

Think Lab: Exploring the North Shore Blue Economy

October 2, 2019

Endicott College, 33 Commercial St. Gloucester, MA



Essex County
Community Foundation



UMASS
AMHERST

Gloucester Marine Station

Stratton Lloyd, COO & VP for Community Leadership
Essex County Community Foundation

impactessexcounty.org

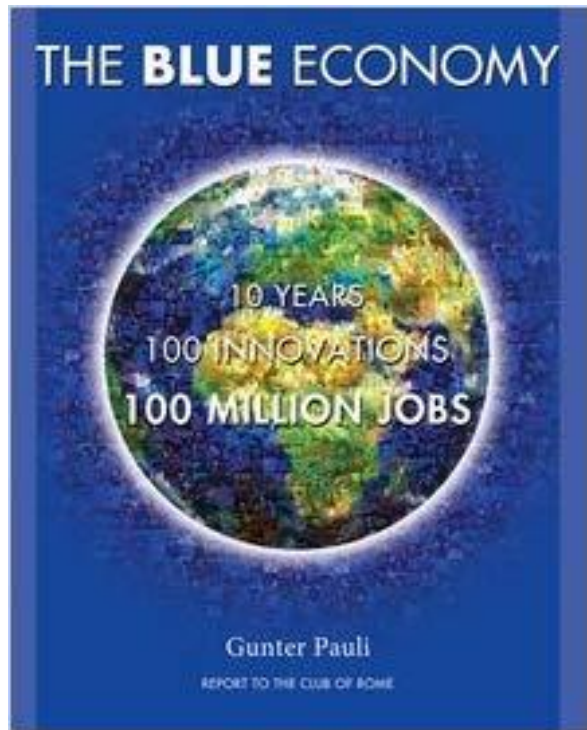
Katie Kahl, PhD

UMass Amherst Gloucester Marine Station



Blue Economy: Context

Gunter Pauli



2010



RIO+20
United Nations
Conference on
Sustainable
Development

2012

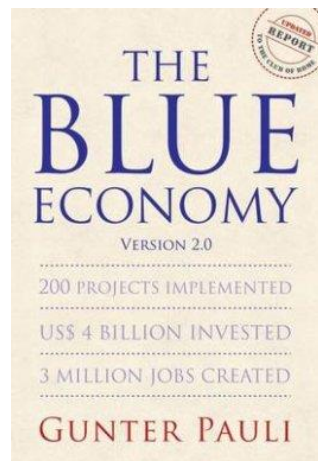


ISLAND
VOICES

GLOBAL
CHOICES

UN Conference on
Small Island Developing States

Apia, Samoa | 2014
1-4 September



2016



2017

Q. What is the difference between “Blue Economy” and “Maritime/Ocean Economy”?

A. *Sustainable use*

Blue Economy: **WORLD BANK GROUP**

“The sustainable use of ocean resources for economic growth, improved livelihoods and jobs, and ocean ecosystem health”

- *World Bank*

PROBLUE
HEALTHY OCEANS · HEALTHY ECONOMIES · HEALTHY COMMUNITIES



Middlebury Institute of
International Studies at Monterey
Center for the Blue Economy

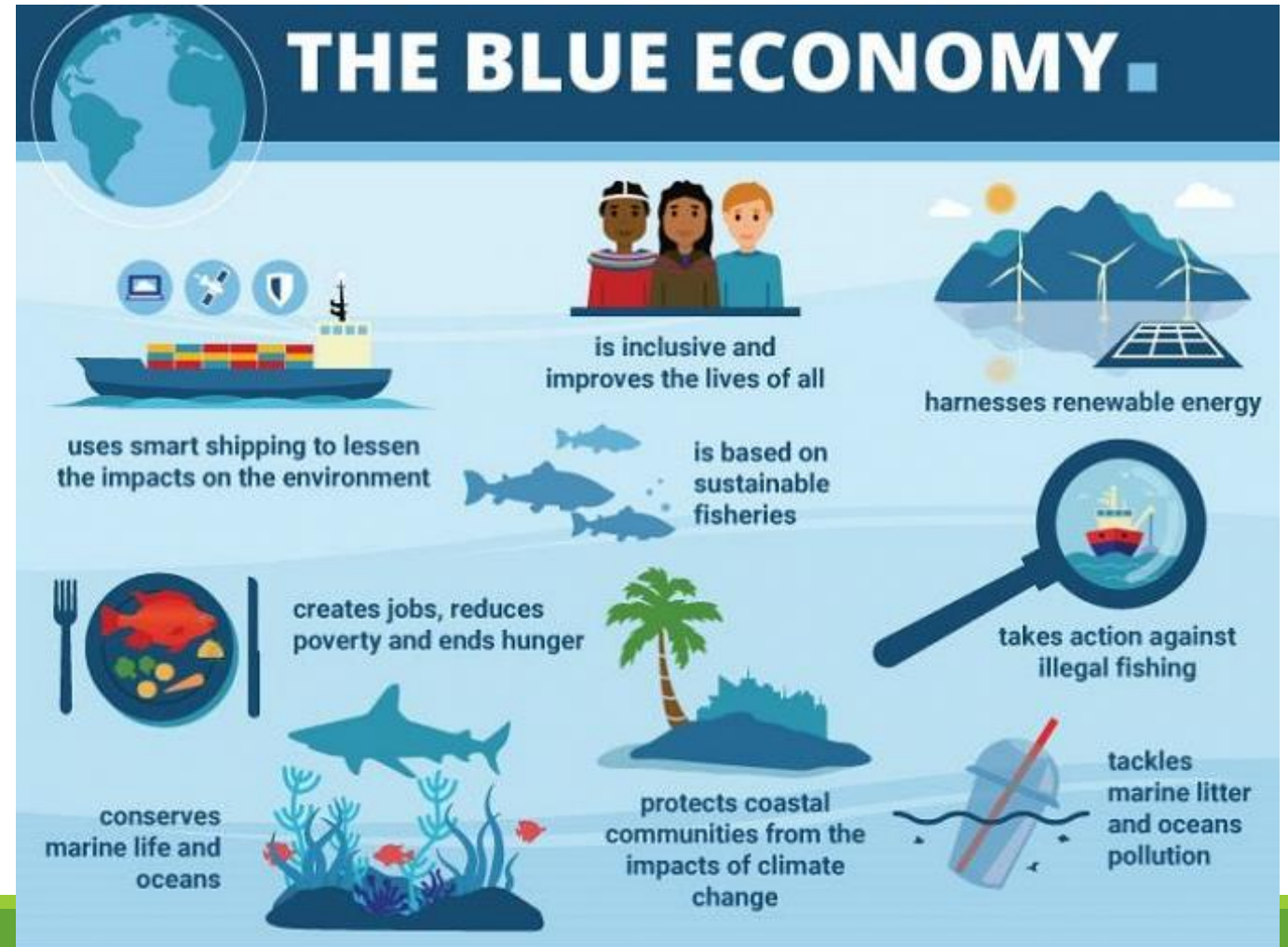
UMass
Amherst

“The Blue Economy comprises the economic activities that create sustainable wealth from the world’s oceans and coasts.”

Mission: Promote a sustainable ocean and coastal economy through **leadership in research, analysis, and education**

Blue Economy: Key themes across definitions

1. Ocean resources
2. Ecological sustainability
3. Growth opportunity
4. Interlinked sectors



BLUE ECONOMY

The Blue Economy is sustainable use of ocean resources for economic growth, improved livelihoods and jobs, and ocean ecosystem health.

The Blue Economy encompasses many activities...

Blue
Tech

RENEWABLE ENERGY

Sustainable marine energy can play a vital role in social and economic development.

FISHERIES

Marine fisheries contribute more than **US\$270 billion** annually to global GDP. More sustainable fisheries can generate more revenue, more fish and help restore fish stocks.

MARITIME TRANSPORT

Over **80%** of international goods traded are transported by sea, and the volume of seaborne trade is expected to double by 2030 and quadruple by 2050.

