation activities, evidence of substantial shellfish aquaculture activity may include documentation in the form of receipts for equipment and/or shellfish seed purchases, landings reports, records of product sales, photographs, or other relevant documents. A lease will be considered not to have substantial shellfish aquaculture activity if lease activity as described above is not documented for two consecutive years in the annual report forms.
- 2.28 Suffolk County Shellfish Aquaculture Lease Program (a/k/a Lease Program or SCALP):** the program established pursuant to Section 475-9 and, more generally, Chapter 475, Article II, of the Suffolk County Code, as they may be amended and all written County policies, as concerning the program, including, without limitation, this Revised Administrative Guidance, dated November 20, 2020.
- 2.29 Wild Stock:** natural shellfish resources which grow within the waters of Peconic Bay and Gardiners Bay, and are not cultivated in any way.
- 2.30 2004 Leasing Law:** New York Environmental Conservation Law §13-0302.

2.31 2010 Lease Acreage Cap Limit: Limitation of 600 acres of new lease acreage that could be leased during the first ten years (2010-2019) of the program implementation, also known as Phase 1. This cap did not include leases issued for former Temporary Marine Area Use Assignments or private oyster grants. The first ten years of the Suffolk County Shellfish Aquaculture Lease Program began upon the first execution of aquaculture leases in 2010 and ended in 2019. Although the Program was enacted in 2009, no leases were issued until 2010, therefore the Program's start date is 2010.

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RAG-3 Lease Application and Execution Process

3.1 Eligibility for Shellfish Aquaculture Leases

A.) Individuals eligible for a shellfish aquaculture lease shall be at least 18 years of age. Each lease applicant is required to provide photo identification, date of birth, a Social Security number and/or federal tax ID number (EIN). All proposed shellfish aquaculture leases must be located within the adopted Shellfish Cultivation Zone. Applicants are required to submit a shellfish cultivation plan meeting the requirements outlined in Appendix C. The aquaculture lease agreement shall be similar to the Shellfish Aquaculture Lease, which is available on the Suffolk County Lease Program website. However, the County reserves the right to make changes to the lease, if necessary.

B.) All lease applicants must submit a shellfish aquaculture business plan, which shall include estimated start-up costs for a commercial shellfish aquaculture operation on the subject lease site and which documents the cost for boat, marina fees, mooring fees, shellfish equipment, shellfish seed stock, etc. as outlined in Appendix D.

C.) In addition to the requirements discussed above, all lease applicants must also satisfy any one of the following criteria:

- i. Completion of a recognized course of study in shellfish aquaculture, marine science or related disciplines; technical training program.
- ii. Prior shellfish aquaculture experience (two or more years) as an employee or apprentice.
- iii. Prior experience (three or more years) as a commercial baymen and/or shellfisherman.
- iv. Additional experience, not listed above, may be taken into consideration by the Department.

3.2 Lease Program Participants

A.) Existing Shellfish Aquaculture Leaseholders

- i. The Suffolk County Lease Program shall include the existing Shellfish Aquaculture Leaseholders who applied for and obtained a lease during the first ten years (2010 to 2019) of the Lease Program. The first Lease was executed in 2010. However, only those leaseholders who meet the Substantial Shellfish Aquaculture Activity requirements, as defined in the Revised Administrative Guidance, shall be eligible to apply to renew their lease for an additional ten (10) years, within the discretion of the County.
- ii. During the second 10-year period, also known as Phase 2 (2021-2030) of the Lease Program, the Department may issue second leases to existing leaseholders. Leaseholders that can demonstrate a need for a second lease and meet the eligibility requirements described in RAG 4.7 may apply for a second 10-acre lease site in accordance with the procedures described herein.

B.) *Private Oyster Grants*

- i. Oyster grant owners do not need to apply for a shellfish aquaculture lease if their farm operations are limited to oyster cultivation only. Oyster grant owners that wish to cultivate shellfish species other than oysters on an oyster grant or portions of an oyster grant, must apply for a lease. An oyster grant owner may apply for a lease on his/her entire oyster grant, provided the oyster grant or portions of the oyster grant are located more than 1,000 feet seaward from the mean high water shoreline. Oyster grant holders that apply for a lease on their grant are subject to a full application process, including public review and comment; any such leases issued do not count toward the annual acreage cap limit for new leases. Permits issued by the NYSDEC and/or other regulatory agencies shall identify where the cultivation of species other than oysters may take place within a leased area.
- ii. The Department has identified a number of oyster grants with title conflicts. Leases will not be issued on such grants until all title conflicts are resolved and documentation/proof of same has been submitted to the Department. If during the title vetting process, it is found that a grant is truly in public ownership and has reverted to the County, the underwater lands involved may only be leased if the underwater land is within the Shellfish Cultivation Zone. However, it should be noted that the reverted grant lands shall not be leased as a grant parcel, but may be divided into 10-acre grid parcels, and shall be subject to new lease area requirements.
- iii. Any privately-owned oyster grant that is taken by the County through tax default procedures shall not be sold at auction. Said parcels should be retained for general County purposes and may be leased for shellfish cultivation if located within the Shellfish Cultivation Zone and outside of an environmentally/socio-economically sensitive area.

C.) *Leases Subject to Annual Acreage Cap Limit*

- i. Those portions of the Shellfish Cultivation Zone, excluding leased areas or private oyster grants, may be leased subject to the acreage cap limit of 600 acres, which applies to Phase 2 of the program (2021-2030). These leases shall be limited to 10 acres in size, with a cap of 60 acres leased during each year. Any unallocated acreage from a given year may be added to the cap for leasing during a subsequent year or years. Upon completion of Phase 2, a total of 600 additional acres may be leased.
- ii. Applications for new leases received after January 1, 2021 shall be accepted and processed subject to the Phase 2 annual acreage cap limit, in accordance with requirements described herein. Lease applicants must meet requirements set forth in RAG 3.1 above; lease applications may be subject to a random selection procedure. No leases shall be issued after the Phase 2 annual acreage cap limit is reached; however, this limitation shall not include carry-over from a previous year or legacy acreage from the 2010 Lease acreage cap limit. At the discretion of the

County, legacy acreage from the 2010 annual acreage cap may be issued to existing leaseholders for second leases or an expansion of lease.

D.) Non-commercial Shellfish Aquaculture Lease

- i. Non-commercial leases include experimental, educational and resource restoration leases; and may be limited in scope and duration by the Department. Non-commercial leases must be located in the Shellfish Cultivation Zone as mapped and are subject to a full application process. These leases, however, will not count toward the annual acreage cap limit for new leases. Non-Commercial leases cannot be assigned; and shall be subject to termination in the sole discretion of the County.
- ii. Examples of non-commercial leases may include but are not limited to: shellfish aquaculture research projects implemented by a municipality, university, college and other educational institution; community shellfish gardening programs or shellfish aquaculture training program implemented and administered by municipalities, non-profit organizations and/or academic/educational institution; and resource restoration projects sponsored by non-profit organizations and conservation groups.

3.3. Number of Leases Permitted

A.) Under the Lease Program, leaseholders shall be limited to two leases at any one time. Lease applicants are not permitted to submit multiple lease applications during a given application cycle. The application for a second lease shall be considered at the discretion of the Department, provided there is acreage available after all eligible applicants requesting one (initial) lease have been processed. Legacy acreage from the 2010 acreage cap limit may be made available at the discretion of the Department to existing leaseholders who can document substantial shellfish aquaculture activities, demonstrate the need for a second lease and meet the eligibility requirements for lease expansion as described in RAG-4.7 Application for a second lease shall require a full application process, including a pre-application meeting, a public review and comment period, and approval by the Aquaculture Lease Board, as applicable. The term of a second lease shall be independent of the initial lease term. Oyster grant owners that own more than one oyster grant shall not be subject to this limitation.

3.4 Lease Application Period

A.) Applications for leases and/or second leases must be submitted during a timeframe established by the Department for a given application cycle. All applications received by the Department will be stamped with the date they are received, this shall serve as documentation for receipt of the application by the Department. Applications must be received by the Department on the due date established by the Department. Incomplete applications received on the last day of the application period or any application received after the established date will not be accepted and will be returned. It is anticipated that there will be at least one application cycle conducted by the Department during each calendar year. In addition to an annual lease application cycle, additional lease application cycles may be implemented at the discretion of the Department.

3.5 Identification of Desired Lease Area

A.) For non-oyster grant lease applications, an applicant must identify a preferred lease location and two alternative lease locations as identified on the Aquaculture Lease Sites map. The map will indicate available locations broken down into 20-acre parcels (a 10-acre lease area with a 10-acre buffer area). Each parcel will be identified with a number or alphanumeric designation. Lease Program maps will be available for viewing on the Suffolk County website, at the Department office and at the Suffolk County Clerk's Office. The Department shall make the coordinates for the four corners and center point of each 10-acre lease site, as shown on the Aquaculture Lease Sites map, available on the Lease Program website. The SCALP GIS Map Viewer will indicate which 10-acre lease sites are available for leasing. The lease map identification numbers are as follows:

- i. Lease sites that are subject to an annual acreage cap limit will be identified by a designated grid number, as determined on the Aquaculture Lease Sites map.
- ii. Lease sites added as a result of the Ten-Year Review that was completed in 2020 will be identified with a designated alphanumeric grid number (i.e., T-1, T-2, etc.) as shown on the Aquaculture Lease Sites map.
- iii. All private grants will be labeled with GR designations as shown on the Aquaculture Lease Sites map.

3.6 Pre-Application Meeting

A.) Prior to completion and submission of a new lease application, lease assignment, lease site relocation or lease renewal, the lease applicant and/or leaseholder is required to contact the Department to set up a pre-application meeting. The purpose of this meeting is to familiarize the applicant with the lease application process, review prospective lease areas or sites; and update a leaseholder on any changes to the program. If desired sites are available, subsequent to the pre-application meeting, the applicant may submit an application to obtain a lease on one of the proposed sites. Applications submitted without having satisfied the pre-application meeting requirement will not be considered complete. The County reserves the right to waive this requirement, or may request that this required meeting be conducted virtually. Staff from the NYSDEC Division of Marine Resources shall be invited to attend the pre-application meeting. Applicants and/or leaseholders should be prepared to discuss the proposed shellfish cultivation activities and their proposed cultivation plan.

3.7 Submission of Application

A.) The Department shall provide application forms which must be completed and returned to the Department during the established lease application period. Once an application has been submitted to the Department, a determination will be made as to whether the application is complete. The Department shall provide written notice to the applicant indicating the receipt of a complete application. Incomplete applications will be returned to the applicant with a notice that identifies the information that is missing; provided there is adequate time remaining in the application period, an applicant may resubmit their application with the missing/requested information. Incomplete applications received on the last day of the

application period or any application received after the established due date will not be accepted and shall be returned to the applicant.

3.8 Review of Application

A.) The Department will only consider complete applications received during the established lease application period, and shall make a determination on applicant eligibility based on the following criteria:

- i. An applicant for a lease shall be at least 18 years of age.
- ii. An applicant or lessee shall not have been convicted of significant or repeated civil, criminal or administrative violations of the Environmental Conservation Law or other Federal, State or local law, as it pertains to shellfish, finfish, other marine resources, environmental protection, food sanitation, navigation or operation of a vessel by the applicant or lessee. Such determination shall be made by the Director in accordance with the New York Correction Law Article 23-A.
- iii. An applicant or lessee shall be in compliance, and shall have complied with, the Suffolk County Shellfish Aquaculture Lease Program, as expressed in this law, the Administrative Guidance and any written policies adopted by the County of Suffolk.
- iv. An applicant or lessee shall be, and shall have been, in compliance with the terms of any existing or previous lease.
- v. An applicant or lessee shall not have submitted false or fraudulent information or made misrepresentations to the Department.
- vi. An applicant or lessee shall have submitted the documentation required for an applicant or lessee.
- vii. An applicant must meet eligibility standards as established in RAG 3.1 of this document.
- viii. An applicant or lessee shall have submitted the required application fees and/or rent required by the Suffolk County Shellfish Aquaculture Lease Program.
- ix. A lessee shall have obtained and be in compliance with permits or other approvals required by Federal, State or local law, as necessary for the activities on the Lease premises.

B.) An applicant or lessee shall have the opportunity to submit written comments regarding these criteria or on any other relevant topic to the Director of Planning. The Department shall provide written notice to those applicants determined to be ineligible to participate in the lease process.

3.9 Establishment of Application Priority

A.) Once the Department makes a determination on applicant eligibility, it may be necessary to conduct a Random Selection Process (RSP) to determine a priority order for processing lease applications. This will occur, if the aggregate acreage in new lease applications exceeds the acreage available under the annual acreage cap limit, in any given year. The Department will use a RSP that mimics the process developed and used by the NYSDEC in issuing new commercial licenses and permits that are subject to limited entry pursuant to Environmental Conservation Law (ECL) Section 13-0328.

B.) In the event a RSP takes place, those lease applicants that are not selected in a given application cycle, will not be given any preference for selection during any subsequent application cycles. In effect, there will be no preference given to those applicants not chosen in a specific year for the following year.

The RSP is described below:

- i. Write all applicants' names on separate pieces of paper.
- ii. Place all papers with applicants' names in a "hat."
- iii. Names will be drawn from the "hat" and assigned a random number.
- iv. Applicants' names and assigned numbers will be posted for viewing.
- v. Each assigned number will be placed on a ping pong ball.
- vi. The numbered balls will be placed in a "hat."
- vii. The numbered balls will all be drawn from the "hat."
- viii. As the numbered balls are drawn from the "hat" the order in which they are drawn is posted. This will be the order of priority in which the applications are processed.

C.) *The Department may also use the RSP to decide the order of priority that gives preference to one applicant seeking to lease a particular site that is identified in other lease applications. Unless one of the applicants is an existing leaseholder, preference will be given to the existing leaseholder applying for a second lease or relocation.*

D.) *The Department may also use an online RSP to select lease applicants in the event a RSP is necessary. If an online RSP is utilized, Section 3.9 (B) will be updated.*

3.10 Public Notice

A.) Upon acceptance of the completed lease applications and conduct of the RSP, if required, the Department shall issue a public notice regarding all proposed lease sites for the applicants proceeding in the lease application process, in accordance with ECL §13-0302. Notice shall be provided for at least two months by posting such notice in the office of the Department, the NYSDEC Division of Marine Resources, the Office of the Suffolk County Clerk, the office of the town clerk in the towns of Riverhead, Southampton, Southold, East Hampton and Shelter Island, and the office of the East Hampton, Southampton and Southold Town Trustees. Such notice shall also be published in the official newspaper of the County and made available on the Lease Program website. The notice shall include the name of the applicant; proposed lease site(s) and the respective boundaries; proposed operation type; and proposed cultivation method. The notice will include a 60-day written comment period

during which the regulatory agencies, municipalities, user groups and general public may submit written comments on the proposed operation and location of the lease and alternative lease sites. The Aquaculture Lease Board shall take into consideration all comments received on a proposed lease site during the public comment period and at its meetings when making its decision on which sites will be available for leasing. (See RAG-5, County Administrative Requirements.) Lease premises shall be located within a site approved by the Aquaculture Lease Board.

3.11 Objections Regarding Lease Site, Review and Benthic Survey

A.) The 2004 Leasing Law contains the requirements that the following lands **not** be included in the Shellfish Cultivation Zone.

