



# Final Report of the Shellfish Aquaculture Tiger Team

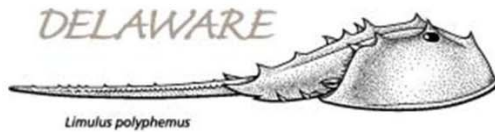
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*to the Board of Directors of the Delaware Center for the Inland BAys*

March 22, 2013



Delaware Center for the Inland Bays



## CENTER FOR THE INLAND BAYS

Rehoboth Indian River Little Assawoman

March 22, 2013

Dear Members of the Board of Directors,

On March 30, 2012 the Board created the Inland Bays Shellfish Aquaculture Tiger Team to lay the scientific, educational, and policy groundwork needed to establish a shellfish aquaculture industry in Delaware's Inland Bays.

Over the course of this year, the Team and its three subcommittees met 22 times in total. They entertained presentations from regional experts on shellfish aquaculture. They estimated the economic and environmental benefits of aquaculture. They used extensive spatial planning data and public input to recommend waters best suited for aquaculture. And they drafted and unanimously approved code to be passed on to the Delaware General Assembly that would allow for aquaculture.

The Team was supported by work of the CIB who held meetings to inform and hear concerns expressed by constituent groups. The Center also held a working breakfast for federal, state and county decision makers on the goals and work of the Team. And thousands of individuals were educated on aquaculture through presentations and materials developed with input from the Team.

The Tiger Team was able to achieve consensus on all of the issues that it addressed, except for the issue of whether hard clam aquaculture should be allowed in Rehoboth and Indian River Bays. The DNREC Division of Fish and Wildlife opposed hard clam aquaculture in these two bays while commercial clambers strongly desired it as an opportunity. A scientific literature summary concluded that farming clams using local stock would present a low risk of disease and genetic impacts to the wild hard clam population. It is my hope that consensus can be reached on this issue in the near future.

It is my pleasure to submit to you this final report on deliberations of the Tiger Team. On behalf of the Team, it is our greatest hope that these materials will result in new legislation and accompanying regulations to allow an orderly and public process for the leasing of shellfish aquaculture sites in the Inland Bays. We look forward to the realization of the unique environmental and economic benefits that shellfish aquaculture will bring to the Bays and its communities.

Sincerely,

A handwritten signature in blue ink, appearing to read "Chris Bason", is written over a light blue circular stamp.

Christopher Bason

Executive Director, Center for the Inland Bays

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# Shellfish Aquaculture Tiger Team Membership and Meeting Schedule

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Voting Group	Representatives
<b>Delaware Center for the Inland Bays</b>	E.J. Chalabala (Chair), Roy Miller, Bart Wilson, Chris Bason, Sally Boswell
<b>DNREC Fish and Wildlife</b>	Nick Couch, Jeff Tinsman, Rick Cole, John Clark
<b>DNREC Watershed Stewardship</b>	Mike Bott, Debbie Rouse
<b>DNREC Wetland and Subaqueous Lands</b>	Scott Figurski
<b>Department of Agriculture</b>	Mark Davis
<b>University of Delaware Sea Grant</b>	John Ewart, Ed Lewandowski
<b>Sussex County Economic Development</b>	Julie Wheatley
<b>Recreational Interests</b>	Bill Baker
<b>Commercial Clamming Interest</b>	Bob Dorman, Steve Friend
<b>Shellfish Aquaculture Interest</b>	Rob Robinson, Josh Thompson
<b>Shellfish Advisory Council</b>	Steve Copp

## Tiger Team Meetings

May 1, 2012	October 10, 2012
June 5, 2012	November 14, 2012
July 11, 2012	December 20, 2012
August 8, 2012	January 24, 2013
September 6, 2012	February 26, 2013

## Policy, Funding and Permitting Subcommittee Meetings

May 23, 2012	December 5, 2012
October 30, 2012	January 17, 2013
Nov 13, 2012	February 12, 2013

## Information Gathering and Synthesis Subcommittee Meetings:

May 25, 2012  
June 28, 2012  
August 1, 2012

## Education and Outreach Subcommittee Meetings:

December 6, 2012  
January 8, 2012  
February 12, 2012

## Special Interest Meetings:

County Zoning Concerns	August 23, 2012
DNREC Joint Permit Processing	September 20, 2012
Recreational Fishers	October 3, 2012
Commercial Clammers	November 28, 2012
Migratory Waterfowl	January 22, 2013
Shellfish Advisory Council	March 28, 2013

# Points of Shellfish Aquaculture Code Summary

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**By unanimous vote of the Shellfish Aquaculture Tiger Team, the following points should be considered in any proposed revisions to the Delaware Code:**

1. **Who administers:** DNREC's Division of Fish and Wildlife shall administer the leasing of shellfish aquaculture sites in Delaware waters. Division of Fish and Wildlife's approval does not remove the applicant from complying with any and all other state and federal requirements for site approval and marking. DNREC's Division of Watershed Stewardship Shellfish and Recreational Waters Program will ensure that all shellfish aquaculture in Delaware waters complies with the National Shellfish Sanitation Program.
2. **Assigning leases:** After due public notification, shellfish aquaculture lease sites shall be assigned initially by a lottery. Participants in the shellfish aquaculture sites lottery shall include all persons, partnerships, or corporations who register in advance their desire to participate in the lottery. The first applicant (name/partnership/corporation) drawn shall have first choice among available aquaculture lease sites up to the maximum acreage available to any one applicant. The second applicant drawn by lottery shall have second choice as to lease sites, and so on, until all applicants have selected lease sites, or the pre-approved lease acreage is exhausted. After the initial lottery is held, any new applicants may select sites from among available lease sites on a first-come, first-served basis.
3. **Size of leases:** Leases shall be issued on a per acre basis. The minimum lease acreage shall be 1 acre and the maximum to be issued to any one applicant shall be 5 acres within Rehoboth Bay and Indian River Bay combined. An applicant who leases up to 5 acres in Rehoboth Bay and/or Indian River Bay may also lease an additional 1-5 acres in Little Assawoman Bay. Lease sites issued to an applicant may be separate or contiguous up to the maximum of 5 acres. Leases that shall be issued in Rehoboth and Indian River Bays shall not exceed 5% of the total subaqueous lands within each of these Bays. In Little Assawoman Bay, the maximum allowable acreage for leasing shall not exceed 10% of the subaqueous lands within Little Assawoman Bay. After 3 years from the date of issuance of the first lease, DNREC shall decide by regulation if the size of leases issued to any one applicant may be increased beyond 5 acres. Those already holding leases shall have first right of refusal concerning adding to their acreage beyond 5 acres up to the maximum acreage allowed.
4. **Duplication of lease sites:** There shall be no overlap of lease sites, nor duplication in lease holders for any particular lease site. Holding of a valid lease site may be transferred at any time from one applicant to another applicant by written transfer on an application to be issued and administered by DNREC.
5. **Lease terms:** Leases are annually renewable for 15 years. At the end of a 15-year lease period, the holder of the previous lease shall have first right of refusal for a further 15-year renewal of the original lease.
6. **Abandonment of lease sites:** Abandoned leases go back into the pool of available lease sites. Lease holders may designate any 1-acre or larger portion of their lease site to go back into the inventory of available lease sites at any time during the calendar year. There shall be no refund of lease fees for acreage that is placed back into the inventory of leasable acreage.
7. **Lease fees:** The application fee for an aquaculture lease shall be \$300. The annual fee for a lease shall be \$100/acre for a resident and \$1,000/acre for a non-resident. All lease application and annual fees shall be received by DNREC Division of Fish and Wildlife and used to partially offset

aquaculture program administrative and operating costs. There shall be reciprocity for nonresident applicants in that if other states charge their nonresidents more for a shellfish aquaculture lease than Delaware does, then whatever fee is greater, to include the non-availability of leasing for nonresidents, then these fees and restrictions shall be imposed upon the residents of any other state that applies for a shellfish aquaculture lease in Delaware.

8. **Harvester license:** DNREC may issue for \$25 per annum a shellfish aquaculture harvest license to qualifying individuals desiring to work only on leased shellfish aquaculture grounds who are not the lease holder for these grounds. Among any crew working on leased shellfish aquaculture grounds, there shall be present at all times at least one person having in his or her possession a valid shellfish aquaculture harvest license or the lease holder possessing proof of a shellfish aquaculture lease to these grounds.
9. **Illegal gear:** It shall be unlawful to use mechanized harvesting gear on leased shellfish grounds other than power winches to raise aquaculture gear.
10. **Poaching:** No person shall take and/or remove any shellfish from an approved shellfish aquaculture lease site without having received written authority by the lessee to take and/or remove said shellfish. Such a violation could be considered petty or grand theft, depending on the value of the shellfish removed. The fine for a first offense shall be \$250 to \$1,000 for a first offense, plus the dockside value of all such shellfish removed. Subsequent offenses shall be \$1000 plus the dockside value of all such shellfish removed. If anyone convicted of a subsequent offense of illegally removing shellfish from leased aquaculture sites has an aquaculture lease site of their own, this lease may be vacated by DNREC; or if the person or persons have an aquaculture harvest license, then his or her license shall be suspended for a period to be determined by DNREC. Any equipment used in the illegal removal of shellfish aquaculture products may be seized by DNREC and made available to the rightful owner. Any shellfish aquaculture products seized will be destroyed and the party guilty of the theft will be assessed the market value of the seized shellfish. Assessed penalty funds will be deposited into an account created by DNREC for the purpose of reimbursing the lease holders for their losses of shellfish that occur from the theft in question.
11. **Intentional damage:** The fine for the intentionally removing or intentionally damaging equipment on a leased aquaculture site shall be \$500, plus the replacement value of the equipment so damaged or removed. DNREC shall determine by investigation whether the damage of said aquaculture equipment was intentional or accidental, and if deemed intentional, the person or persons shall be charged according to this statute. Subsequent offenses shall result in a \$1,000 fine per offense, plus license suspension and/or vacating of any leases held by the convicted party.
12. **Regulatory authority:** DNREC is authorized to adopt, promulgate, amend, and repeal regulations consistent with the law, including but not limited to:
  - a. Issue and administer leases, licenses and permits to engage in shellfish aquaculture and to revoke said licenses or permits for due cause.
  - b. To add acreage for shellfish aquaculture from areas not previously identified by DNREC as suitable for shellfish aquaculture, as long as all state and federal criteria are met, and the percentages in #3 above are not exceeded.
  - c. To inspect and approve vessels and equipment intended to be used in Inland Bays waterways in support of the shellfish aquaculture industry.
  - d. To prevent and control the spread of shellfish-borne diseases among both shellfish aquaculture products as well as wild shellfish and to provide for the sanitary harvest, handling, transportation, processing, production, and sale of shellfish aquaculture products and wild shellfish.
  - e. To inspect and approve the importation of any live or dead shellfish and/or seed-on-cultch material to be used for shellfish aquaculture purposes.

- f. To identify areas where shellfish aquaculture leases may be established and to set criteria for the approval of shellfish aquaculture leases that are compatible with and do not adversely impact existing uses like commercial and recreational fishing and boating.
- g. To establish criteria for the approval or denial of any requests to conduct shellfish aquaculture outside of identified shellfish aquaculture lease sites.
- h. To establish criteria for what constitutes active use of a shellfish aquaculture lease site and the criteria that define the abandonment of a shellfish lease site, and for the release of this acreage into the inventory of leasable shellfish aquaculture sites.
- i. To set marking requirements for shellfish aquaculture leases and any equipment moored on, suspended above, or placed on sub-aqueous bottom in Delaware's Inland Bays.
- j. To establish reporting requirements for shellfish planted or harvested from aquaculture lease sites.
- k. To approve which species of shellfish may be used for aquaculture purposes in the Inland Bays.
- l. To establish seasonal restrictions on when leased shellfish aquaculture sites may be actively worked.
- m. To establish density methodologies that will allow shellfish aquaculture lease sites to be identified.