TOURISM

Ocean and coastal tourism can bring jobs and economic growth. Coastal Least Developed Countries and Small Island Developing States receive more than **41 million** visitors per year.

CLIMATE CHANGE

The impacts of climate change on oceans—rising sea-levels, coastal erosion, changing ocean current patterns, and acidification—are staggering. At the same time, oceans are an important **carbon sink** and help mitigate climate change.

WASTE MANAGEMENT

80% of litter in the ocean is from land-based sources. Better waste management on land can help oceans recover.

Boat
building
& Boat
repair

Leveraging & Learning from Massachusetts Examples

2017





**Navigating the Global Economy:
A Comprehensive Analysis of the
Massachusetts Maritime Economy**



Public Policy Center
UMass Dartmouth

2018



**Catching the Next Wave:
Building the Blue Economy Through
Innovation and Collaboration**

A white paper on what is possible
for the SouthCoast of Massachusetts

Presented by:

Sponsored by:

2015



**CAPE COD
BLUE ECONOMY PROJECT**

2018 *Expedition: Blue!*

Leveraging Other National & Global Examples: focus varies based on location, need, scale

- San Diego Maritime Alliance, (blue technology)
- AltaSea at the Port of Los Angeles (nonprofit blue innovation research space)
- Seattle, WA Maritime Blue (sustainable maritime tech innovation, workforce)
- Ketchikan, Alaska Marine Industry Council (workforce development)
- Seychelles National Blue Economy Roadmap (food security, marine environment)
- Grenada Blue Growth Coastal Master Plan (oceans & fisheries tourism)
- Aquacelerator, Australia (aquaculture innovation through research & education)
- Blue Growth-European Commission Maritime Affairs Division (energy, tourism, biotech, aquaculture, minerals)

Mike Kennealy

Secretary of Housing and Economic Development



Michael Goodman, PhD

Executive Director, Public Policy Center at
UMass Dartmouth






The “State of Play” in the Massachusetts and the Regional “Blue Economy”

Michael D. Goodman, Ph.D.
Professor of Public Policy
Executive Director, the Public Policy Center (PPC)
University of Massachusetts Dartmouth

October 2, 2019



Part 1: The Statewide “State of Play”



**Navigating the Global Economy:
A Comprehensive Analysis of the
Massachusetts Maritime Economy**

Public Policy Center
UMass Dartmouth

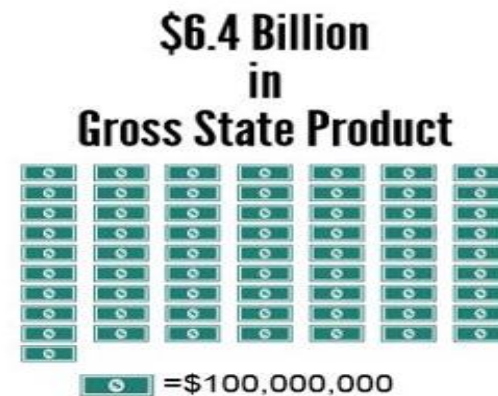


Sector	Industry
Living Resources	Fish Hatcheries & Aquaculture
	Fishing
	Seafood Markets
	Seafood Processing
Marine Construction	Marine Related Construction
Offshore Minerals	Oil & Gas Exploration & Production
	Sand and Gravel Mining
Ship & Boat Building	Boat Building & Repair
	Ship Building & Repair
Tourism & Recreation (Coastal)	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

What is the “Blue Economy” anyway?



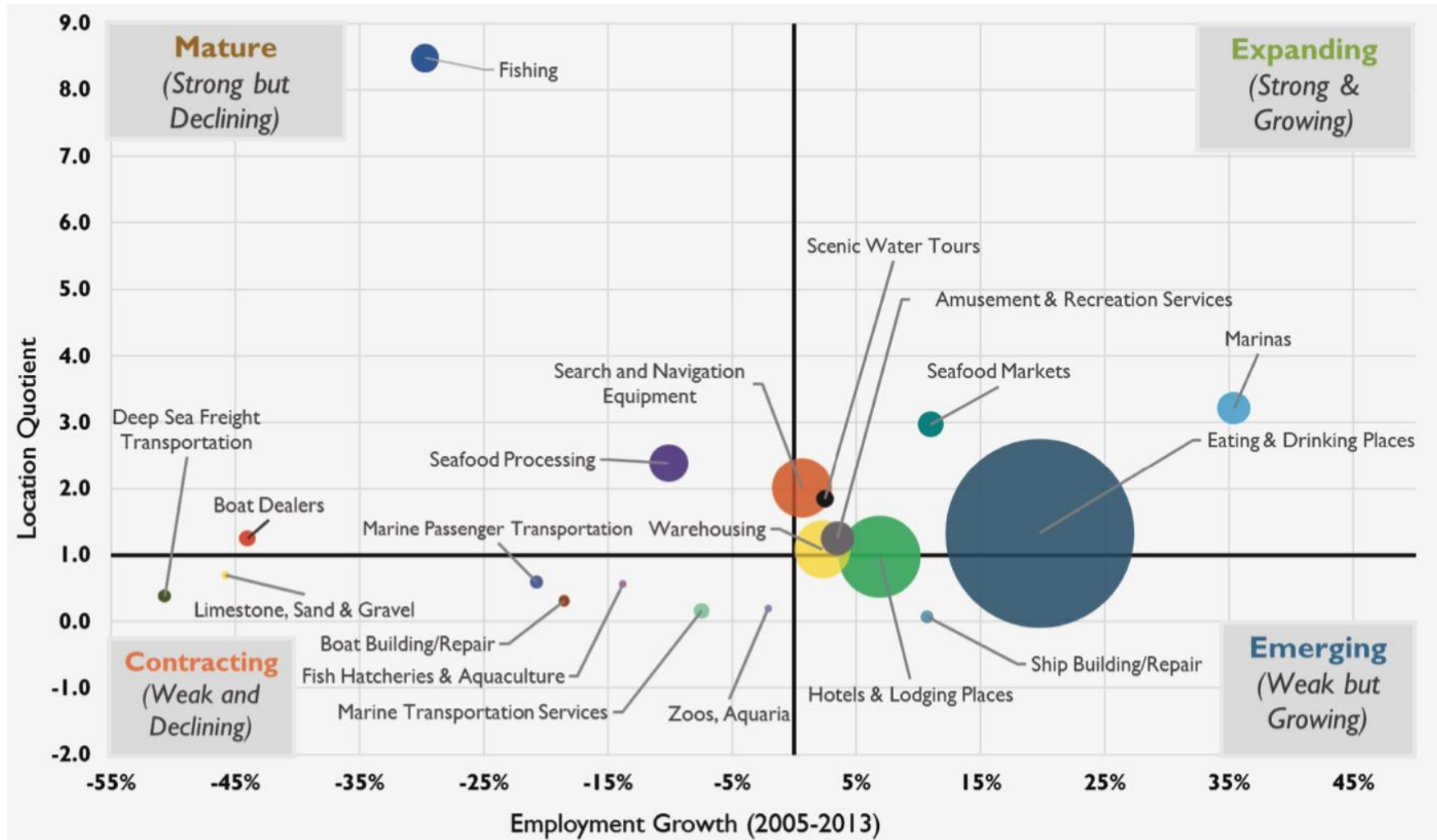
The “Blue Economy” is a major contributor to the Massachusetts Economy





The "Blue Economy" is diverse

Location Quotient, Growth, and Size of Maritime Economy Subsectors, 2013

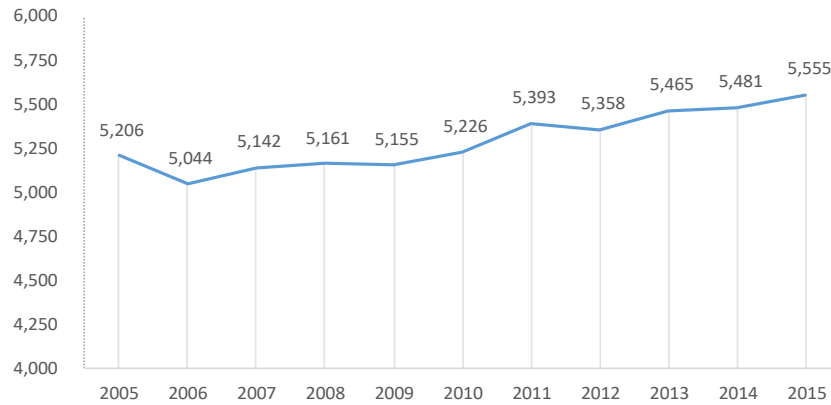


Source: ENOW; NOEP; Authors' calculations.

