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**COMMERCIAL FISHING/PROCESSING**

How can we position Gloucester to thrive in a shifting market?

- Market is shifting from large-boat to smaller-boat operations and catch type is evolving from cod/groundfishing towards lobsteering.
- Future of a thriving economy may not be about volume but rather how you put together ocean resources and processing ability.
- How can Gloucester protect affordable docking while making properties productive with healthy revenue? What is the balance of recreational vs commercial and transient vessel dockage?
- Meeting seafood processing wastewater regulations can be expensive - it is worth exploring collective solutions.

**REGULATIONS & MHP PROCESS**

How can we use the DPA to support a broader economic strategy?

- General public feels DPA complicates and hinders development while Fishing industry feels the DPA is the only thing that keeps area from being flipped.
- A lot of complexity of regulation interaction (Federal, DPA, Ch91): property and business owners need guidance/examples of successful outcomes.
- Small properties have a hard time with Water Dependent Use Zone.
- How to adapt definitions to welcome in 21st Century uses that support a thriving/competitive harbor economic ecosystem while retaining protection?
- How can we provide more predictability: you can get all the way to the altar and get turned away for Water Dependent Industrial uses.

**ECONOMIC DEVELOPMENT**

Where is Gloucester going as a 21st century fishing port?

- How do we cultivate a harbor ecosystem, an “ocean cluster”?
- How to cultivate a balance of fishing and compatible uses? Open to tourism & blue tech if they support more traditional industries.
- Desire to make Gloucester more attractive to developers.
- Marine research seen as positive development.
- Desire for the harbor’s economic strategy to connect beyond the harbor

**OVERALL ISSUES & OPPORTUNITIES**

How to promote reinvestment when harbor is mostly private land?

- Desire to retain fishing heritage and identity - fishing is in blood of residents!
- Manage industrial interactions with residential, recreational & tourism uses.
- How to activate and revive underutilized and derelict areas?
- Issues of parking, truck route and public ROW space management.
- Flood damage and increasing risks to infrastructure & business operations.
- Future of I4C2 (65 Rogers Street)
Many of the comments and concerns we heard from you were place-specific and highlighted priorities for different areas along the harbor.

We propose thinking about the harbor in terms of different sub-areas with different assets, issues and opportunities.
Blue Economy Basics

Understanding the framework of the forthcoming North Shore Blue Economy Report.
Blue Economy Sectors

Source: 2017 Navigating the Global Economy: A Comprehensive Analysis of the Massachusetts Maritime Economy

**LIVING RESOURCES**
- Fish Hatcheries & Aquaculture
- Fishing
- Seafood Markets
- Seafood Processing

**SHIP & BOAT BUILDING**
- Boat Building & Repair
- Ship Building & Repair

**COASTAL TOURISM & RECREATION**
- Amusement & Recreation Services
- Boat Dealers
- Eating & Drinking Places
- Hotels & Lodging Places
- Marinas
- RV Parks/Campgrounds
- Scenic Water Tours
- Sporting Goods
- Zoos & Aquaria

**TRANSPORTATION**
- Deep Sea Freight
- Marine Passenger Transportation
- Marine Transportation Services
- Search & Navigation Equipment
- Warehousing

**MARINE CONSTRUCTION**
- Marine Related Construction (including offshore wind, dredging and environmental engineering)

**OFFSHORE MINERALS**
- Oil & Gas Exploration & Production
- Sand & Gravel Mining
Blue Economy Overview

Blue Tech / R&D Cluster is Cross-Cutting

Source: 2017 Navigating the Global Economy: A Comprehensive Analysis of the Massachusetts Maritime Economy
Gloucester’s Economic Baseline
Overview of Key Findings

- Gloucester’s economy has performed well over last several years with job and wage growth across several sectors.
- Gloucester core maritime economy represents over 2,100 jobs, and over $100m in wages - as a percentage, approximately the same as in 2013.
- Gloucester’s fisheries activity levels have performed better than other New England ports and the US fishing industry as a whole.
- Gloucester is one of the top 10 to 15 locations in the US for seafood processing - a growing but consolidating industry.
- Gloucester’s tourism sector appears to be more seasonal than Essex County overall.

Gloucester Harbor
Overview of Gloucester’s Economy

Base Economic Conditions

Data Source: NP calculations based on MASSLM city town annual statistics

Job Mix (2019)

- Approx. 11,000 total jobs
- 2,100 manufacturing jobs more concentrated in manufacturing than the US or MA (LQ of 1.75 compared to US), but it’s declined by 175 jobs since 2013
- 1,800 leisure/hospitality jobs with an increase of 327 jobs since 2013

Wage Base (2019)

- $641m wage base
- 32% of city wage base is in manufacturing.
- Average manufacturing wage is $101k, which is 13% higher than the average MA manufacturing wage – this higher wage reflects the more skilled manufacturing job mix in Gloucester

Data Source: NP calculations based on MASSLM city town annual statistics
Employment

• Gloucester has approximately 10,500 payroll jobs.