# Resolution Supporting Legislation

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## **AN ACT TO AMEND CHAPTERS 19, 21, AND 24 OF TITLE 7 OF THE DELAWARE CODE AND TO ADD A NEW CHAPTER TO TITLE 7 ENTITLED SHELLFISH AQUACULTURE IN DELAWARE'S INLAND BAYS CHAPTER 20. GENERAL PROVISIONS.**

WHEREAS, Delaware is the only East Coast state that does not have a shellfish aquaculture industry; and

WHEREAS, Delaware's Inland Bays (Rehoboth, Indian River, Little Assawoman, and Delaware's portion of Big Assawoman Bay) have been shown to be suitable for the growth and survival of commercial shellfish species such as oysters and hard clams; and

WHEREAS, Delaware's Inland Bays are water quality impaired and would benefit from the filtering capability of additional bivalve shellfish; and

WHEREAS, there are potential economic benefits from the fostering of a new industry in eastern Sussex County that is compatible with pre-existing recreational uses; and

WHEREAS, the Department of Natural Resources and Environmental Control historically is the agency best qualified to oversee development, regulation, and enforcement of commercial shellfish harvest and the safety of these food sources to the consuming public; and

WHEREAS, the Department of Natural Resources and Environmental Control has historically been the lead agency in issuing leases of shellfish grounds and in issuing permits for structures erected on or over sub-aqueous bottoms in conjunction with the U.S. Army Corps of Engineers so as to avoid potential navigational hazards; and

WHEREAS, the Department of Agriculture historically is the state agency best suited to the support and marketing of a new form of animal husbandry; and

WHEREAS, area restaurants and chambers of commerce welcome the idea of more locally produced shellfish, especially during those times of year when wild-caught shellfish are unavailable locally; and

WHEREAS, the Center for the Inland Bays in conjunction with the Department of Natural Resources and Environmental Control, the Delaware Department of Agriculture, the University of Delaware Sea Grant Marine Advisory Service, the Sussex County Economic Development Office, and with the participation of recreational and commercial fishing interests have met extensively and publicly to foster a broad coalition that supports the establishment and nurturing of a shellfish aquaculture industry in the Inland Bays;

### **NOW THEREFORE:**

BE IT ENACTED BY THE GENERAL ASSEMBLY OF THE STATE OF DELAWARE:



# Legislation Synopsis

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Delaware is the only state on the East Coast of the United States that does not have a shellfish aquaculture industry. Shellfish aquaculture can provide significant economic benefits to coastal communities while improving the water quality and enhancing the habitat value of Delaware's most imperiled estuaries, the Inland Bays. This bill is designed to minimize conflicts with existing uses of the Inland Bays. It authorizes the Department of Natural Resources and Environmental Control to direct and control the shellfish aquaculture activities within the Inland Bays and to set criteria for the approval of lease sites and applications for leasing. The legislation also gives the Department the authority to collect fees for lease applications and to administer a harvester license. The bill sets lease fees and harvester license fees, establishes term limits on leases, sets penalties for non-compliance with the provisions of the bill, defines illegal gear, stipulates what is to be the disposition of abandoned lease sites, and defines what would constitute theft or tampering with gear legally set on leased sites. The legislation also authorizes the Department to promulgate regulations on issuing and administering leases, including the revocation of leases for cause. It further gives the Department regulatory authority over determining: what species may be cultured and where, adding acreage to approved lease sites, the required marking and inspection of lease sites, limits on the type and nature of gear that may be used on lease sites, what would constitute abandonment of lease sites and disposition of gear left on abandoned sites, seasonal restrictions on working on lease sites, prevention and control of shellfish-borne diseases, and criteria for importation of shellfish to be used for aquaculture purposes in order to protect wild shellfish.

## DRAFT



[HOME](#) > [TITLE 7](#)

[§ 1901](#)[§ 1902](#)[§ 1903](#)[§ 1904](#)[§ 1905](#)[§ 1906](#)[§ 1907](#)[§ 1908](#)[§ 1909](#)  
[§ 1910](#)[§ 1911](#)[§ 1912](#)[§ 1913](#)[§ 1914](#)[§ 1915](#)[§ 1916](#)[§ 1917](#)[§ 1918](#)[§ 1919](#)  
[§ 1920](#)

### **TITLE 7**

#### **Conservation**

#### **Shellfish**

#### **CHAPTER 19. GENERAL PROVISIONS**

#### **§ 1901. Definitions.**

The following definitions shall apply to Chapters 19 through 28 inclusive of this title:

(1) "Bivalve shellfish" means any species of shellfish having two shells connected by a hinge.

(24) "Commercial purpose" means a person's intent to sell shellfisheries to another.

(32) "Crab pot" means a cube shaped wire device that contains opening or openings toward the inside for the entrance and capture of crabs without the assistance of any manually exerted tension to any closing mechanism.

(43) "Culled" means separated live shellfish from all other material and organisms.

(54) "Cultivation" means the process of preparing and/or improving shellfish grounds to foster the growth and survival of shellfish.

(65) "Department" means Department of Natural Resources and Environmental Control.

(7) "Delaware's Inland Bays" shall mean Rehoboth Bay, Indian River and Indian River Bay and Little Assawoman Bay and Big Assawoman Bay and their respective tributaries.

(86) "East line" means a political division of the Delaware Bay along a line running due east from the Port Mahon lighthouse (Delaware State Plan Coordinates: N431, 537.3600, E504, 396.9600).

(97) "Hand tongs" means any grasping device consisting of 2 pieces joined at 1 end of a pivot and manipulated by physical exertion of a person.

(108) "Market oysters" means oysters harvested for sale to another for consumption.

(119) "Mean high water" means the level of the water surface which is an average of the highest daily tides over a period of at least 29 days.

(120) "Mechanical device" means an apparatus operated by a machine used to take shellfish.

(134) "Natural oyster beds" means those shellfish grounds designated to be "natural oyster beds" by the Department.

(142) "Nonresident" means any person not an alien who has not continuously resided for 1 year within this State.

(153) "Patent tongs" means any grasping device consisting of 2 pieces joined at 1 end by a pivot and raised with a rope, cable or other hoisting device used to take shellfish.

(164) "Person" means a human being.

(175) "Public tonging area" means any shellfish ground designated by the Department to be used for the tonging of oysters in areas exclusive of Delaware's Inland Bays.

(186) "Resident" means any person not an alien who has continuously resided 1 year or more within this State.

(197) "Secretary" means the Secretary of the Department of Natural Resources and Environmental Control or a duly authorized designee provided any such delegation of authority is consistent with Chapter 80 of Title 29.

(2018) "Shellfish" means any molluscka, crustacea and chelicerata that includes oysters, clams, lobsters, mussels, whelks, bay scallops, crabs, shrimp and horseshoe crabs.

(2149) "Shellfishing" means to attempt to take, catch, kill or reduce to possession any shellfish by any means whatsoever.

(22) "Shellfish aquaculture" means the culture or rearing of any life stage of bivalve shellfish for commercial purposes within an area leased for that purpose. Within the leased area, said shellfish may be reared in an artificial enclosure, or on any other type of structure or substrate, either on land or in the water.

(230) "Shellfish grounds" means the submerged lands of the rivers, bays and oceans sustaining or capable of sustaining shellfish under the jurisdiction of the State.

(241) "Spat" means immature oysters.

60 Del. Laws, c. 513, § 2; 64 Del. Laws, c. 243, § 1; 67 Del. Laws, c. 194, §§ 2, 3; 68 Del. Laws, c. 33, § 1; 69 Del. Laws, c. 284, § 1; 70 Del. Laws, c. 186, § 1.

## **§ 1902. Duties of Department; powers; making and enforcing regulations.**

(a) The Department shall have control and direction of the shellfish industry and of the protection of shellfish resources throughout this State. The Department may adopt, promulgate, amend and repeal regulations consistent with the law, which shall be enforced by the Department or any peace officers for the following purposes:

(1) To preserve and improve the shellfish industry of this State;

(2) To prevent and control the spread of shellfish-borne diseases by providing for the sanitary harvesting, handling, transportation, processing, production and sale of shellfish;

(3) To regulate, inspect and approve any vessel or equipment used in the shellfish industry in this State;

(4) To provide for the issuance of licenses or leases to persons engaged in the shellfish industry in this State and for the revocation for cause of such licenses or leases;

(5) To provide for the preservation and improvement of the shellfish resources of this State, when deemed necessary.

(b) The regulations of the Department shall have the force and effect of law and shall supersede all local ordinances and regulations enacted or adopted which are inconsistent therewith.

(c) For the purpose of enforcing the marine fisheries laws on the waters under the jurisdiction of the State, the Department shall keep and maintain suitable vessels to patrol these waters. The patrol vessel shall be subject to call at all times to enforce the marine fisheries laws of the State. On board the patrol boats shall be kept log books in which shall be recorded the daily activities of all the functions performed on any work day.

*7 Del. C. 1953, § 1907; 51 Del. Laws, c. 151, § 1; 57 Del. Laws, c. 739, §§ 91, 92; [60 Del. Laws, c. 513, § 2](#); [70 Del. Laws, c. 588, § 1](#);*

### **§ 1903. Filing of regulations.**

A copy of the regulations adopted pursuant to this chapter and any amendments thereto shall be filed in the office of the Secretary of State. The regulations of the Department shall be published by the Department in convenient form and distributed to or made available to all persons shellfishing in Delaware who request this information.

*7 Del. C. 1953, § 1907; 51 Del. Laws, c. 151, § 1; 57 Del. Laws, c. 739, §§ 91, 92; [60 Del. Laws, c. 513, § 2](#);*

## **§ 1904. Unlawful taking of shellfish.**

(a) It shall be unlawful to take any shellfish from any waters or shellfish grounds of this State unless specifically authorized by statute or regulation.

(b) Except on leased shellfish aquaculture sites, it is unlawful to take or attempt to take shellfish, except crabs, conchs (whelks) and clams, for commercial purposes on Sundays, provided however, that clams may not be taken for commercial purposes on any Sunday between and including this State's designated Memorial Day and Labor Day, next ensuing.

(c) It shall be unlawful to take shellfish for commercial purposes between sunset and sunrise, except a commercial crab pot licensee or a commercial conch pot licensee may take blue crabs or conchs, respectively, 1 hour before sunrise.

[60 Del. Laws, c. 513, § 2; 67 Del. Laws, c. 2, § 1; 67 Del. Laws, c. 194, § 4; 68 Del. Laws, c. 412, §§ 1, 2; 69 Del. Laws, c. 284, §§ 2, 3;](#)

## **§ 1905. Leases.**

(a) Authorized lease of shellfish grounds. -- The Department is hereby authorized to lease, in the name of the State, tracts or parcels of shellfish grounds to be used for protecting, planting and harvesting shellfish beneath the waters of this State, subject to the provisions, limitations and restrictions set forth herein.

(b) Shellfish grounds not leasable. -- No lease, other than a scientific lease, shall be granted for any of the following shellfish grounds of this State, nor shall any person acquire by lease, assignment, appropriation or otherwise any of the following shellfish grounds:

(1) Except in the case of shellfish aquaculture in Delaware's Inland Bays, shellfish grounds within 1,000 feet of the natural shoreline (mean high water) of any waters under the jurisdiction of the State;

(2) Natural oyster beds;

(3) Any leasing of shellfish aquaculture grounds in Delaware's Inland Bays shall be governed by a separate chapter.

~~(3) Shellfish grounds within the confines of Indian River, Indian River Bay or Rehoboth Bay until the completion of the following:~~

~~a. The current shellfish survey being conducted by the Department of Natural Resources and Environmental Control is completed;~~

~~b. Two public hearings regarding the shellfish management plan for Indian River, Indian River Bay and Rehoboth Bay have been held at the City of Rehoboth Beach; and~~

~~c. The General Assembly, by concurrent resolution, approves the shellfish management plan submitted by the Department of Natural Resources and Environmental Control for the commercial harvesting and recreational harvesting of shellfish within Indian River, Indian River Bay and Rehoboth Bay.~~

(c) Scientific use of shellfish grounds. -- The Secretary is hereby authorized to issue a permit in the name of the State to educational and/or scientific institutions for tracts or parcels of shellfish grounds to be used for scientific and/or management purposes determined by the Secretary to be in the best interests of shellfisheries management. Such permit shall contain at least the following information and criteria: Seasonal dates, seasonal harvest, size limits and the reason for the issuance of the permit. The cost of processing shall be paid by the applicant.

*7 Del. C. 1953, § 1908; 51 Del. Laws, c. 151, § 1; 57 Del. Laws, c. 640; 57 Del. Laws, c. 739, § 93; 58 Del. Laws, c. 107, § 1; [60 Del. Laws, c. 513, § 2](#);*

#### **§ 1906. Size and advertising of shellfish grounds; application for lease.**

(a) Except in the case of shellfish aquaculture leases on Delaware's Inland Bays, nNo new shellfish grounds shall be leased to any person in tracts consisting of less than 50 or more than 100 acres. All new leases will be in a general rectangular shape. The restriction contained in this subsection shall not apply to those leases granted for scientific purposes as described in § 1905(c) of this title.

(b) Except in the case of shellfish aquaculture leases on Delaware's Inland Bays, tThe Department shall annually advertise the general locations of shellfish grounds which may be leased and are not currently subject to a valid lease. Such advertisements shall be in 1 daily newspaper of statewide distribution and shall be published on 2 separate occasions at least 30 days apart between January 1 and March 1 of each calendar year. Upon specific request, the Department shall furnish a more detailed description of the specific shell-lands available for lease.

(c) Except in the case of shellfish aquaculture leases on Delaware's Inland Bays, aAny person wishing to lease shellfish grounds in accordance with this section shall make application to the Department prior to March 15 on the form which shall be provided by the Department. Each application must be complete. The Department may require additional and/or supplemental information if deemed necessary.

(d) Except in the case of shellfish aquaculture leases on Delaware's Inland Bays, iIn the event that more than 1 application is received for the same grounds, the grounds will be leased on a competitive sealed bid over and above the base fee for the first year.

[60 Del. Laws, c. 513, § 2.](#)

#### **§ 1907. Fees for lease.**

(a) Except in the case of shellfish aquaculture in Delaware's Inland Bays, tThe Department shall charge \$0.90 per acre annually for shellfish grounds leased pursuant to this chapter to a resident of the State.

(b) Except in the case of shellfish aquaculture in Delaware's Inland Bays, tThe Department shall charge \$11.50 per acre annually for new shellfish grounds leased pursuant to this chapter to nonresidents.

(c) Except in the case of shellfish aquaculture in Delaware's Inland Bays, tThe Department shall charge \$1.75 per acre annually for shellfish grounds to nonresidents who hold valid leases at the time of adoption of this chapter.



