East Coast Fisheries Climate Change Scenario Planning: Social & Economic Drivers of Change

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Today’s Focus

- Oceanographic Drivers of Change – 2/14/2022
- Biological Drivers of Change – 2/23/2022
- Today: Add People Into the Equation

Maryland's Ocean Fisheries: A Bioeconomic Assessment

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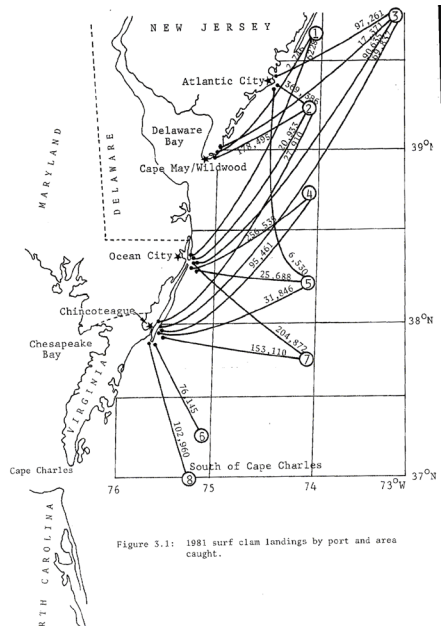
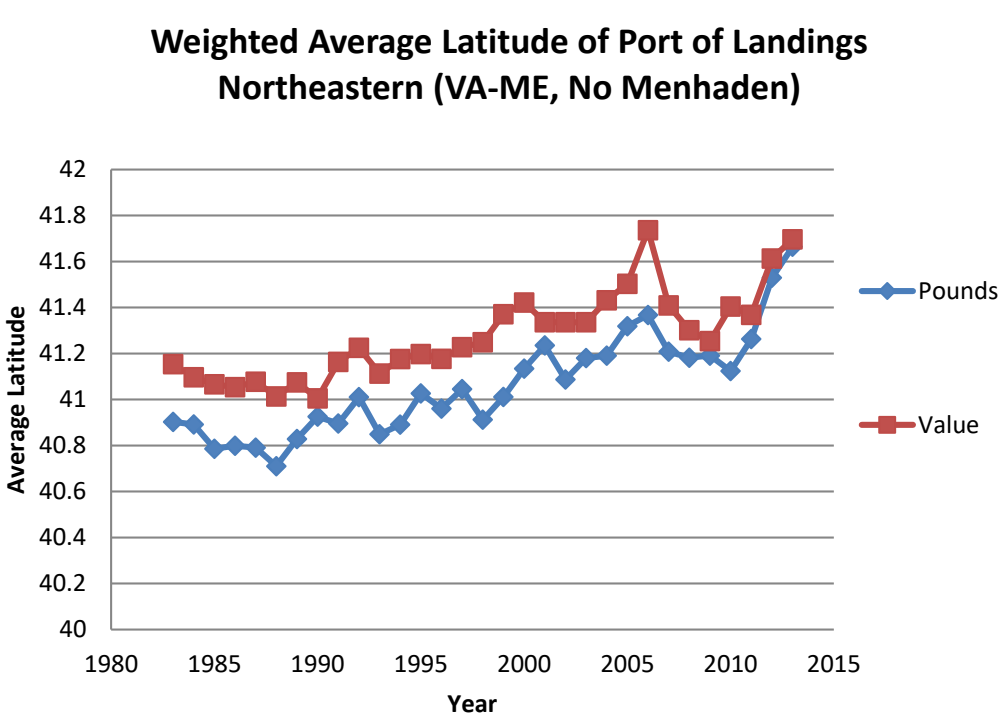
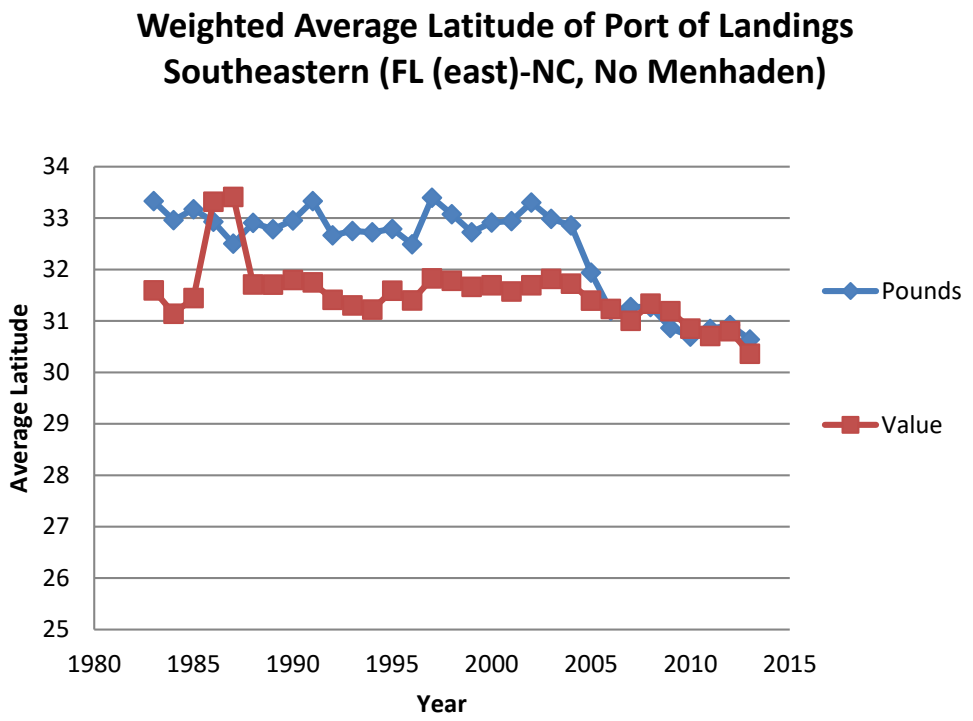