• Payroll jobs are wage and salary jobs covered by unemployment insurance – does not include self employed or 1099 employees.

• Employment growth was steady through 2017 and has fallen

• The impact of COVID isn’t clear because of the reporting lag from the state Labor Market Datasets

Source: NP analysis based on MASSLMI city town annual statistics, 2013 - 2020
Manufacturing, Health Care and Social Assistance, and Retail Trade are key industries in Gloucester, representing 55% of all the jobs in the city.

Gloucester is more dependent on manufacturing as a source of employment than the nation as a whole. Manufacturing represents almost 18% of Gloucester’s job base but is only 10% of the US job base. This translates to a concentration level or location quotient (LQ) of 1.75.

Leisure and hospitality sector which includes accommodations, food services plus arts, entertainment recreation has over 1800 jobs – the second largest sector when combined.

Source: NP calculations based on MASSLMI city town annual statistics, 2019
**MANUFACTURING**

Manufacturing and business services have shrunk since 2013.

For the manufacturing sector in 2019, only four sub-sectors are large enough to not have their data subject to privacy limitations: food manufacturing, printing, chemical manufacturing, and fabricated metals. These represent 717 or 36% of all manufacturing jobs. Food manufacturing, which includes seafood processing, has not declined – it increased by 43 jobs since 2013. Declines have occurred in other sectors of the manufacturing economy.

**FISHING**

The Agriculture, Forestry, Fishing & Hunting sector, which includes fishing, has added jobs since 2013.

**HEALTHCARE**

Healthcare and social assistance employment has grown dramatically, adding 220 jobs since 2013.

**TOURISM**

Sectors driven by disposable income - accommodation and food services, retail trade, and art entertainment represent three of the four highest-growth sectors of the Gloucester economy.

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**Source:** NP calculations based on MASSLMI city town annual statistics, 2013-2019
Wages

MANUFACTURING

Manufacturing pays well - it makes up 32% of Gloucester’s wages despite making up only 18% of the job base. Gloucester has a total wage base of approximately $641 million. Over $200m, or 32%, of those wages are in manufacturing, even though manufacturing is only 18% of the job base.

Gloucester’s manufacturing jobs pay better than the statewide average, but wages have declined recently. Average manufacturing wage in Gloucester is over $101k compared to a statewide average of $89,698. However, Gloucester’s average manufacturing wages have gone down since 2013. This implies that the job losses in the manufacturing sector since 2019 have been concentrated in higher paying jobs. In total manufacturing wages are down by over $26m.

FISHING

Fishing appears to have seen increased wages and job growth from 2013-2019. The Agriculture, Forestry, Fishing & Hunting sector, which in Gloucester primarily consists of the fishing industry, saw wages increase by 49% while also adding payroll jobs. Like in manufacturing, the job mix associated with the fishing industry is clearly changing.

TOURISM

Gloucester’s rapidly growing leisure and hospitality sector has wages similar to statewide averages.

Source: NP calculations based on MASSLMI city town annual statistics, 2013 and 2019
Workforce Inflow/Outflow

- Approximately 1/3 of Gloucester’s private, primary jobs (excluding part time employment) are filled by Gloucester’s residents
- In the goods producing sector which includes the ag/fishing sector, manufacturing and construction – 40% of that workforce or ~980, consists of Gloucester residents
- Approximately 1200 Gloucester residents leave the community for goods producing jobs

Source: NP analysis of U.S. Census Bureau, Center for Economic Studies, https://onthemap.ces.census.gov, 2018
Gloucester’s “Blue Economy” is at least 20% of the city’s job base (1)

Gloucester’s “Blue” economy (preliminary estimate) is:
- 20% of the city’s employment base
- 16% of the wage base
This is roughly equivalent to 2013 percentages

<table>
<thead>
<tr>
<th>Industry</th>
<th>Jobs</th>
<th>Wages $M</th>
</tr>
</thead>
<tbody>
<tr>
<td>Marine Education, Advocacy, Research &amp; Innovation</td>
<td>220-230</td>
<td>$16-17</td>
</tr>
<tr>
<td>Seafood (processing &amp; wholesale)</td>
<td>583</td>
<td>$46.0</td>
</tr>
<tr>
<td>Fishing / Fleet Services</td>
<td>130*</td>
<td>$11.2*</td>
</tr>
<tr>
<td>Tourism</td>
<td>1200</td>
<td>$31</td>
</tr>
<tr>
<td>Maritime Total</td>
<td>2133 - 2143</td>
<td>at least $104.2</td>
</tr>
</tbody>
</table>

Data Source: NP estimates, mixed sources. See slides 24, 32, 34, 41, and 47 for detail. Fleet services excludes recreational marinas and includes ship repair facilities.
Employment was estimated using D&B, BBB, Manta and other sources where employment was reported. Wages were based on state average for ship repair.
* Excludes 1099 employees
(1) note initial estimates may change as new information becomes available to offset data suppression and privacy rules regarding company data
Fishing and Seafood Industry
Key Findings

- Gloucester’s fishing industry is in the midst of a transition, this isn’t all good or all bad.