(d) Except in the case of shellfish aquaculture in Delaware's Inland Bays, in addition to the above application fee for a shellfish ground lease, there will be an additional charge of \$17.25 per corner within 60 days of the approval and acceptance of a lease. The Department will inspect all corners for said leased grounds and where necessary will assist in the relocation of buoys to their correct location. All corners will be located in accordance with the lease as filed with the Department.

*7 Del. C. 1953, § 1908; 51 Del. Laws, c. 151, § 1; 57 Del. Laws, c. 640; 57 Del. Laws, c. 739, § 93; 58 Del. Laws, c. 107, § 1; [60 Del. Laws, c. 513, § 2](#); [67 Del. Laws, c. 260, § 1](#);*

#### **§ 1908. Term of leases.**

(a) Except in the case of Delaware's Inland Bays, all shellfish leases shall begin on January 1 and end December 31 of the same year. In no case shall a shellfish lease be transferred or subleased, except to a person eligible according to this chapter.

(b) Upon Department approval, a lease will be drawn up and executed by the Secretary and the applicant. Said lease shall be recorded with the Department and shall grant the exclusive shellfishing rights of those shellfish grounds to the lessee.

*7 Del. C. 1953, § 1908; 51 Del. Laws, c. 151, § 1; 57 Del. Laws, c. 640; 57 Del. Laws, c. 739, § 93; 58 Del. Laws, c. 107, § 1; [60 Del. Laws, c. 513, § 2](#); [71 Del. Laws, c. 245, § 1](#);*

#### **§ 1909. Actions subsequent to granting of lease.**

(a) Except in the case of shellfish aquaculture leases on Delaware's Inland Bays, upon approval of the application, the successful applicant will, within 30 days after location of the corners by the Department, mark all corners of the area leased with buoys or stakes approved by the Department. Such buoys or stakes shall, in addition to other requirements of the Department, extend vertically at least 6 feet above mean high water.

(b) Except in the case of shellfish aquaculture leases on Delaware's Inland Bays, any buoys, or stakes removed, destroyed or broken in such a manner that said buoys or stakes are less than 6 feet above mean high water shall be replaced with a positive flotation buoy within 5 days and subsequently a buoy or stake extending 6 feet above mean high water within 30 days.

*7 Del. C. 1953, § 1908; 51 Del. Laws, c. 151, § 1; 57 Del. Laws, c. 640; 57 Del. Laws, c. 739, § 93; 58 Del. Laws, c. 107, § 1; [60 Del. Laws, c. 513, § 2](#);*

#### **§ 1910. Monthly report; failure to submit.**

Except in the case of shellfish aquaculture in Delaware's Inland Bays, any person issued a commercial shellfishing license or permit by the Department shall file monthly reports of his or her catch by area, effort, species, and weight or number on forms provided by the Department. A commercial shellfishing license or permit holder who does not file said monthly report by 4:30 p.m. of the last working day of the month following the month for which the report is due may for the first failure to file be given a warning, for the second failure to file may have his or her commercial shellfishing license or permit suspended by the Secretary for a period of up to 30 days or until such time as the report is filed, whichever occurs sooner, and for a third or subsequent failure to file may have his or her commercial shellfishing license or permit revoked by the Secretary until such time when all reporting requirements are fulfilled in a manner acceptable to the Secretary.

*7 Del. C. 1953, § 1908; 51 Del. Laws, c. 151, § 1; 57 Del. Laws, c. 640; 57 Del. Laws, c. 739, § 93; 58 Del. Laws, c. 107, § 1; [60 Del. Laws, c. 513, § 2](#); [70 Del. Laws, c. 186, § 1](#); [71 Del. Laws, c. 436, §§ 1-3](#);*

#### **§ 1911. Removal of shellfish; presumptions.**

(a) It shall be unlawful for any person to take, carry away or remove shellfish or equipment from shellfish grounds leased, pursuant to this chapter, to a person other than himself or herself. If convicted, said person shall be guilty of grand or petty larceny according to the value of shellfish or equipment in question.

(b) For the purpose of determining the value of shellfish unlawfully removed, all shellfish found on board a vessel utilized in the removal of shellfish from grounds leased to another shall be presumed to have been unlawfully removed from those leased grounds.

(c) Any vessel on or over grounds leased to another shall be presumed to be removing shellfish from those grounds if that vessel has overboard at that time any device used for the taking of shellfish.

[60 Del. Laws, c. 513, § 2; 70 Del. Laws, c. 186, § 1.](#)

### **§ 1912. Penalties.**

(a) Any person who violates any of the provisions of Chapters 19, 21, 23, 24, 25 and 28 of this title, except §§ 1910, 1911, 2306, 2506, 2509, or any rules or regulations adopted pursuant thereto except those adopted under the auspices of Chapter 20, shall be fined \$25 for the first offense and \$100 for each offense thereafter. Magistrates shall have jurisdiction over all offenses under this section.

(b) Any person convicted of violating any of the provisions of Chapters 19, 21, 23, 24, 25, 26 and 28 of this title, or any rules or regulations adopted pursuant thereto, may have, upon the recommendation to the Secretary by the majority of the Council on Shellfisheries and/or at the discretion of the Secretary, any licenses or permits issued to the person revoked for a term to be determined by the Department.

[60 Del. Laws, c. 513, § 2; 69 Del. Laws, c. 284, § 1; 70 Del. Laws, c. 186, § 1; 71 Del. Laws, c. 73, §§ 1, 2; 73 Del. Laws, c. 132, § 2.](#)

### **§ 1913. Inspection and seizure.**

(a) Any employee, authorized by the Department, at a reasonable time may board any boat, inspect equipment, materials or shellfish, or lands associated with or used in the taking or cultivation of shellfish.

(b) The Department may seize any shellfish or equipment as evidence which is believed to be in violation of or is being used by a violator of Chapters 19 through 28 of this title or the regulations promulgated pursuant thereto. Seized equipment, at the discretion of the Department, may be released upon the posting of a bond, the value of which shall be determined by the magistrate.

[60 Del. Laws, c. 513, § 2; 69 Del. Laws, c. 284, § 1.](#)

#### **§ 1914. Disposition of evidence.**

In the event that any shellfish are seized as evidence as a result of an investigation or an arrest for any violation of the statutes or regulations governing shellfish in the State, said shellfish shall be disposed of as deemed appropriate by the Department.

[60 Del. Laws, c. 513, § 2.](#)

#### **§ 1915. Licensees with disabilities.**

In the event a person with a commercial shellfishing license is disabled and unable to perform the physical requirements necessary to harvest, transport and/or market shellfish for which he or she is licensed to harvest, said person may be issued a written permit by the Department authorizing a member of said person's immediate family, as defined in § 1918(c) of this title to assist said person or perform in place of said person the harvesting, transporting and marketing of the shellfish for a period or periods not exceeding a total of 24 months. The duration and nature of the disability shall be specified in writing by a medical physician licensed to practice in the State. The 24 months may be continuous or fragmented. For purposes of this section, the term "disabled" shall mean a person, certified in writing by a licensed medical physician in Delaware, to be temporarily unable to perform the substantial and material duties associated with the harvesting, transporting or marketing of the shellfish in question based upon medical evidence.

[73 Del. Laws, c. 28, § 1; 70 Del. Laws, c. 186, § 1.](#)

#### **§ 1916. Expiration of licenses and permits.**

All licenses and permits issued pursuant to Chapters 21 through 28 of this title shall automatically expire on December 31 of each calendar year.

[7 Del. C. 1953, § 1906; 51 Del. Laws, c. 151, § 1; 57 Del. Laws, c. 739, § 89; 60 Del. Laws, c. 513, § 2; 69 Del. Laws, c. 284, § 1; 71 Del. Laws, c. 245, § 3.](#)

#### **§ 1917. Reciprocity for commercial nonresident licenses.**

(a) This section applies to this title.

(b) When by or pursuant to the laws of any other state, should any other state impose any tax, other fee or restrictions on nonresidents for the privilege of commercial shellfishing or leasing of shellfish grounds within its boundaries, which tax or other fee is in the aggregate greater or restriction is greater, to include but limited to the nonavailability of license or leasing for nonresidents, the same taxes, other fees, license requirements and restrictions shall be imposed by the Division of Fish and Wildlife of the Department of Natural Resources and Environmental Control upon the residents of the state who seek to apply for a license to commercially shellfish or lease shellfish grounds within the boundaries of this State.

[60 Del. Laws, c. 513, § 2.](#)

#### **§ 1918. Limited entry and transfer of commercial crabbing licenses.**

(a) Notwithstanding the provisions of § 2303 of this title, the Department shall not issue any commercial crab pot license to any new licensee after March 13, 1990, and shall not issue crab pot licenses to any new licensee until the number of commercial crab pot licenses drops to 82 or below as of October 31 of any year. At that time, a lottery will be held by the Department to allow the number of commercial crab pot licenses to increase to 100.

(b) Notwithstanding the provisions of § 2307 of this title, the Department shall not issue any crab dredgers licenses to any new licensee after March 13, 1990, and shall not issue crab dredgers licenses to any new licensee until the number of crab dredgers licenses drops to 18 or below as of March 31 of any year. At that time, a lottery will be held by the Department to allow the number of crab dredgers licenses to increase to 21.

(c) A commercial crab pot licensee or crab dredgers licensee may transfer a license at any time, including posthumously, to a member of the immediate family. A member of the immediate family shall mean a parent, child, sibling or spouse. A commercial crab pot licensee also may transfer a license, including posthumously, to a designee provided the designee has been listed as same on the license for at least 2 consecutive years. The transfer of the appropriate license shall be in writing.

(d) Notwithstanding subsection (c) of this section, no license shall be transferred to any person under 16 years of age.

(e) An active commercial fisher with a commercial crab dredger's license may transfer his or her license to a commercial fishing apprentice who has completed no less than 150 days of commercial fishing activities over no less than a 2-year period.

[67 Del. Laws, c. 194, § 1](#); [70 Del. Laws, c. 186, § 1](#); [70 Del. Laws, c. 216, §§ 1, 2](#); [73 Del. Laws, c. 29, § 5](#); [78 Del. Laws, c. 42, §§ 1-3](#);

**§ 1919. Prohibition against the selling of both licenses and the privilege of being designated a designee; penalties.**

Repealed by 73 Del. Laws, c. 29, § 6, effective May 3, 2001.

**§ 1920. Apprenticeships.**

An individual at least 16 years of age may enter into an agreement with an active commercial fisher licensed by the Department to serve as a commercial fishing apprentice to said commercial fisher. This agreement shall be in writing on a form provided by the Department and filed with the Department. In the event an agreement is cancelled by either party, the Department shall credit an apprentice with time served and said time shall be retained if the apprentice signs an agreement with another active commercial fisher. An apprentice shall not enter into an agreement with more than 1 active commercial fisher at any 1 time and an active commercial fisher shall not enter into an agreement with more than 1 apprentice at any 1 time. An apprentice must complete no less than 150 days of commercial fishing activities over no less than a 2-year period to be eligible for the transfer or enter lotteries for certain commercial fishing licenses. Eight hours of commercial fishing activities shall equal 1 day. Commercial fishing activities shall include fishing, operating a vessel, maintaining fishing equipment or a vessel, handling and transporting fish for sale, or other activities directly associated with a commercial fishery. Fishing activities shall be documented on a daily log form provided by the Department. Said logs shall be signed by the apprentice and the commercial fisher listed on the agreement and witnessed by another commercial fisher licensed by the Department. Log sheets shall be submitted to the Department on a monthly basis on or before the tenth day of the following month. An apprentice who completes no less than 150 days of commercial fishing activities over no less than a 2-year period shall be eligible for the following:

(1) Commercial crab dredgers license transferred by another active commercial crab dredger;

(2) Commercial conch pot license transferred by another active commercial conch potter;

(3) Commercial conch dredge license transferred by another active commercial conch dredger;

(4) Commercial crab pot license transferred by another active commercial crab potter;

(5) Oyster harvesting license transferred from another active oyster harvester;

(6) Commercial clam tong/rake license transferred from another active commercial clam tong/raker;

(7) Commercial dredge clam license transferred from another active commercial clam dredger;

(8) Commercial lobster pot license transferred from another active commercial lobster potter;

(9) Commercial surf clam license transferred from another active commercial surf clammer;

(10) Commercial horseshoe crab collecting permit transferred from another active horseshoe crab collector;

(11) Participation in lotteries conducted by the Department for commercial crab dredgers licenses, commercial conch pot licenses and commercial conch dredge licenses; and

(12) Commercial food fishing equipment permits for gill nets and authority to commercially fish with hook and line according to the provisions of § 915(n) of this title.

If, during the previous calendar year, fewer commercial crab dredgers licenses are issued than in 1999, the Department shall conduct a lottery for the number of said licenses different from the number issued in 1999 and the previous year. In 1999, the Department issued 52 commercial conch pot licenses. If during the previous calendar year, fewer commercial conch dredge licenses are issued

than in 1999, the Department shall conduct a lottery for the number of said licenses different from the number issued in 1999 and the previous year. In 1999, the Department issued 15 conch dredge licenses.

