

**Cape Cod Aquaculture Profile and Opportunity**

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## **INTRODUCTION**

Cape Cod has been at the forefront of the aquaculture economy for countless generations, which is one important element of what is now being referred to as “the Blue Economy,” with a focus on our multi-faceted relationship to the water and the waterfront. To provide a clearer understanding of this part of our economy, this research attempts to document shellfish aquaculture, primarily oysters and quahogs, in Barnstable County, both present use and potential growth.

The goal was to conduct a town-by-town inventory to identify acreage currently licensed for shellfish aquaculture, as well as each town’s growth potential in intertidal and near-shore areas.

There is great interest in aquaculture and many towns are establishing or considering Aquaculture Development Areas (ADAs) dedicated to creating pre-approved locations in an attempt to grant new aquaculture licenses and expand production.

This interest is understandable, because aquaculture production accomplishes multiple important goals: It creates year-round, sustainable employment, encouraging younger working people to remain on Cape Cod. It provides a valuable, locally grown food source that contributes to the broader economy by supporting restaurants and local seafood markets. Shellfish are recognized as an important part of a broader plan to help restore the environmental quality of local estuaries because they filter and remove nitrogen from the water, a key element for water quality restoration.

One difficult element in this research has been how best to measure and quantify “potential” in regards to growth of shellfish aquaculture throughout Cape Cod. This “potential” could be measured by area available for growth, but acquiring a quantifiable, exact assessment of acreage is quite difficult, given social, political, regulatory, and environmental variables. Those variables include, but are not limited to, cleanliness of the water, potential conflict with recreational areas and neighbors on the waterfront, town regulations, and the amount of land available for aquaculture growth --- state regulations require that an area must have no significant shellfish or natural resources (such as eelgrass) present in order to qualify for private aquaculture production.

## **METHODOLOGY**

The information provided was attained through a survey sent to a shellfish constable/natural resources agent from each town from 5/1/16--6/30/16.

### **Question list:**

1. How many acres are currently leased in your town for private aquaculture?
2. How many active private leases are in the town?
3. Are there any available grants or any that will become available or in the process of being permitted?
4. How long is the waiting list?
5. What do you perceive is the realistic growth potential (in terms of acreage) for private aquaculture in the town of (Town Name)?
6. Has the town initiated the creation of pre-approved aquaculture zones or lease sites such as Crowes Pasture in Dennis or the Provincetown/Truro Aquaculture Development Area (ADA)?
7. What additional information do you believe would be helpful to our research?

**Potential growth** is delineated Low, and High, understanding that these terms are imprecise, and that as political and social attitudes about aquaculture continue to evolve as they have over the past decade, there is a strong possibility that more area could be considered as having High growth potential. The majority of the constables and wardens for each town quantified the potential growth in these general terms, despite the survey request for a more specific answer in terms of acreage. This is understandable because there is no way to know for sure what is viable for aquaculture without extensive research. The definition of these terms is defined by the town's representative and their opinion of potential growth, and may well vary from town to town.

## **DATA**

Table 1: Barnstable aquaculture data

<b>Town</b>	<b>Licensed area (acres)</b>	<b>Quantity of private licenses</b>	<b>Waiting list</b>	<b>Potential growth (Low, High)</b>
Barnstable	158	59	110	Information unavailable

The waiting list is split between 64 on the north side and 46 on the south side.

### **Bourne:**

Table 2: Bourne aquaculture data

<b>Town</b>	<b>Licensed area (acres)</b>	<b>Quantity of private licenses</b>	<b>Waiting list</b>	<b>Potential growth (Low, High)</b>
Bourne	6	3	None	Low

### **Brewster:**

Table 3: Brewster aquaculture data

<b>Town</b>	<b>Licensed area (acres)</b>	<b>Quantity of private licenses</b>	<b>Waiting list</b>	<b>Potential growth (Low, High)</b>
Brewster	11	11	None	High

9 Private grants and two town owned grants.

12 ½ acre grants with the ability to expand to 2 acres each are in the works to be developed with the support of the town and selectman. With 10-12 people interested in maintaining the grants, but the town of Brewster does not do waiting lists.  
Some issues Brewster faces are parking for grants, upland owners, and access.