- i. Underwater lands within one thousand feet of the high water mark;
- ii. Underwater lands where bay scallops are produced regularly and harvested on a commercial basis;
- iii. Underwater lands where there is an indicated presence of shellfish in sufficient quantity and quality and so located as to support significant hand raking and/or tonging harvesting; and
- iv. Underwater lands where the leasing will result in a significant reduction of established commercial finfish or crustacean fisheries.

B.) In addition to the State's requirements, the County established additional considerations for underwater lands to be excluded from the Shellfish Cultivation Zone, based on environmental and socio-economic factors.

C.) The creation of the Revised Shellfish Cultivation Zone was a major component of the Ten-Year Review Project during which, the County reevaluated the factors initially considered during the development of the Shellfish Cultivation Zone, which was adopted in 2009. This was an extensive, multi-phased process that consisted of public meetings, focus group meetings, and meetings conducted in each of the five east end towns. Additionally, the project consultants conducted interviews with bay users, shellfish famers, academics and regulatory agencies to identify eelgrass distribution and environmentally sensitive areas, as well as recent and historic bay scallop and/or shellfishing grounds. Throughout the public outreach meetings, the County received comments from the various user/ interest groups that utilize and enjoy Peconic and Gardiners Bays. This public outreach effort took over a year to complete and also included a focus on identifying areas of concern for recreational bay users.

D.) The project consultants and Department staff also reached out to the NYSDEC's Division of Marine Resources to obtain data and relevant information regarding essential finfish habitat and areas considered to be environmentally significant by the NYSDEC. All the information that was received and/or collected during public outreach meetings or public comment periods was compiled and subsequently mapped using ArcGIS software for further evaluation. The Public Comment and Focus Group Maps illustrate the results of all the

comments that were received during public outreach meetings that were conducted January 2019 to December 2019. As a result of the public outreach and the information that was collected, certain areas were then removed from consideration; and other areas seaward of 1,000 feet from mean high water were considered for addition to the Shellfish Cultivation Zone.

E.) Revisions to the Shellfish Cultivation Zone also included the review and update of the privately-owned underwater lands in Peconic Bay and Gardiners Bay. Grant parcels that were identified as having continued private ownership interests seaward of 1,000 feet from mean high water were included in the Revised Shellfish Cultivation Zone; oyster grants that were acquired by the County will be retained by the County and may be made available for leasing. Existing leases that were issued during the first ten years of the Lease Program, as well as the lease located to the south of Plum Island, which was issued by NYS Office of General Services, were also included in the Revised Shellfish Cultivation Zone.

F.) The Aquaculture Lease Board will consider objections made concerning all the above criteria and any other comments received from the general public relevant to the proposed lease. The Department will notify the lease applicant of any objections and/or comments that are received regarding their application. If an objection is raised pertaining to natural productivity or a commercial fishery during the public comment period, the Department will make a determination as to whether the objection is credible. For an objection to be considered credible, the objector must provide to the Department proper notarized documentation as described below. If the objection is determined to be credible and/or involves an alleged hard clam commercial fishery, the Department shall require the applicant to conduct a benthic survey at the applicant's own expense. Under either of the above circumstances, the lease applicant will have the option to select one of his/her alternative proposed lease sites that is approved by the Aquaculture Lease Board.

i. *Credible Objection Criteria*

For the Department to deem an objection regarding natural productivity and commercial fishery as credible, the concerned party must include a copy of his/her commercial harvest license, landings report or documented proof on what was harvested, and sales receipts documenting sales. A notarized letter from the concerned party must also be submitted to the Department, which documents harvest activity within the previous five years in the subject area and would disqualify the leasing of the subject property because the criteria in the 2004 Leasing Law are not met. In addition to commercial interests, municipal, academic or other technically qualified persons who can demonstrate specialized knowledge of the estuary may also comment and should provide documentation supporting their claim. All objections require a notarized letter highlighting the issue in question. The County may request additional information or submittal of forms from the objecting party.

ii. *Benthic Survey*

If a credible objection is raised on an applicant's primary lease site, he/she can then choose to lease one of the remaining alternate lease sites. If a lease applicant wishes to dispute the objection pertaining to the existence of wild hard clams, he/she must conduct

a benthic survey at his/her own expense. An accepted scientific method for performing a benthic survey appropriate for assessing shellfish abundance must be utilized, and a report of findings must be completed by qualified personnel and submitted to the Department.

- a. For hard clams, a mean density of less than two commercially harvestable size clams per square meter (greater than 1-inch shell thickness) would be considered low density and low productivity for clams. This estimate is based on the clam densities found during clam surveys from Long Island water bodies, including Peconic Bay and Gardiners Bay.
- iii. Accepted methods for determining clam abundance would be bottom grab samples, dredge samples and/or diver surveys, performed in a scientific manner. Statistically reliable estimates of clam abundance would need to be calculated from field survey work for the lease area in question (see Appendix E).
- iv. Bay scallops are notorious for appearing in different locations from one year to the next, so area restrictions are difficult to apply without extensive data available on short time scales. Because of the transient nature of bay scallop populations, a density estimate is not a reliable way to address scallop productivity. Instead, the presence of scallops would have to be addressed on a case-by-case basis to render a decision as to whether an area is productive for scallops. Similarly, populations of other transient species (e.g. whelks) cannot be adequately assessed by means of a benthic survey. The revised cultivation zone map considered reported commercially viable scallop harvest areas during the ten-year review process.
- v. The County reserves the right to consider any relevant data or information pertaining to a site's productivity in making its decision regarding lease site approval.

3.12 Decision on Lease Site Eligibility

A) The Department shall prepare a staff report on the lease application, including proposed findings of fact, and submit the same to the Aquaculture Lease Board. This staff report shall include a summary of each application and the proposed shellfish aquaculture operation, and a synopsis of all comments received on the application in a response to the public notice.

B) The Aquaculture Lease Board shall convene a public meeting during which all potential lease sites identified in the lease applications received under a given application cycle, will be presented for consideration from a regional perspective. This will include a summary of the staff report referred to above. The public will be given the opportunity to present additional comments and information pertaining to proposed lease sites at this meeting.

C) The Aquaculture Lease Board shall make a determination on those proposed sites that may be approved by the County and made available for leasing, and those sites that will be disapproved and not available for leasing during that calendar year. If an objection based on natural hard clam (*Mercenaria mercenaria*) productivity is deemed credible by the Aquaculture Lease Board, the Aquaculture Lease Board may find that a proposed Lease site

is conditionally approved and subject to further sampling as provided in the Administrative Guidance. In this event, the Aquaculture Lease Board shall provide the Director of Planning with specific instructions for further disposition, in accordance with the Administrative Guidance. If a substantial amount of comments and/or objections are received during this meeting, or certain comments require additional time to analyze; the Aquaculture Lease Board may table the subject lease application and reconvene after additional vetting of comments has been conducted and a determination has been made by the Department regarding whether the comment(s) is credible.

D) The Department shall then process all approved lease site applications and/ or conditionally approved lease site applications. At this time, applicants whose proposed site(s) were conditionally approved may either select an alternative eligible site, or choose to conduct a benthic survey to refute the claims of natural hard clam productivity. If the results of the benthic survey indicate productivity below the threshold criteria described in this document (Appendix D), the site in question may be leased and a boundary survey must then be prepared by the applicant or applicant's agent. Should the site prove to be productive based on criteria stated herein, the applicant may either select an alternative eligible lease site, or choose to withdraw from the lease application cycle and forfeit his/her application fee.

E) The Aquaculture Lease Board may make its determination to disapprove lease sites based on one or more of the following conditions:

- i. Whether proposed sites meet the criteria of New York Environmental Conservation Law §13-0302, the Suffolk County Shellfish Aquaculture Lease Program; and other applicable regulatory criteria.
- ii. Factors affecting the desirability of the sites for shellfish cultivation, including, but not limited to, regional and environmental factors.

3.13 Lease Area Boundary Survey

A.) Pursuant to §475-14 C Article II of the Suffolk County Code, prior to the execution of a lease agreement, the boundaries of premises leased hereunder shall be surveyed by a licensed land surveyor, and a survey map shall be prepared by the surveyor and attached to the shellfish aquaculture lease.

B.) Subsequent to lease site approval by the Aquaculture Lease Board, lease applicants will receive notification regarding the determination(s) made by the Aquaculture Lease Board on the proposed lease site(s). Lease applicants will be required to verify their desire to proceed with a lease execution. It is the responsibility of the lease applicant to procure the services of a NYS Licensed Surveyor to prepare an accurate survey of the lease boundary and establish lease boundaries in the field in accordance with coordinates provided by a professional licensed land surveyor employed by the County and in accordance with the specifications provided in Appendix A of the Revised Administrative Guidance. Upon completion of the physical boundary survey, the applicant's surveyor must prepare a lease site boundary survey map in accordance with the specifications provided in Appendix A. The applicant is required

to submit to the Department six hard copies of the lease site boundary survey map which have been signed and sealed by the land surveyor for attachment to the Shellfish Aquaculture Lease Agreement.

C.) Lease applicants shall have six months from the date of notification to submit the required copies of their final lease site boundary survey map to the Department. The lease applicant is responsible for contracting and paying for the lease site boundary survey. If the required lease site boundary survey maps are not received by the Department within the established six-month period; the County shall terminate the lease application and discontinue the lease execution process.

D.) A lease area boundary survey shall also be prepared for an expansion of lease acreage, or the relocation of a lease, unless the County possesses a current boundary survey for the expansion or relocation area. The lessee shall procure and pay for the cost of such survey and will be required to submit the required copies of the lease site boundary survey map to be attached to the amended lease agreement. The County may require verification by a licensed land surveyor of a lease site boundary survey conducted for a prior lease applicant.

3.14 Lease Execution

A.) Once the applicant has submitted the required eight copies of the lease site boundary survey map, the Department shall prepare the required Shellfish Aquaculture Lease Agreement for execution. The Department will send a draft of the Lease Agreement to the lease applicant to review; the applicant will have 45 days from the date of notice to contact the Department and schedule a date and time for the applicant to come to the Division of Planning and Environment to sign the required lease documents. Once the lease has been executed, a PDF of the document will be sent via email to the leaseholder for their records; a hard copy will also be sent to the leaseholder once the lease has been recorded in the Office of the Suffolk County Clerk, along with a copy of the Recording Page.

B.) If the lease applicant has not signed his/her Shellfish Aquaculture Lease Agreement within the established 45-day time period, the Department may terminate the lease application and discontinue the lease execution process. Unleased acreage shall be returned to the Annual Acreage Cap Limit and made available for lease during a subsequent lease application cycle.

RAG-4 Lease Requirements and Procedures

4.1 Lease Required

It shall be unlawful for an entity that does not have a shellfish aquaculture lease issued by the County to conduct any type of shellfish aquaculture situated on lands in Peconic and Gardiners Bays under the jurisdiction of the County, with one exception. Owners of oyster grants retain their right to conduct oyster culture on their grant lands, and do not need a lease from Suffolk County for this type of culture activity. All private oyster grant owners that wish to cultivate shellfish species other than oysters, are required to follow the applicable lease requirements and restrictions described in RAG-3.2 Lease Program Participants, A.), B.) and C.) above.

4.2 Shellfish Regulations and Submission of Regulatory Permit Applications

A.) A lessee must comply with all applicable federal, state and local laws and regulations, including, but not limited to, those relating to cultivation, harvest, handling, tagging, storage, sale, sanitary control and aquaculture of shellfish. Prior to starting any shellfish cultivation activities, leaseholders must obtain all required Federal and State regulatory permits, (including, without limitation, on/off-bottom culture permit, shellfish bed permit, digger's permit, etc.)

B.) Leaseholders shall have six months from the date of Departmental notification regarding the Aquaculture Lease Board's decision to submit permit applications to the applicable Federal and State regulatory agencies; hard copies or PDF's of the permit applications shall be submitted to the Department to document completion of this requirement. If the required regulatory permit applications have not been submitted within the established timeframe, this shall be cause for termination of lease by the County. Lessees must submit hard copies or PDF's of all permits or other forms of authorization once they are issued by the respective regulatory agency.

C.) The harvest and landing of wild shellfish by the lessee may only be allowed when such harvest is unavoidable and incidental to the harvest of cultured shellfish. No person shall possess wild undersize shellfish on a lease site without the prior written authorization from NYSDEC. The lessee must also comply with all laws and regulations including, but not limited to, those relating to navigation.

4.3 Lease Site Boundary and Equipment Marking Requirements

A.) As required by the NYSDEC On-/Off- Bottom Culture Permit, the Leaseholder shall be required to mark either the boundaries of the leased underwater lands and/or the subarea of the leased where shellfish aquaculture activities are taking place. The United States Coast Guard (USCG) is the regulatory agency that determines the type of buoy required to alert mariners of the submerged or floating structures on or within an aquaculture lease area. The required markers, which meet the USCG specifications are described in Appendix B of the Revised Administrative Guidance document. Lessees should contact the local USCG Private Aids to Navigation Team to confirm that they have met all USCG requirements, as well as for approval/verification of marking devices.

B.) Leaseholders are required to submit photos of boundary markers to the Department once they have been deployed on the lease site. Photos of equipment/gear identification markers should also be submitted prior to starting cultivation activities and with annual reporting information. Lessee shall be responsible for making reasonable efforts to maintain lease site boundary markers and verify that they are accurately positioned.

C.) Equipment/gear buoys will be deployed and maintained at the discretion of the lessee, unless required by law. Depending on the type of equipment/gear that is permitted, leaseholders may also need to contact the National Oceanic and Atmospheric Administration (NOAA) to initiate the appropriate chart and Coast Pilot corrections. At minimum, equipment/gear must be permanently marked with the lessee's name, lease site identification number and NYSDEC on/off-bottom culture permit number.

4.4 Lease Program Fees

A.) Lease Application Fees

Application fees described below are non-refundable. Application fees shall be charged for an initial lease, lease renewal, expansion of lease, lease assignment and relocation of the lease. A leaseholder that requests to relocate or assign his/her lease shall be charged a higher fee to cover costs associated with the publication of the required public notices. Lease application fees may be waived by the Director for public entities (state agencies, towns, villages, etc.); or for leaseholders that are required to relocate their lease due to changes in environmental conditions.

Application Fees	Non-Commercial 10-Acre Lease	Commercial 10- Acre Lease	Commercial Lease on Oyster Grant
Term	Case-by-case basis	10 Years; option to renew for an additional 10 years at the County's discretion	10 Years; option to renew for an additional 10 years at the County's discretion
Lease Application	\$150 (non-refundable)	\$150 (non-refundable)	\$150 (non-refundable)
Lease Assignment/ Relocation/ and Renewal Application	\$200 (non-refundable)	\$200 (non-refundable)	\$150 (non-refundable)

B.) Annual Lease Rental Fees

Leaseholders will be required to pay an annual lease rental fee, as described below. The first annual lease rental fee will be due upon signing of the lease by the applicant. For subsequent years, payment will be due 30 days before the lease anniversary date, i.e., if the lease was issued on January 1st, the annual lease rental fee would be due 30 days before that date of each year. Annual lease rental fees may be waived for public entities (state agencies, towns, villages, etc.) at the County's discretion.

