COMMERCIAL FISHING

VESSEL ACTIVITY

About this map

Multispecies

- Multispecies (Groundfish) 2015-2016
- Multispecies (Groundfish) 2015-2016 (>4 knots)
- Multispecies (Groundfish) 2011-2014
- Multispecies (Groundfish) 2011-2014 (>4 knots)

Scale 1:6,222,324

This is a Theme Map that shows a pre-selected set of data and has basic functionality. To add data from any combination of themes, use the Data Explorer.

VIEW IN DATA EXPLORER

Search ESRI EDRIS for related data
<table>
<thead>
<tr>
<th>Species</th>
<th>Trips</th>
<th>Pounds</th>
<th>Value</th>
<th>Percent Value</th>
<th>Fishery Ind Survey</th>
</tr>
</thead>
<tbody>
<tr>
<td>lobster american</td>
<td>186,685</td>
<td>93,971,688</td>
<td>$371,037,357</td>
<td>88%</td>
<td></td>
</tr>
<tr>
<td>eel american</td>
<td>5,545</td>
<td>5,878</td>
<td>$14,110,008</td>
<td>3%</td>
<td></td>
</tr>
<tr>
<td>clam soft</td>
<td>40,759</td>
<td>3,860,713</td>
<td>$6,684,490</td>
<td>2%</td>
<td></td>
</tr>
<tr>
<td>sea urchins green</td>
<td>3,570</td>
<td>2,033,103</td>
<td>$6,179,853</td>
<td>1%</td>
<td></td>
</tr>
<tr>
<td>scallop sea</td>
<td>6,276</td>
<td>4,901,088</td>
<td>$6,147,020</td>
<td>1%</td>
<td></td>
</tr>
<tr>
<td>herring atlantic</td>
<td>298</td>
<td>23,373,125</td>
<td>$6,050,638</td>
<td>1%</td>
<td></td>
</tr>
<tr>
<td>other species</td>
<td>3,647</td>
<td>18,305,615</td>
<td>$2,291,158</td>
<td>1%</td>
<td></td>
</tr>
<tr>
<td>bloodworms</td>
<td>16,268</td>
<td>143,257</td>
<td>$2,237,201</td>
<td>1%</td>
<td></td>
</tr>
<tr>
<td>mussel blue sea</td>
<td>823</td>
<td>4,710,276</td>
<td>$1,819,096</td>
<td>0%</td>
<td></td>
</tr>
<tr>
<td>crab atlantic rock</td>
<td>11,657</td>
<td>2,470,574</td>
<td>$1,530,785</td>
<td>0%</td>
<td></td>
</tr>
<tr>
<td>sandworms</td>
<td>4,567</td>
<td>124,844</td>
<td>$915,077</td>
<td>0%</td>
<td></td>
</tr>
<tr>
<td>oyster eastern / american</td>
<td>533</td>
<td>234,432</td>
<td>$627,337</td>
<td>0%</td>
<td></td>
</tr>
<tr>
<td>crab jonah</td>
<td>4,627</td>
<td>997,371</td>
<td>$577,975</td>
<td>0%</td>
<td></td>
</tr>
<tr>
<td>periwinkles atlantic (cockles)</td>
<td>5,912</td>
<td>553,227</td>
<td>$536,628</td>
<td>0%</td>
<td></td>
</tr>
<tr>
<td>tuna atlantic bluefin</td>
<td>217</td>
<td>83,233</td>
<td>$482,651</td>
<td>0%</td>
<td></td>
</tr>
<tr>
<td>halibut atlantic</td>
<td>507</td>
<td>43,230</td>
<td>$251,628</td>
<td>0%</td>
<td></td>
</tr>
<tr>
<td>rockweed</td>
<td>623</td>
<td>4,181,635</td>
<td>$109,290</td>
<td>0%</td>
<td></td>
</tr>
<tr>
<td>clam razor atlantic</td>
<td>108</td>
<td>7,413</td>
<td>$25,941</td>
<td>0%</td>
<td></td>
</tr>
<tr>
<td>clam northern quahog / hard</td>
<td>77</td>
<td>4,546</td>
<td>$15,287</td>
<td>0%</td>
<td></td>
</tr>
<tr>
<td>whelk waved</td>
<td>8</td>
<td>1,043</td>
<td>$681</td>
<td>0%</td>
<td></td>
</tr>
<tr>
<td><strong>Grand Total</strong></td>
<td><strong>292,707</strong></td>
<td><strong>160,006,291</strong></td>
<td><strong>$421,630,101</strong></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
## 2017 United States Landings and Value