[73 Del. Laws, c. 29, § 7;](#) [70 Del. Laws, c. 186, § 1;](#) [78 Del. Laws, c. 49, § 1.](#)





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Approved by Tiger Team 2/26/13

## **TITLE 7**

### **Conservation**

#### **Shellfish Aquaculture in Delaware's Inland Bays**

##### **CHAPTER 20. GENERAL PROVISIONS**

###### **§ 2001. Definitions.**

The following definitions shall apply to Chapters 19 through 28 inclusive of this title:

- (1) "Bivalve shellfish" means any species of shellfish having two shells connected by a hinge.
- (2) "Certified dealer" shall mean anyone who is certified by the Department as being qualified to sell shellfish products.
- (3) "Department" means Department of Natural Resources and Environmental Control.
- (4) "Delaware's Inland Bays" shall mean Rehoboth Bay, Indian River and Indian River Bay, Little Assawoman Bay, and Big Assawoman Bay and their respective tidal tributaries.
- (5) "Delaware partnership" shall mean a partnership comprised of at least 50% Delaware residents. If fewer than 50% of a partnership is comprised of Delaware residents, then the partnership shall be considered a non-resident partnership.
- (6) "Delaware corporation" shall mean a corporation or other legal entity whose ownership or Board of Directors is comprised of 50% or more Delaware residents. If fewer than 50% of the ownership or

Board of Directors of a corporation is comprised of Delaware residents, then the corporation shall be considered a non-resident corporation.

(7) "Handle shellfish" shall mean to take ownership either temporarily or permanently of a shellfish aquaculture product.

(8) "Off-bottom rearing cages and enclosures" mean any cage or artificial enclosure that retains for rearing purposes any stage of the life cycle of bivalve shellfish where such cage or enclosure is staked on or suspended above the bottom of the bay or tributary to the bay.

(9) "Secretary" means the Secretary of the Department of Natural Resources and Environmental Control or a duly authorized designee provided any such delegation of authority is consistent with Chapter 80 of Title 29.

(10) "Seed stock" shall mean immature or sub-legal stages of shellfish available for culturing or planting purposes.

(11) "Seed-on-cultch" shall mean bivalve shellfish seed attached to shell material.

(12) "Shellfish aquaculture" means the culture or rearing of any life stage of bivalve shellfish for commercial purposes within a leased area. Within the leased area, said shellfish may be reared in an artificial enclosure, or on any other type of structure or substrate, either on land or water.

(13) "Shellfish grounds for the purposes of this chapter" means the submerged lands of Delaware's Inland Bays and their tributaries capable of sustaining shellfish under the jurisdiction of the State.

## **§ 2002. Duties of Department; powers; making and enforcing regulations.**

(a) The Department is authorized to adopt, promulgate, amend and repeal regulations consistent with Titles 7 and 29 of Delaware code which shall be enforced by the Department for the following purposes:

(1) To issue and administer leases, licenses, and permits to engage in shellfish aquaculture and to amend or revoke said leases, licenses or permits for due cause;

(2) To identify areas where shellfish aquaculture leases may be established that are compatible with commercial and recreational finfishing and shellfishing, boating navigation and safety, public water access and use, and native biota. In no cases shall the sum total of areas identified for shellfish aquaculture leasing in Rehoboth Bay and Indian River Bay exceed 5% of their respective total sub-aqueous lands in each bay at mean high water and no more than 10% of the total sub-aqueous lands of Little Assawoman Bay at mean high water.

(3) To add acreage for shellfish aquaculture from areas not identified by the Department as long as all state and federal criteria for leasing are met and the percentage of sub-aqueous bottom available for leasing in each Inland Bay as detailed in §2002(a)(2) is not exceeded.

(4) To inspect and approve vessels and equipment intended to be used in Inland Bays waterways in support of the shellfish aquaculture industry;

(5) To attempt to prevent and control the spread of shellfish-borne diseases among both shellfish aquaculture products as well as wild shellfish and to provide for the sanitary harvesting, handling, transportation, processing, production and sale of shellfish aquaculture products and wild shellfish;

(6) To inspect and approve the importation of any live or dead shellfish and/or seed-on-cultch material to be used for shellfish aquaculture purposes conducted in or on waters of Delaware's Inland Bays or having a discharge into waters of Delaware's Inland Bays;

(7) To provide for the conservation, preservation and improvement of the wild shellfish resources of the Inland Bays or their tributaries when deemed necessary;

(8) To set criteria for the approval or denial of shellfish aquaculture leases in Delaware's Inland Bays;

(9) To establish criteria for the approval or denial of any requests to conduct shellfish aquaculture outside of identified shellfish aquaculture lease sites;

(10) To establish criteria for what constitutes active use of shellfish aquaculture lease sites and the criteria that define the abandonment of a shellfish aquaculture lease site, and for the release of the abandoned acreage into the inventory of available shellfish aquaculture lease sites;

(11) To establish marking requirements for shellfish aquaculture lease sites and any equipment moored on, suspended above, or placed on sub-aqueous lands leased for shellfish aquaculture purposes;

(12) To establish eligibility requirements for lease applicants and reporting requirements for shellfish planted and/or harvested from shellfish aquaculture lease sites;

(13) To approve the species of shellfish that may be used for aquaculture purposes in Delaware's Inland Bays;

(14) To establish the eligibility of shellfish seed stock proposed for planting on shellfish aquaculture leases, including consideration of the use of disease-free stock and the genetic make-up of the stock.

(15) To establish what types of mechanical gear may be used to harvest shellfish from identified shellfish aquaculture lease sites.

(16) To establish seasonal restrictions on when leased shellfish aquaculture sites may be actively worked.

(17) To approve methodologies to determine wild shellfish densities that will allow for prospective aquaculture lease sites.

(b) The regulations of the Department shall have the force and effect of law and shall supersede all local ordinances and regulations enacted or adopted which are inconsistent therewith.

### **§ 2003. Filing of regulations.**

A copy of the regulations adopted pursuant to this chapter and any amendments thereto shall be filed in the office of the Registrar of Regulations. The regulations of the Department shall be published by the Department in convenient form and distributed to or made available to all persons who request this information.

### **§ 2004. Unlawful taking of shellfish on areas leased for aquaculture purposes.**

(a) It shall be unlawful for anyone to take any bivalve shellfish from any shellfish aquaculture grounds leased to another unless specifically authorized in writing by the holder of said lease.

- (b) It shall be unlawful to harvest or remove bivalve shellfish from aquaculture lease sites including off-bottom cages and enclosures between sunset and sunrise.
- (c) It shall be unlawful to have both wild-caught bivalve shellfish and shellfish aquaculture products on the same vessel or to place wild-caught bivalve shellfish and shellfish aquaculture products in the same container prior to transfer to a licensed buyer or shellfish dealer.

#### **§ 2005. Leases.**

(a) Authorized lease of shellfish grounds. -- The Department is hereby authorized to lease, in the name of the State, tracts or parcels of shellfish grounds in Delaware's Inland Bays to be used for shellfish aquaculture beneath the waters of this State, subject to the provisions, limitations and restrictions set forth herein.

(b) Scientific use of shellfish grounds. -- The Secretary is hereby authorized to issue a lease in the name of the State to educational and/or scientific institutions or their designees for tracts or parcels of shellfish grounds to be used for scientific and/or educational purposes determined by the Secretary to be in the best interests of the shellfisheries aquaculture industry. Such a permit shall contain at least the following information and criteria: geographic location of the lease, species of shellfish being reared on the leased grounds, and the reason for the issuance of the lease. At no time may the aquaculture products produced on shellfish grounds leased for scientific purposes be sold or traded or offered for sale or trade. Importation of any shellfish or shellfish parts from areas outside of Delaware's Inland Bays must be approved in advance by the Department according to regulations filed by the Department. The cost of processing this application shall be paid by the applicant. Anyone deploying and leaving in place any equipment for scientific use of shellfish grounds in the Inland Bays shall conform to all applicable Department equipment marking requirements and shall be responsible for the removal of this equipment upon the termination of the scientific investigation.

#### **§ 2006. Size and advertising of shellfish grounds; application for lease.**

(a) No shellfish grounds shall be leased to any person or persons, partnerships or corporations in tracts consisting of less than 1 acre or more than 5 acres in Rehoboth and Indian River Bays combined. All leases shall be granted in minimum increments of 1 acre. An applicant may lease 1-5

acres in Little Assawoman Bay in addition to any acreage leased by the applicant in Rehoboth and Indian River Bay. All leases will be in a general rectangular shape. The initial offering of sites available for leasing shall be by public lottery conducted by the Department. Included in the lottery shall be all eligible applicants who indicate in writing before the published deadline their desire to participate in the lottery. Opportunity to participate in the lottery shall be duly noticed by the Department in a press release and publication of a legal notice in two newspapers of state-wide distribution at least 30 days prior to the lottery. The first participant selected in the lottery shall have first choice among available lease sites. The second participant selected shall have second choice. The third participant shall have third choice and so on until all available acreage for leasing has been assigned, or there are no more applicants remaining in the lottery. Subsequent to the initial lottery, potential lease sites shall be available for leasing on a first come, first serve basis.

(b) After three years from the date of issuance of the first lease, the Department shall decide by regulation if the size of leases issued to any one applicant may be increased beyond 5 acres. Those already holding leases shall have first right of refusal concerning adding to their acreage beyond 5 acres up to the maximum acreage allowed to any one applicant. The restriction contained in this subsection shall not apply to those leases granted for scientific purposes as described in § 2005(b) of this title.

(c) The Department shall annually make available to anyone requesting it the general locations of identified shellfish grounds which are available to be leased and are not currently subject to a valid lease. Upon specific request, the Department shall furnish a more detailed description of the remaining specific shellfish aquaculture sub-aqueous lands identified for lease.

(d) Any person wishing to lease shellfish grounds in accordance with this section shall make application to the Department on a form which shall be provided by the Department. Each application must be complete. The Department may require additional and/or supplemental information if deemed necessary.

(e) The Department shall have the final authority to approve a proposed lease in an area not identified for shellfish aquaculture by the Department, taking into consideration comments received at any public hearings relative to the proposed lease.

(f) In the event that more than 1 application is received for the same lease grounds, the grounds will be leased on a first come, first serve basis.

**§2007. Fees for lease.**

(a) The Department shall charge a one-time fee of \$300 for each shellfish aquaculture lease application received or each request for the transfer of an existing shellfish aquaculture lease. This fee is non-refundable even if the application is eventually rejected or withdrawn.

(b) The Department shall charge a Delaware resident or Delaware resident partnership or Delaware resident corporation an annual fee of \$100/acre for administration of a shellfish aquaculture lease.

(c) The Department shall charge a non-resident of this State or a non-resident partnership or non-resident corporation \$1,000/acre annually for administration of a shellfish aquaculture lease.

(d) All revenue generated by the fees in §2007 shall be deposited in an appropriated special fund account that shall be used to partially offset the expenses of the Department activities pursuant to this chapter.

**§2008. Term of leases.**

- (a) Shellfish aquaculture leases shall be renewable annually for a term of 15 years from the date of issue. In the event that the original lessee does not pay their annual leased acreage fee by December 31<sup>st</sup> of each year, then these formerly leased grounds will become part of the inventory of potential lease sites on a first come, first served basis. Lease holders may designate any portion of their lease acreage in minimum 1-acre increments to be released to the inventory of available lease acreage at any time during the calendar year. There shall be no refund of lease fees for any acreage so released.
- (b) At the end of 15 years from issuance of a lease, the original lessee shall have first right to renew the lease for another 15-year period. In the event that the original lessee or their designee fails to renew their lease for one or more acres of their original lease acreage, then after 60 days following the expiration date of the lease on the acreage in question, the acreage not renewed shall revert to the inventory of available lease sites. Any equipment on lease acreage that is not renewed must be removed by the original lease holder within 30 days after the termination of the lease, or it will be considered by the Department as abandoned.

- (c) It shall be lawful for any lease holder to transfer his or her lease to another eligible applicant at any time within 30 days after written notification is received and approved by the Department, provided such notification is signed and notarized by both the parties making and receiving the transfer. Any stipulations or restrictions placed by the Department on the lease site in question shall be binding for any subsequent holders of a lease for this particular lease site.

**§ 2009. Harvester licenses.**

- (a) For an annual fee of \$25 the Department shall issue and administer shellfish aquaculture harvester licenses to any qualifying individual desiring to work on leased shellfish aquaculture sites who is not the lease holder of the shellfish aquaculture sites. The Department shall establish by regulation the qualifications for obtaining a shellfish aquaculture harvesting license.
- (b) It shall be unlawful for any individual(s) working on a shellfish aquaculture lease site to not have at all times at least one person who is the holder of the lease for the site in question or one person having in his or her possession a valid shellfish aquaculture harvest license.
- (c) It shall be unlawful for any licensed shellfish harvester to work on any shellfish aquaculture lease site without first obtaining the written permission of the lease holder for the site in question. Such written permission from the lease holder shall be in the possession of the shellfish aquaculture harvester licensee at all times while working on the lease site in question.

**§ 2010. Reports; failure to submit.**

- (a) Shellfish aquaculture lessees shall file reports on the number of shellfish planted on any leased areas in a manner and frequency as specified by Department regulation, but shall include as a minimum the number of bivalve shellfish planted and number subsequently harvested annually.
- (b) Any lease holder who fails to submit timely reports shall be charged with a Class D misdemeanor for a first offense and fined \$25-\$100. Anyone convicted of a second offense within two years of the first offense for failure to report in a timely fashion shall be charged with a Class B misdemeanor and fined \$250-\$1,000. Anyone convicted of a third offense for failure to report within two years of a second



offense for failure to report will be subject to having their lease revoked by the Department.