Annual Lease Rental Fee	Non-Commercial 10-Acre Lease	Commercial 10- Acre Lease	Commercial Lease on Oyster Grant
Term	Case-by-case basis	10 Years; option to renew for an additional 10 years at the County's discretion	10 Years; option to renew for an additional 10 years at the County's discretion
Years 1 thru 3:	\$100 per lease	-\$200 plus \$5 per acre -\$100 per 10-acre lease for United States Veterans residing in Suffolk County -\$250 plus \$25 per acre for non-County residents	-\$200 per oyster grant
Years 4 and 5:	\$200 per lease	-\$250 plus \$25 per acre -\$200 per 10- acre lease for United States Veterans residing in Suffolk County -\$450 plus \$55per acre for non-County residents	-\$250 per oyster grant
Years 6 thru 10:	\$300 per lease	-\$300 plus \$45-acre lease -\$300 per 10-acre lease for United States Veterans residing in Suffolk County -\$600 plus \$90 per acre for non-County residents	-\$300 per oyster grant

4.5 Annual Reporting Requirements

A.) Leaseholders are required to complete a Shellfish Aquaculture Leaseholder Annual Report form (Annual Report) every year that they hold their lease and submit the same to the Department, 30-days prior to the lease anniversary date; along with payment of the annual lease rental fee, a completed SC Form 22 *Contractor's/Vendor's Public Disclosure Statement*; and copies of renewed regulatory permits. The lessee shall also be required to submit this report 30-days before the expiration of a lease and prior to applying for a lease renewal, relocation or assignment. The Annual Report shall generally include but is not limited to the following information: description of shellfish cultivation activities, types of gear/equipment used, areas within the lease site that are being used for cultivation, shellfish species being cultivated, quantity of species under cultivation, layout of farming operation, source of seed stock, shellfish landings and quantities brought to market, and self-certification of commercial agricultural production as defined by New York State Agriculture and Markets Law Article 25-AA §301, after the first five years of a lease. Photos documenting the maintenance of the required boundary markers; and marking of shellfish equipment and gear may also be required. Additional information regarding gear/equipment supply purchases, product distribution, number of employees, etc. may also be required by the Department. If information regarding civil, criminal or administrative violations which

the lessee was convicted of or found guilty of during the reporting period has not already been disclosed to the Department, leaseholder must disclose this information in the Annual Report form with outcome of the violation.

B.) Hard copies and/or PDF's of required permit renewals or permit amendments issued by U.S. Coast Guard, U.S. Army Corps of Engineers (if applicable) and/or the NYSDEC (*i.e.*, *NYSDEC Off-Bottom Culture Permit, Shellfish Bed Permit, and Marine Permit Certificate*) must be submitted with the Annual Reporting information.

4.6 Substantial Shellfish Aquaculture Activity

A.) Leaseholders are required to conduct substantial shellfish aquaculture activity in order to retain their lease with Suffolk County. A leaseholder shall be considered to be conducting substantial shellfish aquaculture activities provided he/she can document to the Department the planting or deployment of shellfish, cultivation or maintenance of shellfish, harvest of cultivated product; or documentation of other activities related to shellfish farming within the lease area. Documentation may consist of, but is not limited to, landings reports and records of harvest or product sales. Substantial shellfish aquaculture activities may also include, but are not limited to, the following: actions or steps taken by the lessee to prepare the aquaculture lease site; the purchase of necessary shellfish and/or gear/equipment; application to obtain required regulatory permits; or acquisition of financing. These types of actions or activities may be documented by submitting invoices or receipts of purchase for equipment, buoys, markers, bags, baskets, tags, shellfish seed, and gear for a boat, etc. Photographs or other relevant documents may be submitted. *A lessee will be considered by the Department not to have conducted substantial shellfish aquaculture activity if lease activities described above are not documented for two consecutive years.*

4.7 Expansion of Lease Acreage

A.) Certain oyster grant owners/lessees may opt for an expansion of lease premises acreage from a five (5) acre lease to ten (10) acres within the lease site. Oyster grant owners that applied for and received a lease on only a portion of their grant parcel may apply for an expansion of lease, which, if approved, would include their entire grant acreage; provided the acre(s) are seaward of 1,000 feet from mean high water.

B.) Leaseholders that can demonstrate a need for a second lease, can document substantial shellfish aquaculture activities on their initial lease site and meet the eligibility requirements may apply for a second 10-acre lease site in accordance with the County lease application procedures. Expansion of a lease or acquisition of a second lease shall require a full application process which includes a pre-application meeting; a public notice and comment period; and approval by the Aquaculture Lease Board.

4.8 Lease Assignment

A.) A lessee that no longer wishes to retain his/her lease with the County may apply to assign his/her lease to another entity, the "assignee", for the remaining portion of the lease term. Lease assignments shall be reviewed by the Department. Applications shall be rejected if shellfish aquaculture activities have not been put into operation on the subject lease area. The assignee shall be subject to the eligibility standards as specified herein. A lease

assignment is subject to a complete application process with review and public comment; however, the site will not be subject to approval by the Aquaculture Lease Board, as the lease site was previously approved by the Aquaculture Lease Board. A Lease Assignment Application must be submitted by the leaseholder, the “assignor”, along with the required application fee and supporting documentation. No profit shall be made by the lessee in the assignment of a lease.

B.) For applicants who ultimately wish to have their lease issued to a corporation, LLC, partnership, or DBA, it is recommended that they pursue this during their initial application for a lease, rather than entering into a lease first and then seeking an assignment. While sole proprietors who successfully obtain a lease may subsequently apply to assign their lease to a corporation, LLC, partnership or DBA that they own or are a member of; approval of a subsequent lease assignment is at the discretion of the County.

4.9 Lease Relocation

A.) A lessee may apply to relocate his/her shellfish aquaculture operation from his/her existing lease site to another available lease area at the discretion of the Department or during an annual lease application cycle. Leaseholders must submit a Lease Site Relocation Application, application fee and supporting documents requested. The Department has the discretion to consider relocation applications on an emergency basis otherwise relocations applications will be considered at the same time as new applications. A lease site relocation shall be subject to notice, a public comment period and approval by the Aquaculture Lease Board, unless the subject lease site was previously approved by the Aquaculture Lease Board within one (1) calendar year prior to the request; or if the lease site was previously leased and the lease was terminated within the last six months prior to the request. Lease site relocations shall not be subject to the annual acreage cap limit for new leases under a given lease application cycle.

B.) If the relocation is approved by the Department, the leaseholder must satisfy the lease site boundary survey requirements for their new lease area; the lease acreage amount and term of lease shall remain the same. Prior to the conduct of any shellfish farming activities, all required regulatory permits must be amended to reflect the relocation of the shellfish farming operation. Hard copies or PDF’s of the amended permits shall be submitted to the County by the leaseholder. In addition, all required paperwork (e.g. a lease amendment or other necessary documents) to relocate the lease must be executed and submitted to the County by the leaseholder. Leaseholders will be given a specified amount of time to relocate all shellfish, equipment, markers, etc. from their original lease site to the relocation area. Authorization for use of the original lease shall expire and all gear, equipment, markers, etc., must be removed from the original lease area. The final relocation authorization shall be conditioned upon removing all gear and equipment from the former lease site. Any gear and /or equipment left in or on the former lease area may be removed by the County at the expense of the former leaseholder.

4.10 Subleasing

Subleasing shall not be permitted under new leases or lease renewals executed on or after the effective date of Local Law [insert number]-2021, “A Local Law to Amend, Update and

Reorganize Chapter 475 Article II of the Suffolk County Code,” and this Administrative Guidance.

4.11 Lease Termination/Non-renewal by the County

A.) The County may terminate or deny a lease renewal based on failure to comply with the terms of the lease, Chapter 475 of the Suffolk County Code and/or this Administrative Guidance, or lack of eligibility as described therein. Such failures shall include but are not limited to, failure to pay Lease Program fees, and failure to submit required forms, documents, regulatory permits and/or permit applications. A lease may also be terminated or denied renewal if it is determined that substantial shellfish aquaculture activity, as defined earlier, has not been conducted on the lease site within the preceding year or if it is documented that the lease activities have caused substantial damage to existing environmental conditions. Leaseholders which have been convicted of significant or repeated civil, criminal or administrative violations of the Environmental Conservation Law or other Federal, State or local law, as it pertains to shellfish, finfish, other marine resources, environmental protection, food sanitation, navigation or operation of a vessel shall also be cause for termination or non-renewal of a lease. Subject to the approval of the County Attorney, the Department may include in the lease other conditions, actions or omissions which shall be cause for termination or non-renewal of a lease.

B.) If the County terminates a lease or denies lease renewal and the acreage involved is from the 2010 annual acreage cap limit or the Phase 2 acreage cap limit, this acreage shall be returned to the overall acreage cap and made available for lease in future years; or made available for issuance of a second lease to existing leaseholders.

C.) If a lease is terminated for reasons beyond the control of the leaseholder or at the discretion of the County, an opportunity may be offered to the leaseholder to relocate to a different lease site.

4.12 Hardship Exemption

A.) A lessee, who cannot demonstrate substantial shellfish aquaculture activity as defined herein, may be eligible for a hardship exemption, provided appropriate evidence can be shown as to why no activity or actions have been taken to conduct shellfish aquaculture activities on the lease site. Suitable evidence of hardship includes, but is not limited to documented losses of gear/shellfish; damage to boat or other equipment due to major weather events and natural disasters; water quality data; family or personal medical issues; or financial statements. Issuance of a hardship exemption shall be at the discretion of the County based on review of the requested documentation. Hardship exemptions shall not be granted for more than three years during a lease term. Exemptions would be submitted on an annual basis to the Department.

4.13 Lease Termination by Lessee

A.) A lessee may request to terminate his/her lease at any time prior to the end of his/her lease term. To initiate this process, leaseholders must complete and submit the *Combined Lease Termination Application & Final Leaseholder Annual Reporting Form* (available on the Lease Program website) to the Department. Upon receipt and review of this document,

the Department will prepare the required lease termination documents; leaseholders shall have the option of coming to the office to sign their termination agreements or may request to have the documents mailed to them for signature. Leaseholders who request that the lease termination documents be mailed to them will be responsible for having the required documents notarized by a Notary Public and return the same to the County for final execution. The lease shall be terminated by the County upon final execution of a lease termination document by both parties, payment of all fees due and owing, and removal of all aquaculture equipment on the lease site. Once the lease is terminated, the lessee shall not be responsible for annual payments for the remainder of the 10-year lease term. Fees already due and owing shall not be refunded at termination. If the lessee terminates a lease or does not want to renew such lease, the acreage involved that was originally part of the acreage cap limit will be added back to the acreage available under the cap limit for lease in future years.

4.14 Lease Renewal

A.) If a lessee wishes to renew his/her lease at the end of the initial 10 year lease term, he/she must submit a Lease Renewal Application (available on the Lease Program website), along with an application fee and a completed Leaseholder Annual Report Form no later than three months prior to the expiration of the lease term. Lease renewals shall be subject to approval in the discretion of the County. Lease Renewals shall be subject to the terms and conditions of the Lease Program in effect at the time of renewal, including but not limited to applicable provisions in the Suffolk County Code, Lease Program policies, requirements, rental fees and other charges current at that time. The Department shall notify the leaseholder of either the approval or disapproval of the lease renewal. Subsequent to receiving notification of approval from the Department, the leaseholder must verify his/her desire to renew the lease for an additional term of 10 years. The Department will send a draft Lease Agreement to review and a notice to the leaseholder; the leaseholder will have 45-days from the date of the notice to contact the Department and schedule a day/time for leaseholder to come to the Division of Planning and Environment and sign the required lease documents. The leaseholder shall be required to submit the annual lease rental fee payment to the County upon signature of the lease agreement. Once the lease has been fully executed, a PDF of the document will be sent via email to the leaseholder for his/her records; a hard copy will also be sent to the leaseholder once the lease has been recorded in the Office of the Suffolk County Clerk, along with the Recording Page.

B.) In the event the Department disapproves the lease renewal application, a letter identifying the reasons for disapproval will be sent to the leaseholder; the leaseholder shall be required to remove all shellfish gear/equipment from the lease site prior to the expiration of the lease.

C.) If the leaseholder has not signed his/her Shellfish Aquaculture Lease Agreement within the established 45-day time period, the Department may terminate the lease renewal application and discontinue the lease execution process. The leaseholder shall be required to remove all shellfish gear/equipment from the subject lease area. Upon failure of the former leaseholder to remove his/her shellfish gear/equipment, the leaseholder may be subject to a summary eviction proceeding. If the acreage involved was originally part of an acreage cap

limit, upon repossession of the lease area by the County, the acreage will be added back to the acreage cap and made available for lease during a subsequent lease application cycle.

Factors for Consideration in Lease Renewal, Lease Relocation, Expansion of Acreage, Assignment or Other Actions Affecting the Lease:

- i. Whether applicable laws, regulations or the Lease Program have changed materially since the issuance of the existing lease.
- ii. Whether there has been a material change in environmental conditions or shellfish aquaculture technology or methods.
- iii. Factors that would affect the lessee's eligibility for a lease.
- iv. Whether the application to the County is timely, complete, sufficient and accurate.
- v. Any other information deemed relevant by the County.

4.15 Noise and Lighting

A.) All lessees shall be required to conduct shellfish aquaculture activities in a manner that is respectful of other marine users and the environment. Lessees shall:

- i. Restrict noise generation and use of artificial light for normal operational practices, maintenance of safety, and for harvesting activities;
- ii. Make every reasonable effort to minimize noise during regular farming, cultivating and harvesting activities. Ensure that well-maintained sound suppression devices (i.e., mufflers) are used while operating equipment;
- iii. Ensure that all non-navigation lighting be aimed and of a brightness so as not to cause unnecessary adverse effects on other users and the marine environment, and where possible; and shield such lighting from all but essential directions; and
- iv. Make every reasonable effort to minimize light during night time operations. Night time operations are limited to the maintenance of buoys and other activities permitted by ECL §13-0309.

4.16 General Enforcement Policy

A.) The County has the authority to enforce shellfish aquaculture lease policies, regulations and applicable statutes which shall include the following:

- i. Authority to enter and inspect – The County has the authority to enter and inspect any and all areas subject to a shellfish aquaculture lease agreement for the purpose of determining compliance with the terms and provisions of the lease.
- ii. Authority to monitor and take samples from any and all areas subject to a shellfish aquaculture lease agreement.
- iii. Violations – Violations of and/or noncompliance with lease stipulations or regulations set forth in the Lease Program may be subject to termination or non-renewal of the lease agreement. Upon failure to pay the annual fee or upon other grounds for termination, the lessee may be subject to summary eviction proceedings.
- iv. Permit Regulations - The lessee is responsible for obtaining all necessary regulatory permits and licenses under Federal and State law, including any permits for boundary marker buoys and/or private aids to navigation markers

required by the US Coast Guard and/or US Army Corps of Engineers (marker specifications in Appendix B).

- v. Marking requirements for aquaculture gear/equipment – For identification purposes the lessee shall be responsible for marking all shellfish aquaculture gear/equipment under its ownership, e.g., cages, bags, trays, buoys, etc. Each of which must be marked with the lessee’s name and lease site identification number as identified from the Aquaculture Lease Sites map. Said markings shall be maintained by the lessee year-round and replaced when markings are no longer legible.
- vi. Maintenance and Removal – All shellfish aquaculture gear and the contents thereof are the possession and responsibility of the lessee, who shall be responsible for maintenance and retrieval of any equipment/gear that leaves the leased area. Lessee shall also be responsible for the eventual removal of all equipment/gear. If the equipment/gear is not removed upon termination, revocation, or expiration of the lease, the equipment/gear and its contents shall be deemed abandoned and lessee shall be liable to the County for the cost of locating and removal of equipment/gear.