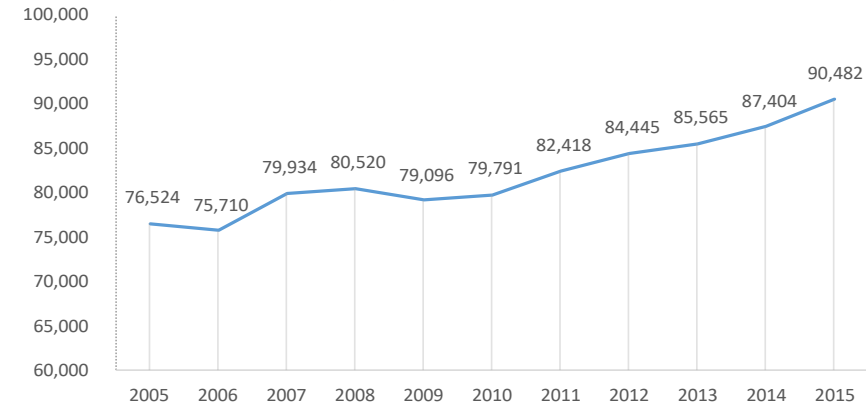


The “Blue Economy” is very resilient and grew throughout the “Great Recession”

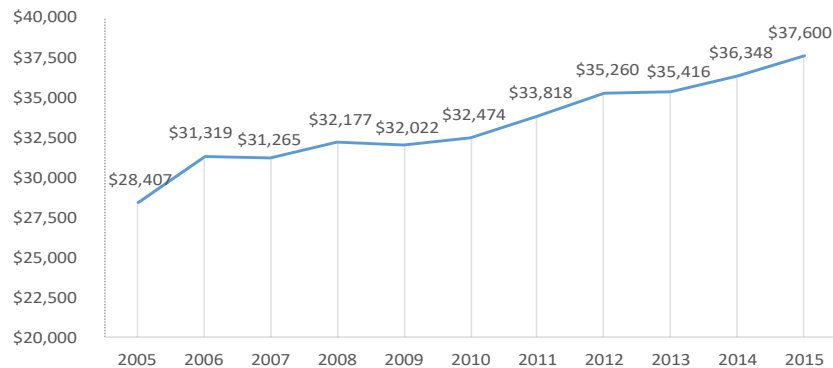
Establishments 2005 to 2015



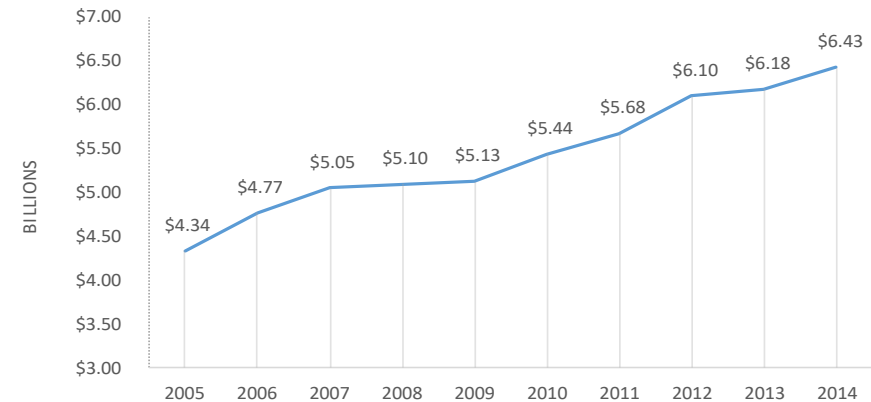
Employment



Annual Average Wage (Nominal)



Gross State Product





Policy Implications of the statewide study

- Port capacity and growth potential is limited by infrastructure constraints (i.e., dredging).
- Develop/expand capacity of specialized sector specific training programs.
- Preserve and protect ocean and coastal resources.
- Advocate for continued federal research funding, which is vital to the marine technology industry.
- Maintain a stable and predictable business cost environment.

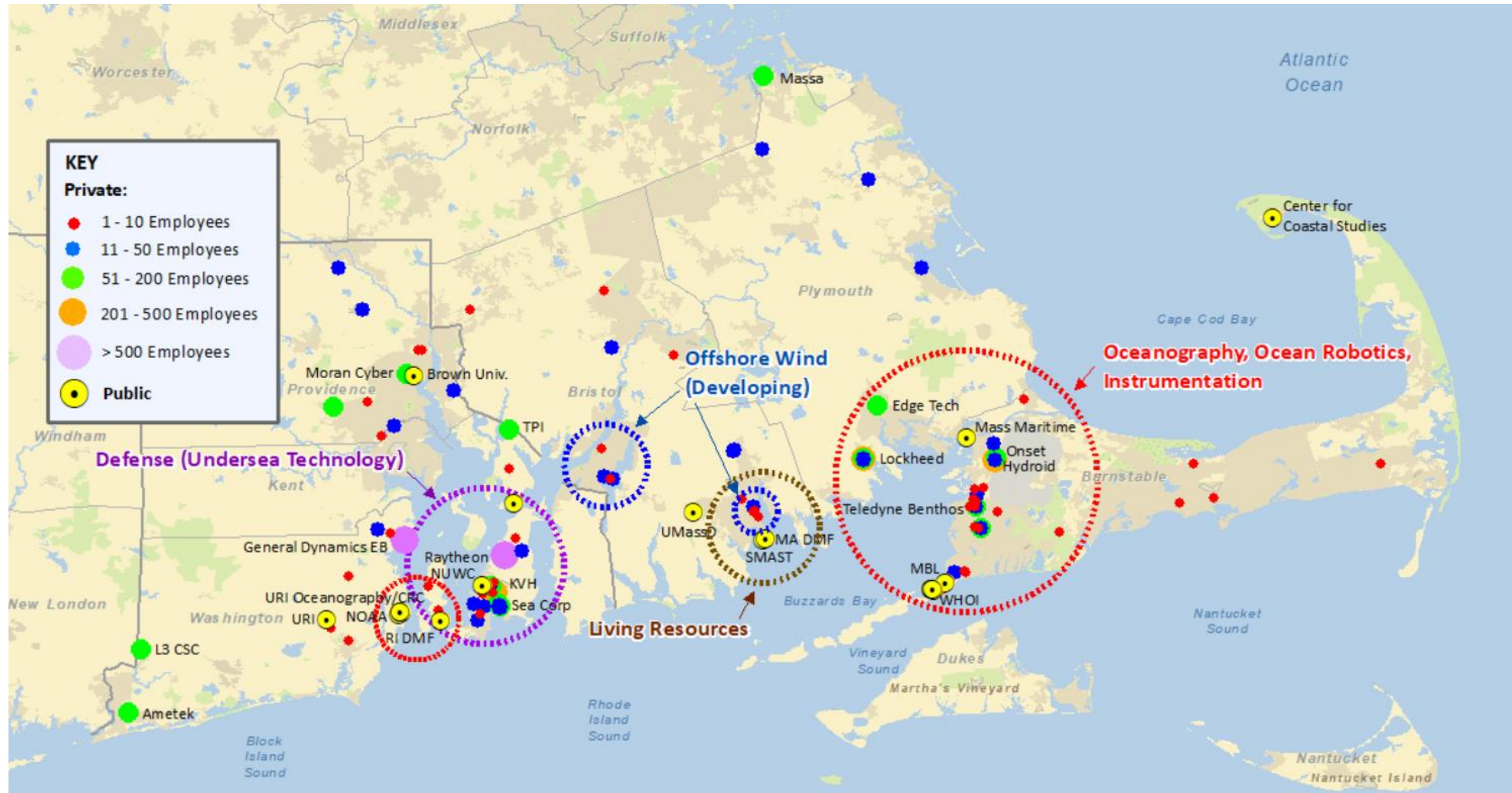


What can we learn from ongoing efforts in Southeastern Massachusetts?