- Decline in landing weight but increase in landing value from 2013-2019 indicates that there has been a shift from large-scale groundfishing to lobstering and small-scale operations with a higher per-pound value.

- When measured by fleet, dealer activity, and daily trips, Gloucester’s fishing capacity and activity is competitive with, or leading regional peers (New Bedford and Boston)
Based on National Marine Fisheries Service (NMFS) data, Gloucester landings went from **122mlbs** in 2009, fluctuated in the **mid-60mlbs** range until 2017, then dropped to approximately **50mlbs** in 2019.

Source: NP analysis of National Marine Fisheries Service (NMFS) Landings data, various years
Since 2013 Gloucester has performed better than the US overall and the other large fishing ports in New England with the exception of 2019.

- New Bedford declined after 2014 and is essentially flat.
- Portland ME equaled Gloucester’s landing totals in 2013 but has fallen substantially since then.
Based on NMFS data Gloucester’s catch value in 2019 was $56.6m – the highest catch value since 2011 and $6 million higher than 2009 when the total pounds caught was 143% higher.

This obviously reflects a change in species mix, which is also exemplified in the price per pound, which went from $.41 in 2009 to $1.13.

GloUCESTER VALUE OF LANDINGS SINCE 2013

Source: NP analysis NMFS Landings data, various years
Since 2013 Gloucester’s catch value has increased in value 24% faster than the US
Among the major New England ports only Pt Judith (squid & lobster) has since a higher increase in landing value
Portland ME has seen unequal performance over this time period
Landings Changes Reflect Ecosystem Change

- Landing weight is going down as value is going up, reflecting increased shift toward lobster
- The changing fishery implies having a harbor with the ability to handle a diverse fishery, including providing the shoreside infrastructure and equipment to support different harvesting processes

*Atlantic Cod Density*
habitat range has and is projected to continue shrinking, but is diversifying

*American Lobster Density*
habitat has already and is projected to continue shifting north

Fishing Employment, Establishments, and Wages

- Annual wage and employment data only covers payroll reported wages
- Based on the 2019 OCEW payroll data Gloucester fishing employs at a minimum 109 people in 57 businesses.
- Total payrolls equal $9.5m with an average annual wage of $87,724. This likely reflects full-time crew and captains as well as professional managers
- To fully capture total employment tied to the fishing fleet such as occurred for the 2013 MHP, requires access to settlement offices to understand 1099 payouts to crews.

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
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<tbody>
<tr>
<td>Employment</td>
<td>100</td>
<td>108</td>
<td>107</td>
<td>114</td>
<td>117</td>
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<td>109</td>
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<tr>
<td>Establishments</td>
<td>61</td>
<td>63</td>
<td>60</td>
<td>62</td>
<td>63</td>
<td>59</td>
<td>57</td>
</tr>
</tbody>
</table>

Data Source: OCEW payroll data for fishing, defined as NAICS code 1114, 2013 - 2019
### Gloucester 2018 Catch & Value

- Lobster is by far the most valuable product and has landings comparable to leading finfish
- Gloucester is arguably the state’s most active lobster port

#### 2018 GLOUCESTER LANDINGS (LIVE POUNDS) AND EX-VEssel VALUE FOR TOP 20 SPECIES

<table>
<thead>
<tr>
<th>COMMON NAME</th>
<th>LANDINGS</th>
<th>VALUE</th>
<th># ACTIVE HARVESTERS</th>
</tr>
</thead>
<tbody>
<tr>
<td>LOBSTER, AMERICAN</td>
<td>4,148,482</td>
<td>$21,147,773</td>
<td>189</td>
</tr>
<tr>
<td>HADDOCK</td>
<td>6,363,829</td>
<td>$5,741,284</td>
<td>81</td>
</tr>
<tr>
<td>HERRING, SEA, ATLANTIC</td>
<td>20,319,196</td>
<td>$3,922,262</td>
<td>11</td>
</tr>
<tr>
<td>REDFISH, ACADIAN</td>
<td>5,579,416</td>
<td>$2,750,124</td>
<td>53</td>
</tr>
<tr>
<td>GOOSEFISH</td>
<td>4,400,059</td>
<td>$2,488,838</td>
<td>52</td>
</tr>
<tr>
<td>FLOUNDER, AMERICAN PLAICE</td>
<td>924,463</td>
<td>$1,907,481</td>
<td>46</td>
</tr>
<tr>
<td>POLLOCK</td>
<td>2,869,001</td>
<td>$1,888,359</td>
<td>56</td>
</tr>
<tr>
<td>TUNA, BLUEFIN</td>
<td>336,086</td>
<td>$1,859,284</td>
<td>164</td>
</tr>
<tr>
<td>HAKE, WHITE</td>
<td>2,012,313</td>
<td>$1,769,569</td>
<td>39</td>
</tr>
<tr>
<td>COD, ATLANTIC</td>
<td>699,887</td>
<td>$1,623,259</td>
<td>80</td>
</tr>
<tr>
<td>SCALLOP, SEA</td>
<td>1,215,922</td>
<td>$1,458,653</td>
<td>28</td>
</tr>
<tr>
<td>HAKE, SILVER</td>
<td>1,400,443</td>
<td>$1,331,507</td>
<td>47</td>
</tr>
<tr>
<td>FLOUNDER, WITCH</td>
<td>603,675</td>
<td>$1,140,152</td>
<td>44</td>
</tr>
<tr>
<td>CLAM, SOFT</td>
<td>491,198</td>
<td>$829,135</td>
<td>94</td>
</tr>
<tr>
<td>CLAM, SURF, ATLANTIC</td>
<td>*</td>
<td>*</td>
<td>13</td>
</tr>
<tr>
<td>MACKEREL, ATLANTIC</td>
<td>3,784,887</td>
<td>$646,599</td>
<td>19</td>
</tr>
<tr>
<td>MENHADENS</td>
<td>3,461,550</td>
<td>$540,720</td>
<td>6</td>
</tr>
<tr>
<td>FLOUNDER, WINTER</td>
<td>155,207</td>
<td>$406,664</td>
<td>42</td>
</tr>
<tr>
<td>FLOUNDER, YELLOWTAIL</td>
<td>273,204</td>
<td>$287,044</td>
<td>41</td>
</tr>
<tr>
<td>CRAB, JONAH</td>
<td>183,800</td>
<td>$181,057</td>
<td>57</td>
</tr>
</tbody>
</table>