4.17 Approved Waters

- A.) Shellfish may only be harvested from certified waters for shellfish harvesting, as determined by NYSDEC.

4.18 Water Quality Changes

- A.) Water quality and water quality classifications of waters within New York State are subject to change due to various environmental conditions as determined by the NYS Dep’t of Environmental Conservation (NYSDEC), and in some cases, the lessee may be required to respond to those changes. If such a response is warranted, the County shall not assume any liability for any changes in classification and shall assume no liability to the lessee for damages incurred due to such actions. However, the lessee may terminate the lease or apply to relocate it.

4.19 Harvest and/or Transfer of Shellfish from Other Waters

- A.) The transplanting or relay of shellfish from uncertified waters to lease areas for natural cleansing shall be permitted under the Lease Program, so long as all regulatory requirements from the NYSDEC relating to this type of shellfish aquaculture are met. The relay or moving of shellfish from a lease area, private oyster grant or other certified waters to another lease area located in a different water body may also be allowed, pending required regulatory approval from the NYSDEC, prior to transfer of shellfish.

4.20 Handling of Shellfish

- A.) Lessees shall conduct all shellfish aquaculture activities and operations involving or relating to the possession and handling of cultivated shellfish to prevent contamination and decomposition of such shellfish in accordance with all applicable New York State laws, rules and regulations for sanitary control over shellfish and aquaculture.

4.21 Corporate Applicants

A.) If the lease applicant is a corporate entity, the following information must be submitted as part of the lease application (for all required information see Lease Application posted on the Shellfish Aquaculture Lease Program website).

- i. The date and state of incorporation and copy of the Certificate of Incorporation;
- ii. The type of corporation (domestic or foreign);
- iii. DBA, if applicable (General Business Certificate);
- iv. The Federal Tax ID Number or EIN;
- v. The names and addresses of all shareholders, who own or control at least 5% of the outstanding stock and the percentage of the outstanding stock currently owned or controlled by each such shareholder;
- vi. The name and addresses of all directors;
- vii. The names, addresses and titles of all officers;
- viii. Whether the corporation, or any shareholder, director, or officer has applied for a shellfish aquaculture lease for underwater lands in Peconic Bay or Gardiners Bay in the past, and the outcome or current status of that application or lease;
- ix. The names and addresses of shareholders, directors, or officers owning an interest, either directly or beneficially, in any other New York State shellfish aquaculture operation, as well as the quantity of acreage attributed to each such person;
- x. Whether the corporation or any officer, director, or shareholder listed in bullet items 5 and 8 above has ever been convicted of significant or repeated civil, criminal or administrative violations of the Environmental Conservation Law or other Federal, State or local law, as it pertains to shellfish, finfish, other marine resources, environmental protection, food sanitation, navigation or operation of a vessel by the applicant or lessee. Such determination shall be made by the Director in accordance with the New York Correction Law Article 23-A.

B.) An officer of the corporation must sign the lease application. The application must be accompanied by a corporate resolution authorizing the application.

4.22 Partnership Applicants

A.) If the lease applicant is a partnership, the following information must be submitted as part of the lease application (for all required information see Lease Application posted on the Shellfish Aquaculture Lease Program website).

- i. The date and state in which the partnership was formed and a copy of either the Certificate of Limited Partnership or documentation of the formation of a General Partnership;
- ii. The names, addresses, and ownership shares of all partners;
- iii. DBA if applicable (General Business Certificate);
- iv. The Federal Tax ID Number or EIN;
- v. Whether the partnership or any partner has applied for a shellfish aquaculture lease for the underwater lands of Peconic Bay or Gardiners Bay in the past and the outcome or current status of that application or lease;

- vi. Whether the partnership or any partner owns an interest, either directly or beneficially, in any other New York State shellfish aquaculture operation, as well as the quantity of acreage from the existing operation;
 - vii. Whether the partnership or any partner has ever been convicted or found guilty of a civil, criminal or administrative violation of marine resources or environmental protection law, whether state or federal.
- B.) The application must be signed by a partner.

4.23 Limited Liability Company (LLC) Applicants

A.) If the lease applicant is a Limited Liability Company, the following must be submitted as part of the lease application (for all required information see Lease Application posted on the Shellfish Aquaculture Lease Program website).

- i. The date and state in which the LLC was formed (include a copy of the Articles of Organization);
- ii. The type of LLC (domestic or foreign);
- iii. DBA if applicable (General Business Certificate);
- iv. The Federal Tax ID Number or EIN;
- v. The names, addresses, and ownership interest of all members;
- vi. The names, addresses, titles and ownership interest (if any) of all person authorized to manage the LLC and to enter into contracts;
- vii. A copy of the LLC's Operating Agreement;
- viii. A certified resolution that lists all of the members, states who is authorized to manage the LLC, and authorizes entry into the subject Shellfish Aquaculture Lease with the County of Suffolk;
- ix. Whether the LLC or any member owns an interest, either directly or beneficially in any other New York State shellfish cultivation operation;
- x. Whether the LLC or any member has been convicted or found guilty of any civil, criminal or administrative violations of the Environmental Conservation Law or other Federal, State or local law, as it pertains to shellfish, finfish, other marine resources, environmental protection, food sanitation, navigation or operation of a vessel.

B.) A member of the LLC, who is authorized to manage the LLC, must sign the lease application.

4.24 Local Waterfront Revitalization Program Consistency

A.) Towns and villages should respond to lease application public notices and provide the Department with information and comment as to whether or not proposed activities described in public notices are consistent with approved Local Waterfront Revitalization Programs.

RAG-5 County Administrative Requirements

A.) The Department will be responsible for administering the Lease Program. In this role, the Department will assist the Aquaculture Lease Board in its decision-making activity, as well as seek the cooperation and support of the Suffolk County Departments of Law and Health Services in various aspects of Lease Program implementation as described below.

- i. The Department will be responsible for day-to-day administration of the Lease Program. This responsibility involves activities, such as providing information to the public on the Lease Program; guiding interested parties through the lease application process; responding to inquiries on the Lease Program from government agencies; determinations on lease applicant eligibility; tracking leases through approval; decisions on issuance of leases, lease assignment, termination and renewal; recordkeeping; processing and preparing required lease documents; and serving as staff to the Aquaculture Lease Board. The Department will also make policy recommendations for any needed legislative action on the Lease Program.
- ii. The Aquaculture Lease Board shall consist of: the Commissioner of the Department of Economic Development and Planning (who shall act as chairperson) or his/her designee; the Director of the Division of Planning and Environment or his/her designee; the Commissioner of the Department of Health Services or his/her designee; one representative appointed by the Suffolk County Legislator from District 1 and one representative appointed by the Suffolk County Legislator from District 2; one representative from an organization that works within the Peconic Estuary to be designated by the County Executive.
- iii. The Aquaculture Lease Board shall conduct a public meeting(s) to review all potential lease sites identified in lease applications, and consider all written comments received in response to public notice issuance, as well as oral and written comments made and submitted at the public meeting(s), including Department staff commentary. The Aquaculture Lease Board will make decisions, based on a regional and environmental perspective, on which potential lease sites will be available for lease, as well as those sites that will be disapproved under a given application cycle. (Note that final decisions on approving a lease for any specific site are made by the Director.) The Aquaculture Lease Board shall act by resolution adopted by a majority vote. If additional information is needed or comments are received during the public comment portion of an Aquaculture Lease Board meeting, and the information or comments require additional review or vetting; the Aquaculture Lease Board may table the matter and reconvene at a subsequent meeting to make their determination.
- iv. The Department will seek the cooperation and assistance of the Department of Law in the review of all legal aspects of the Lease Program, including review and execution of shellfish aquaculture lease documents; and termination and eviction of defaulting leaseholders.

- v. The Department shall seek the cooperation of the Department of Health Services (Division of Environmental Quality) to conduct inspections of leased areas; and may implement environmental monitoring which may include collection of data on those specific water quality and ecological parameters that are needed to assess any potential beneficial or adverse impacts on the Peconic Estuary associated with shellfish farms on plots leased by the County. Pursuant to Contract No. 525-8224-1170-00-00001 between the Suffolk County Department of Health Services and the Research Foundation for State University of New York, The Suffolk County Peconic Aquaculture Lease Monitoring (PALM) Plan was developed. The PALM plan is included in Appendix G; implementation of the monitoring plan shall be subject to available funding. Coordination with ongoing monitoring activities conducted under the Peconic Estuary Program will be essential.

B.) There are a number of actions that are required on a periodic basis to effectively monitor the Lease Program, make adjustments where necessary to assure that the program is being implemented to meet anticipated goals, and address the requirements in the 2004 Lease Law, as discussed below.

- i. The Department may issue an annual report, generally in February of each calendar year, which summarizes the status of the Lease Program; actions taken by the Aquaculture Lease Board, data on lease activities, i.e., number of leases in effect, number of leases issued, etc. for the previous year. This report will be submitted to the Commissioner and may be made available to County officials, agencies and the public.
- ii. The Department may conduct annual inspections of leased areas to verify activities and compliance of the lease agreement. Inspections are subject to the Dept. of Health Service's Division of Environmental Quality's availability and/or funding required to conduct inspections.
- iii. Pursuant to State and Local Law the Shellfish Cultivation Zone shall be subject to review every five (5) years. If it is determined that significant revisions to the Shellfish Cultivation Zone are warranted (i.e., addition or removal of areas based on environmental conditions); the Department may make adjustments, which shall be subject to review and approval by the Suffolk County Legislature. Updates to the Shellfish Cultivation Zone map or other Lease Program maps may be subject to available funding.
- iv. An administrative review of the Lease Program may be conducted by the Department every 10 years to evaluate and potentially amend program components, which will govern program implementation and management for the subsequent 10-year period. This review may include the following:
 - a.) Assessment of the Shellfish Cultivation Zone map to determine if the boundaries and/or areas included in said zone should be changed as a result of

socio-economic, environmental and fishery-related considerations. If it becomes necessary to change the boundary of the Shellfish Cultivation Zone, the amended map must be adopted into law.

b.) Evaluate the prudence of issuing leases larger than 10 acres, but not exceeding 50 acres (with exception to leases on oyster grants).

c.) Evaluate the option of extending or reducing the term of lease, no less than 5 years but not exceeding 25 years.

v. As a result of an administrative review, if it is determined that significant changes to the Lease Program are warranted, such as expansion of total lease area, change in lease area locations, or an increase in the number of new leases, an environmental review may need to be conducted to assess the potential impacts of such changes. Major policy changes in the Lease Program, such as those listed above would be subject to legislative approval. However, the Department may make non-substantive changes to the existing forms, applications, lease documents, etc. that are referenced in this Revised Administrative Guidance or posted on the Lease Program website, as necessary for implementation of the program, or if deemed necessary by the Suffolk County Department of Law. The Department may also establish policies, guidelines, procedures, timelines and additional forms and/or documents; as necessary, in consultation with the Department of Law. If an administrative review determines changes to the 2004 Leasing Law are warranted the Department may recommend that the County request the NYS Legislature amend Environmental Conservation Law §13-0302.

C.) The workload associated with the implementation and oversight of the Lease Program was extensive and particularly demanding during the first 10 years of the program given the need to educate the public and familiarize shellfish farmers with program procedures; conduct annual lease application cycles; execute and carryout required Lease Program procedures; and manage leases that were issued by the County. The existing staff in the Department, which were assigned to conduct the administrative work required to implement and oversee the Lease Program, shall continue to administer the Lease Program in accordance with the requirements included here within. The County expects that the workload will continue to be intensive once implementation of the second 10 years of the Lease Program is underway and staff begins conducting new lease application cycles; and begins accepting and processing applications for lease renewals. The conduct and processing of new lease applications will continue to accommodate moderate growth in the industry under the established annual acreage cap limit. Monitoring lessee performance and annual lease review will be a continuing function conducted by the staff. Improvements made to the annual reporting information and lease requirements will make leaseholders more accountable; resulting in fewer leases going unused for long periods of time. Department staff will continue to coordinate with other County Departments, regulatory agencies and municipalities to effectively manage the Lease Program.

D.) Additional resources may be needed for specific program needs during the second decade of implementation, e.g., monitoring/research regarding potential positive and/or negative impacts

of shellfish culture activities on the marine environment; Shellfish Cultivation Zone boundary review; expansion of County jurisdiction within the 1,000-foot buffer and a potential supplemental environmental review; and the programmatic review after the second 10 years of the Lease Program. Projects that implement the Lease Program are eligible for water quality/land stewardship funding since they relate directly and explicitly to “the management of underwater lands subject to the Suffolk County Shellfish Aquaculture Leasing Authority” as indicated in the Suffolk County Charter, Section 12-2 B.) (1.) (a.) (2) (c.). It is anticipated that a principal source for support for addressing these needs will be the Suffolk County Water Quality Protection and Restoration Program and Land Stewardship Initiative; and is subject to available funding.

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APPENDIX A

LEASE SITE BOUNDARY SURVEY AND MAP SPECIFICATIONS

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Appendix A: Lease Site Boundary Survey and Map Specifications

A lease site boundary survey map must be prepared by a NYS Licensed Land Surveyor and must include the following information:

- Lease Site Map ID #
- Reference to “Map 2, Aquaculture Lease Sites” Filed (Add Date), Miscellaneous Map Number (Add Map #).
- Lease Acreage Amount
- Lease Site Coordinates (Latitude/Longitude & State Plane Feet)
 - Four corners
 - Center point
- NW Corner survey marker
- Lease Location
 - Town (s)
 - County
 - State
- Identification of water body where the lease site is located
- Vicinity Map
- Suffolk County Tax Map #(s)
- Surveyors Certification must certify lease to **County of Suffolk** and Leaseholder
- Legal Description/ Surveyor’s Description
- Illustration of lease area with dimensions
- Date the survey was conducted
- Date the map was prepared; and revised date

Maps should be printed on 11 X 17 paper; all final copies must be signed and sealed by the license land surveyor. Leaseholders shall be required to submit eight final copies of the lease site boundary survey map to the Division of Planning and Environment by the date established by the Department.

APPENDIX B

MARKING AND IDENTIFICATION OF LEASE SITE BOUNDARY

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Marking and Identification of Lease Site Boundary

The Leaseholder shall be required to clearly mark and identify the boundaries of the subject lease area using the following guidelines:

- 6th Class Buoy with a minimum of three foot surface expression;
- North East Corner of the lease area must be marked with a highflyer buoy;
- Buoys are required to be yellow;
- Buoys must be radar reflective;
- Buoys must have reflective tape;
- At minimum, buoys must be marked with the following identification:
 - SCALP Lease Site ID#
 - NYSDEC On/off-Bottom Culture (OBC) Permit#

All leaseholders shall be required to obtain Private Aids to Navigation (PATON) Permits for boundary buoys and/or markers from the United States Coast Guard (USCG). To avoid position errors, position information be submitted to the USCG in DD-MM-SS.SSS; all permits are submitted and approved via the following website: <http://www.usharbormaster.com/>.