What can we learn from ongoing efforts in Southeastern Massachusetts?





Lessons Learned to Date

- Opportunities exist to connect traditional maritime industries to emerging technologies (e.g. Fishing, Aquaculture, Water Transportation)
- Threats to blue economy also present opportunities (e.g. climate resiliency, ocean pollution, threats to fish stocks)
- Unmet workforce needs primarily in trade occupations/advanced manufacturing
- Ocean biodiversity is an untapped resource
- “Lifestyle business” conundrum, risk aversion



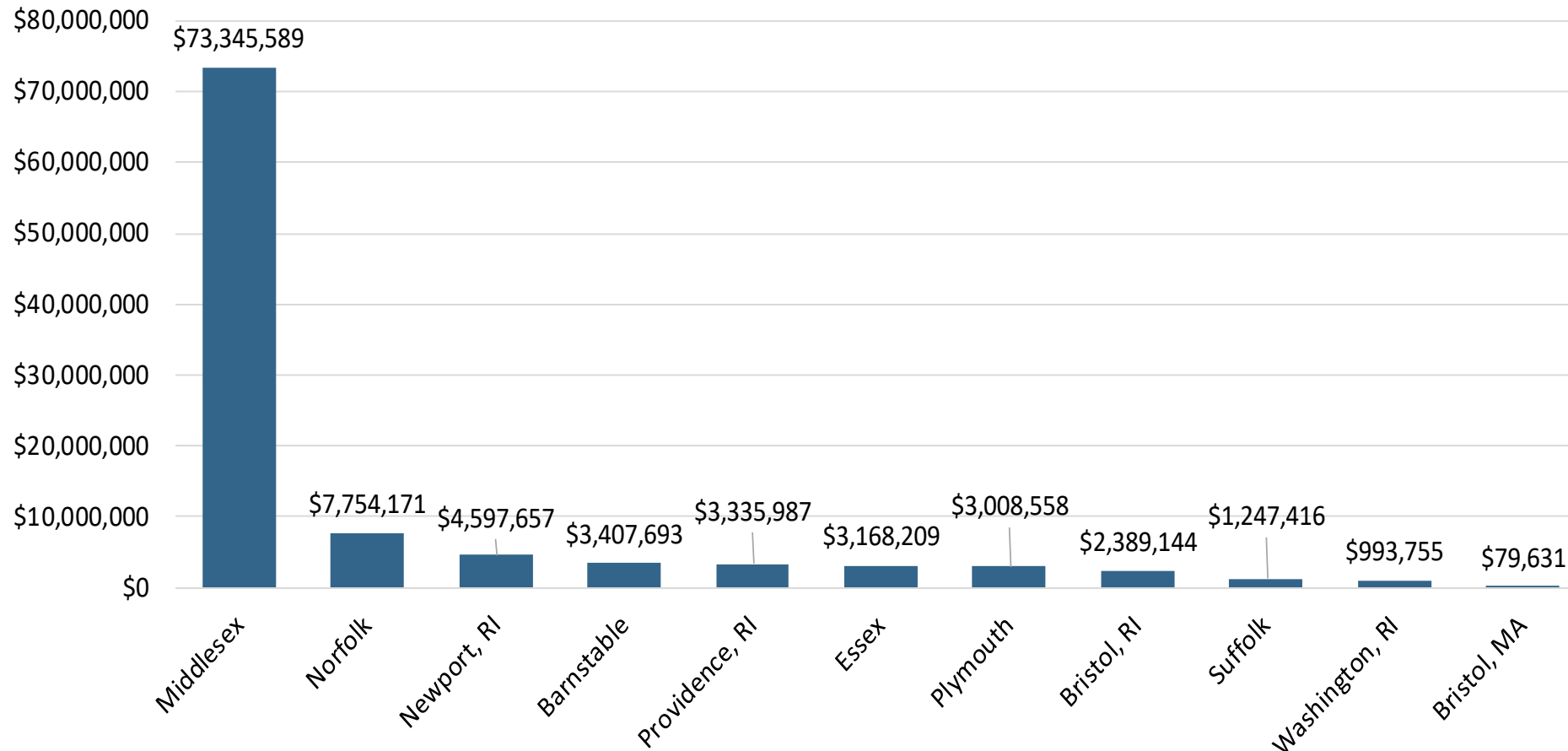
Lessons Learned to Date

- Not many mechanisms for new product development (e.g. proof-of-concept)
- Heavy dependence on the defense industry
- Much of the innovation in living resources is overseas
- Not much cross-pollination between firms
- Investors often don't see the market potential for blue tech (viewed, correctly or incorrectly, as low ROI)
- Difficulty collaborating with research institutions



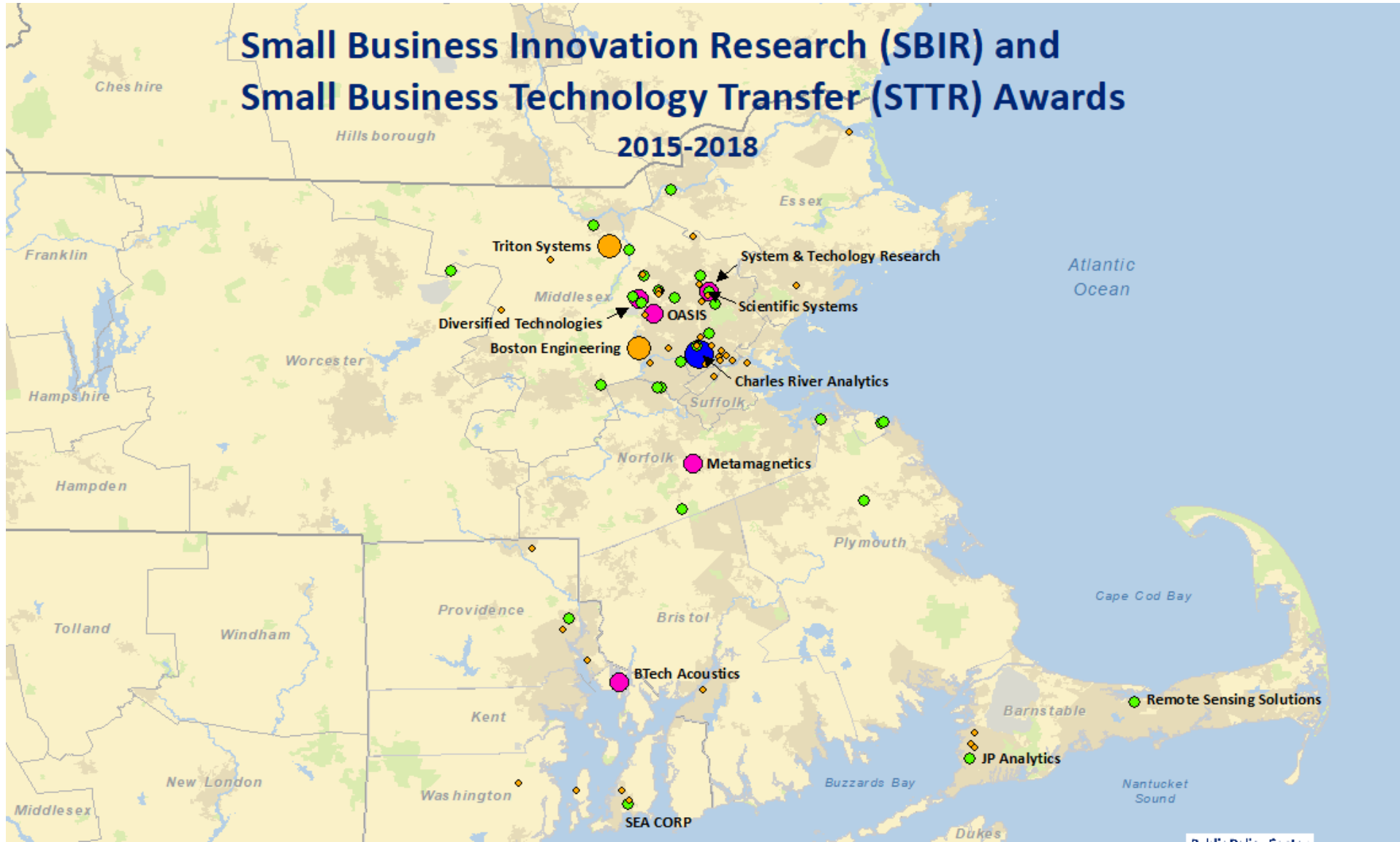
You don't have to have direct access to the ocean to be a leading center of "Blue Tech" R&D