### Table of 2017 United States Landings and Value

<table>
<thead>
<tr>
<th>Year</th>
<th>AFS Species Name</th>
<th>Pounds</th>
<th>Dollars</th>
<th>Price_Pound</th>
</tr>
</thead>
<tbody>
<tr>
<td>2017</td>
<td>LOBSTER, AMERICAN</td>
<td>132,972,729</td>
<td>$ 552,055,840</td>
<td>4.15</td>
</tr>
<tr>
<td>2017</td>
<td>SCALLOP, SEA</td>
<td>51,458,479</td>
<td>$ 506,504,308</td>
<td>9.84</td>
</tr>
<tr>
<td>2017</td>
<td>POLLOCK, WALLEYE</td>
<td>3,388,620,359</td>
<td>$ 413,272,114</td>
<td>0.12</td>
</tr>
<tr>
<td>2017</td>
<td>SALMON, SOCKEYE</td>
<td>291,587,186</td>
<td>$ 323,743,072</td>
<td>1.11</td>
</tr>
<tr>
<td>2017</td>
<td>SHRIMP, WHITE</td>
<td>128,185,568</td>
<td>$ 263,405,508</td>
<td>2.05</td>
</tr>
<tr>
<td>2017</td>
<td>OYSTER, EASTERN</td>
<td>28,668,398</td>
<td>$ 214,496,066</td>
<td>7.48</td>
</tr>
<tr>
<td>2017</td>
<td>CRAB, DUNGENESS</td>
<td>61,292,479</td>
<td>$ 212,678,304</td>
<td>3.47</td>
</tr>
<tr>
<td>2017</td>
<td>CRAB, BLUE</td>
<td>146,783,402</td>
<td>$ 194,218,375</td>
<td>1.32</td>
</tr>
<tr>
<td>2017</td>
<td>SHRIMP, BROWN</td>
<td>104,357,443</td>
<td>$ 187,582,970</td>
<td>1.83</td>
</tr>
<tr>
<td>2017</td>
<td>SALMON, PINK</td>
<td>495,301,298</td>
<td>$ 163,620,382</td>
<td>0.33</td>
</tr>
<tr>
<td>2017</td>
<td>COD, PACIFIC</td>
<td>657,321,027</td>
<td>$ 156,370,675</td>
<td>0.24</td>
</tr>
<tr>
<td>2017</td>
<td>SABLEFISH</td>
<td>37,782,615</td>
<td>$ 143,424,467</td>
<td>3.80</td>
</tr>
<tr>
<td>2017</td>
<td>MENHADEN</td>
<td>1,412,548,473</td>
<td>$ 125,342,396</td>
<td>0.09</td>
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</tbody>
</table>

Source: [https://www.st.nmfs.noaa.gov/pls/webpls/mf_lndngs_grp.data_in](https://www.st.nmfs.noaa.gov/pls/webpls/mf_lndngs_grp.data_in)
Current DMR Lobster Work

• Maine data
  – Landings
  – Sea Sampling
  – Inshore Trawl Survey
  – Ventless Trap Survey
  – YoY Settlement Index

• New data
  – Maine Maturity Research
  – AOLA and NMFS Growth and Movement
NOAA - Ecosystem Status Report

Table 2: New England feeding guilds.

<table>
<thead>
<tr>
<th>Group</th>
<th>N species</th>
<th>Major species in the group</th>
</tr>
</thead>
<tbody>
<tr>
<td>A: Apex predator (Highest trophic level)</td>
<td>4</td>
<td>shark (Unc.), swordfish, yellowfin and bluefin tuna</td>
</tr>
<tr>
<td>B: Piscivore (Eat fish)</td>
<td>23</td>
<td>monkfish, winter and thorny skates, silver and offshore hake, Atlantic cod, haddock, flounder, spiny dogfish, summer flounder, bluefish, striped bass, weakfish</td>
</tr>
<tr>
<td>C: Planktivore (Eat plankton)</td>
<td>16</td>
<td>Atlantic herring, butterfish, Atlantic mackerel, menhaden, river herrings, shad, white hake, longfin and shortfin squids, seabob, sculpin, lumpfish</td>
</tr>
<tr>
<td>E: Benthivores (Eat bottom dwellers)</td>
<td>25</td>
<td>lobster, haddock, yellowtail, winter, and witch flounders, barndoor skate, ocean pout, black sea bass, scup, tilefish, tautog, cunner, blue crab, red crab, other crabs</td>
</tr>
<tr>
<td>F: Benthos (Filter feeders)</td>
<td>9</td>
<td>scallops, surfclam, quahog, mussels, whelks, conchs, sand dollars and urchins</td>
</tr>
</tbody>
</table>
– The biggest opportunity/ biggest challenge
  • Lobster
    • Incremental improvements make a big difference locally
– Provide critical components indicators/ keystones?
Coastal Circulation in Eastern Maine

Photo credit – Wes Hedlund

Phil Yund, Scott Morello
The Downeast Institute

LeAnn Conlon, Huijie Xue
University of Maine
Generalizations

1) Tidal exchange is the dominant source of water movement

2) Transport is mainly to the southwest, but limited northeasterly transport is possible

3) Most particles that exit bays leave the eastern Maine system

4) Connectivity among bays is highest within three clusters

5) Particles from sites with 2-dimensional flow tend to have greater retention and higher connectivity than sites in the open part of a bay

6) Early summer reversal of net flow in the Grand Manan Channel interacts with latitudinal spawning gradients to isolate much of eastern Maine from Canadian larval supplies
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Connectivity Among Bays Occurs in Clusters