Off-Bottom Culture

Leaseholders that are permitted to deploy off-bottom culture gear, which includes the cultivation of shellfish on, or in, any raft, rack, cage, box or other similar device or structure in any natural waters of the State, shall be required to notify the National Oceanic and Atmospheric Administration (NOAA). The leaseholder shall provide information pertaining to the lease site location and the aquaculture gear specifications, so that NOAA may initiate the appropriate chart and Coast Pilot corrections with respect to a new charted depth. Leaseholders may submit this information online at <https://nauticalcharts.noaa.gov/charts/docs/charts-updates/Permit-Public-Notice.pdf> and must include a copy of the permit or verification letter issued by the US Army Corps of Engineers.

If the leaseholder is permitted to deploy floating and/or suspended shellfish culture gear, leaseholders must comply with all requirements specified by the NYSDEC on/off-bottom culture permit; and may be required to obtain a PATON permit for lighted buoys/marks from the USCG. These buoys/marks must also be yellow and must have a yellow light. Typical flash characteristics for Yellow are FL Y 2s/FL Y 2.5s/FL Y 4s.

APPENDIX C
SHELLFISH CULTIVATION PLAN OUTLINE SAMPLE

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SHELLFISH CULTURE/OPERATIONS PLAN OUTLINE

A shellfish culture/operations plan must include a description of the proposed shellfish culture operation in verbal and graphic format. The plan must be as complete and accurate enough to provide an understandable description of the operations, its facilities and anticipated products. Diagrams may be hand drawn or computer generated. Drawings do not have to be to scale, but should be clearly marked and easy to understand.

The plan should include the following:

- Name and contact information for the applicant.
- Anticipated location for the grow-out area:
 - GPS coordinates
 - Water depth
- Anticipated land support facilities:
 - Off-loading facility type and location
 - Boat type and equipment
- List of permits and licenses needed for the proposed shellfish culture operation
- Description of proposed activities on the lease site including methods to be used for shellfish cultivation and maintenance
- List of field equipment to be utilized for shellfish grow-out; number and type of shellfish cages, containers, dimensions, etc.
- Description of safety and security equipment on the lease, including markers for equipment and lease boundaries.
- Type and quantity of shellfish to be raised:
- Quantity of shellfish each year for first five years.
- Plan for gear recovery; for retrieving out-of-use, damaged and unmoored gear.
- Describe anticipated source of seed stock:
 - Potential suppliers
 - Size of seed stock
 - Quantity of seed stock per year
- Provide a diagram of lease/site and probably gear deployment, in plan view and cross-sectional view.
- Attach an 8.5” by 11” cross-section diagram (may be hand-drawn or computer-generated) that depicts the typical bottom profile of the propose lease area with the grow-out gear and mooring equipment (example 1) and overhead view of gear and mooring equipment (example 2). If the profile of the area differs greatly from one end to the other or multiple gears or species will be used/grown, please attach more than one diagram to accurately depict the operation. Each diagram should show the following with mean high and mean low water lines.

- The location, estimated maximum number, and size/scale of any cages, bags, nets, floats, anchors, or other containers or predator exclusion devices. Indicate the average depth of these below mean low and high water. Indicate the distance they extend above the bottom or surface.
- Provide the dimensions (length by width by height) and describe the makeup of the physical structures to be used (materials type, wire gauge, brand, etc.). If you intend to stack cages, indicate how many cages will be used per stack and the total height of one stacked cage unit.
- Plan must show that all equipment and gear placed on the lease be permanently and individually marked with the lease number. Provide a description of the marking methods and a gear recovery plan (retrieving no longer used/unmoored/broken equipment) that will be used to meet this requirement.
- Diagram does not need to be scale, as long as relative size and locations are marked.

SOURCE:

Delaware Department of Natural Resources and Environmental Control, Division of Fish and Wildlife

University of Maryland Extension, Maryland Shellfish Aquaculture Financing Program,
<http://www.mdsg.edu/programs/extension/aquaculture/conference2010>

APPENDIX D
BUSINESS PLAN OUTLINE SAMPLE

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OVERVIEW OF BUSINESS PLAN CONTENT

Preparation of a business plan assists in understanding what will be required to start and operate a shellfish aquaculture operation and specifically the economic considerations needed to make the operation viable. The plan basically outlines the following:

- Who you and your partners are and what you will contribute
- What you have to put into the business
- What you know about the product(s) or services you will sell
- What you want to do in creating your business
- How you are going to get your business started and growing

Business plan preparation provides an opportunity for you to put this information into a document that can be shared with financial institutions that you will seek to borrow from as well as giving you a chance to assess the chances for success. It will give you a roadmap to operating your business and let you know when you might expect it to become profitable. Above all, it gives you a tool for measuring how your business is progressing to let you make corrections as you become more familiar with the business and gain more experience in it.

Table of Contents

This provides you with an organized outline of the sections that you need to develop. The principal topics are:

- I. Executive Summary
- II. Business Description
- III. Products and/or Services
- IV. Production
- V. Market Analysis
- VI. Personnel and Management
- VII. Financial Information
- VIII. Appendices and Supporting Documents

I. Executive Summary

This section is written after the plan is finished and placed at the front of the document before the Table of Contents and after any cover sheet that may be used. In it you briefly describe what you are going to do and how you will operate. The Summary should not take more than a few paragraphs and must highlight the strong points of your business. It should provide the reasons for what you are doing as well as why you believe you are going to be profitable.

The Executive Summary is always placed on a page by itself and should not take more than a single page to complete.

II. Business Description

In this section you will want to describe your operation. Include historical information on how you came to identify this as an area where you can make a profit, as well as experiences that you have had that will serve to make you more potentially successful.

Include information on:

- **Mission Statement:** A mission statement succinctly defines your business. It describes what you are trying to accomplish and what you value. Mission statements must reveal more than a motive of profit. A mission should contain values, activities, and identity of the farm. Write your statement in a short paragraph with enough detail to provide clear direction while still being flexible. A mission statement is like a book cover. It provides the reader with a glimpse of what story lies ahead.
- **Business Contact Information:** This should include your business name, address, phone number, email, and the type of business structure you are setting up (i.e., sole proprietor, partnership, corporation, and coop).
- List the experiences you have had in learning about shellfish including working as a harvester, buyer or shipper; working in a shellfish hatchery or on a shellfish farm.
- Provide the current status of your employment; whether you will get into shellfish farming on a full-time or part-time basis; knowledge you have gained about aquaculture through practical experience, workshops or courses, or on-line study.
- Describe the product(s) that your company will produce and sell; farmed shellfish, for human consumption to market size or producing seed for sale; provide custom planting, harvesting or management services to others in the industry or operate solely on your own.
- Describe where your business will be located; the body of water, local port facilities; advantages of certain transportation types available to you and your product(s) and the location of centers of consumption for your products.
- Determine the advantages that your company or product(s) will exhibit over other competitors and describe how you will position yourself to promote your products or services.
- State the goals for your business.
Short-term; from getting the business started to years 1 & 2 where some initial harvest could occur.
Long-Term (3-5 years): these include further targets and reflect the continued growth of the business and, ultimately, profitable operation. In shellfish, this could include more ground placed in stable production with additional plantings along with the monitoring required to assure a healthy and quality crop.

III. Products and/or Services

Describe the products and/or services to be provided by your company.

- Shellfish to be sold for human consumption;
- Shellfish seed
- Description of licenses that you have in your business.

IV. Production

This section provides an overview of the production methods that you are going to use in your business.

A. Methods

Describe the production techniques that you will use for your business such as bottom culture of oysters, bottom culture of hard clams.

B. Equipment Required

List the items that will be required in your business. You will need to include any vessels that will be owned and operated by you but you can also state the number of boats and trucks.

- Containers for holding cultch (bags, cages, or other containers).
- Vehicles (trucks, trailers, etc.)
- Quality enhancement equipment (refrigeration, coolers, etc.)
- Provide the following:

Item	Number Needed	Years of Use	Cost	Supplier

C. Quality Control

Explain how you will control the quality of your product. It is important to note how you will keep the crop cool in warm months to prevent the growth of bacteria, as well as the storage and handling characteristics of your business so as to enhance the appearance and quality of it to the consumer.

D. Inventory

What inventory will you expect in each of the years that you are forecasting? How many animals will you expect to have on your grounds and what is the grow-out period that you are expecting? Provide information for years 1 to 5.

V. Market Analysis

Provide information on the market(s) that you are going to target and a strategy for selling your products or services.

A. Industry

Briefly describe the industry that you are going into in terms of what it is, the size of the competition, the outlook for the future and your place in it.

B. Customers

Identify the demographics of the customers that you are going to reach.

C. Market Size and Trend

Market size can be estimated by finding the number of potential consumers for your product in the area or areas that you are going to sell them and figuring out when their patterns of consumption rise and fall.

D. Location of Business

Consider the location of your business and how it will aid or affect your bottom line.

VI. Management Personnel

Identify roles for each of the employees who will be involved in the operation.

A. Owners and Management Personnel

Identify the owners and managers. Describe who these will be, as well as the experience and skills that they bring to the business.

B. Personnel Responsibilities and Duties

Describe the personnel in the company and what their roles and responsibilities will be.

C. Support

Identify support staff needed: Attorney, Accountant/bookkeeper/Insurance Agent; Real Estate Agent; Consultant/Advisor

VII. Financial Information

Project financial information for the next 2-5 years depending on a loan application, long-term goals, or a new enterprise decision.

Balance Sheet (Solvency) – is a detailed listing of assets, liabilities, and net worth at a given point.

Income Statement (Profitability) – is a listing of income, expense, and profit for business operation in a calendar year.

Cash Flow – records time and size of cash inflows and outflows that occur over a calendar year.

A. Sources of Funding

Sources of funding include personal funds, funds generated by the business, personal/business loans, grants, and private investors. Describe the methods you plan to use to fund the operations or expansion of your business.

B. Balance Sheet (Solvency)

The balance sheet is formatted with assets on the left hand side and liabilities and net worth on the right hand side.

Current Assets/Liabilities

Intermediate Assets/Liabilities

Long-term Assets/Liabilities

Non-Farm Assets/Liabilities

C. Projected Cash Flows

This budget estimates the flow of money in and out of the business. It is similar to the project income statement in that it estimates the cash income and cash expenses.

The cash flow budget estimates the timing and size of cash inflows and outflows that occur over a given accounting period, normally one year.

Cash Inflows:

- Shellfish and equipment sales
- Other aquafarm receipts
- Non-business receipts
- Capital sales
- Borrowed money

Cash Outflows:

- Production expenses
- Capital expenditures
- Loan payments
- Family living expenditures or withdrawal

D. Income Statement (Profitability)

A projected income statement, sometimes called the projected profit and loss statement, is developed to forecast farm profitability. It estimates future income, expenses and profit for the business.

Cash Farm Income – List sources and values of your cash farm income.

Cash Operating Expenses – Include those expenses associated with the operation of the farm business.

Depreciation – Should be included in the income statement because it represents the loss in value of buildings, machinery, and other assets that wear out as a result of production.

Profit or Loss – The projected income statement should give a picture of future business profit.

SOURCES:

Delaware Department of Natural Resources and Environmental Control, Division of Fish and Wildlife

The Finance Resource.com – Free Farm Business Plan

University of Maryland Extension, Maryland Shellfish Aquaculture Financing Program,
<http://www.mdsg.edu/programs/extension/aquaculture/conference2010>

United States Small Business Administration, www.sba.gov

Appendix E

Shellfish Productivity Survey

Suffolk County Aquaculture Lease Program in Peconic Bay and Gardiners Bay Shellfish Productivity Survey

Background Information

The intent of the Lease Program is to provide access for shellfish aquaculture on non-productive underwater lands within the Shellfish Cultivation Zone. Establishment of the Shellfish Cultivation Zone was based on a comprehensive review of available information regarding where commercial fishing activities have recently and historically been conducted. Nevertheless, the program recognizes that there is still the possibility that a lease could be proposed where a viable commercial stock exists. The program has provisions for public review of proposed lease sites and for the submission of additional data relevant to fisheries at proposed sites. In some cases, a benthic survey could be required as a part of the lease review and approval process, in order to confirm whether a viable “commercial stock” exists. If a site is proven to have a “natural stock” capable of supporting a shellfish, finfish or crustacean harvest activity, it would not be eligible for lease issuance.

In some cases a benthic survey will be required to determine if a proposed lease site has viable populations of commercially valuable shellfish. For hard clam populations, a density of 2 clams per square meter (/sqm) has been established as the minimum density for indicating a viable commercial clam resource. (Note: it is recognized that clam density alone is not the only factor determining if a site has commercially viable stocks; other factors include substrate type and depth, both of which affect ability to harvest clams.) This criteria was established by considering clam densities found in previous studies of the Peconic/Gardiners Bay system, as well as densities found in other productive Long Island embayments. A density standard for other species harvested from Peconic and Gardiners Bays (i.e., bay scallops, whelks) was considered not applicable because populations of those species are mobile, compared to the relatively sessile hard clam populations. Furthermore, hard clam stocks were cited as a concern expressed in public comment during the lease program development process.

Existing Data on Shellfish in Peconic Bay and Gardiners Bay

Available data on hard clam populations in the Peconic and Gardiners Bays are limited. Anecdotal information about where clams have been harvested in recent years has been reviewed and incorporated into the establishment of the Shellfish Cultivation Zone. The findings of three prior shellfish inventories were also reviewed. These studies were:

- Shellfish survey of deep waters of the Peconic Estuary by NYSDEC in 1979 and 1980 (NYSDEC 1982)
- Assessment of shellfish resources in the deep water areas of the Peconic Estuary in 1995 (Lewis et al. 1997)
- Assessment of shellfish resources in the tributaries and embayments of the Peconic Estuary, 1997 (Lewis and Rivara 1998)

The 1995 deep water survey (Lewis et al. 1997) was performed to assess the status of the shellfish stock in deeper waters of the estuary (2 meters to 9.1 meters deep), beyond the near shore areas, embayments and tributaries. The survey provided data to compare to the findings of NYSDEC (1982). Areas of the estuary from Flanders Bay east to Gardiners Bay were surveyed. The study area of this survey generally coincides with the Shellfish Cultivation Zone in that it also does not include near shore areas and embayments. The survey consisted of benthic sampling at 124 stations with the use of a hydraulic dredge. The survey found that clams were generally distributed throughout the estuary; 61 of the 124 stations were recorded to have clams. The average density of hard clams was 0.16 clams/sqm, with a maximum recorded density at one station of 4.3 clams/sqm. The following conclusions were made in the report:

- Abundance of clams was less in open bay areas, and somewhat higher in fringe areas nearer to shore.
- Chowder clams comprised the most abundant size class of clams, indicating that stock recruitment has been extremely low.
- The deep water of the estuary “is not currently productive of the commercially harvested species of shellfish” and the deep waters of the estuary are “empty not naturally productive with respect to commercial shellfish.”
- Shellfish aquaculture “may be feasible and would not interfere with natural shellfish production which is extremely low in the deep waters.”
- Abundance of shellfish decreased significantly between the 1979/80 survey and the 1995 survey.
- “The deep waters of the Peconic Estuary are not naturally productive shellfish areas but could support mariculture activities... .”
- Greatest concentrations of shellfish were found at stations within 1,000 feet of the shoreline in most cases.
- Only a small number of scallops were found; this was attributed in part to the conclusion that “most of the deep water areas do not contain suitable scallop habitats.”
- No soft clams were recorded; this was attributable to the conclusions that soft clams tended to inhabit shallow waters.
- The majority of stations had no clams or clams at very low density, and only several stations had clams at densities considered moderate (above 2 clams/sqm).