* = Confidential

#### Top 10 Ports By Ex-vessel Value For American Lobster & Jonah Crab In 2018

<table>
<thead>
<tr>
<th>RANK</th>
<th>PORT</th>
<th>EX-VEssel VALUE</th>
<th># ACTIVE DEALERS</th>
<th># ACTIVE HARVESTERS</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>NEW BEDFORD</td>
<td>$21,704,482</td>
<td>19</td>
<td>78</td>
</tr>
<tr>
<td>2</td>
<td>GLOUCESTER</td>
<td>$21,328,830</td>
<td>26</td>
<td>190</td>
</tr>
<tr>
<td>3</td>
<td>ROCKPORT¹</td>
<td>$6,559,212</td>
<td>8</td>
<td>51</td>
</tr>
<tr>
<td>4</td>
<td>SANDWICH</td>
<td>$4,877,676</td>
<td>10</td>
<td>29</td>
</tr>
<tr>
<td>5</td>
<td>PLYMOUTH</td>
<td>$4,691,102</td>
<td>13</td>
<td>63</td>
</tr>
<tr>
<td>6</td>
<td>PROVINCETOWN¹</td>
<td>$4,663,832</td>
<td>9</td>
<td>67</td>
</tr>
<tr>
<td>7</td>
<td>MARSHFIELD¹</td>
<td>$3,855,770</td>
<td>15</td>
<td>51</td>
</tr>
<tr>
<td>8</td>
<td>CHATHAM</td>
<td>$3,726,182</td>
<td>13</td>
<td>59</td>
</tr>
<tr>
<td>9</td>
<td>BEVERLY¹</td>
<td>$3,621,568</td>
<td>11</td>
<td>38</td>
</tr>
<tr>
<td>10</td>
<td>MARBLEHEAD¹</td>
<td>$3,201,335</td>
<td>4</td>
<td>53</td>
</tr>
</tbody>
</table>

SOURCE: SAFIS Dealer Database & ACCSP Data Warehouse, 2020 TH
While many know Gloucester as a groundfishing port renowned for its harvest of the Atlantic Cod, the data from 2014-2018 tells a different story.

By landing weight, Gloucester is primarily a Herring port, followed by Acadian Redfish and Haddock.

By landing value, Gloucester is primarily a Lobster port, followed by Herring and Haddock.

### Gloucester Key Fisheries Rank

<table>
<thead>
<tr>
<th>SPECIES</th>
<th>RANK (lb)</th>
<th>RANK ($)</th>
</tr>
</thead>
<tbody>
<tr>
<td>AMERICAN LOBSTER</td>
<td>5</td>
<td>1</td>
</tr>
<tr>
<td>ATLANTIC SEA HERRING</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>HADDOCK</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>MONKFISH</td>
<td>6</td>
<td>4</td>
</tr>
<tr>
<td>ACADIAN REDFISH</td>
<td>2</td>
<td>5</td>
</tr>
<tr>
<td>ATLANTIC MACKEREL</td>
<td>4</td>
<td>14</td>
</tr>
</tbody>
</table>

Source: SAFIS Dealer Database, 05/30/2020 & ACCSP Data Warehouse, 03/17/2020 TH
Gloucester’s fishing capacity and activity appears to be roughly equivalent to New Bedford.