**§ 2011. Unlawful removal of shellfish or tampering with shellfish aquaculture equipment; presumptions, illegal harvesting gear.**

- (a) It shall be unlawful for any person to intentionally tamper with, damage, take, carry away or remove shellfish or shellfish equipment from shellfish grounds leased, pursuant to this chapter, to a person other than himself or herself. If convicted, this person shall be guilty of grand or petty larceny according to the value of shellfish or equipment in question. In the case of shellfish grounds leased by a corporation, it shall be unlawful for any individual to remove shellfish from leased shellfish grounds unless the individual is a bona fide employee of or member of the corporation or is acting on behalf of the corporation that holds the lease to the shellfish grounds in question.
- (b) Anyone convicted of damaging or removing equipment lawfully placed for shellfish aquaculture on a leased site may, at the discretion of the appropriate Court, be required to make restitution to the lease holder in the amount of the replacement value for the equipment so damaged or removed.
- (c) For the purpose of determining the value of shellfish unlawfully removed, all shellfish found on board a vessel utilized in the removal of shellfish from grounds leased to another shall be presumed to have been unlawfully removed from those leased grounds.
- (d) Any vessel or person on or over grounds leased to another shall be presumed to be removing shellfish from those grounds if that vessel or person has overboard or in his or her possession at that time any device used for the taking of shellfish, subject to the discretion of the investigating Department officer.
- (e) It shall be unlawful to sell or transfer aquaculture products to a final customer or consumer that has not been handled by a certified shellfish dealer/processor.

**§ 2012. Penalties.**

(a) Any person convicted of violating any of the provisions of Chapters 20 or regulations promulgated pursuant thereto shall have committed a class B misdemeanor subject to a fine of from \$250 to \$1,000 for the first offense and \$1,000 for each offense thereafter.

(b) Any person convicted of a second offense for violating any of the provisions of Chapter 20 of this title, or any rules or regulations adopted pursuant thereto, may have, at the discretion of the Secretary, any licenses or leases issued to the person(s), partnership or corporation revoked for a term to be determined by the Department.

[(c) All revenue generated by the fines in §2012 shall be deposited in an appropriated special fund account that shall be used to partially offset the expenses of the Department activities pursuant to this chapter.

### **§ 2013. Inspection and seizure.**

(a) Any employee, authorized by the Department, may board any boat, and inspect equipment, materials or shellfish, or leased sub-aqueous lands associated with or used in the taking or culture of shellfish for aquaculture purposes.

(b) The Department may seize any shellfish or equipment as evidence which is believed to be in violation of or is being used by a violator of Chapters 19 through 28 of this title or the regulations promulgated pursuant thereto. Seized equipment, at the discretion of the Department, may be released upon the posting of a bond, the value of which shall be determined by the court having jurisdiction over the case.

(c) In the event that any bivalve shellfish are seized as evidence as a result of an investigation or arrest for any violation of the statutes in Chapter 20 of this Title or Department regulations governing shellfish aquaculture, these shellfish shall be destroyed and disposed of as deemed appropriate by the Department. The lessee in consultation with the court of record shall determine the fair market value of the shellfish that were seized.

(d) In addition to being subject to the penalties of § 2012, anyone convicted of illegally removing bivalve shellfish products from a leased aquaculture site shall be assessed the fair market value of the shellfish so seized. [Note: The intent here is to have the court award damages to the lease holder for both the aquaculture products seized and any equipment belonging to the lease holder that was damaged by the accused. Legal help is needed for the particular wording].

(e) Undamaged equipment that is seized by the Department shall be made available to the rightful owner as expeditiously as possible, provided the rightful owner can be identified with a reasonable amount of effort. If the rightful owner cannot be readily located or does not claim his or her equipment within 30 days of removal or the final disposition the case, this equipment shall be considered abandoned and will be disposed of by Department procedures.

(f) Any shellfish aquaculture equipment that the Department determines is abandoned as defined by Department regulation, which is not claimed by its owner within 30 days after its removal or disposition of the case by the court having jurisdiction, shall be disposed of according to Department procedures for the disposition of abandoned equipment and the funds from the public sale of abandoned equipment shall be deposited into an appropriated special fund account that the Department maintains to partially offset the Department's costs associated with administering this Chapter.

#### **§2014. Expiration of licenses and permits.**

All shellfish harvester licenses for a given year shall expire on the last day of the calendar year.

#### **§ 2015. Reciprocity for nonresident leases and licenses.**

When by or pursuant to the laws of any other state, should any other state impose any tax, other fee or restrictions on nonresidents for the privilege of commercial shellfish aquaculture or leasing of shellfish aquaculture grounds within its boundaries, which tax or other fee is in the aggregate greater or restriction is greater, to include but limited to the non-availability of license or leasing for nonresidents, the same taxes, other fees, license requirements and restrictions shall be imposed by the Department upon the residents of the state who seek to apply for a license to lease shellfish aquaculture grounds within the boundaries of the Inland Bays of this State.

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**TITLE 7**

**Conservation**

**Shellfish**

**CHAPTER 21. OYSTERS**

**§ 2101. Oyster harvesting license.**

Except in the case of shellfish aquaculture leases on Delaware's Inland Bays pursuant to Chapter 20, it shall be unlawful for a person to harvest oysters from the natural oyster beds or from leased shellfish grounds in the State unless said person has been issued an oyster harvesting license by the Department.

(1) An oyster harvesting license shall be valid only on the vessel listed on said license by the Department. The Department shall not simultaneously list a vessel on more than 3 oyster harvesting licenses.

(2) The Department may list no more than 1 person as an apprentice on an oyster harvesting license.

(3) The fee for an oyster harvesting license shall be \$57.50 for residents of this State.

(4) The fee for an oyster harvesting license shall be \$575.00 for nonresidents of this State.

(5) The Department shall not issue any oyster harvesting licenses to any new licensee after June 30, 2011.

(6) An oyster harvesting license shall automatically expire on December 31 of each calendar year. If a person does not renew a

license within 1 year of expiration of any oyster harvesting license such person forfeits any right to such license.

(7) An oyster harvesting licensee may transfer a license at any time, including posthumously, to a member of the immediate family. A member of the immediate family shall mean a parent, child, sibling or spouse. The transfer of the license shall be in writing.

[60 Del. Laws, c. 513, § 2; 71 Del. Laws, c. 245, §§ 4, 5; 73 Del. Laws, c. 132, § 1; 78 Del. Laws, c. 55, § 1.](#)

## **§ 2102. Natural oyster beds.**

(a) It shall be unlawful for a person to harvest oysters from the natural oyster beds at any time except as specifically authorized by the Department.

(b) The Department shall determine on an annual basis the amount of oysters available for harvest from specific natural oyster beds by analyzing the best available scientific data on said oysters.

[60 Del. Laws, c. 513, § 2; 73 Del. Laws, c. 132, § 1.](#)

## **§ 2103. Eligibility to harvest oyster for direct sale.**

(a) It shall be unlawful for a person to harvest oysters from the natural oyster beds for direct sale unless said person meets 1 of the following criteria:

(1) Held at least 2 specific commercial shellfish licenses on September 30, 1999;

(2) Held an oyster harvesting license to harvest oysters from natural oyster beds in Delaware prior to September 30, 1999;

(3) Held a public oyster tonger's license to take oysters from public tonging areas in Delaware prior to September 30, 1999;

(4) Held an oyster harvesting license and was eligible to harvest oysters for direct sale pursuant to this section prior to June 30, 2011;

(5) An oyster harvesting license has been transferred to such person pursuant to § 2101(7) of this title and the prior holder of such

license was eligible to harvest oysters for direct sale pursuant to this section; or

(6) An oyster harvesting license was transferred to such person pursuant to § 1920 of this title and the prior holder of such license was eligible to harvest oysters for direct sale pursuant to this section.

(b) "Direct sale" shall mean to immediately sell or attempt to sell oysters harvested from the State's natural oyster beds to another person.

(c) It shall be unlawful for a person to harvest oysters from the natural oyster beds for subsequent use other than direct sale.

[73 Del. Laws, c. 132, § 1; 70 Del. Laws, c. 186, § 1; 78 Del. Laws, c. 55, §§ 2, 3;](#)

#### **§ 2104. Oyster harvesting methods.**

(a) It shall be unlawful for a person to use any hydraulic dredge or mechanical device employing a vacuum or suction for the harvesting of oysters from any natural oyster bed without the prior written permission of the Department.

(b) It shall be unlawful for a person to harvest oysters from the State's natural oyster beds without immediately culling said live oysters from all shell and other materials and returning said shell and other materials to the State's natural oyster beds. Oysters shall be culled as aforesaid so that 2 bushels of oysters shall not contain more than 5 percent shells and other materials.

*7 Del. C. 1953, §§ 2105, 2111; 51 Del. Laws, c. 151, § 1; 58 Del. Laws, c. 107, § 2; [60 Del. Laws, c. 513, § 2; 73 Del. Laws, c. 132, § 1;](#)*

#### **§ 2105. Oyster harvest fees and tags.**

[Except where otherwise noted, nothing in this section shall apply to oyster aquaculture products harvested from leased sites on Delaware's Inland Bays:](#)

(a) An annual oyster harvest fee of \$1.25 per bushel of oysters harvested from the State's natural oyster beds shall be prepaid to the

Department by a resident of this State on or before specific dates established by the Department.

(b) An annual oyster harvest fee of \$12.50 per bushel of oysters harvested from the State's natural oyster beds shall be prepaid to the Department by nonresidents of the state area before specific date or dates established by the Department.

(c) A person's total oyster harvest fees shall be determined by dividing the number of bushels of oysters authorized to be harvested in a given year by the number of eligible persons who sign up to participate in the oyster harvest during said year multiplied by the appropriate oyster harvest fee.

(d) The Department shall issue tags to those persons who prepay their annual oyster harvest fees at the rate of 1 tag per bushel or 1 tag per 30 bushel cage.

(e) The Department shall notify each person who has been issued an oyster harvesting license of the amount of oysters available for harvest during a given year.

(f) Oyster harvesting tags, once issued to a person by the Department, shall not be reimbursable or transferable.

(g) It shall be unlawful for a person who harvests oysters from the natural oyster beds of this State for direct sale to not place said oysters in a bushel bag or 30 bushel cage prior to landing said oysters. "Landing" shall mean to bring to shore.

(h) It shall be unlawful for a person who harvests oysters from the natural oyster beds of this State for direct sale to not attach an oyster harvesting tag in the locked position to a bushel bag or 30 bushel cage containing oysters prior to landing said oysters.

(i) It shall be unlawful for a person to attach an oyster harvesting tag which had been previously attached to a bushel bag or a 30 bushel cage to another bushel bag or 30 bushel cage.

(j) It shall be unlawful for any person to have any bushel bag or 30 bushel cage that is empty or partially filled with oysters on board a vessel that has an oyster harvesting tag attached.

(k) It shall be lawful for anyone with a valid oyster harvesting license to transfer oyster harvesting tags to another licensed oyster harvester authorized to participate in the oyster harvesting season, provided said transfer is made prior to said tags being issued by the Department. All transfers shall be in writing on forms supplied by the Department.

*7 Del. C. 1953, § 2111; 58 Del. Laws, c. 107, § 2; [60 Del. Laws, c. 513, § 2](#); [73 Del. Laws, c. 132, § 1](#); [78 Del. Laws, c. 41, § 1](#);*

#### **§ 2106. Authority.**

(a) The Department is authorized to adopt shellfish regulations to establish the dates for annual open seasons to harvest oysters from the State's natural oyster beds.

(b) The Department is authorized to adopt shellfish regulations to establish the areas where oysters that are harvested from the State's natural oyster beds for direct sale shall be landed.

(c) The Department is authorized to adopt shellfish regulations to govern the type and amount of gear or equipment that may be used to harvest oysters from the State's natural oyster beds.

(d) The Department is authorized to adopt shellfish regulations to establish a minimum size of oysters for harvest.

(e) The Department is authorized to adopt shellfish regulations to establish an annual oyster harvest quota.

*[73 Del. Laws, c. 132, § 1](#); [70 Del. Laws, c. 186, § 1](#);*

#### **§ 2107. Oyster Recovery Fund.**

(a) There is hereby established an Oyster Recovery Fund which shall be funded from the following sources:

(1) Fee received by the Department for oyster harvesting licenses;

(2) Revenue received by the Department for oyster harvest fees; and



(3) Fees received for leasing shellfish grounds in Delaware Bay.

(b) Oyster Recovery Funds shall be used by the Department for the following:

- (1) To purchase shells to be placed on natural oyster beds;
- (2) To purchase oysters to be placed on natural oyster beds;
- (3) To conduct research on oysters; and
- (4) To transfer oysters from one natural bed to another.

[73 Del. Laws, c. 132, § 1; 70 Del. Laws, c. 186, § 1.](#)

#### **§ 2108. Importation of oysters prohibited.**

It shall be unlawful for a person to bring oysters from outside the State to be placed in the waters of the State without the prior written permission of the Department.