Figure 3.1: 1981 surf clam landings by port and area caught.

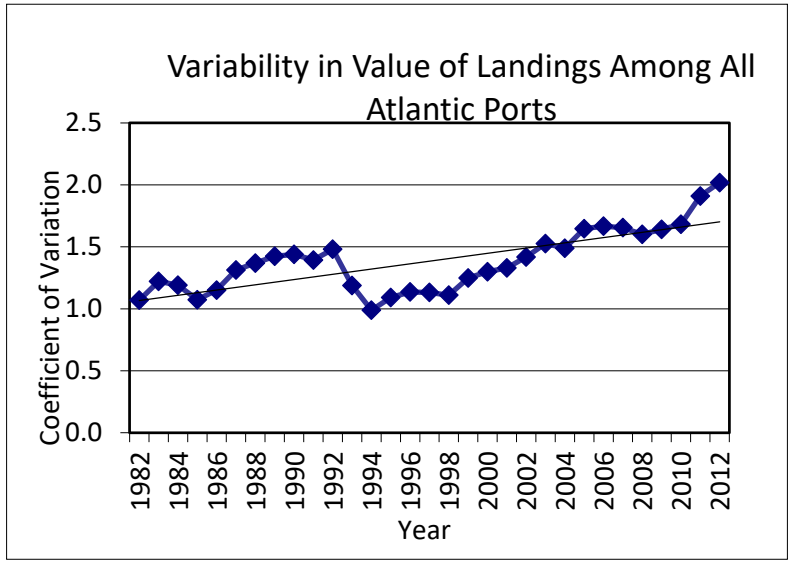
- "During the 1981 fishing season, clam boats had to be tied-up three to four abreast of each other because of the lack of dock space. In addition, some vessel captains were compelled to pack fish at one fish company in return for space at that company's dock. This inhibits them from packing with the company offering the best price."