Mussel bed locations
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Mussel seed reserve in Taunton Bay
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Seasonal Flow Reversal in the Grand Manan Channel

1957 Drifter Study
(Chevrier & Trites 1960 J. Fish. Res. Bd. Canada 17:743)
Latitudinal Gradient in Barnacle Settlement

Distance from Biddeford (km)

Cumulative Settlement (# cm$^{-2}$)
Challenges and Opportunities

1) Currently know little about inter-annual variability: how much changes from year to year?
   - But the hard work on the model is already completed
   - Need output from a larger scale model (NECOFS)

2) Need better understanding of mechanism behind seasonal flow reversal in the Grand Manan channel and implications for connectivity
   - Probable driver (St. Johns River) outside of our model domain
   - But captured in NECOFS

3) For species with strongly swimming and behaviorally complex larvae (e.g., fish, crustaceans), how does behavior interact with coastal circulation to determine transport patterns?
Nearshore — Actors

State of the Science
Machias ME

Carla Guenther

www.coastalfisheries.org
Mapping Social Indicators (www.st.nmfs.noaa.gov)
Distribution of federal fishery access in Maine

- Bluefish
- Black seabass
- Spiny dogfish
- Summer flounder
- Squid
- Herring
- General cat scallop
- Monkfish
- Northeast multispecies
- Quahog
- Red crab
- Limited access scallop
- Scup
- Surf clam
- Skate
- Mackerel
- Tilefish
- Lobster

The graph shows the distribution of federal fishery access in Maine, with lobster having the highest access, followed by other species in varying degrees.
5756 individuals  2% hold licenses in >3 fisheries  22% hold 2-3 licenses
<table>
<thead>
<tr>
<th>display label</th>
<th>YEAR</th>
<th>ESTAB</th>
<th>Employment Estimate</th>
<th>Marine Sector</th>
<th>Seasonal Ratio</th>
<th>Adjusted Employment</th>
</tr>
</thead>
<tbody>
<tr>
<td>(Deer Isle, ME)</td>
<td>2016</td>
<td>16</td>
<td>28</td>
<td>Living Resources</td>
<td>0.86</td>
<td>52</td>
</tr>
<tr>
<td>(Deer Isle, ME)</td>
<td>2016</td>
<td>4</td>
<td>10</td>
<td>Tourism and Recreation</td>
<td>1.24</td>
<td>22</td>
</tr>
<tr>
<td>(Deer Isle, ME)</td>
<td>2016</td>
<td>20</td>
<td>38</td>
<td>Total Marine Economy</td>
<td></td>
<td>74</td>
</tr>
<tr>
<td>(Stonington, ME)</td>
<td>2016</td>
<td>20</td>
<td>83.5</td>
<td>Living Resources</td>
<td>3.35</td>
<td>363</td>
</tr>
<tr>
<td>(Stonington, ME)</td>
<td>2016</td>
<td>11</td>
<td>39.5</td>
<td>Tourism and Recreation</td>
<td>1.3</td>
<td>91</td>
</tr>
<tr>
<td>(Stonington, ME)</td>
<td>2016</td>
<td>1</td>
<td>34.5</td>
<td>Crushed and broken granite mining and quarrying</td>
<td></td>
<td>35</td>
</tr>
<tr>
<td>(Stonington, ME)</td>
<td>2016</td>
<td>1</td>
<td>14.5</td>
<td>Inland water passenger transportation</td>
<td></td>
<td>15</td>
</tr>
<tr>
<td>(Stonington, ME)</td>
<td>2016</td>
<td>1</td>
<td>50</td>
<td>Billings Marine</td>
<td></td>
<td>50</td>
</tr>
<tr>
<td>(Stonington, ME)</td>
<td>2016</td>
<td>33</td>
<td>222</td>
<td>Total Marine Economy</td>
<td></td>
<td>553</td>
</tr>
<tr>
<td>(Sunset, ME)</td>
<td>2016</td>
<td>1</td>
<td>1</td>
<td>Marine Transportation</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>(Sunset, ME)</td>
<td>2016</td>
<td>1</td>
<td>2.5</td>
<td>Tourism and Recreation</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>(Sunset, ME)</td>
<td>2016</td>
<td>2</td>
<td>3.5</td>
<td>Total Marine Economy</td>
<td>4</td>
<td></td>
</tr>
</tbody>
</table>
The Stonington-Deer Isle Marine Economy at a Glance

From Maine DMR license data:
456 licensed fishermen
  50 are female
  15 non-consumptive lobster
  10 students
  3 apprentice
  1 aquaculture

>900 employees
>60% of total employment

Main Sector: Living Resources
Main Industry: Fish and seafood merchant wholesalers
 Crushed Granite Mining
 Inland Water Passenger Transport
450 Commercial Fishermen
6 Active Aquaculture Leases
Biggest Opportunity
maintained some diversity in access

Challenge
reduced opportunities/incentive to diversify
resolving scale and quality of data

Critical indicators/keystone
diversity in fishery access
diversity in age of licenseholders
Thank you!