[73 Del. Laws, c. 132, § 1; 70 Del. Laws, c. 186, § 1.](#)

#### **§ 2109. Oyster harvesting from private leased beds.**

(a) [Except in the case of shellfish aquaculture leases on Delaware's Inland Bays,](#) it shall be unlawful for any person to harvest oysters from leased shellfish grounds unless said person notifies the Department of said harvest at least 48 hours prior to harvesting oysters from leased shellfish grounds.

(b) It shall be unlawful for any person to harvest oysters from natural oyster beds on any date said person notified the Department when he or she would be harvesting oysters from leased shellfish grounds.

[73 Del. Laws, c. 132, § 1; 70 Del. Laws, c. 186, § 1.](#)



**DRAFT**

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## **TITLE 7**

### **Conservation**

#### **Shellfish**

##### **CHAPTER 24. HARD CLAMS (MERCENARIA MERCENARIA)**

###### **§ 2401. Minimum size.**

It shall be unlawful for any person to possess hard clams taken from the waters under the jurisdiction of the State which measure less than 1 1/2 inches. Any commercial measure of hard clams shall not contain more than 5% clams that are less than 1 1/2 inches.

[60 Del. Laws, c. 513, § 2.](#)

###### **§ 2402. Commercial clam tong/rake license.**

It shall be unlawful for any person to tong or to rake clams for commercial purposes in this State unless said person has applied for and secured from the Department and has in his or her possession a valid clam tong/rake license. The fee for a commercial clam tong/rake license shall be \$57.50 for residents and \$575 for nonresidents. A commercial clam tong/rake license will entitle the holder to harvest a maximum number set by Department regulations.

[60 Del. Laws, c. 513, § 2](#); [67 Del. Laws, c. 260, § 1](#); [70 Del. Laws, c. 186, § 1](#).

###### **§ 2403. Area permitted; method of taking under clam tong/rake license.**

(a) It shall be unlawful to take clams from any leased shellfish grounds or contaminated area, as determined by the Department, in Delaware Bay, Indian River and Bay, Rehoboth Bay, Little and Big Assawoman Bays and the tributaries thereof, except a person authorized in writing by the holder of a lease site may take clams from ~~his or her own said~~ leased shellfish grounds. Such written authorization shall be at all times on the person of a least one member of any crew while working on leased shellfish grounds.

(b) It shall be unlawful to take or attempt to take clams under a clam tong/rake license with any device from a vessel powered by sail or mechanical means.

[\*60 Del. Laws, c. 513, § 2; 70 Del. Laws, c. 186, § 1.\*](#)

#### **§ 2404. Commercial dredge clam license.**

It shall be unlawful for any person to dredge for hard clams in this State unless said person has applied for, secured from the Department and has in his or her possession a valid clam dredger's license. The fee for a resident clam dredger's license shall be \$57.50. The fee for a nonresident clam dredger's license shall be \$575.

[\*60 Del. Laws, c. 513, § 2; 67 Del. Laws, c. 260, § 1; 70 Del. Laws, c. 186, § 1.\*](#)

#### **§ 2405. Commercial dredge clam license -- Area permitted; method of taking under commercial dredge clam license.**

(a) It shall be unlawful to dredge for hard clams with a commercial dredge clam license on leased shellfish grounds, except that a person may dredge hard clams from his or her own leased shellfish grounds as long as those grounds are not within Delaware's Inland Bays.

(b) It shall be unlawful to dredge hard clams in any waters designated as contaminated by the Department.

(c) It shall be unlawful for any person to use any hydraulic dredge or mechanical device which employs a vacuum or suction method for the taking or catching or harvesting of clams from any of the waters under the jurisdiction of this State without the prior written consent of the Department.

[60 Del. Laws, c. 513, § 2; 70 Del. Laws, c. 186, § 1; 70 Del. Laws, c. 588, § 2.](#)

#### **§ 2406. Seasons; limits.**

Except in the case of clams reared on shellfish aquaculture lease sites on Delaware's Inland Bays, The Department will establish by regulation the seasons for the taking of clams and/or limit the number of clams which may be harvested commercially by any 1 licensee.

If, in its discretion, the Department determines from biological evidence that emergency restrictions are necessary to protect clams or other shellfish resources of the State, they may do so with advance notice as it deems necessary.

[60 Del. Laws, c. 513, § 2.](#)

#### **§ 2407. Unloading locations.**

It shall be unlawful for any person to unload hard clams taken from the waters or shellfish grounds within the jurisdiction of the State at any port or unloading facilities located outside the geographic boundaries of the State.

[60 Del. Laws, c. 513, § 2.](#)

#### **§ 2408. Noncommercial clamming permit.**

(a) It shall be unlawful for any person to harvest, in any 1 day, hard clams for noncommercial purposes in excess of the daily recreational clam limit unless said person has applied for and received from the Department, and has in his or her possession, a valid noncommercial clamming permit. The fee for a resident noncommercial clam permit will be \$5.75. The fee for a nonresident noncommercial clamming permit will be \$57.50.

(b) The Department will establish, by regulation, the seasons for taking clams and/or limit the number of clams that may be harvested in any 1 day for noncommercial clamming permit holders.

[60 Del. Laws, c. 513, § 2; 67 Del. Laws, c. 260, § 1; 68 Del. Laws, c. 9, § 8; 70 Del. Laws, c. 186, § 1.](#)

#### **§ 2409. Recreational clamming.**

The Department will establish, by regulation, the seasons for the taking of clams and/or limit the number of clams which may be taken for recreational purposes.

[60 Del. Laws, c. 513, § 2;](#) [76 Del. Laws, c. 71, § 13.](#)

# TITLE 3

## Agriculture

### Department of Agriculture

#### CHAPTER 4. DELAWARE AQUACULTURE ACT

##### § 401. Short title.

This chapter shall be known and may be cited as the "Delaware Aquaculture Act."

##### § 402. Declaration of purpose.

The General Assembly finds and declares it to be in the interest of the general welfare and economic prosperity of the State to have a comprehensive and ongoing program to promote and encourage aquacultural activities. The General Assembly further declares aquaculture in a closed system to be an agricultural activity ~~and that~~ under the authority of the Department of Agriculture which shall coordinate these types of aquacultural activities in the State.

##### § 403. Definitions.

As used in this chapter:

(1) "Aquaculture" means the controlled propagation, growth, harvest and subsequent commerce in cultured aquatic stock by an aquaculturist.

(2) "Aquaculture facility" means any water system and associated infrastructures capable of holding and/or producing cultured aquatic stock.

(3) "Aquaculture registration" means the formal registration by application to the Department of Agriculture of an aquaculture facility by a person, partnership or corporation.

(4) "Aquaculturist" means an individual, partnership or corporation involved in the production of cultured aquatic stock or parts thereof.

(5) "Aquatic organism" means an animal or plant of any species or hybrid thereof, and includes gametes, seeds, egg, sperm, larvae, juvenile and adult stages, any one of which is required to be in water during that stage of its life.

(6) "Broodstock" means sexually mature aquatic organisms, either domesticated or wild, used to propagate cultured aquatic stock.

(7) "Closed system" means an aquaculture facility with water discharge(s) that does not connect in any way to the waters of the State prior to the discharged water being screened, filtered or percolated to prevent cultured aquatic stock from escaping.

(8) "Cultured aquatic stock" means aquatic organisms, lawfully acquired by an aquaculturist that are held and grown in a registered aquaculture facility.

(9) "Department" means the Department of Agriculture.

(10) "Domesticated" means an animal or plant trained, adapted and/or bred to live in a human controlled environment.

(11) "Fee fishing" means removing cultured aquatic stock from a registered aquaculture facility in a sportsman-like manner for a payment of a fee.

(12) "Fee fishing operation" means a registered aquaculture facility where a person may fish for cultured aquatic stock.

(13) "Native species" means any species or hybrid thereof of any plant or animal which naturally occurs in the waters of the State.

(14) "Naturalized species" means any species or hybrid thereof of any plant or animal which has been introduced to the waters of this State and has become established by reproducing in the waters of this State.

(15) "Non-native species" means any species or hybrid thereof of any plant or animal which does not occur naturally in the waters of the State.

(16) "Open system" means an aquaculture facility with a water discharge(s) that connects to the waters of this State without being screened, filtered or percolated prior to discharge to prevent cultured aquatic stock from escaping.

(17) "Registered aquaculture facility" means an aquaculture facility which has a valid aquaculture registration issued by the Department of Agriculture.

(18) "Secretary" means the Secretary of the Department or his or her designee.

(19) "Waters of the State" means all the tidal waters under the jurisdiction of the State where the lunar tide regularly ebbs and flows and all nontidal waters under the jurisdiction of this State except for nontidal waters contained in aquacultural facilities registered with the Department of Agriculture.

(20) "Wild" means an animal or plant that is not trained, adapted and/or bred to live in a human controlled environment.

§ 404. Aquaculture technical assistance and marketing program.

The Department shall develop and implement a technical assistance and marketing program to assist owners and operators of aquacultural facilities and to promote Delaware aquaculture products. This program will be done in conjunction with, and shall be consistent with, the Department's responsibilities as defined in Chapter 3 of this title. The Department's program shall include, but not be limited to, the following:

(1) Maintain a complete list of aquaculturalists engaged in the production of any aquacultural product and shall maintain a separate list of closed system aquaculture operations.  
~~for the purposes of certifying those aquaculturists as bona fide Delaware aquaculture producers;~~

(2) Coordinate with Delaware Department of Natural Resources and Environmental Control to maintain a complete list of aquaculturalists;

(23) Encourage the viability and profitability of aquaculture operations and to promote consumption of Delaware grown aquaculture products within and outside the State.

~~§ 405. Delaware Aquaculture Council.~~

~~(a) A Delaware Aquaculture Council is hereby created for the purposes of assisting the Department with the enhancement and promotion of aquaculture activities and operations within the State. Duties of the Council shall include, but not be limited to, the following:~~

~~(1) Examine the impact of laws and regulations on the aquaculture industry and recommend to the Secretary methods to simplify regulatory processes or otherwise enhance the regulatory climate with respect to the efficient siting and operation of aquaculture operations;~~

~~(2) Examine research and educational needs as they relate to the improvement of management and operations of aquaculture operations and report to the Secretary on what actions are required to address these needs;~~

~~(3) Respond to requests of the Secretary to examine other issues relating to the enhancement of aquaculture activities and operations in Delaware.~~

~~(b) The Council shall be composed of not less than 12 members. Members of the Council shall include:~~

~~(1) The Secretary of the Department of Natural Resources and Environmental Control or his designee;~~

~~(2) The Director of the Delaware Economic Development Office or the Director's designee;~~

~~(3) A representative of the University of Delaware to be appointed by the President of the University;~~



~~(4) A representative of Delaware State University to be appointed by the President of the University;~~

~~(5) A representative of the Farm Bureau Aquaculture Committee to be appointed by the President of the Delaware Farm Bureau;~~

~~(6) Three individuals that are actively involved in commercial aquaculture activities or operations to be appointed by the Chairman of the Council;~~

~~(7) Three individuals with an interest in aquaculture activities to be appointed by the Chairman of the Council.~~

~~(c) The Secretary shall also be a member of the Council and shall serve as chair. Each Council member shall be reimbursed for all proper and necessary expenses but shall receive no compensation for time spent in attending the work of the Council.~~

#### § 4065. Limitations.

Aquaculture activities shall not promote the introduction of any nonindigenous species that harbor disease, parasites or are capable of surviving and adversely competing with indigenous plant or animal species.

#### § 4076. Authority of the Department.

(a) The Department, in accordance with the administrative procedures and provisions set forth in Chapter 101 of Title 29, shall have the authority to promulgate regulations, which shall have the force and effect of law, to enhance and control closed system aquaculture in this State.

(b) Any authorized employee of the Department, after determining there is probable cause that there has been a violation of this chapter or any regulation promulgated by the Department, may do the following without obtaining a warrant beforehand:

(1) Search, examine and/or inspect any vehicle or conveyance in which cultured aquatic stock may be present for the purpose of determining compliance with Chapter 4 of this title or any regulation promulgated by the Department;

(2) Detain any person and/or person's vehicle for a reasonable length of time to conduct any search, examination and/or inspection thereof for the purpose of determining compliance with Chapter 4 of this title; and

(3) Inspect, search and/or examine any registered aquaculture facility in the presence of any occupant of said facility to determine compliance with Chapter 4 of this title or any regulation promulgated by the Department.

#### § 4087. Fee fishing operations.

(a) It shall be lawful for any person to fish, without being licensed to fish in this State, within an aquaculture facility designated as a fee fishing operation and registered as same with the Department of Agriculture.

(b) The owner(s) of a fee fishing operation shall apply to the Department of Agriculture to register his or her fee fishing operation. The fee fishing operation shall meet with the following requirements, subject to inspection and approval by the Department of Natural Resources and Environmental Control, prior to the Department of Agriculture approving the registration:

(1) The fee fishing operation shall be a closed system; and

(2) The fee fishing operation shall not contain any wild finfish.

(c) When authorized by the owner of a fee fishing operation, it shall be lawful for a person to take and/or possess those species or hybrids thereof permitted according to § 903(j) of Title 7, without regard to any seasonal restrictions, size limits or creel limits.