- Capacity is measured by harvesters and vessels.
- Activity is measured by trips, harvesters and dealers.
- This data implies about Gloucester:
  - The largest fishing fleet
  - Most dealer activity
  - And a fleet that makes frequent trips (dayboat driven)
- In 2018 446 Vessels were homeported in Gloucester, compared to 425 in 2014.
  - However, according to the most recent Ports Compact Study in 2013, only 279 vessels were actually active in Gloucester.
  - More recent data related to active versus home ported vessels is currently unavailable.

<table>
<thead>
<tr>
<th></th>
<th>Gloucester</th>
<th>New Bedford</th>
<th>Boston</th>
</tr>
</thead>
<tbody>
<tr>
<td>Permitted Harvesters</td>
<td>436</td>
<td>416</td>
<td>166</td>
</tr>
<tr>
<td>Homeported Vessels</td>
<td>446</td>
<td>329</td>
<td>123</td>
</tr>
<tr>
<td>Trips Landing</td>
<td>19,638</td>
<td>10,551</td>
<td>2,165</td>
</tr>
<tr>
<td>Active Permitted Harvesters Landing</td>
<td>607</td>
<td>720</td>
<td>146</td>
</tr>
<tr>
<td>Active Dealers Purchasing</td>
<td>87</td>
<td>81</td>
<td>21</td>
</tr>
</tbody>
</table>

Data Source: Mass Marine Commercial Fisheries Port Profile reports various ports; MA Permitting Database, SAFIS Dealer Database, 06/02/2020 & ACCSP Data Warehouse, 03/17/2020
## Comparing Gloucester Fishing Capacity and Activity

<table>
<thead>
<tr>
<th>PORT</th>
<th>CATEGORY</th>
<th>2014</th>
<th>2015</th>
<th>2016</th>
<th>2017</th>
<th>2018</th>
</tr>
</thead>
<tbody>
<tr>
<td>GLOUCESTER</td>
<td># Harvesters with Gloucester Address</td>
<td>427</td>
<td>420</td>
<td>432</td>
<td>440</td>
<td>435</td>
</tr>
<tr>
<td></td>
<td># Vessels with Gloucester Homeport</td>
<td>425</td>
<td>429</td>
<td>431</td>
<td>429</td>
<td>447</td>
</tr>
<tr>
<td></td>
<td># Landings in Gloucester</td>
<td>21,518</td>
<td>17,433</td>
<td>21,745</td>
<td>20,652</td>
<td>19,621</td>
</tr>
<tr>
<td></td>
<td># Active Harvesters Landing in Gloucester</td>
<td>507</td>
<td>460</td>
<td>574</td>
<td>609</td>
<td>614</td>
</tr>
<tr>
<td></td>
<td># Active Dealers Purchasing in Gloucester</td>
<td>92</td>
<td>74</td>
<td>85</td>
<td>88</td>
<td>87</td>
</tr>
<tr>
<td>BOSTON</td>
<td># Harvesters with Boston Address</td>
<td>158</td>
<td>161</td>
<td>166</td>
<td>158</td>
<td>166</td>
</tr>
<tr>
<td></td>
<td># Vessels with Boston Homeport</td>
<td>132</td>
<td>130</td>
<td>126</td>
<td>124</td>
<td>123</td>
</tr>
<tr>
<td></td>
<td># Landings in Boston</td>
<td>1,993</td>
<td>2,098</td>
<td>2,309</td>
<td>2,383</td>
<td>2,165</td>
</tr>
<tr>
<td></td>
<td># Active Harvesters Landing in Boston</td>
<td>117</td>
<td>113</td>
<td>148</td>
<td>130</td>
<td>146</td>
</tr>
<tr>
<td></td>
<td># Active Dealers Purchasing in Boston</td>
<td>26</td>
<td>21</td>
<td>18</td>
<td>24</td>
<td>21</td>
</tr>
<tr>
<td>NEW BEDFORD</td>
<td># Harvesters with New Bedford Address</td>
<td>420</td>
<td>409</td>
<td>405</td>
<td>407</td>
<td>416</td>
</tr>
<tr>
<td></td>
<td># Vessels with New Bedford Homeport</td>
<td>335</td>
<td>317</td>
<td>321</td>
<td>331</td>
<td>329</td>
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<tr>
<td></td>
<td># Landings in New Bedford</td>
<td>11,292</td>
<td>11,197</td>
<td>11,417</td>
<td>11,360</td>
<td>10,551</td>
</tr>
<tr>
<td></td>
<td># Active Harvesters Landing in New Bedford</td>
<td>815</td>
<td>774</td>
<td>785</td>
<td>783</td>
<td>720</td>
</tr>
<tr>
<td></td>
<td># Active Dealers Purchasing in New Bedford</td>
<td>105</td>
<td>90</td>
<td>95</td>
<td>81</td>
<td>81</td>
</tr>
</tbody>
</table>

*Source: MA Permitting Database, SAFIS Dealer Database, 06/02/2020 & ACCSP Data Warehouse, 03/17/2020*
Fishing

Key Questions

How much activity is required to maintain the viability of harbor infrastructure as fishing capacity market shifts to smaller operations and different species?