Lewis and Rivara (1998) documented shellfish abundance in shallow waters (1 foot to 6 feet deep). The report indicated that clams were found at 75 percent of the stations sampled. At those stations where clams were found, the overall abundance was approximately 0.5 clams/sqm. Seventeen stations had clam abundance over 1 clams/sqm. The report made the following conclusions:

- Overall abundance of clams was greater than that found in the deep water survey, but must still be considered low.
- No significant numbers of bay scallops were found.
- Chowder clams were the most dominant size category.
- “Good water quality in many of the creeks with low abundance of naturally occurring stock suggests the ability to continue or expand the shellfish mariculture in those areas.” “Numerous areas exist that could support shellfish mariculture activities... .”

Shellfish Abundance in Other Areas

One of the most productive clam harvest areas on Long Island over the past 10 years has been the Oyster Bay Harbor/Cold Spring Harbor Complex on Long Island's north shore. The Town of Oyster Bay performed a comprehensive shellfish survey in the harbor in 2007 (Town of Oyster Bay, September 2007). The survey only included the public grounds, and not those conveyed under lease to a private shellfish company. The density of clams for the study area was found to be 6.3 clams/sqm, with a maximum of 87 clams/sqm. Areas characterized as low clam abundance had clam densities ranging from 0 to 3.1 clams/sqm. Areas utilized by commercial clambers generally show concentrations in the moderate range (3.2 to 9.5 clams/sqm) and high range (above 96 clams/sqm). The overall density of legal sized clams was approximately 4.3 clams/sqm. An earlier survey of Oyster Bay Cold Spring Harbor performed in 1999, when the bay was considered somewhat less productive, showed an overall density of 3.5 clams/sqm (Town of Oyster Bay, February 2000). A study of Huntington and Northport Bay in 1998 by the Town of Huntington found an average clam density of 7.7 clams/sqm. The Huntington area was considered to be a productive harvest area at the time (Town of Oyster Bay, February 2000). A study of hard clam populations in South Oyster Bay in 2004 found an average density of 3.5 clams per sqm (Town of Oyster Bay, April 2007).

In the 1980s when clam production in the bay was near its peak, a comprehensive clam density survey of the Great South Bay System was performed. This survey found average densities in various sub-areas of the bay ranging from 3.3 clams/sqm to 7.8 clams/sqm in the most productive zones (United States Environmental Protection Agency, October 1981). The overall average of all waters from South Oyster Bay to Moriches Bay was found to be 5.5 clams/sqm. Discussions with Town of Brookhaven Division of Environmental Control and The Nature Conservancy have indicated that clam densities in the Brookhaven portion of Great South Bay have undergone a general, consistent decline since the productive years of the 1970s and 1980s. Clam density in much of Great South Bay under jurisdiction of the Town of Brookhaven and The Nature Conservancy is well below 3 clams/sqm. The Nature Conservancy is working on a hard clam restoration program for the bay and has set a restoration goal of 6 clams/sqm. Clam densities in the Town of Islip and Babylon portions of Great South Bay have also experienced major declines, and the clam fishery is presently at minimal levels.

A report on clam densities recorded in the Town of Islip portion of Great South Bay from 1986 to 2003 is provided by Krauter et al. (2005). Clam density for clams over 1 year old was approximately 6.5 clams/sqm in 1978, when the clam fishing was near its peak production (Krauter et al. 2005). Densities have shown a consistent dramatic decline since then, to a level of approximately 1 clam/sqm in 2003, when the clam fishing was essentially in collapse. The report also provides density data for other East Coast embayments, and densities ranged from 0.23 clams/sqm (Sinepuxet Bay, MD) to 7.72 clams/sqm (Raritan Bay, NJ).

Guideline for Assessing Potential Productivity

Review of the above information indicates that productive clam areas typically have densities of 5 clams/sqm and higher. Densities below 2 or 3 clams/sqm are generally characterized as relatively low abundance. Available data for the Peconic and Gardiners Bays indicate that most of the open

waters have low abundance of clams, although it is reported that harvestable quantities are present in certain areas.

A density of 2 clams/sqm was selected as the guideline to assess whether an area has harvestable quantities of clams. The 2 clams/sqm guideline is for legal size clams only. The presence of seed clams, although indicative of clam spawning and setting success, does not necessarily mean that an area will ultimately be productive for legal size clams. Predator and mortality can drastically reduce populations of seed clams before they reach harvestable size. The 2 clams/sqm guideline was selected as a reasonable, conservative approximation of potentially harvestable clam stocks, since actual surveys indicate that productive harvest areas typically have a greater density of clams.

As stated above, density criteria were not established for bay scallops and other mobile species. Evidence that an area is productive for species other than clams must be based on documentation that harvestable stock is present, from documented information from harvesters, or data from regulatory/governmental authorities. The program must have a degree of flexibility to account for resources that are not as stable and fixed as hard clam populations.

The County reserves the right to consider any relevant data and information pertaining to a site's productivity in making its decision regarding lease site approval, including the presence of significant numbers of seed clams.

Ground Truthing Survey Methodology

If a potential lessee applicant opts to ground truth a proposed lease site challenged because of reported hard clam resources, a field survey must be performed to determine the density of clams within the subject area. The survey must include benthic sampling suitable to calculate a mean clam density for the subject area. The survey must include an adequate number of sample stations within the subject area to calculate a mean density that is statistically significant. Sampling methods can include bottom grabs, suction benthic samplers, diver surveys, or other scientifically acceptable methods. The number of samples to be taken would depend on the methodology utilized and the area of each sample. Sample sites must be randomly distributed throughout the study area. The survey would have to be conducted by a credentialed investigator who can validate the survey findings and issue a report documenting the methodology, data analysis, and findings.

Examples of Possible Sampling Methodologies

A sample methodology could include the use of a diver survey to collect data on clam abundance. A diver survey would be conducted by utilizing a SCUBA diver to collect all shellfish from a series of stations within the proposed 10-acre lease area. Shellfish should be collected within a fixed sample area (e.g., 1 sqm) by means of a diver-operated suction dredge and/or hand raking. Approximately 10 stations could be sampled within the 10-acre parcel. Stations should be selected at random within the area. One method to randomly select sample locations is to divide the parcel into a grid, assign a number to each grid square, and utilize a random number generator to pick sample locations. Legal size clams recovered for each station should be used to calculate a density. The mean densities recorded can be calculated by averaging the density for each station. Station locations should be recorded in the field by GPS to an accuracy of approximately 10 feet.

A survey can also be performed by methods previously used by NYSDEC, Marine Science Research Center and Cornell Cooperative Extension (Lewis and Rivara 1998). In this method, a hydraulic clam dredge towed from a boat would be utilized to sample clams within a proposed lease parcel. To standardize the length of the tow, a 200 foot weighted line was released from the boat during the tow to determine the length of the tow. A hydraulic dredge with an opening of one foot, a bar spanning of $\frac{3}{4}$ inch and a cutting edge set at a dredge penetration depth of 3 inches, was used. The number of clams and other shellfish caught in each tow should be recorded. The catch per tow can be converted into a square meter density based on the total area of bay bottom covered by each tow (calculated as 9.29 square meters in the Cornell Cooperative Extension work). In the 10-acre parcel, it is estimated that 5 tows should be performed in randomly selected areas, in order to calculate a mean clam density.

Another sampling method could utilize a mechanical clam shell bucket operated by a barge mounted crane. Typical buckets cover an area of approximately 1 sq meter. The sediment materials retrieved by the bucket should be washed through a series of grates in order to recover clams and other shellfish from the sediment. Shellfish caught by each grab can be recorded and a density measurement calculated. The density recorded at each station can be utilized to calculate a mean density for the lease parcel. With a sample size of approximately 1 sqm, a total of 10 stations should be sampled within the lease area, at randomly selected positions within the parcel.

A findings report, which provides detailed information on methodology, shellfish density at each station, and mean clam density (with standard deviation and confidence limits), should be prepared by a qualified environmental professional.

The above methodologies are provided as examples; other scientifically valid methods of determining hard clam density can be utilized. Studies may be done objectively by a qualified independent biologist or other specialist.

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APPENDIX F
SUFFOLK COUNTY PECONIC AQUACULTURE LEASE
MONITORING (PALM) PLAN MODEL

DRAFT

Suffolk County Peconic Aquaculture Lease Monitoring (PALM) Plan

Final Report

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Attachment A.
(Shellfish Aquaculture Lease Program Environmental Monitoring Plan, Project Participants)

Attachment B.
(Agenda, January 2017 Workshop on Shellfish Aquaculture Please Program Environmental Monitoring Plan Design)

Attachment C.
(Budget, Recommended Peconic Aquaculture Lease Monitoring Program)

Introduction

The Suffolk County Aquaculture Lease Program (SCALP) provides private individuals and businesses with secure access to marine space in Peconic and Gardiners Bay (hereinafter, “the Peconics”) for the purpose of establishing commercial shellfish aquaculture farms. This report presents and describes recommendations for environmental monitoring that would assist Suffolk County in determining the impacts of SCALP on the ecosystem of the Peconics. In initially identifying areas suitable for shellfish farm leasing, the County strove to include only areas that addressed stipulations in NY ECL § 13-0302, had minimal natural benthic shellfish productivity and that were not important areas for other resource user groups. The County’s conclusions were based on available data and extensive consultation with municipal and state governments, various marine resource user groups, the scientific community and environmental groups.

Notwithstanding this precautionary approach in determining which areas would be included as leasable under the program guidelines, from the inception of SCALP, the County has faced questions and concerns about the potential impacts, harmful or beneficial, of the operation of shellfish aquaculture farms on water quality and overall ecosystem health in the Peconics. Indeed, the County has an on-going concern about this issue based on the fundamental principles of environmental stewardship and responsibility, alone. In the past decade, shellfish and shellfish culture, have been increasingly viewed by resource managers and scientists as providing a wide range of beneficial and valuable “ecosystem services”.

The Peconic Estuary is a complex and dynamic estuarine ecosystem, subject to both natural variability in ecosystem components and the processes that connect them, and human perturbations of these components and processes. These perturbations are caused by a wide range of human activities in and around the Peconics and activities in its watershed. Reliably identifying changes to the Peconic ecosystem that can be attributed largely or solely to the shellfish aquaculture activities permitted under the SCALP will be a daunting task and it should not be underestimated. The recommendations of this report take a clear-eyed and realistic view of this issue. They are founded on the best and most current scientific understandings of the ecology of shallow coastal ecosystems such as the Peconics and the body of knowledge that has developed about the environmental impacts of shellfish farming in these systems.

Authorization of the Peconic Aquaculture Lease Monitoring (PALM)

In the spring of 2015, the Suffolk County Legislature authorized the expenditure of funds in support of Capital Project #7180.114 (*Shellfish Aquaculture Lease Monitoring Program in Peconic and Gardiners Bays*). The objective of this project is to design an environmental monitoring program to assess the potential impacts, positive, benign, or negative, of shellfish farms operating on plots leased by Suffolk County pursuant to SCALP. The proposed monitoring program is an underwater lands management activity authorized and required by Article II, § 475-19 of the Suffolk County Code, a follows:

Subject to available funding, the Department shall implement an environmental monitoring program and shall seek the cooperation of the Suffolk County Departments of Health Services and Environment and Energy in formulating and implementing the monitoring program. The monitoring program shall include collection

of data on water quality and other ecological factors to assess potential beneficial or adverse impacts of the Shellfish Aquaculture Lease Program on the Peconic Estuary.¹

Developing the Report

This report was developed in several steps and its contents benefit from and reflect the input of a variety of individuals and groups. At the project's outset, report author William Wise met with a project Steering Committee comprised of representatives from the Suffolk County Department of Health Services, the Suffolk County Department of Economic Development and Planning (Division of Planning and Environment) and the Peconic Estuary Program (a program administered by Suffolk County with base funding provided by US Environmental Protection Agency's National Estuary Program). The objective of the discussion was to review and reaffirm the project development process and timetable and to identify individuals to populate two groups: 1) a small Group of Experts on the science of the environmental impacts of shellfish aquaculture from outside New York State to help assure that the project and its findings/recommendations benefitted from and reflected current state of knowledge about the environmental impacts of shellfish aquaculture in the broadest context, and 2) a larger number of agency and organizational staff knowledgeable on the Peconics and/or local shellfish aquaculture who would constitute a Project Advisory Committee. **Attachment A** to this report lists the membership of the Project Steering Committee, Group of Invited Experts and the Project Advisory Committee.

The project effectively began in early January 2017 with a workshop at Stony Brook University's School of Marine and Atmospheric Sciences attended by the invited Group of Experts, Project Advisory Committee and Project Steering Committee to 1) share knowledge about the origins and operation of SCALP, 2) discuss and reach agreement on the essential considerations and issues to be addressed by the environmental monitoring plan, 3) share information and perspectives on the current state of knowledge regarding monitoring/documenting the environmental effects of shellfish aquaculture on estuarine systems, and 4) review the future steps and project timetable and the respective roles of Suffolk County, the Group of Experts, Project Advisory Group, Project Steering Committee and New York Sea Grant in completing the project. The agenda for the 05 & 06 January 2017 workshop at Stony Brook is found as **Attachment B** to this report.

Based on the findings/recommendations reached at this workshop and review of the scientific literature on the environmental effects of shellfish aquaculture and environmental monitoring generally, Mr. Wise of New York Sea Grant prepared a draft report which was reviewed and commented on by the other project participants. Based on these comments, a revised final report was prepared and submitted to Suffolk County. After being reviewed by senior County administrators, the report was revised into its present final form and officially submitted to the County.

¹ Pursuant to Res. No. 56-2012, the former Suffolk County Departments of Planning, Environment and Energy, and Economic Development were integrated into the newly-created Department of Economic Development and Planning, which is now the entity responsible for implementing the Shellfish Aquaculture Lease Program.

The Shellfish Aquaculture Lease Program

SCALP was established by Suffolk County Local Law No. 25-2009 (Chapter 475, Article II of the Suffolk County Code). The program, which provides secure access to marine space for private, commercial shellfish aquaculture was developed by Suffolk County for publicly-owned underwater lands in Peconic Bay and Gardiners Bay. Previously, and pursuant to Chapter 425, Laws of New York 2004 (2004 Leasing Law), as codified in New York State Environmental Conservation Law §13-0302, the State of New York ceded title to approximately 110,000 acres of underwater lands in Peconic Bay and Gardiners Bay to Suffolk County for the express and sole purpose of shellfish cultivation, and authorized the County to prepare, adopt and implement a shellfish aquaculture lease program for this region.