#### **Chatham:**

Table 4: Chatham aquaculture data

<b>Town</b>	<b>Licensed area (acres)</b>	<b>Quantity of private licenses</b>	<b>Waiting list</b>	<b>Potential growth (Low, High)</b>
Chatham	3.5	2	N/A	Low

Chatham prohibits the issuance of new aquaculture leases within the Town (Section 401. (F) in Chatham's Shellfish Regulations).

"A new license was issued in 2015 for a sub-tidal grant within an already designated weir grant in Nantucket Sound. A "change of use" was granted through Chatham's Board of Selectmen. There are a number of weir grant sites within the borders of Chatham and within Nantucket Sound which may have potential for development." - Renee Gagne

"Since 1983, a Shellfish Revolving Fund was established to create a permanent propagation program. The Town invested in a land-based upweller in 1998 and grows approximately 3 million quahogs, 250,000 bay scallops and 150,000 oysters (for recreational harvest only) annually." - Renee Gagne

#### **Dennis:**

Table 5: Dennis aquaculture data

<b>Town</b>	<b>Licensed area (acres)</b>	<b>Quantity of private licenses</b>	<b>Waiting list</b>	<b>Potential growth (Low, High)</b>
Dennis	50	32	65	Low

The town of Dennis is considering a 30-acre ADA off Chapin Beach. Should that be approved, growth potential would increase to High.

#### **Eastham:**

Table 6: Eastham aquaculture data

<b>Town</b>	<b>Licensed area (acres)</b>	<b>Quantity of private licenses</b>	<b>Waiting list</b>	<b>Potential growth (Low, High)</b>
Eastham	40 +/-	30 +/-	19	Unknown

The town of Eastham is considering several sites that are in the process of being permitted. The waiting list includes 12 for Nauset marsh and 7 for Cape Cod bay. The town has an ADA in Boat Meadow (Cape Cod Bay).

#### **Falmouth:**

Table 7: Falmouth aquaculture data

<b>Town</b>	<b>Licensed area (acres)</b>	<b>Quantity of private licenses</b>	<b>Waiting list</b>	<b>Potential growth (Low, High)</b>
Falmouth	45 +/-	7	None	High

The town is working on two grants to be permitted, and 32 subleases. Also currently working on an Aquaculture Development Area

**Harwich:**

Table 8: Harwich aquaculture data

<b>Town</b>	<b>Licensed area (acres)</b>	<b>Quantity of private licenses</b>	<b>Waiting list</b>	<b>Potential growth (Low, High)</b>
Harwich	None	None	None	Low

**Mashpee:**

Table 9: Mashpee aquaculture data

<b>Town</b>	<b>Licensed area (acres)</b>	<b>Quantity of private licenses</b>	<b>Waiting list</b>	<b>Potential growth (Low, High)</b>
Mashpee	19	3	3	Low

The Mashpee Wampanoag Tribe has 2 areas (2 licenses), one person has 2 areas, and one other person has one area). There are only a few acres available for potential growth.

**Orleans:**

Table 10: Orleans aquaculture data

<b>Town</b>	<b>Licensed area (acres)</b>	<b>Quantity of private licenses</b>	<b>Waiting list</b>	<b>Potential growth (Low, High)</b>
Orleans	17.25	18	35 +/-	High (40 acres)

Pochet Area in Pleasant Bay and the flats outside of Rock Harbor on Cape Cod are ADA's.

**Provincetown:**

Table 11: Provincetown aquaculture data

<b>Town</b>	<b>Licensed area (acres)</b>	<b>Quantity of private licenses</b>	<b>Waiting list</b>	<b>Potential growth (Low, High)</b>
Provincetown	27	5	None	High (75 acres)

**Sandwich:**

Table 12: Sandwich aquaculture data

<b>Town</b>	<b>Licensed area (acres)</b>	<b>Quantity of private licenses</b>	<b>Waiting list</b>	<b>Potential growth (Low, High)</b>
Sandwich	0	0	0	None

**Truro:**

Table 13: Truro aquaculture data

<b>Town</b>	<b>Licensed area (acres)</b>	<b>Quantity of private licenses</b>	<b>Waiting list</b>	<b>Potential growth (Low, High)</b>
Truro	25 in ADA, 2 in tidal	1 in tidal 4 in ADA	2	Low

25 Sites in ADA and two in intertidal. For private leases there are four in ADA and one in intertidal. One additional tidal area is being permitted.