(d) Any person in possession of cultured aquatic stock lawfully taken from a fee fishing operation shall be issued a receipt for same by the owner or owner's agent of that fee fishing operation. This receipt shall include the name and address of the fee fishing operation, the date the cultured aquatic stock were taken, the identification and number of each species of cultured aquatic stock taken, and the signature of the person to whom the receipt is issued. This receipt shall remain in the possession of the person who took the cultured aquatic stock from the fee fishing operation until that person enters his or her personal abode or temporary or transient place of lodging. The owner or owner's agent of the fee fishing operation shall maintain a copy of each receipt for a period of at least 1 year from the date of issuance.

(e) Unless otherwise authorized, it shall be unlawful for any person to possess any cultured aquatic stock that remain alive after legally taking same from a fee fishing operation.

#### § 4098. Aquaculture registration.

The owner(s) of an aquaculture facility shall register same with the Department of Agriculture on forms and in accordance with procedures established by the Department of Agriculture. The Department of Agriculture shall promulgate regulations to establish criteria for the registration of an aquaculture facility. The Department of Agriculture shall maintain a registry of aquaculture facilities to assist in the administration of the State aquaculture program. Aquaculture facility registration shall be valid for 5 years from the date of issue. The owner of an aquaculture facility shall renew the registration of the facility in the event of any change in ownership or a significant change in operations.

#### § 4102. Suspension or revocation of registration.

The Department of Agriculture may, after due notice, suspend or revoke any aquaculture registration which does not comply with the requirements of this chapter or the regulations promulgated by the Department of Agriculture. A person affected by such suspension or

revocation may request a hearing before the Department of Agriculture. A hearing shall be held within 30 days after the request. Within 30 days after the hearing, the Department of Agriculture shall affirm, withdraw or modify its action by an order based upon the record of the hearing. An appeal from that order may be taken to the Superior Court within 30 days of the suspension or revocation order. If no request for a hearing is made within 30 days of the suspension or revocation order, the suspension or revocation will be effective and the registration is suspended or revoked. All fines and penalties for violations of this subsection shall be paid to the Department of Agriculture and deposited in the general fund account.

§ 4140. Aquaculture facility protection.

It shall be unlawful for any person, without the written consent of the owner, to remove, destroy or release cultured aquatic stock from a registered aquaculture facility or introduce any toxic substance directly or indirectly into the waters of a registered aquaculture facility.

# Recommended Shellfish Aquaculture Lease Areas Report

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*By Bartholomew Wilson P.G., Center for the Inland Bays, Chair of Shellfish Aquaculture Tiger Team Information Gathering and Synthesis Subcommittee*

*March 14, 2013*

## **Introduction**

The Information Gathering and Synthesis Subcommittee was officially formed at the May 1<sup>st</sup>, 2012 Tiger Team Meeting, with the directive of locating areas where shellfish aquaculture could effectively occur in the Delaware Inland Bays such that it minimized conflict with human uses and natural resources of the bays. A transparent, science-based and adaptive spatial planning process was utilized to integrate current and anticipated uses in the coastal areas with extensive stakeholder and public participation. Human-use, physical, and ecological data was collected, and integrated into maps that were then presented to the Tiger Team, subcommittee meetings, and stakeholder meetings to obtain the input of the team members, stakeholders, and public. The main tasks of this subcommittee were to minimize potential user conflicts, improve planning and regulatory efficiencies, and preserve critical ecosystem services, while locating multiple areas where shellfish aquaculture can be implemented.

Monthly, the subcommittee presented its findings, data, and draft maps for comment to the Tiger Team. The subcommittee would then hold meetings or conference calls (~two weeks later), before the Tiger Team meeting, and discuss the input that had been gathered based upon the previous meeting. The subcommittee would then revise their analysis and locations for shellfish aquaculture leasing for presentation at the subsequent Tiger Team meeting.

The recommended shellfish aquaculture lease areas were developed over the course of 10 Tiger Team meetings; 3 formal Information Gathering and Synthesis Subcommittee meetings; a conference call with representatives from Ducks Unlimited, Ducks Unlimited Delaware, and Delaware Fish and Wildlife; and dozens of conference calls and emails with the Information Gathering and Synthesis Subcommittee members. The selected 9 shellfish aquaculture areas (3 in Rehoboth Bay, 2 in Indian River Bay, and 4 in Little Assawoman Bay) are recommended for shellfish aquaculture as best management practice (BMP) implementation sites because these locations would minimize conflicts with human uses and preserve the natural resources of the Inland Bays.

## **Inland Bay User Groups Represented at Meetings:**

DNREC Division of Fish & Wildlife	University of Delaware Sea Grant
Fisheries Section	University of Maryland Sea Grant
Wildlife Section	Sussex County Economic Development Office
Enforcement Section	Sailing Association
DNREC Division of Watershed Stewardship	Delaware Center for the Inland Bays (CIB)
Delaware Shellfish Program	CIB Water Use Planning Implementation
DNREC Division of Water	Committee (WUPIC)
Wetlands and Subaqueous Lands	CIB Scientific and Technical Advisory Committee
Department of Agriculture	(STAC)
Recreational Fishing Community	Ducks Unlimited
Commercial Clamming Community	Ducks Unlimited - Delaware
Potential Shellfish Aquaculturists	

## **Important Decisions Made for the Selection of Aquaculture Areas**

- Potential shellfish aquaculture leasing areas must be located at a minimum of 50 feet from the shoreline in Rehoboth, Indian River and Little Assawoman Bays, with the exception of a 100 foot setback for Eastern Rehoboth Bay (as to minimize the potential conflicts with recreational clammers and duck hunters).
- Potential shellfish aquaculture leasing areas must be located at a minimum of 150 feet away from all navigational channels.
- Potential aquaculture lease areas must contain clam densities less than 2.2 clams per square meter, based upon the 2011 DNREC clam survey data.
- Potential shellfish aquaculture leasing areas will only be in DNREC approved year-round shellfish harvest areas.

## **Geographic Information Systems (GIS) Data Used for Analysis:**

### **Human-use Data**

- Location of Boats on Inland Bays, from July 3, 2010 imagery
- Locations of boat ramps, marina, and high density boat slip (docks containing 10 or more boat slips)
- Locations of Navigational Channels
- Locations of Historic Dredging Reaches
- Sussex County Parcels
- 2012 Preliminary Land Use Service (PLUS) Review Locations

## Physical Data

- Mean Salinity (1998 – 2008) of the Inland Bays
- Inland Bays Hydroline (outline of all the waterways and used to create shoreline buffer)
- Inland Bays Water Polygon (outline of the Inland Bays used to clip clam density data)
- Bathymetry
  - DNREC Pepper Creek-02/08/12
  - DNREC Massey and Bakers Channels – 04/12/12
  - DNREC Lover Creek- 04/12/12
  - DNREC Indian River Bay – 03/16/12 & 03/19/12
  - DNREC Indian River Bay – 2004
  - DNREC Rehoboth Bay – 2004
  - NOAA Bathymetry - 2002
- NRCS Subaqueous Soils of Inland Bays
- Inland Bays Navigational Charts
- Aerial Imagery ( 1937, 1954, 1968, 1992, 1997, 2001, 2007)

## Ecological Data

- DNREC Shellfish Harvest Areas
- DNREC Clam density sample locations (points)
- Clam density layer (continuous data)
- DNREC Heritage Programs : Animal and Plant of Concern Locations

## Summary of Meetings

### May 1<sup>st</sup> Tiger Team Meeting

- Information Gathering and Synthesis Subcommittee formed by Tiger Team.
  - Members selected: Bart Wilson (CIB), Mike Bott (DNREC), John Ewart (UD Sea Grant), Josh Thompson (Potential Commercial Aquaculturist)
- GIS overview presentation given to Tiger Team by Bart Wilson
  - What is spatial planning?
  - What data is currently available
    - Human-use data
    - Physical data
    - Ecological data
  - Data needs
    - Bottom Sediment Data
    - Bathymetry
    - Avian species distribution update
    - Potential development areas

### May 25<sup>th</sup> Information Gathering and Synthesis Subcommittee Meeting

- Meeting attendees: Bart Wilson, Mike Bott, John Ewart, Josh Thompson

- All available human-use, physical and ecological data was presented to subcommittee. Discussions ensued of what data is still needed and how it will be created or procured from other agencies.
- Maps were shown of clam densities and the exclusions areas, where shellfish aquaculture would be barred, that would be based upon densities of greater than: 3 clams per square meter, 5 clams per square meter, or 8 clams per square meter. Discussions ensued upon which density was appropriate for barren bottom classification (i.e. areas where clam densities were very low, and therefore shellfish aquaculture would not negatively impact the resource).
- The available data was overlain and the subcommittee discussed how to prioritize the human-use, ecological, and physical data. The standards for the setback of navigational channels and shoreline was discussed in detail, options were shown for shoreline setbacks (values shown were 25, 35 and 50 feet) and navigation channels setbacks (values shown were 150 feet). The subcommittee decided to use the values currently adopted by the State of Maryland (shoreline setback of 50 feet, navigational channel setback of 150 feet) for planning purposes.
- The subcommittee developed the first version of the potential aquaculture lease areas maps.

### June 5<sup>th</sup> Tiger Team Meeting

- Bart Wilson presented the findings of the Information Gathering and Synthesis Subcommittee to the Tiger Team.
- The presentation discussed habitat modeling and parameters to determine optimal growth area for oysters that are based upon research from Virginia and Maryland habitat identification studies.
- The subcommittee presentation also discussed the exclusion values for the potential aquaculture areas, these included:
  - Regulatory setbacks: Shoreline setback of 50 feet and a navigational channel setback of 150 feet proposed
  - DNREC Clam Harvest Closures areas
  - Barren Bottom Classification determination
    - Proposed use of > 3 clams per square meter for barring or excluding of shellfish aquaculture.
    - Maps of the 3 clams per square meter or greater exclusions areas were presented to the Tiger Team for discussion.
    - Additional maps were shown to the Team of 5 clams per square meter and 8 clams per square meter.
  - The presentation also discussed the available data ( human-use, bathymetry, and salinity data) in the areas that could support or were not barred to contain shellfish aquaculture (based upon 3 clams per square meter, shoreline setback of 50 feet, navigational channel setback of 150 feet, and shellfish harvest closure zones).

- Potential Aquaculture lease areas Version 1 was presented to the Tiger Team: Rehoboth Bay (319 acres, 3.5% of total Rehoboth Bay; three locations selected) and Indian River Bays (560 acres, 6.1% of total Indian River Bay area; three locations selected).
- Little Assawoman Bay was not considered at this point in the planning process.

### **June 28<sup>th</sup> Information Gathering and Synthesis Subcommittee Meeting**

- Meeting attendees: Bart Wilson, Mike Bott, John Ewart, Josh Thompson
- Based upon discussion from the June Tiger Team meeting, barren bottom classification were revisited; new maps were presented to the subcommittee of clam densities of 1 clam per square meter, 2 clams per square meter, and 3 clams per square meter. Discussion between the members ensued over the highly restrictive nature of these values and the impact that could have upon potential lease locations and if those locations could support shellfish aquaculture.
- Version 2 of the potential aquaculture lease areas was created through the overlay of all available data and the discussion of the subcommittee members, with these revisions resulting with: Rehoboth Bay (174 acres, 1.9% of total Rehoboth Bay; 3 locations selected { 1 location carried over, 1 location split into 2 areas, and one are dropped from version 1 }) and Indian River Bay (423 acres, 4.5% of total Indian River Bay area; three locations carried over, but all modified in their size).
- The limited available data for Little Assawoman data was presented to subcommittee. Potential aquaculture lease areas of Little Assawoman Bay Version 1 were created. Lack of available human-use and physical data was discussed in detail.

### **July 11<sup>th</sup> Tiger Team Meeting**

- Bart Wilson presented the findings of the Information Gathering and Synthesis Subcommittee to the Tiger Team.
- Based upon discussion from June Tiger Team meeting, the barren bottom classification was revisited and the resultant maps of the areas that they cover were presented to the Tiger Team, with the clam density levels of 1 clam per square meter, 2 clams per square meter, and 3 clams per square meter.
- The potential aquaculture lease areas maps were revised by the subcommittee, using barren bottom classification 1 clam per meter square, and presented to the Tiger Team.
- Version 2 of potential aquaculture lease areas were presented to the Tiger Team, with these revisions resulting with: Rehoboth Bay (174 acres, 1.9% of total Rehoboth Bay; 3 locations selected { 1 location carried over, 1 location split into 2 areas, and one are dropped from version 1 }) and Indian River Bay (423 acres, 4.5% of total Indian River Bay area; three locations carried over, but all modified in their size).
- Based upon comments from June Tiger Team meeting, the potential aquaculture lease areas of Little Assawoman Bay (Version 1) was presented. The lack of available human-use and physical data was presented and discussed with Tiger Team members.

### **August 1<sup>st</sup> Information Gathering and Synthesis Subcommittee Meeting**

- Meeting attendees: Bart Wilson, Mike Bott, John Ewart, Josh Thompson, EJ Chalabala, Scott Figurski, Ed Lewandowski, Nick Couch, Debbie Rouse, representatives of the commercial clamming community (4 attendees), representatives of the commercial oystering community (2 attendees), representatives of the recreational fishing community



(3 attendees), and additional representatives of the potential aquaculture community (1 attendee).