Suffolk County's leasing authority is limited to the conveyance of underwater land for shellfish cultivation, and does not extend to the regulation of this activity. As such, the County controls: the location of shellfish farms through issuance of leases on underwater land within a formally adopted Shellfish Cultivation Zone; and the extent and intensity of aquaculture use through limits on lease size and number. The 29,969-acre Shellfish Cultivation Zone in the Peconics includes former New York State Department of Environmental Conservation (NYS DEC)-issued Temporary Marine Area Use Assignment plots; historic, privately-owned oyster grants; and other contiguous areas where the impacts/conflicts of shellfish aquaculture activities on environmental resources/socio-economic concerns were expected to be minimal. To use their lease, lease holders must obtain all necessary regulatory permits from relevant government agencies for conducting off-bottom and/or on-bottom shellfish culture activities on their leases. In particular, an on/off bottom culture permit and shellfish bed permit must be obtained from the NYS DEC once a lease is issued. The authorized Shellfish Cultivation Zone is predominantly located west of Shelter Island; few areas east of Shelter Island, in Gardiner's Bay and Napeague Bay are available for leasing – see link below for program maps:

<http://www.suffolkcountyny.gov/Departments/Planning/Divisions/EnvironmentalPlanning/AquacultureLeaseProgram/ProgramMaps.aspx>

In addition to addressing the access needs of existing shellfish farmers, the lease program was designed to accommodate growth in the industry. Standard leases for shellfish farms consist of 5- or 10-acre parcels. New shellfish aquaculture leases are limited to a total of 60 additional acres per year, for a maximum of 600 acres leased by the tenth year of program implementation. Participants who were previously cultivating shellfish in the estuary were given the opportunity to continue in the program, and private oyster grant owners who wanted to secure lease overlays for the cultivation of shellfish other than oysters were also given this opportunity. Given the structure of the program and various assumptions, the maximum area that could be potentially leased for shellfish farming during the first 10 years of program implementation is 3,173.5 acres. This is less than 2.9% of the area under County lease jurisdiction, and approximately 10% of the designated Shellfish Cultivation Zone. The program also provides municipalities, researchers and not-for-profit entities the opportunity to obtain non-commercial shellfish cultivation leases for experimental, educational, and shellfish resource restoration purposes.

The Aquaculture Lease Board (ALB) is responsible for conducting public meetings to review and consider all potential lease sites that were applied for in a given lease application cycle. The ALB rules on each lease application by a majority vote to either approve or disapprove the eligibility of proposed lease sites for leasing. In years when there are more applicants than leases available, a double-blind random selection process determines which applicants move forward to lease their selected sites.

As of this writing (August 2017), approximately 750 acres are currently being leased by the County under SCALP.

Implementation of the lease program has increased private investment in shellfish aquaculture businesses, and shellfish farms have been established at secure locations that do not pose conflicts with commercial fishermen and other bay users. This, in turn, has expanded the marine-based economy of Suffolk County and created jobs that contribute to the quality of life and sense of place in East End communities.

In addition to the direct economic development benefits of SCALP, the cultivation of large numbers of oysters, hard clams and bay scallops in dense populations on shellfish farms will augment the spawning potential of native shellfish populations. The millions of filter-feeding bivalves on shellfish farms should also exert a positive influence on water quality by helping to control nutrient cycling and contributing to the prevention of harmful algal blooms, such as brown tide. These and other ecosystem services associated with abundant shellfish resources are being provided by SCALP on a sustainable basis at little to no cost to the general public.

Environmental Impacts of Shellfish Aquaculture

Shellfish aquaculture is a large and growing industry; global production in 2012 reached 15.2 MT (Food and Agriculture Organization of the United Nations, 2014). The majority of this production is in Asia, especially in China. Cultured shellfish production in the United States represents only about 1% of world production; however, US production is growing, especially in the Northeast, due to very high demand. Most shellfish aquaculture requires the use of natural water bodies for part of the culture system. Virtually any human activity conducted in, on or near a natural body of water will have an effect on that body of water. Thus, there is increased concern regarding the impacts of shellfish aquaculture on the environment.

The environmental impacts of shellfish aquaculture can arise from the mass numbers of cultured animals themselves and their interaction with the environment, as well as from various culture practices and the introduction into the marine environment of equipment that serves as hard substrate for epifaunal organisms (Dumbauld et al., 2009). The expanding shellfish aquaculture industry in the Northeast grows bivalve molluscs: oysters; clams and scallops. These filter-feeding organisms strain food particles from the water column. The Eastern oyster (*Crassostrea virginica*) can filter up to 55 gallons of water/day (Rice, 2008). Shellfish filtering and clearance can alter the suspended particle load in the water column, affecting turbidity levels. In filtering plankton and other organic materials, shellfish can influence the phytoplankton community in terms of abundance and species composition. Filter-feeding shellfish remove nitrogen from the water column and it is sequestered in the tissues of the animal. This nitrogen is then removed from the environment when the animal is harvested. Bivalves produce feces and pseudo-feces as waste products and the deposition of these materials on the seafloor can alter the physical and chemical environment of the bottom (Newell, 2004). In poorly-flushed and/or low current flow environments, these alterations can produce negative consequences, such as increased sediment oxygen demand and the development of anaerobic conditions. This deposition may also increase the amount of organic matter in sediments and lead to changes in the benthic invertebrate community (Forrest et al, 2009).

In an unpublished study prepared for The Nature Conservancy (TNC), Doall and Peterson (circa 2008) found relatively few and minor differences in sediment organic matter levels and the number of benthic organisms between hard clam spawner sanctuaries established on TNC-owned bottom land in Great South Bay and areas immediately outside (25 m) the sanctuaries. The species richness, however, of several groups of

benthic invertebrates was somewhat greater on average within sanctuary areas than outside them. Planted hard clam densities in the several sanctuaries examined averaged 7.7 – 12.0 clams m⁻². The authors note a potential explanation for the similarity in benthic sediments and invertebrates between sanctuary and adjacent areas was that the density of clams in the sanctuaries was insufficient to produce much difference.² The density of farmed oysters in the Aquaculture Lease Program is substantially higher than these clam densities. In the work by Doall and Peterson, the differences between the several sanctuaries examined (and their adjacent external areas) were typically greater than the differences between a sanctuary and its external area, suggesting an inherent spatial heterogeneity in the benthic environment and community of central Great South Bay.

Bivalves play a pivotal ecological role in estuarine ecosystems. Thus, artificially maintaining mass numbers of bivalves in close proximity to each other, as on a shellfish farm, has the potential to affect an estuarine system in many ways. Until a decade or so ago, this reality was viewed primarily through a negatively-tinted lens by some in the environmental community and among wild shellfish harvesters. That is, the focus was primarily on the negative effects on an estuarine system that might ensue from the development of shellfish aquaculture. In recent years, this view changed considerably. There is now considerable interest in what many see as the positive influences of expanded shellfish populations, cultured or natural, on the health and function of estuarine ecosystems. Gallardi (2014) presents a comprehensive assessment of the disparate ways shellfish aquaculture can affect the environment, parsing the effects into water column and nutrient impacts, sediment and benthic habitat impacts, effects on native pelagic and benthic species and the introduction of non-native species, with an extended discussion of the putatively beneficial possibilities of shellfish aquaculture in terms of phytoplankton bloom control, the isolation and bio-extraction of excess nutrients, reduction in turbidity and increase in the depth of light penetration to the benefit of SAV.

In the most comprehensive treatment of the issue now available, Shumway (2011) and her contributors were able to identify only two aquatic ecosystems worldwide that had been clearly and significantly compromised by the introduction of shellfish aquaculture among more than two hundred that were examined. Most documented negative impacts were very localized. Relatively little work has been done, however, on some topics that may be of significant interest to Suffolk County, the NYS DEC and others in terms of SCALP and its effects on the ecosystem of the Peconics, such as assessing the effects of shellfish farming on native finfish stocks. Given the general mobility of most finfish species, these effects may be quite difficult to document.

The literature on the effects of shellfish aquaculture on the environment suggests that the nature and extent of these putative impacts are almost always highly site-specific and depend on such factors as the species under cultivation, animal culture densities, the size of the farm, the physical characteristics of the water body in which the farm is located and the specifics of the culture operation itself. These factors are known for the shellfish culture now underway in the Peconics and this knowledge provides a foundation for the identification of the most likely positive and/or negative impacts of concern and how to design a monitoring program to determine if they are indeed occurring.

Intensive oyster culture as practiced on eastern Long Island often results in an accumulation of dead oyster shell material on the bottom below/in the immediate vicinity of culture cages/racks, etc. (M. Doall, personal communication). These shells are deposited as a result of sorting/handling cultured oysters or damage to the culture gear during storms and a subsequent release of cultured animals. The addition of shell material to the benthic sediments can change habitat complexity by the provision of settlement sites for a variety of

² The action of water current to distribute materials evenly across planted and unplanted areas is another possible explanation.

benthic invertebrates and shelter for crustaceans and finfish. The added shell material can also alter the sediment chemistry by buffering the sediments from acidification, raising the pH and potentially improving the survival of recently settled juvenile bivalves.

Findings/Outcomes of the January 2017 Workshop

Opening Presentations: Shellfish Lease Program Overview; Current Farming Practices and Related Environmental Characterization Work in the Peconics

Shellfish Aquaculture Lease Program Status: 47 leases have been executed as of December 2016; of these, 27 leaseholders have secured the necessary permits to operate and 18 leaseholders are actually working their lease. Ten (10) additional leases are pending execution under the 2016 solicitation. Thus, if all 18 active leases are on the 10-acre plots, and the entire lease in each case is being actively farmed, less than 200 acres of the Peconics are being farmed under the lease program. This is barely more than 0.1% of the approximate 160,000 acres of water surface area of the Peconic Estuary system, of which, 110,000 acres is under Suffolk County lease jurisdiction. Thus, at present, and for the foreseeable future even under the most optimistic projections of program growth, the County's Shellfish Aquaculture Lease Program has a tiny footprint in the Peconics.

Farming Practices on Leases: Virtually all farmers are using structure like cages, bags, racks, etc. to hold their animals. Eastern oyster is the most popular animal to cultivate, primarily for its relatively fast rate of growth and, thus, time to market as well as a strong consumer demand.

Suffolk County Water Quality Monitoring in the Peconics: Routine water quality monitoring in the Peconics began in the mid-1970's and continues to the present. Stations are distributed throughout the system. Currently, the monitoring frequency is monthly, but short bursts of more frequent monitoring have been at times undertaken, especially in response to pervasive and/or persistent Harmful Algal Blooms. Routinely monitored parameters include a variety of physical factors (temperature, secchi depth, irradiance level; dissolved oxygen, salinity, conductivity), nutrients levels (various nitrogen & phosphorous compounds) as well as coliform bacteria, suspended solids, chlorophyll-a, and phytoplankton community composition.

Small Mesh Trawl Survey: Since 1987, the NYS DEC has conducted a small mesh trawl survey in the waters of the Peconics west of Shelter Island, primarily for juvenile finfish. Each month, 16 of 77 standard reference stations are randomly selected and sampled. Reference stations are approximately 1' latitude x 1' longitude, or 650 acres in size. Target species in this program include: scup, tautog, winter and summer flounder, weakfish and horseshoe crab. Basic physical water quality parameters are measured at each station. Data from this survey were an important contributor to a ranking in 2010 of areas in the Peconics by importance as finfish habitat by the NYS DEC. These rankings are used by NYS DEC in commenting on specific lease site applications and in making permitting decisions. Areas ranked highly as fish habitat are considered not suitable for shellfish aquaculture leasing by NYS DEC.

Benthic Mapping in the Peconics; With support from the Peconic Estuary Program (PEP) and Suffolk County, scientists at Stony Brook University's School of Marine and Atmospheric Sciences have mapped benthic communities over roughly 2/3 of the Peconics in three sequential phases over the period 2001-2008. In the work, multi-beam echo-sounding images were ground-truthed with sediment/biological samples to identify

the spatial pattern of sedimentary regimes and associated benthic faunal assemblages. Most of the mapped areas are in the western part of the system.

Major Points of General Agreement Among Workshop Participants

- *A targeted monitoring program will be most useful:* The more targeted an environmental monitoring program, the more likely it will produce useful information. As a financial investment by the County, a monitoring program designed to answer questions about a specific potential environmental impact of shellfish farming on leased land in the Peconics is more likely to produce useful information than a program designed to detect any and all possible impacts.
- *The current size and scale of shellfish farming on leased land in the Peconics are extremely small, making system-wide environmental effects practically impossible to detect:* The current size and scale of shellfish farming on leased land in the Peconics is insignificant in terms of its likely impact on the environment. The natural variability of the system and the large number of human activities and influences on it make it exceedingly unlikely that a monitoring program could reliably and credibly reveal any system-wide impacts of shellfish farming, which are almost assuredly very small at the current scale of operations.
- *The focus of any environmental monitoring effort directed at shellfish farming on leased land in the Peconics should be changes/impacts that occur and are detectable on the leased grounds and in their close vicinity:* Understanding the immediate, localized impacts of shellfish farming provides a foundation for projections of what more systemic impacts might occur as the number of leases and the aggregate size of the leased area increases.
- *Detecting the impacts of shellfish farming operations on water quality in the Peconics, system-wide or even in areas immediately around the farms themselves, will not be possible at the current scale of the program and an attempt to do so would not be a wise use of available monitoring resources:* Intensive monitoring of water quality parameters in waters immediately adjacent to commercial oyster farms in Rhode Island's coastal salt ponds, which are much smaller and more enclosed than the Peconics system, was unable to detect any observable effects (D. Leavitt, personal communication, 05 January 2017).
- *Research and monitoring conducted in the United States and elsewhere have, by and large, not revealed large and systemic negative environmental impacts from shellfish aquaculture of the type being conducted on leased lands in the Peconics:* Most studies have found either no significant environmental impact from shellfish culture, or in some cases, positive impacts on the environment. Those instances where negative environmental impacts were found usually involved excessive stocking/culture densities or poor site selection (generally, low rate of flushing). Almost universally, these negative effects were localized and confined to the immediate area of the farm(s).
- *The environmentally positive, ecosystem service-enhancing effects of shellfish aquaculture remain largely unrecognized by the general public.* These benefits can include:
 - Shellfish aquaculture is a sustainable and green industry.