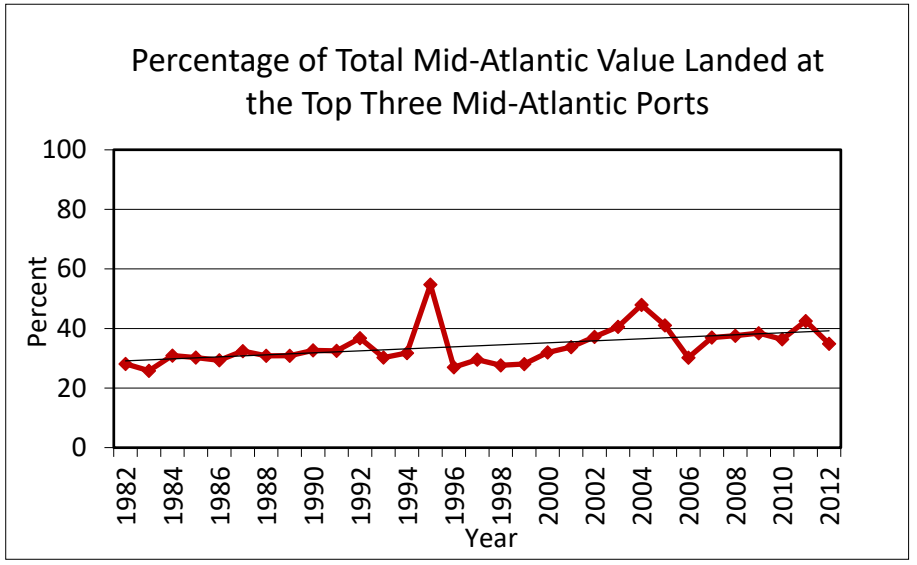
Fleets (?) Moving





Trends in Port Variability and Consolidation





What Did We Learn?

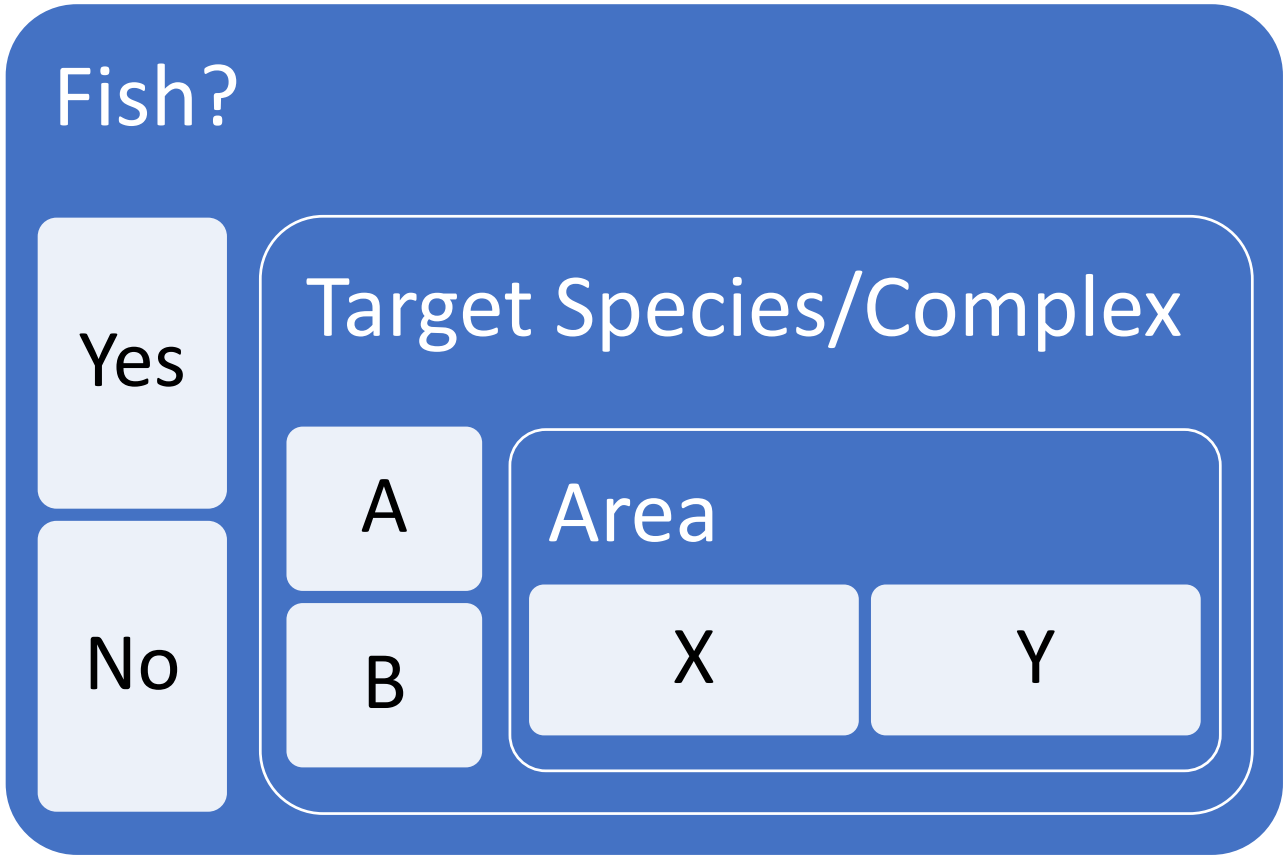
- THEME 1:
  - How will the fishing and related sectors respond to changing fish distributions, shifting abundances, etc.?
- THEME 2:
  - What external factors will limit or enhance the ability of the fishing and related sectors to make these adjustments?