SBIR/STTR Awards, 2015-2018





Massachusetts relies heavily on DOD funding





Serious threats represent significant opportunities to innovate and grow

Global Trends & Pressures

- Sea-level rise
- Ocean pollution, warming, & acidification
- Fleet decarbonization and sulphur reductions
- Population rise & increasing protein demands

Updates to Existing Industries

- Vessel electrification & autonomy
- Advanced fish processing
- Natural extracts for pharmaceuticals and nutraceuticals
- Improvements to offshore communications & sensing

New & Emerging Industries:

- Aquaculture & Mariculture
- Marine extracts & specialty products
- Offshore renewable energy





Next steps in Southeastern Massachusetts



NORTH SHORE BLUE ECONOMY Phase I Assessment

OCTOBER 2, 2019

KATHERINE J. KAHL, PHD
EXTENSION ASSISTANT PROFESSOR,
SUSTAINABLE FISHERIES & COASTAL RESILIENCE
UMASS AMHERST GLOUCESTER MARINE STATION



North Shore Blue Economy Phase I Goals

1. Stakeholder engagement to share concept, seek input
2. Economic analysis and to identify leading and emerging industry areas of North Shore blue economy strength/opportunity
3. Integrate findings into a comprehensive report
4. Explore framework for a North Shore Blue Economy Partnership and a Phase II approach

Research Partnership UMass Amherst Gloucester Marine Station & UMass Dartmouth Public Policy Center

Phase I Strategy Coordination

- **Ken Riehl**, Cape Ann Chamber of Commerce
- **Tom Chmura**, North Shore Tech Council Board of Directors
- **Martha Farmer**, North Shore Innoventure & North Shore Tech Council Board of Directors
- **Tom Balf**, Gloucester EDIC
- **Jill Cahill**, Gloucester Community Development
- **Sal Di Stefano**, Gloucester Economic Development
- **Stratton Lloyd**, Essex County Community Foundation
- **Katie Kahl**, UMass Amherst Marine Station

Catching the Next Wave: Building the Blue Economy Through Innovation and Collaboration

A white paper on what is possible
for the SouthCoast of Massachusetts

Presented by:



Sponsored by:



NSBE Phase I Funding Support

- UMass Amherst Department of Environmental Conservation
- UMass Amherst Agricultural Experiment Station
- Northeast Climate Adaptation Science Center
- Gloucester Economic Development & Industrial Corporation
- Cape Ann Chamber of Commerce
- City of Gloucester
- Commonwealth of Massachusetts
- Essex County Community Foundation



Engagement Timeline

NSBE Partnership building ←————→

**Think
Lab**

Focus Groups
as needed

Present
findings

Launch
Phase II*



Jun Jul Aug Sept Oct Nov Dec Jan Feb Mar Apr May

Phase II Anticipated Next Steps

Develop
strategy based
on Phase I
Research &
Engagement



Identify
sustainable
financing
strategy



Staff to
support
Strategy



Plan → Action



Partnership Opportunities

We want to broaden our circle - **Fill out your Comment card** and tell us how you would like to be involved



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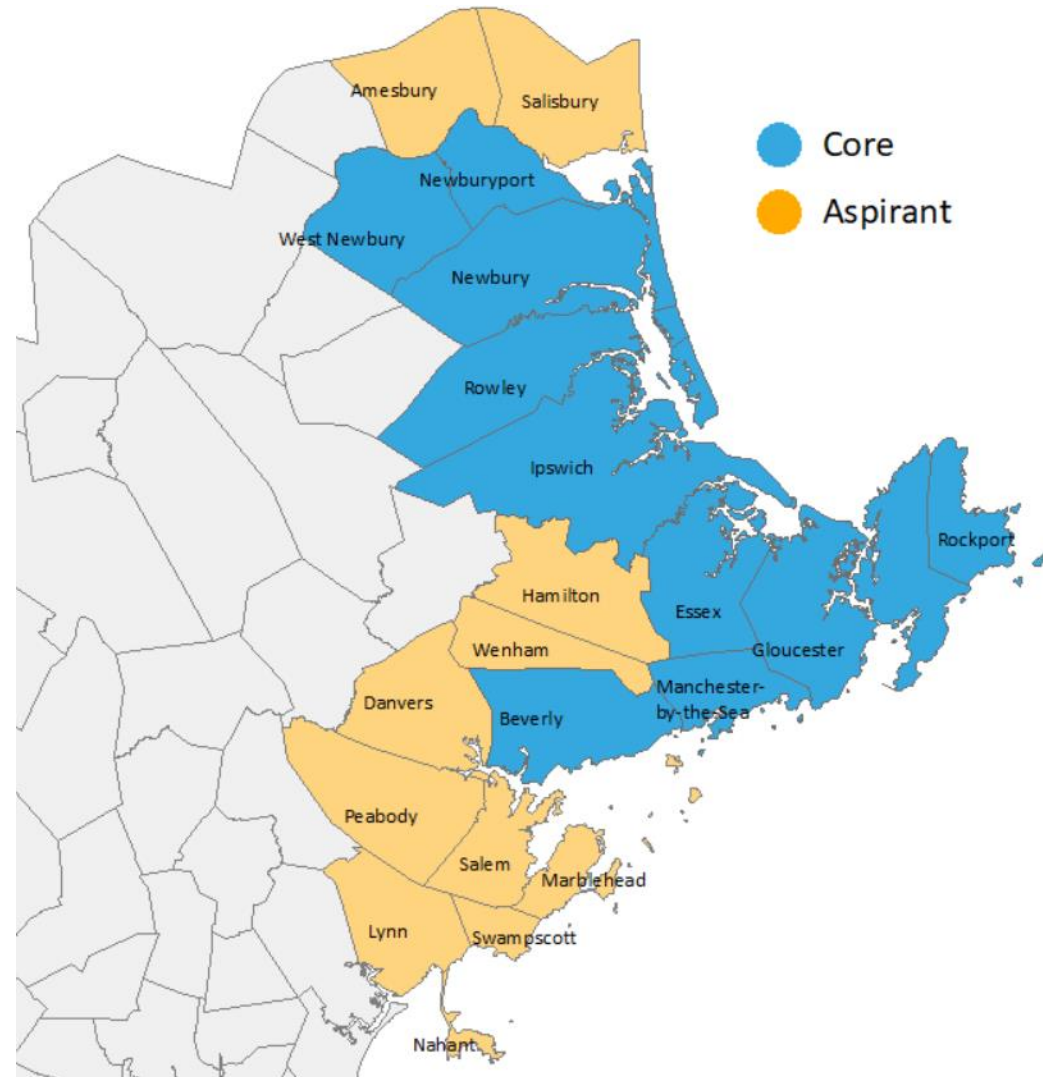
Thank you for your feedback!



1. Who else should be at the table? Please provide names and/or contact information of others you feel would be interested in the North Shore Blue Economy initiative:
2. What was the most valuable part of this event for you?
3. What should we know about/ be aware of for the next North Shore Blue Economy engagement event?
4. How would you like to be involved moving forward? (check all that apply)
Your name: _____
 - Remain on our email list to receive updates
 - Dive in - Help us establish the North Shore Blue Economy Partnership
 - Discuss a North Shore Blue Economy Phase II financing strategy
5. Anything else you would like to tell us?