- The subcommittee started with a brief overview of the spatial planning process, what data was available for the analysis, the decisions that have been made to date (e.g. setback values, clam densities), and the current potential lease areas to date (Version 2).
- The meeting then utilized the University of Delaware Sea Grant's WeTable to aid in capturing the comments and discussion of the facilitated public input portion of the meeting. Each individual bay was reviewed and all attendees were able to draw on the maps and mark areas of potential conflict (based upon their interests or background) or areas that could be used for aquaculture leasing. Much of the input and discussion was derived from the commercial clammers, potential oyster aquaculturists, recreational fisherman, and the DNREC Fish & Wildlife Enforcement officer in attendance.
- A site visit was also taken, with a potential aquaculturist, to better understand the criteria and potential constraints for siting lease areas in Rehoboth Bay.
- Version 3 of potential aquaculture lease areas was developed from the public input of this subcommittee meeting.

### **August 8<sup>st</sup> Tiger Team Meeting**

- Bart Wilson presented the findings of the Information Gathering and Synthesis Subcommittee to the Tiger Team.
- Based upon discussion from the July 11<sup>th</sup> Tiger Team meeting, the detailed clam density survey data was presented to the Tiger Team.
  - Based upon the Information Gathering and Synthesis Subcommittee meeting discussions, 2 clams per square meter was chosen for the barren bottom classification to determine exclusion areas for Version 3 analysis and maps.
- Results of August 1<sup>st</sup> Information Gathering and Synthesis Subcommittee meeting were presented to the Tiger Team. Discussions of the WeTable results were shown to Tiger Team as well. The new potential aquaculture areas developed by the subcommittee attendees were presented for Rehoboth Bay, Indian River Bay, and Little Assawoman Bay.
- Version 3 of the potential aquaculture lease areas was presented to the Tiger Team, with these revisions resulting with: Rehoboth Bay (235 acres, 2.6% of total Rehoboth Bay; 2 locations selected {2 new location selected, three previous locations dropped from version 2}) and Indian River Bay (567 acres, 6.1% of total Indian River Bay area; four locations selected {two locations carried over, two new location selected, and one location dropped from version 2}). Version 2 for Little Assawoman Bay presented (409 acres, 17% of total Indian River Bay area; five locations selected).

### **September 6<sup>th</sup> Tiger Team Meeting**

- Bart Wilson presented the findings of the Information Gathering and Synthesis Subcommittee to the Tiger Team.
- Based upon the August 8<sup>th</sup> Tiger Team meeting and the August 28<sup>th</sup> and 29<sup>th</sup> Information Gathering and Synthesis Subcommittee conference calls discussions, a new potential aquaculture lease area was located in Western Rehoboth Bay to diversify available aquaculture areas. In addition, two locations in central Indian River Bay were removed

from consideration as potential aquaculture leasing areas based upon the concerns of The Delaware Fish and Wildlife and the commercial clamming community.

- Version 4 of potential aquaculture lease areas were presented to the Tiger Team, with these revisions resulting with: Rehoboth Bay (166 acres, 1.8% of total Rehoboth Bay; three locations selected {one new location selected, two locations carried over from Version 3 with modifications to their spatial extent}) and Indian River Bay (166 acres, 1.8% of total Indian River Bay area; two locations selected {two locations carried over, and two location dropped from version 3}). Version 3 for Little Assawoman Bay presented (409 acres, 17% of total Indian River Bay area; five locations carried over from Version 2).

### **October 10<sup>th</sup> Tiger Team Meeting**

- Bart Wilson presented the findings of the Information Gathering and Synthesis Subcommittee to the Tiger Team.
- Based upon the September 6<sup>th</sup> Tiger Team discussions and October 9<sup>th</sup> Information Gathering and Synthesis Subcommittee conference calls and email correspondence, it was recommended by Tiger Team members that the barren bottom classification should be consistent with New Jersey standards. Therefore exclusion areas were re-calculated and re-mapped using densities of 2.2 clams per square meter, from a density of 2.0 clams per square meter.
- The new NRCS Subaqueous Soils Distribution data was presented for each of the bays, with the Version 5 potential aquaculture lease areas overlain with that soil data.
- A compilation was presented of the progression of potential lease areas from Versions 1 thru 5 for each of: Rehoboth, Indian River, and Little Assawoman Bays.
- Version 5 of potential aquaculture lease areas were presented, with these revisions resulting with: Rehoboth Bay (260 acres, 2.8% of total Rehoboth Bay; three locations selected {three locations carried over from Version 4 with spatial extent modifications}) and Indian River Bay (125 acres, 1.36% of total Indian River Bay area; two locations selected {two locations carried over from version 4 with spatial extent modifications}). Version 4 presented for Little Assawoman Bay (316 acres, 13% of total Indian River Bay area; three locations selected {three locations carried over from Version 3 with spatial extent modifications, two locations were dropped from Version 3}).

### **November 14<sup>st</sup> Tiger Team Meeting**

- Version 5 of potential aquaculture lease areas was presented to the Tiger Team by Bart Wilson, with no changes from the October 10<sup>th</sup> Tiger Team Meeting: Rehoboth Bay (260 acres, 4.3% of total Rehoboth Bay; three locations selected) and Indian River Bay (125 acres, 1.36% of total Indian River Bay area; two locations selected). Version 4 of potential aquaculture lease areas for Little Assawoman Bay was presented (316 acres, 13% of total Indian River Bay area; three locations selected).

### **December 20<sup>th</sup> Tiger Team Meeting**

- Based upon the discussions from the November 14<sup>th</sup> Tiger Team Meeting, the potential aquaculture lease area of southeastern portion of the Little Assawoman Bay was modified in their spatial extent.

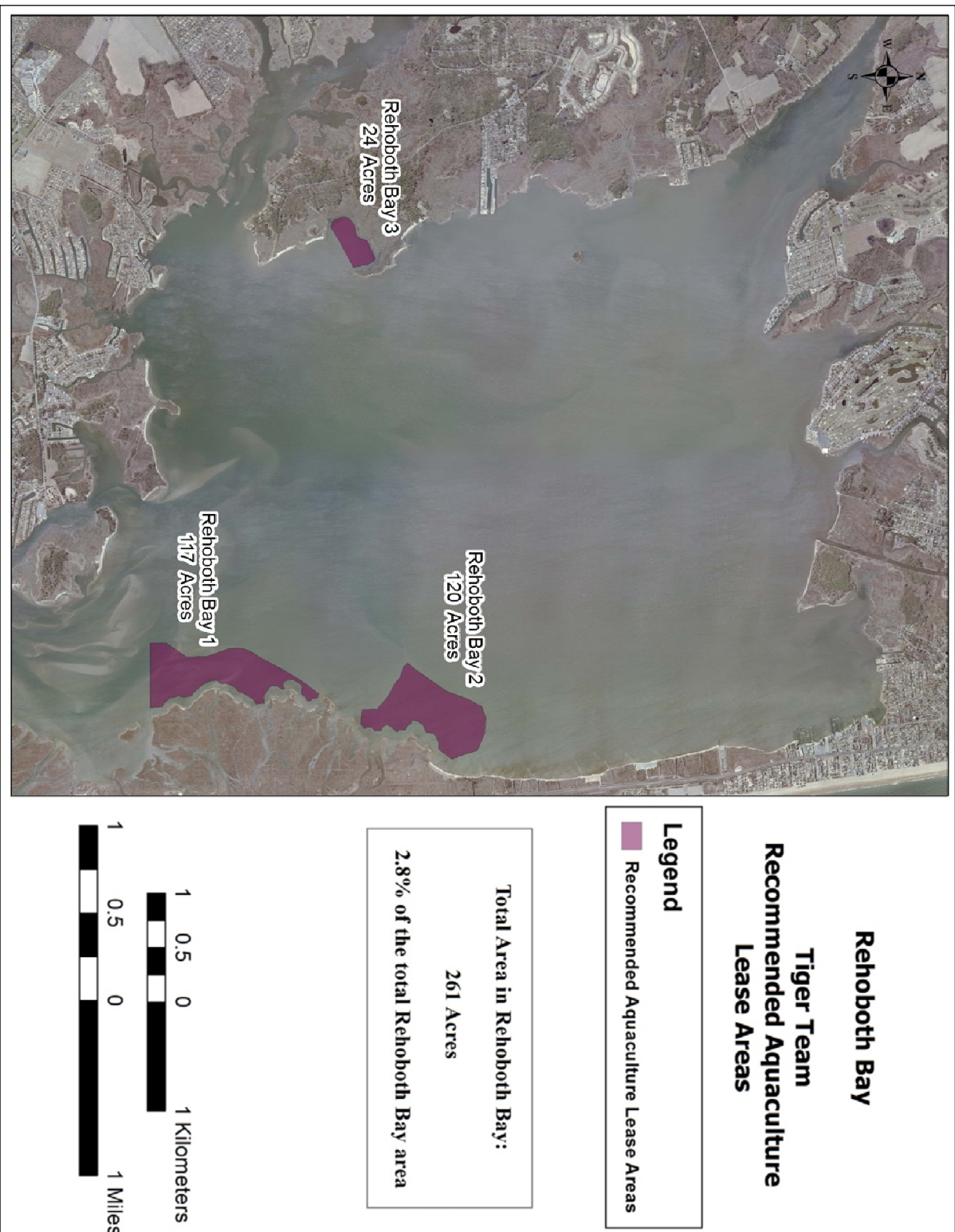
- Version 5 of the potential aquaculture lease areas for Rehoboth and Indian River Bays were presented again with no changes from November 14<sup>th</sup> Tiger Team Meeting: Rehoboth Bay (260 acres, 4.3% of total Rehoboth Bay; three locations selected) and Indian River Bay (125 acres, 1.36% of total Indian River Bay area; two locations selected). Version 5 of potential aquaculture lease areas for Little Assawoman Bay was presented to the Tiger Team (227 acres, 9.3% of total Indian River Bay area; four locations selected {two locations carried over from Version 4 with modifications, one location was split and modified from Version 4}).

### **January 24<sup>th</sup> Tiger Team Meeting**

- Version 5 of the potential aquaculture lease areas were briefly presented again by Bart Wilson, with no changes from the December 20<sup>th</sup> Tiger Team Meeting: Rehoboth Bay (260 acres, 4.3% of total Rehoboth Bay; three locations selected) and Indian River Bay (125 acres, 1.36% of total Indian River Bay area; two locations selected). Version 5 of potential aquaculture lease areas for Little Assawoman Bay was presented (227 acres, 9.3% of total Indian River Bay area; four locations selected).

### **February 26<sup>th</sup> Tiger Team Meeting**

- A presentation was given by Bart Wilson on the content of the Recommended Shellfish Aquaculture Lease Areas Report and the finalized recommended shellfish aquaculture lease area locations within the Rehoboth, Indian River, and Little Assawoman Bays. The Tiger Team unanimously accepted the report and the finalized locations, to be submitted with the draft legislation to the leadership group for consideration.



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**Little Assawoman Bay**  
**Tiger Team**  
**Recommended Aquaculture**  
**Lease Areas**

**Legend**  
 Recommended Aquaculture Lease Areas

**Total Area in Little Assawoman Bay:**  
**227 Acres**  
**10% of the total Assawoman area**



## Executive Summary

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In response to a lack of information pertaining to disease and potential genetic impacts from hard clam aquaculture to wild hard clam populations, Cardno ENTRIX was retained by CIB to perform a focused literature search in an attempt to determine the state of science regarding these concerns.

Relative to the concern of hard clam aquaculture being associated with the cause or spread of disease outbreaks in the wild hard clam population, the literature search revealed the following:

- > The primary disease for hard clams along the U. S. East Coast is known as Quahog Parasite Unknown (QPX), an algae-base disease.
- > QPX is opportunistic (infects stressed hard clams) and can be found occurring in sediment, plants, and invertebrates.
- > The salinity and temperatures within the Inland Bays are sufficient to support QPX, however, the salinity and temperatures are not ideal for QPX disease outbreaks.
- > An investigation published in 2007, where hard clam from the Inland Bays were collected and test for QPX, indicated that no hard clams were found to be infected with QPX.
- > QPX has not been found to be imported by hatchery-raised hard clam farm stock.
- > Although QPX outbreaks have been predominantly associated with farmed hard clam stock, QPX outbreaks have been identified in wild populations.
- > Wild hard clam populations tend to have a higher resistance to QPX (are “fitter”) than farmed hard clam stock.
- > The review did not find direct evidence that farmed hard clam stock causes disease outbreaks in wild hard clam populations.

Hard clam QPX disease is not a current or historic problem within the Delaware Inland Bays. Based on the above noted, risk of disease outbreaks in wild hard clam populations associated with aquaculture activities appears to be low.

Regarding the potential for farmed hard clam stock causing genetic impacts to wild hard clam populations, the literature review revealed the following:

- > Literature regarding genetic impacts to wild clam stock through introduction of farmed stock is limited.
- > Hybridization between species may occur (e.g., southern hard clam and northern hard clam).
- > Although “foreign” hard clam stock has been demonstrated capable of affecting the genetics of wild hard clam populations, the affects have not been demonstrated to impact survival or fitness of wild populations.

Many states control where the hard clam aquaculture seed sources originate in order to reduce disease-caused mortality and genetic impacts. Requiring seed stock to originate for the Inland Bays could eliminate much of the risk associated with genetic impacts to the wild hared clam populations.