In The Short Run (Trip, Season, Year)

Factors (Relatively)Fixed in the Short Run

- Stock Conditions
- Management / Regulation
- Capital – Vessel/Gear
- Knowledge – Owner/Captain/Crew
- Port Location
- Market Conditions
- Community/Family Traditions

The Decision



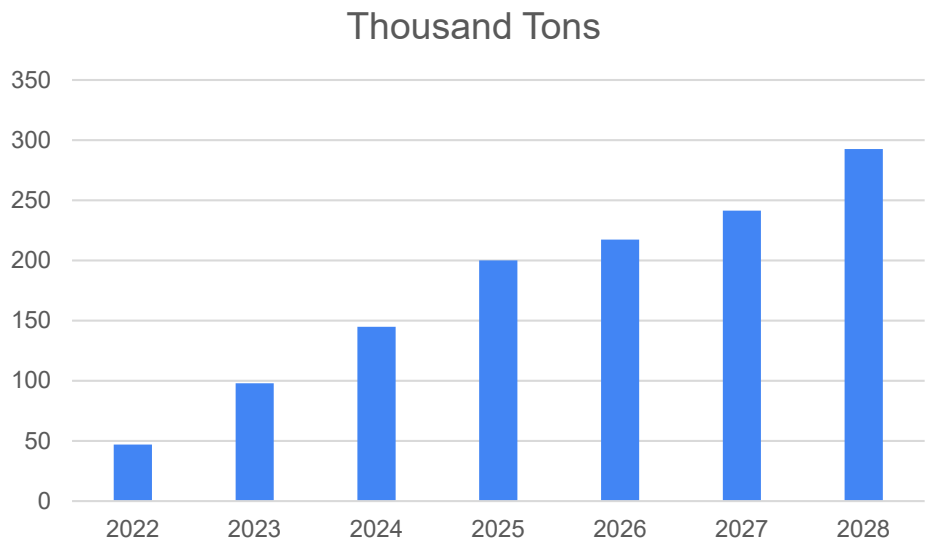
Market Conditions: Prices and the Food System

Food System

- Consumer Demand
- Trade
- Technology
  - Aquaculture
    - Offshore
    - Onshore Recirculating Systems
  - Alternative protein
    - Plant based fish
    - Cellular

A Lot of Fish Growing on Paper

- Planned U.S. Atlantic salmon production in land-based recirculating aquaculture systems



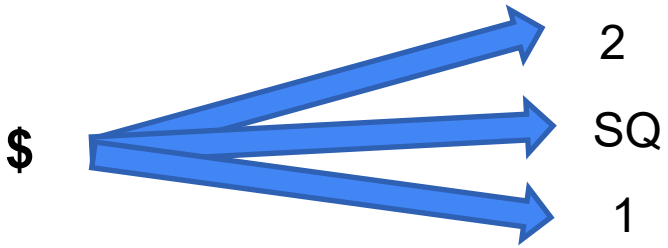
Source: UCN & Spheric

Potential Trajectories for Atlantic Wild-Caught Fish Prices

- Status Quo Scenario:
  - Demand is relatively stationary with some price increase due to increasing population and incomes

- Alt Scenario 1:
  - Aquaculture expansion leads to saturation of seafood market and a general lowering of real prices compared to a status quo seafood market