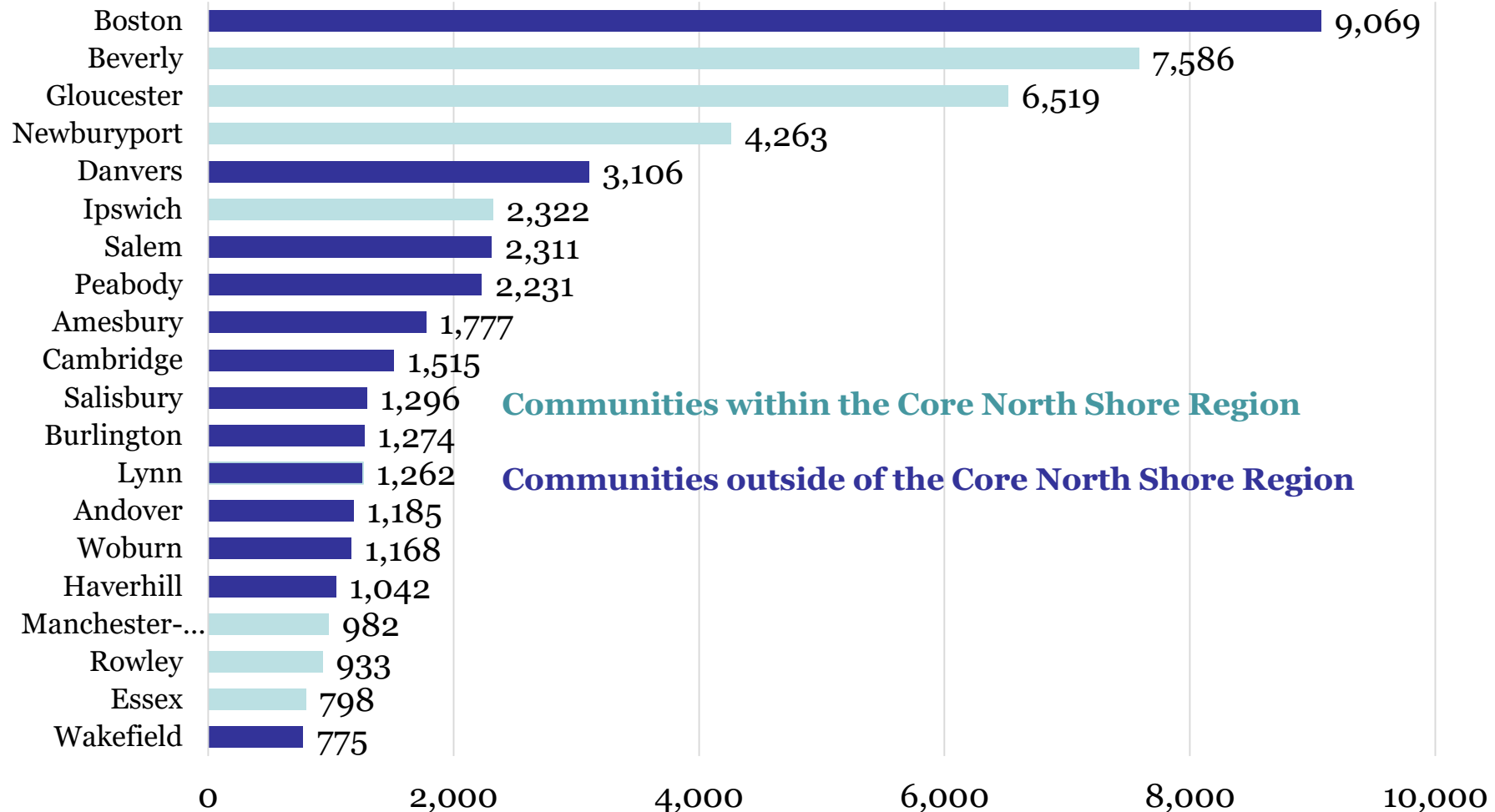


The Regional “State of Play” on the North Shore





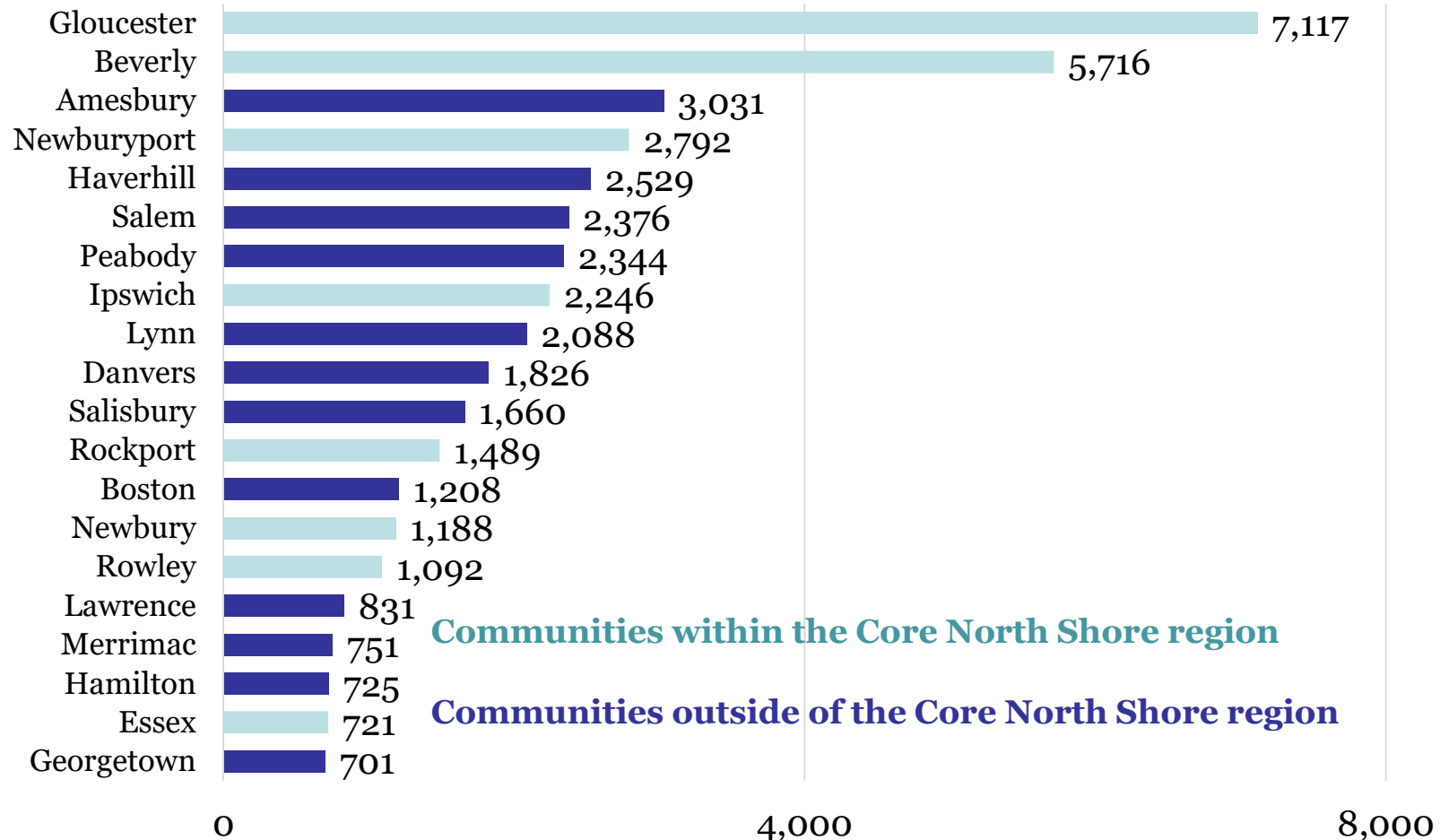
Top 20 Communities Where People Residing Within the Core North Shore Region Work



Source: OnTheMap, U.S. Census Bureau LEHD Origin-Destination Employment Statistics (LODES); Inflow/Outflow Analysis, All Jobs, 2015.