- On-bottom shellfish harvest helps to improve sediment quality by loosening and dispersing silt and muck, and helps add oxygen to bottom waters and sediments.
- Adult oysters can filter on the order of 50 gallons of seawater in a single day as part of their natural feeding process. Shellfish feed on phytoplankton, thereby improving water quality and clarity by removing particulates, excess nutrients, organic material, viruses, and bacteria from the water column. Improved water clarity enhances habitat for sea grasses such as eelgrass and other submerged aquatic vegetation.
- Shellfish help control harmful algal blooms, like Red Tide, by removing algal cells before they accumulate to harmful levels.
- Shellfish beds/culture structures can provide critical ecosystem functions by creating structure and habitat for other species such as crabs, worms, and juvenile fish, that provide a food source for fish and other marine species. The nooks and crannies in oyster beds create 50 times the surface area of an equal expanse of flat bottom. Culture cages/baskets, etc. whether on-bottom or suspended attract a distinct community of colonizing epifauna and fish that prey on them
- Shellfish beds stabilize sediments helping to protect the shoreline from erosion.
- Shellfish remove nitrogen from the environment in shellfish tissues that are removed when the animals are harvested

***Although not necessarily as a part of this project, which focuses more narrowly on environmental impacts, the Project Advisory Group strongly suggested that Suffolk County should undertake an educational campaign to highlight these benefits.**

- *Shellfish farmers' livelihoods depend on good water quality. They are a natural constituency for water quality improvement programs and initiatives, including those under the County's aegis.*
- *Installation and operation of a shellfish farm alters the physical habitat in the area of the farm. These changes may affect benthic community structure/productivity and fishery productivity. A monitoring program to document any such changes associated with shellfish farming on leases in the Peconics may be feasible and should become the principal focus of this monitoring program design effort: The cages, racks, and other equipment used in the type of culture operations found in the Peconics represent new, hard substrate that will be colonized by fouling organisms, which in turn may attract fish. Bio-deposition of fecal matter and localized changes to bottom currents attributable to equipment emplacement may produce changes to the benthic sedimentary environment. Will these changes be significant? Does the placement of shellfish farm structures and equipment provide new habitat that actually increases the system's capacity for fish production or does it simply concentrate fish? Does the construction and/or operation of the shellfish farms in the Lease Program harm local finfish population? To what extent are benthic community structure/productivity altered on leased and farmed ground? These are probably tractable, although difficult questions to answer. As stated previously, any system-wide effects of SCALP on benthic and fish communities are likely minute at the current scale of the leasing program and would likely be undetectable.*

Recommended Peconic Aquaculture Lease Monitoring (PALM) Program

The monitoring program recommended here is based on literature review of the general understanding of the environmental effects of shellfish aquaculture and, importantly, on the consensus views expressed at the January 2017 workshop by the Invited Experts Group, the Project Steering Committee and the Project

Advisory Committee. These views are significantly informed by practical experience in previous attempts to document the environmental impacts of shellfish aquaculture and by specific knowledge of the Peconics system and the type of shellfish culture operations now underway there and anticipated in the future.

The program recommended here looks solely at near-field impacts of farming operations. As has been noted, the size and scale of the current farming operations are so small compared to the size of the system they operate in that any attempt to detect and document far-field, system-wide effects would be futile and a waste of time and resources. This was the conclusion of the invited and the Project Advisory Group at the workshop.

The monitoring program recommended below is premised on this notion: if no apparent alteration in the sediment bottom characteristics, benthic communities or the presence/abundance of fishes can be documented on the farmed areas when compared with similar unfarmed areas, there is little need for the County to invest in further environmental impact monitoring, at least until such time as the area of the Peconics that is farmed increases dramatically.

There was substantial discussion at the workshop about the potential benefits of a public education and promotional campaign about the ecosystem and direct economic benefits of a vibrant and growing shellfish aquaculture industry in the Peconics. This may be a worthwhile and meritorious activity, as might a survey of the views of County residents about the aquaculture industry and its benefits/detriments, which was also brought up at the workshop. However, both these ideas fall well outside the scope of the current contract between Suffolk County and New York Sea Grant and, thus, they are not discussed in more detail here.

Directing Questions

These are the questions that the recommended monitoring program would attempt to answer:

1. When a shellfish farm is installed and operates in an area, what changes occur after two years of operation at the farm site in the following parameters?
 - Sediment bottom characteristics (i.e., grain size, % organics, etc.)
 - Benthic invertebrate community (i.e., species composition, densities, etc.)
 - Finfish presence/abundance and use of the area
2. What aspect(s) of the farm and its operation are most likely responsible for any documented changes?

BACI Approach

A Before-After-Control-Impact approach is recommended. This approach examines the *Before* (pre-farm baseline) and *After* (two years' operation) characteristics of a target area(s), as well as to compare a *Control* or reference area with the *Impact* area (target site). *Before* and *After* sampling will determine how the parameters under investigation changed at the target site through time from its historical, natural condition. *Control* and *Impact* sampling will allow effects of the farm to be discerned from natural variability, random events, and underlying trends in the larger area. The closer the *Control* site is to the pre-farm conditions of the target area in terms of the monitored parameters, water depths, current environment, etc., the greater degree of discernment that can be achieved.

The monitoring should be done on two target sites, each with a control site. Monitoring at all sites would begin a year before construction of the farm on the two target sites. This is necessary to get a true pre-farm

baseline. A three-year study is recommended to balance the need to capture a range of natural variability with the cost of an extended monitoring program.

While the far-field, system-wide impacts of shellfish farming on leased land in the Peconics at present are almost surely undetectable, there may be one potential impact that could be readily detectable – increased settlement of larval oysters (M. Doall, personal communication). Bags of shell could be placed in strategic locations throughout the Peconics, based on the location of areas of concentrated farming and prediction of larval trajectories from these areas using hydrodynamic modelling. A persistent increase in the recruitment of larval oysters at these locations might be reasonably attributed to the farming on leased areas and/or increased abundances of oysters in non-farmed bottom brought on by the spawning of farmed animals. However, monitoring of oyster settlement would need to be continued for substantially longer than three years to establish that any such increases in settlement were not simply reflective of natural variability.

Organizing the Monitoring Program

There are alternative ways to organize the monitoring program. In all cases, it is assumed that the County will hire a contractor(s) to conduct the monitoring program:

1. Administratively, the cleanest way to undertake the recommended monitoring program is for the County to hire someone to construct and operate the farm in the two target zones and run the monitoring program entirely apart from the Lease Program (although the farming system installed in the target areas would need to be representative of the type of culture operations employed on the leases). This is likely to be the most expensive approach, depending on the arrangements the County works out with the farm contractor regarding proceeds from the sale of his crop.
2. The County could work with prospective lease-holders to identify the two target areas that would be put into culture operation a year hence. The County would then initiate the monitoring work in advance of the two target areas being developed by the lease-holders. The uncertainties associated with the pace of farm development under the lease program may make this approach difficult.
3. The County could work with existing lease-holders to identify two target areas that have already been developed and in operation for at least two years and monitor those sites and their companion control sites. This approach is not really a BACI approach as there is no true pre-farm baseline characterization data being taken, although an un-farmed area immediately adjacent to the farm could be used as a surrogate.

The monitoring program described below assumes that either #2 or #3 of the alternative ways of organizing the program is eventually selected. That is, the County itself does not pay for both the establishment/operation of the farm and the actual monitoring program itself (Alternative #1).

The recommended monitoring program encompasses water column/sediment and fish community sub-programs. These are handled separately in the estimated budget (Attachment C).

Sampling Location

At each target and control site, a 1-acre plot would be marked off using GPS/GIS. All sampling would occur within these plots

Monitoring Duration

The monitoring program will run for three (3) years.

Monitoring Frequency

All sites would be sampled four times during the April-December period each year. The following samples would be conducted at five (5) randomly-selected stations per site during each sampling.

Water Column Sampling

- Surface/bottom water temperature, salinity and dissolved oxygen (YSI, Inc. probe)
- PAR (Photosynthetically Active Radiation)

Sediment Sampling (diver)

- Grain size and organic content
- Biogeochemical measures (sediment porosity, sediment oxygen demand)
- Shell abundance; density/species composition of invertebrates settled on shell; pore water pH

Sediment sample processing would follow procedures employed in the Peconic Estuary Benthic Mapping work funded by the PEP and Suffolk County, and conducted by Stony Brook University.

Invertebrate Community Sampling

- Sediment samples for invertebrate identification and enumeration (diver)
- Epifaunal organisms colonizing objects emplaced on farm (diver)

Fish Community Sampling

The fish community in the vicinity of the farm and in control sites will be challenging to sample representatively. Multiple approaches will be used to document the abundance and species composition of fishes present in target and control areas over time. The same sampling gear(s) should be used in both target and control areas. One common fish sampling gear, a trawl, cannot be practically used on a farmed area because of obstructions and its use is not recommended here. The initial gear used to sample fish at the monitored sites will be fish traps, Go-Pro type cameras on stationary mountings and an acoustic monitoring system comprised of a bottom-mounted sonar unit, an onshore data receiving/processing station and a wireless data communication system.³ Initial soak time for fish traps will be two days.

The approach to monitoring the fish community in target and control areas may evolve over time based on experience with the different monitoring gear and the estimated quality/utility of the data they produce.

Projected Cost

The projected three-year cost of the field monitoring and sample work-up/analysis described above is conservatively estimated at \$232,905 for the water column/sediment monitoring and \$322,485 for the fish monitoring; the difference basically being the purchase of the acoustic camera and fish traps in the first year

³ Recommended instrument is the ARIS Explorer 3000 high-frequency imaging sonar, manufactured by Sound Metrics, Inc., of Bellevue, Washington. Unit employs multiple frequencies: 3.0 MHz for target *identification* at a range up to 5 m and 1.8 MHz for target *detection* at a range up to 15m. The instrument, essentially an acoustic camera, can provide continuous high-resolution images of fish within a radius of 15m with 360° coverage.

of the fish work. Doing the water column/sediment and fish monitoring concurrently cuts down on boat time costs.

If the farmers whose farms are being monitored can contribute, for example, boat time to the effort, the cost may be less. Attachment C provides an itemized budget of the major costs associated with the described monitoring project. This assumes the work would be done under contract at an academic research institution such as the School of Marine and Atmospheric Sciences at Stony Brook University. Having the work performed by a for-profit consulting firm is another option.

Below is an explanation of the projected costs:

Personnel: Two teams, one for fish monitoring and one for sediment/benthic monitoring. Each team comprises a faculty member, a full-time graduate student and an undergraduate student.

Fringe benefits: Fringe rates on faculty are at the summer rate.

Equipment: The budget assumes that the contractor already possesses most of what is needed to conduct the monitoring program. \$81,000 is budgeted in Year One of the fish work for the purchase of a sophisticated fish identification acoustic system well adapted to capture images of especially demersal species such as flatfish as well as ten (10) fish traps.

Boat rental: Assumes 10 days' rental annually at \$600/day for a vessel based at the Stony Brook Southampton Marine Station

Travel: Primarily travel to & from boat for project personnel

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Shumway, S.E. (ed.). 2011. Shellfish Aquaculture and the Environment. Wiley-Blackwell, Hoboken, NJ, 424p.

Attachment A. Shellfish Aquaculture Lease Program Environmental Monitoring Plan, Project Participants

Invited Experts:

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Ph.D. Stony Brook University

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Ph.D. University College of North Wales

Gary Wikfors

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Project Advisory Group

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Carl LoBue, The Nature Conservancy

Tom Carrano, Town of Brookhaven

Michael Frisk, School of Marine and Atmospheric Sciences, Stony Brook University

Robert Cerrato, School of Marine and Atmospheric Sciences, Stony Brook University

John Dunne, Town of East Hampton

Martin Byrnes, Town of Islip

Michael Doall, oyster farmer, lease-holder

Ian Wile, oyster farmer, lease-holder

Bassem Allam, School of Marine and Atmospheric Sciences, Stony Brook University

Project Steering Committee

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Nancy Pierson, Suffolk County Department of Health Services

DeWitt Davies, Suffolk County Department of Economic Development/Planning

Susan Filipowich, Suffolk County Department of Economic Development/Planning

Attachment B. Agenda, January 2017 Workshop on Shellfish Aquaculture Lease Program Environmental Monitoring Plan Design

120 Endeavor Hall, School of Marine and Atmospheric Sciences, Stony Brook University

Thursday, 05 January

- 0830 Registration; continental breakfast
- 0900 Welcome (Swanson); introductions, workshop goals (B. Wise/D. Davies)
- 0930 Overview Peconic Aquaculture Lease Program (S. Filipowich)
- 0945 Description of farming practices (Rivara)

Existing environmental characterization efforts

- 1000 SCDS water quality monitoring (M. Jensen)
- 1015 NYSDEC small mesh trawl survey (NYS DEC)
- 1030 PEP Program-related activities (A. Branco/M. Sclafani)
- 1045 Benthic community mapping (B. Cerrato)
- 1100 Coffee break
- 1115 Thoughts/comments from non-NYS experts
- 1200 Discuss/resolve some issues (full group discussion [fgd])
 - near-field vs system-wide impacts
 - scaling of impacts w/lease program growth
 - understanding/accounting for natural variability
 - reference stations or randomized sampling?
- 1245 Lunch
- 1330 Most likely impacts of concern? (fgd)
- 1430 A sampling program to detect/gauge impact (small group discussion)
- 1545 Coffee break
- 1600 Small groups report on proposed sampling schemes
- 1630 Reaction/comment on small group reports (fgd)
- 1715 Preview of Day 2
- 1730 End

Friday, 06 January 2017

- 0900 Recap, Day 1 & results (B. Wise)
- 0930 Has anything important been left out? (fgd)
- 1000 2009 Preliminary Monitoring Program Report by Cashin Associates; a starting point? (fgd)
- 1030 Coffee break
- 1045 Develop outline/TOC for recommended monitoring program (fgd)
- 1145 Next steps/closing remarks (B. Wise/D. Davies)
- 1200 End

Attachment C. Budget, Recommended Peconic Aquaculture Lease Monitoring Program

<u>Water Column/Sediment Sampling</u>			<u>Year 1</u>	<u>Year 2</u>	<u>Year 3</u>
1. Personal Services					
a) Salaries	Principal Investigator	1 month	\$7,500	\$7,500	\$7,500
	Graduate Student	12 months	\$26,000	\$26,000	\$26,000
	Undergraduate Student	3 months	\$6,000	\$6,000	\$6,000
b) Fringe	Principal Investigators @ 14%		\$1,050	\$1,050	\$1,050
	Graduate Students @ 14%		\$3,640	\$3,640	\$3,640
	Undergraduate Students @ 5%		\$300	\$300	\$300
	Subtotal		\$44,490	\$44,490	\$44,490
2. Non Personal Services					
a) Boat Rental			\$6,000	\$6,000	\$6,000
b) Travel			\$800	\$800	\$800
c) Materials & Supplies			\$3,000	\$3,000	\$3,000
	Subtotal		\$9,800	\$9,800	\$9,800
3. Indirect Costs					
a) 50% on-campus [60%]; 50% off-campus [30%]			\$23,345	\$23,345	\$23,345
	Total Costs per year		\$77,635	\$77,635	\$77,635
	<u>TOTAL Costs for 3 years</u>		<u>\$232,905</u>		
<u>Fish Sampling</u>			<u>Year 1</u>	<u>Year 2</u>	<u>Year 3</u>
1. Personal Services					
a) Salaries	Principal Investigator	1 month	\$7,500	\$7,500	\$7,500
	Graduate Student	12 months	\$26,000	\$26,000	\$26,000
	Undergraduate Student	3 months	\$6,000	\$6,000	\$6,000
b) Fringe	Principal Investigators @ 14%		\$1,050	\$1,050	\$1,050
	Graduate Students @ 14%		\$3,640	\$3,640	\$3,640
	Undergraduate Students @ 5%		\$300	\$300	\$300
	Subtotal		\$44,490	\$44,490	\$44,490
2. Non Personal Services					
a) Acoustic camera			\$80,000	\$0	\$0
b) Fish traps (10 @ \$100 per)			\$1,000	\$0	\$0
c) Boat Rental			\$6,000	\$6,000	\$6,000
d) Travel			\$800	\$800	\$800
e) Materials & Supplies			\$5,000	\$5,000	\$5,000
	Subtotal		\$92,800	\$11,800	\$11,800
3. Indirect Costs					
a) 50% on-campus [60%]; 50% off-campus [30%]			\$24,205	\$24,205	\$24,205
	Total Costs per year		\$161,495	\$80,495	\$80,495
	<u>TOTAL Costs for 3 years</u>		<u>\$322,485</u>		