**Wellfleet:**

Table 14: Wellfleet aquaculture data

<b>Town</b>	<b>Licensed area (acres)</b>	<b>Quantity of private licenses</b>	<b>Waiting list</b>	<b>Potential growth (Low, High)</b>
Wellfleet	250	100	0	Low

Individuals can investigate specific areas and apply for new grants, but Shellfish Constable Andy Koch believes that there are very few viable areas left, given both environmental and ownership realities.

**Yarmouth:**

Table 15: Yarmouth aquaculture data

<b>Town</b>	<b>Licensed area (acres)</b>	<b>Quantity of private licenses</b>	<b>Waiting list</b>	<b>Potential growth (Low, High)</b>
Yarmouth	23.25	3	9	Low

The town is in the process of issuing one three-acre lease. There are still two three-acre leases available.

“Yarmouth only has 4 bodies of water that holds a Straight Approved Condition given by the Division of Marine Fisheries. The four Approved areas are Lewis Bay, where Aquaculture is taking place, the Lewis Pond Area, we currently use this area as a Contaminated Relay Area, Nantucket Sound and Cape Cod Bay, which can get very shallow and is very tidal dependent. These are the only areas that can be leased as Aquaculture Areas. Currently, Lewis Bay is the only area that Aquaculture is being conducted at this time. Once the 2 existing empty leases are issued all of the available leases will have been taken in the Lewis Bay Area. There are 2 straight Approved areas left in Yarmouth waters Nantucket Sound and Cape Cod Bay but no interest has been shown” –Conrad Caia

**Summary:**

Table 16: Total of figures

<b>Town</b>	<b>Licensed area (acres)</b>	<b>Quantity of private licenses</b>	<b>Waiting list</b>
Barnstable	158	59	110
Bourne	6	3	none
Brewster	11	11	none
Chatham	3.5	2	none
Dennis	50	32	65
Eastham	40	30	19
Falmouth	45	7	none
Harwich	0	0	none
Mashpee	19	3	35 +/-
Orleans	17.25	18	35 +/-
Provincetown	27	5	N/A
Sandwich	0	0	0
Truro	27	5	2

Wellfleet	250	100	0
Yarmouth	23.25	3	9
Total	677+	278+	178

## **CONCLUSION**

Some towns on Cape Cod such as Provincetown, Orleans, Brewster, and Falmouth have the resources and ability to expand a substantial amount over a very short term. Other towns are lacking the available acreage and resources. A few of the studied towns are less inclined to expand due to regulations and/or understanding their efficient capacity, not wanting to oversaturate the market and/or ecosystem.

It seems even an imprecise survey like this proves that there is opportunity to significantly increase the number of commercial aquaculture permits issued. This could and should be done carefully, to avoid conflict about use and access along the waterfront wherever possible, and to be sure that the market for shellfish, which has been growing at a rapid pace, can continue to handle greater production.

Potential growth also seems to justify more support for the industry, by way of increased seed production to sell to growers and outreach to educate the community about the benefits of aquaculture. To the extent that the main inhibition for aquaculture growth is social and political as opposed to environmental and logistical, efforts to educate officials and the public at large to its great advantages seem like a smart, forward-looking effort that could be coordinated at a local or county level.

### **Acknowledgements:**

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*Michael Low is a recent graduate of the University of Massachusetts Boston with a Bachelors of Science degree from the School of the Environment with a minor in Clean Energy and Sustainability. He has undertaken the project through an internship through the School of the Environment and Cape and Islands Senator Dan Wolf's office from 4/1/16- 7/15/16.*