- What is the minimum level of active fishing needed to justify the investment in infrastructure and supporting services?
- Will shifting species require changes to the shoreside infrastructure to support it?
- What mix of land uses can complement and support the fishing market?
Key Findings:

- Seafood processing is a mature, global, growing, industry throughout the state and continues to have a strong presence nationally, but the industry is consolidating and employment is shrinking nationally while the wholesale market is expanding.

- Gloucester is one of the top 10-15 seafood processing locations in the country in terms of number of employees with one of the highest wage bases in the country thanks to its mix of jobs.
In terms of New England exports Boston is 50% of the volume and 40% of the dollar value compared to Portland ME.

Top products exported through Boston are:
- Lobster
- Squid
- Scallops
- Dogfish
- Monkfish
- Herring
- Tuna

Source: NP analysis of 2019 NOAA Foreign Fisheries Trade Data by Port.
Base Economic Conditions

Gloucester is one of the top 10-15 seafood processing communities in the US

National Industry Performance
Since 2013, nationally, the industry is consolidating, and overall employment has fallen with limited growth in demand and increased imported product.

Massachusetts vs. US
● In 2019 there were an estimated 816 seafood processing establishments across the US employing approximately 35,000, for an average size of 43 employees per site with average wage of $49,847.
● Massachusetts has 46 establishments employing 2,780 people - 3rd highest number of employees in the country. MA seafood firms have more employees on average (60 vs 43 for the US) and the 2nd highest wages ($61,626 vs Washington’s $73,983).

County-Level Analysis
Using the same datasets as the County level analysis: Gloucester represents, within Essex County, 50% of the firms, 90% of the employees, and 93% of the wages. Gloucester is one of the top 10-15 seafood processing locations in the country in terms of number of employees with one of the highest wage bases in the country thanks to its mix of jobs.

Comparing Massachusetts Counties (2019)

<table>
<thead>
<tr>
<th></th>
<th>Bristol</th>
<th>Essex</th>
<th>Suffolk</th>
<th>Plymouth</th>
</tr>
</thead>
<tbody>
<tr>
<td>Establishments</td>
<td>19</td>
<td>8</td>
<td>8</td>
<td>4</td>
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<tr>
<td>Employees</td>
<td>1628</td>
<td>554</td>
<td>366</td>
<td>116</td>
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<tr>
<td>Avg Size</td>
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<td>45.8</td>
<td>29</td>
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<tr>
<td>Employee LQ</td>
<td>29.8</td>
<td>7.1</td>
<td>2.2</td>
<td>2.7</td>
</tr>
<tr>
<td>Total Wages</td>
<td>$92m</td>
<td>$44m</td>
<td>$22m</td>
<td>$5.9m</td>
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<tr>
<td>Avg Annual Wage</td>
<td>$56,650</td>
<td>$79,912</td>
<td>$60,422</td>
<td>$51,128</td>
</tr>
</tbody>
</table>

Data Source: NP analysis of BLS OCEW payroll employment data, 2019
Seafood Processing Industry Trends

- Even with growing consumer demand the industry is consolidating and shrinking employment
- It is possible that this shift in employment levels could be due to increased substitution of temporary employment (which is not reflected in this data). Any shift from full-time to temporary employment has wage and benefit issues.

Source: NP analysis of BLS OCEW payroll employment data, 2010 - 2020
Seafood wholesale is a growing sector

National Industry Performance
Since 2013, nationally, seafood wholesale business has steadily added jobs (nearly 5,000) and businesses (400+).

Massachusetts vs. US
- In 2019 there were an estimated 2,700 seafood wholesalers across the US employing approximately 28,000, for an average size of 10 employees per site.
- Massachusetts has 159 establishments employing 2,359 people. MA seafood wholesalers have more employees on average (15 vs 10 for the US) and average wage ($67,267 vs $53,834) is 25% higher than the national average.

County Level Analysis
Gloucester represents at least 45% of the Essex total establishments.

Comparing Massachusetts Counties (2019)

<table>
<thead>
<tr>
<th></th>
<th>Suffolk</th>
<th>Essex</th>
<th>Bristol</th>
<th>Barnstable</th>
</tr>
</thead>
<tbody>
<tr>
<td>Establishments</td>
<td>49</td>
<td>36</td>
<td>22</td>
<td>9</td>
</tr>
<tr>
<td>Employees</td>
<td>1348</td>
<td>431</td>
<td>268</td>
<td>107</td>
</tr>
<tr>
<td>Avg Size</td>
<td>28</td>
<td>12</td>
<td>12</td>
<td>12</td>
</tr>
<tr>
<td>Employee LQ</td>
<td>10.1</td>
<td>6.9</td>
<td>6.2</td>
<td>5.8</td>
</tr>
<tr>
<td>Total Wages</td>
<td>$91m</td>
<td>$31m</td>
<td>$17m</td>
<td>$5.3m</td>
</tr>
<tr>
<td>Avg Annual Wage</td>
<td>$67,507</td>
<td>$71,802</td>
<td>$62,985</td>
<td>$50,091</td>
</tr>
</tbody>
</table>

Data Source: NP analysis of BLS OCEW payroll employment data, 2019
Seafood Wholesale Industry Trends

In contrast to the seafood processing industry, the seafood wholesale industry continues to expand nationally.