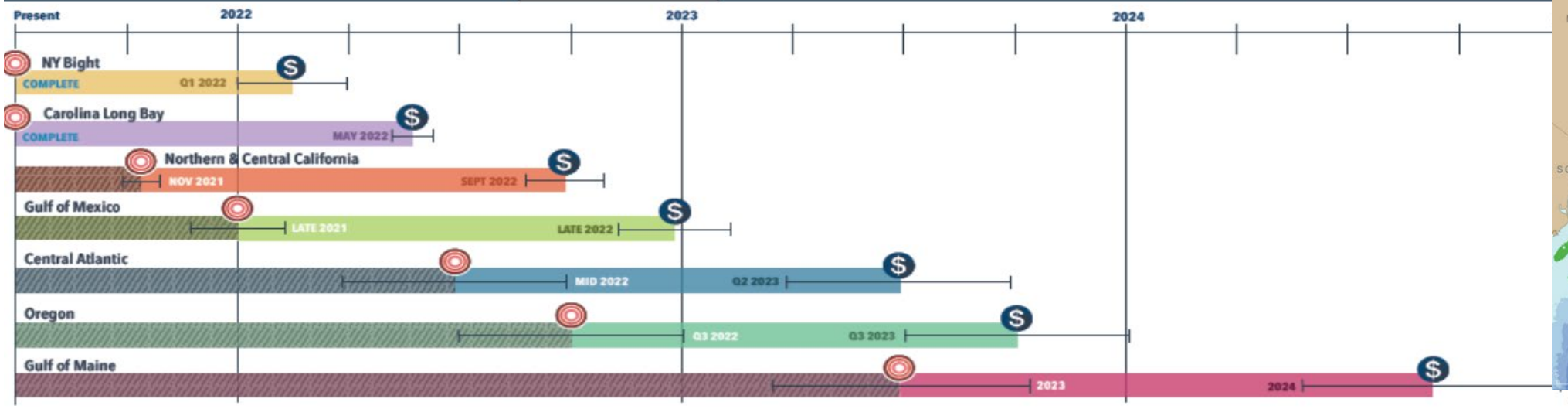
- Alt Scenario 2:
  - Wild-caught seafood, and other than salmon creates, a premium market and higher prices (Recent experience with expansion of market to absorb growth in oyster aquaculture)

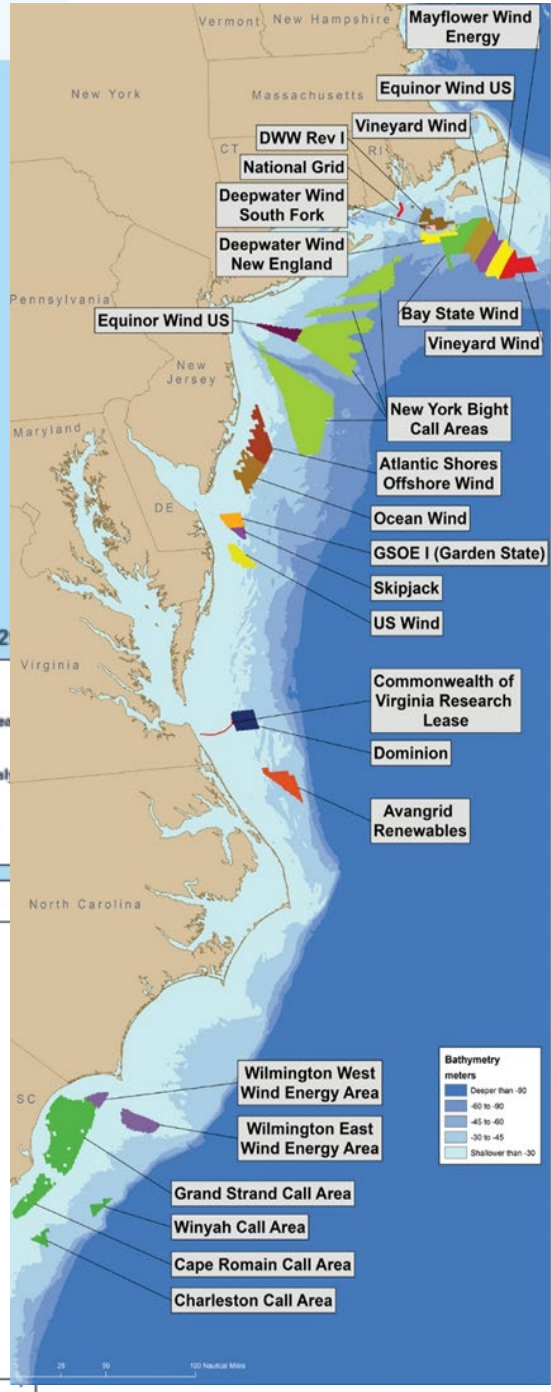


Cost Trajectories

- Distances to port
- Fuel Prices
  - Fuel prices decline as demand lessens
  - Loss of production and loss of economies of scale –higher prices?
- Crew wages
  - Competition for experienced crew with offshore wind
- Port facilities
  - Competition for dock space and shoreside infrastructure (e.g., fish processing)

The Path to 30 GW by 2030





Transition

- If Adaptation Requires Capital Investment
  - What will be the source of capital?
    - Existing Industry
    - New Investor
    - Government (Local, State, National)
- Can we stabilize fishermen (processor, other) income during transition period to ensure capital to reinvest in emerging fishing opportunities?
- Management: What policies create the flexibility to incentivize adaptation?