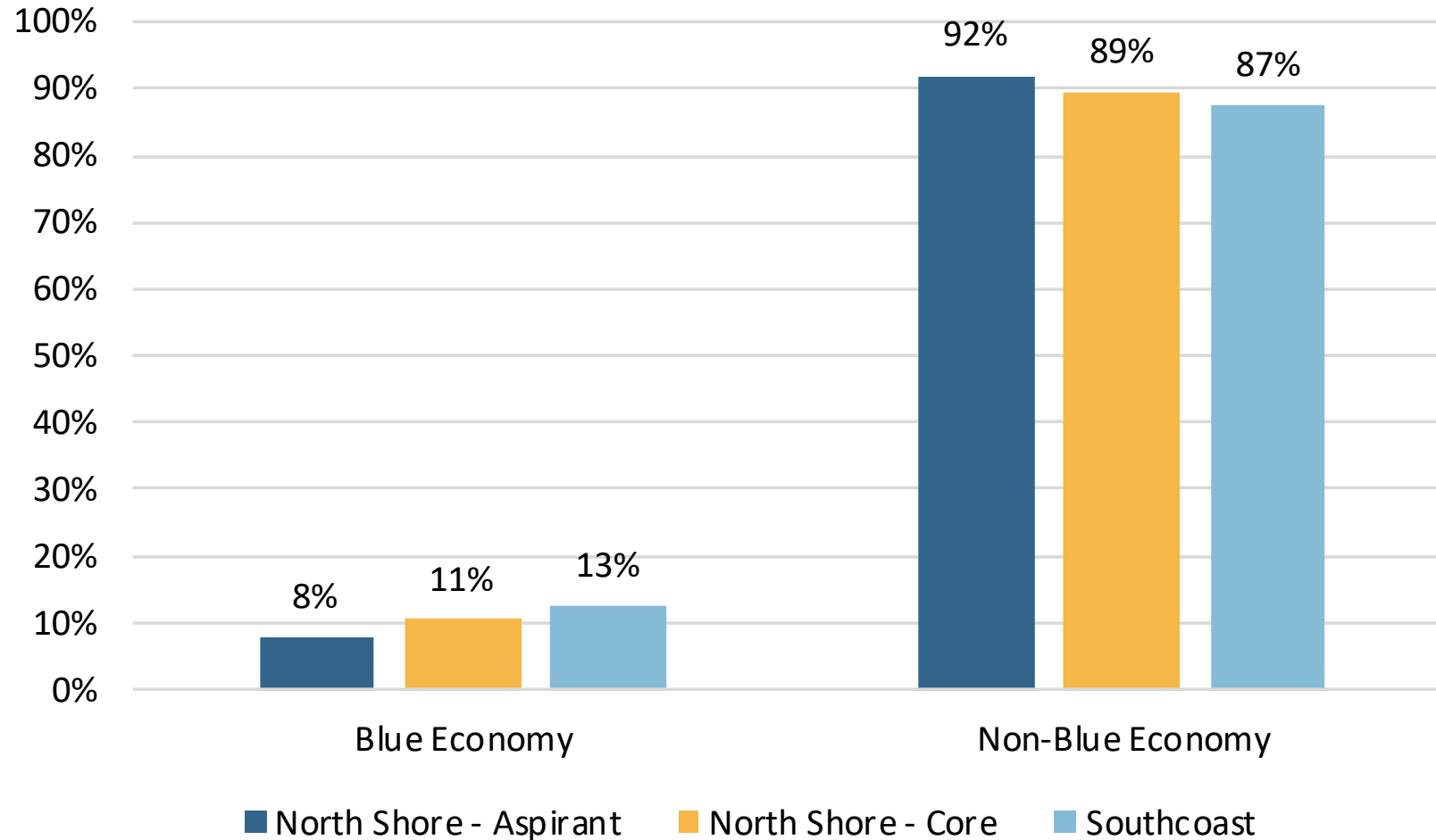
Top 20 Communities Where People Working Within the Core North Shore Region Reside



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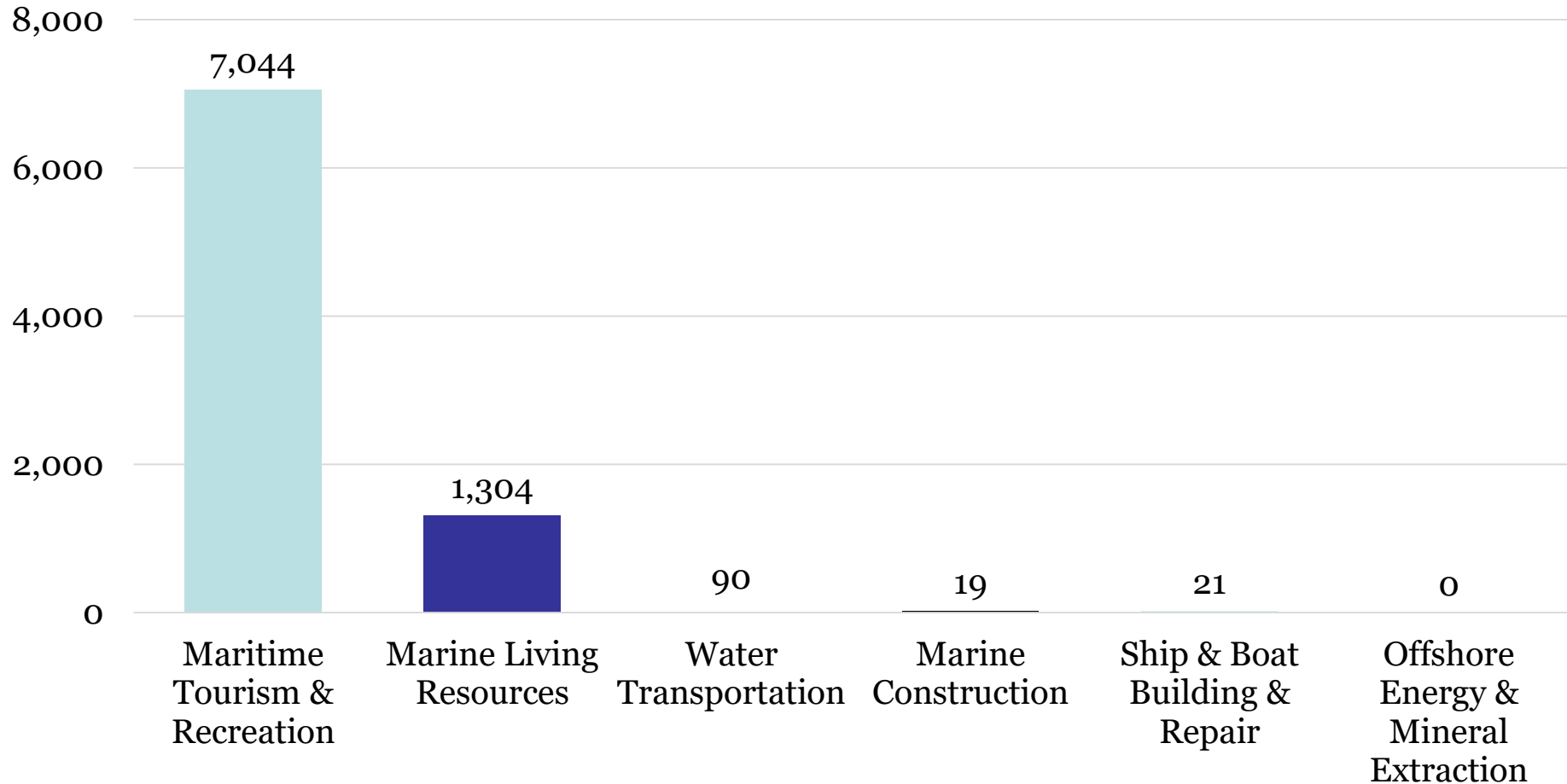