Source: NP analysis of BLS OCEW payroll employment data, 2010 - 2019
Seafood Industry

Key Questions

How can the Harbor Plan support continued utilization and investment in Gloucester’s seafood industry?

- How much overlap is there between seafood processing and the seafood wholesale business in Gloucester? Are they effectively the same business in Gloucester? What are the implications for the waterside and landside infrastructure?

- Are their emerging processing technologies that will require different scale of facilities?

- What shared harbor infrastructure is needed to allow efficient transfer to inland seafood processing facilities?
Tourism
Key Findings

- Tourism in Gloucester is highly seasonal.
- Gloucester is a regional destination for visitors predominantly from areas north of the Mass Pike, and is the destination for 70% of visitors within the North Shore region (which includes Salem, Beverley, and Manchester-by-the-Sea)
- The harbor is very much a part of the visitor experience.
Estimating the impact of tourism from local data can be difficult if there are limited sources of information available such as sales tax or room tax data. In the absence of direct data sources, tourism can be estimated based on seasonality.

For Gloucester the best option to estimate tourism employment and wages is to look at swings in employment and tax revenue in tourism associated industries such as leisure and hospitality. By taking the seasonal swing in employment it provides an approximation of how much economic activity swings.

The seasonal swing caused by the summer shows a seasonal peak to trough of 1,260 additional jobs, which can be assumed to be jobs that cater to the largely seasonal tourism economy.
Gloucester’s tourism sector appears to be highly seasonal

**Hotel / Lodging Tax**
- 75% of Gloucester’s hotel activity takes place during the summer and early fall
- Pre Beauport Hotel, accommodation revenues equaled $14m

**Meals Tax**
- 55% of Gloucester’s meals tax is generated during the summer and early fall
- “Meals” in 2019 equaled $93m in revenue

Data Source: NP calculations based on MA DOR Data and Analytics Research Bureau Rooms and Meals Tax Liabilities by Month, 2019
Estimating Tourism

- The most recent state of Massachusetts economic impact study estimates tourism in Essex County at approximately $1b in visitor expenditures.

- Gloucester is approximately 6% of the establishments and wage base of the leisure and hospitality industry in Essex County. On a fair share basis tourism could have as much as a $62m impact.

- Gloucester also represents 17% of the swing in summer seasonal employment in these industries in Essex County implying that summer tourism may have an outsized impact on Gloucester relative to the rest of the county.

The following employment statistics result from this data aggregation and analysis:

**JOBS**
~1200 (including seasonal peak)

**WAGES**
~$31m (including seasonal peak)

_Data Source: 2020 Massachusetts Office of Travel and Tourism Annual Report, data reported is for calendar year 2019_
70% of visitors to Gloucester come from this region.

Data Source: NP analysis of UM VISTA Mobile Location Data Insights 7/31/20 to 7/31/21
This visitor point map suggests that the Mass Pike is a natural southern boundary for Gloucester visitors.

Data Source: NP analysis of UM VISTA Mobile Location Data Insights 7/31/20 to 7/31/21
This visitor heat map suggests that the harbor is very much a part of the visitor experience.

Visitors journey along the Harbor and filter into the core of downtown.

NOTE: The consultant team is in the process of securing data for a larger geographic area to identify additional patterns of visitor behavior.

Data Source: NP analysis of UM VISTA Mobile Location Data Insights 7/31/20 to 7/31/21
How can we leverage tourism and recreation as economic engines for the harbor without undermining marine industrial uses?

- What are the specific areas of tourism and recreational boating that are growing in the Gloucester market, and where are they supporting vs. competing with WDI?
- What current sites anchor the tourism and recreational boating markets in Gloucester, and where are they supporting vs. competing with WDI?
- What are some creative ways we can leverage tourism and recreation to finance WDI infrastructure investment?
Marine Education, Advocacy, Research & Innovation
**Marine Education, Advocacy, Research, Innovation**

- Marine Education, Advocacy, Research, and Innovation do not fit neatly into any single standard industry definition.

- To generate these estimates published news reports, IRS Form 990s, D&B business data, and industry employment data were combined to create a profile of this sector:
  - Gloucester NOAA
  - Mass state agencies
  - Ocean Alliance
  - Gloucester Fishermen’s Wives
  - CGMI
  - UMASS Amherst Gloucester Station
  - Gloucester innovation
  - Maritime Gloucester

The following employment statistics result from this data aggregation and analysis:

**JOBS**

220-230

**WAGES**

$16-$17m (payroll)

*Data Source: published news reports, IRS Form 990s, D&B business data, and industry employment data covering 2018-2019*
Gloucester’s Resilience & Infrastructure Baseline
Infrastructure Condition

- Within the inner harbor and DPA, there are not any significant utility deficiencies, including, water and sewer, beyond typical aging infrastructure requiring routine maintenance and rehabilitation.

- Electric power is owned and operated by National Grid where reliability has been a concern. National Grid is currently taking some measures to improve reliability to the system, specifically at a substation in the inner harbor.

Next steps:

- high-level analysis of waterside infrastructure (piers, sea walls, berthing) to align with economic strategy

- Gathering available data to assess Harbor activity and berthing congestion in terms of dockage supply and demand to shape infrastructure reinvestment agenda (data sources: NOAA VMS, Coast Guard AIS Tracking, MA Fish & Wildlife)
Federal Navigable Channels

Economic Impact

These are maintained by the Army Corps of Engineers, who is obligated to dredge to maintain a specified depth.

Channel depths (measured in 2017) dictate what types of ships can access each part of the harbor.

A maintenance offset from these areas allows the Corps to protect the slope and access the channels for dredging etc.

Resiliency Issues

Projected Change in High Tides

Map shows projected change in Mean Higher High Water (MHHW) through 2070. Elevations provided in table for MHHW & Mean High Water (MHW).

Data Source: Massachusetts Coast Flood Risk Model (MC-FRM). Projection is based on LiDAR, which can be imprecise for pier-type shore conditions, leading to an under-estimation of surface elevations.

<table>
<thead>
<tr>
<th>Tidal Datums (ft, NAVD88)</th>
<th>MHW</th>
<th>MHHW</th>
</tr>
</thead>
<tbody>
<tr>
<td>Present</td>
<td>4.4</td>
<td>4.8</td>
</tr>
<tr>
<td>2030</td>
<td>5.8</td>
<td>6.2</td>
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<tr>
<td>2050</td>
<td>7.0</td>
<td>7.4</td>
</tr>
<tr>
<td>2070</td>
<td>8.9</td>
<td>9.3</td>
</tr>
</tbody>
</table>

City Raised Wastewater Pump Station for Resilience

National Grid Substation #24

Commercial St, Rogers St, MA-127

East Main St, Rocky Neck Ave & Horton St
Resiliency Issues

Current Flood Risk Areas

2015 CCVA & 2021 CZM Resiliency report (forthcoming) provide guidance on strategies to protect the Harbor from flooding.

Data Source: FEMA DFIRM
Resiliency Issues

Projected 2050 Flood Risk Areas

100-year (1%) flood extent and depth for 2050. Assumes 2.5 ft of sea level rise.

Data Source: Massachusetts Coast Flood Risk Model (MC-FRM) & NOAA CUSP Shoreline

- 0.5 ft or less
- 1 ft
- 1.5 ft
- 2 ft
- 2.5 ft
- 3 ft
- 3.5 ft
- 4 ft
- 4.5 ft
- 5 ft
- 10 ft
- more than 10 ft

Water Pollution Control Facility

City Raised Wastewater Pump Station for Resilience

East Main St, Rocky Neck Ave & Horton St
Resiliency Issues

Projected 2070 Flood Risk Areas

100-year (1%) flood extent and depth for 2070. Assumes 4.3 ft of sea level rise.

Data Source: Massachusetts Coast Flood Risk Model (MC-FRM) & NOAA CUSP Shoreline

- Water Pollution Control Facility
- City Raised Wastewater Pump Station for Resilience
- National Grid Substation #24
- East Main St, Rocky Neck Ave & Horton St
- Commercial St, Rogers St, MA-127

0.5 ft or less
1 ft
1.5 ft
2 ft
2.5 ft
3 ft
3.5 ft
4 ft
4.5 ft
5 ft
10 ft
more than 10 ft
Resiliency Issues

Vulnerable Critical Infrastructure

2070 1% Flood Risk

Water Pollution Control Facility
(50 Essex Avenue) is already within a flood zone, but additional flood protection is required to meet the 2030 flood elevations, and grant recently received to start initial improvements.

Harbor Access Roads
multiple DPA access roads are subject to current flooding which worsens with future sea-level rise, including Commercial Street, Rogers Street, and MA-127 as well as East Main Street, Rocky Neck Avenue and Horton Street.
Initial Economic Strategy Sub-Areas

Initial takeaways by sub-area for further exploration in development of economic strategy
We propose thinking about the harbor in terms of different sub-areas with different assets, issues and opportunities:

- Infrastructure condition
- Resiliency, flood risk and climate change
- Parcel size, ownership & status
- Regulatory environment
- Economic activity types (tourism, fishing, etc.)
- Circulation (truck routes, parking)
- Public access
Going forward there is a fork in the road

Economic Strategy vs. Regulatory Plan

Harbor doesn't exist in isolation - upland activity (downtown, inland industrial parks) matters.

- **within DPA + within Chapter 91**
  - 184 acres

- **within DPA + outside Chapter 91**
  - 31 acres

- **outside DPA + within Chapter 91**
  - 108 acres

- **outside DPA + outside Chapter 91**
  - 101 acres