Blue Economy Share of All Jobs, 2018





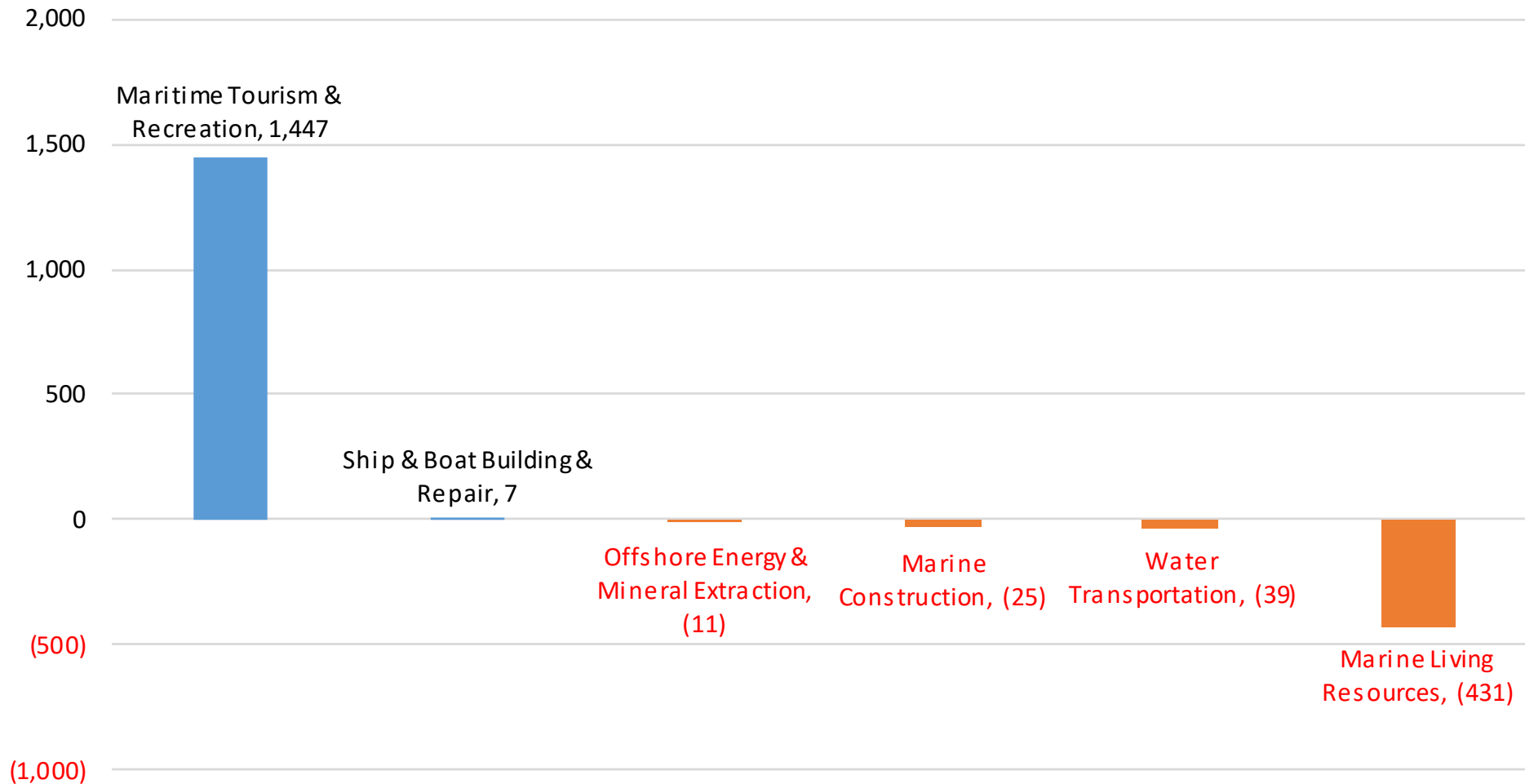
Total Employment by Major Sector in the Core North Shore Region, 2018



Source: Emsi Industry Table



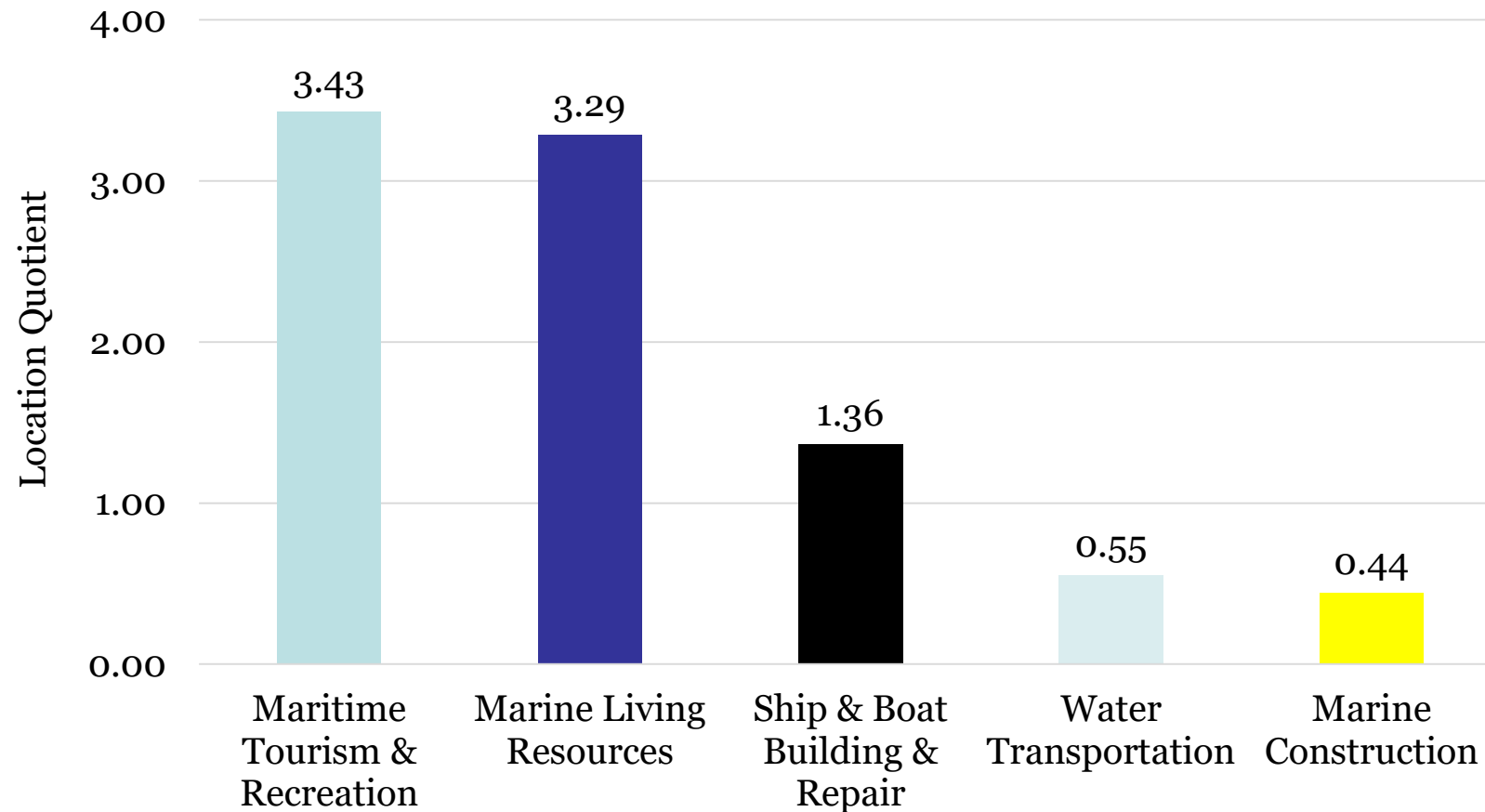
Change in “Blue Economy” Jobs in the Core North Shore Region, 2004-2018



Source: Emsi Industry Table, Author's Calculations



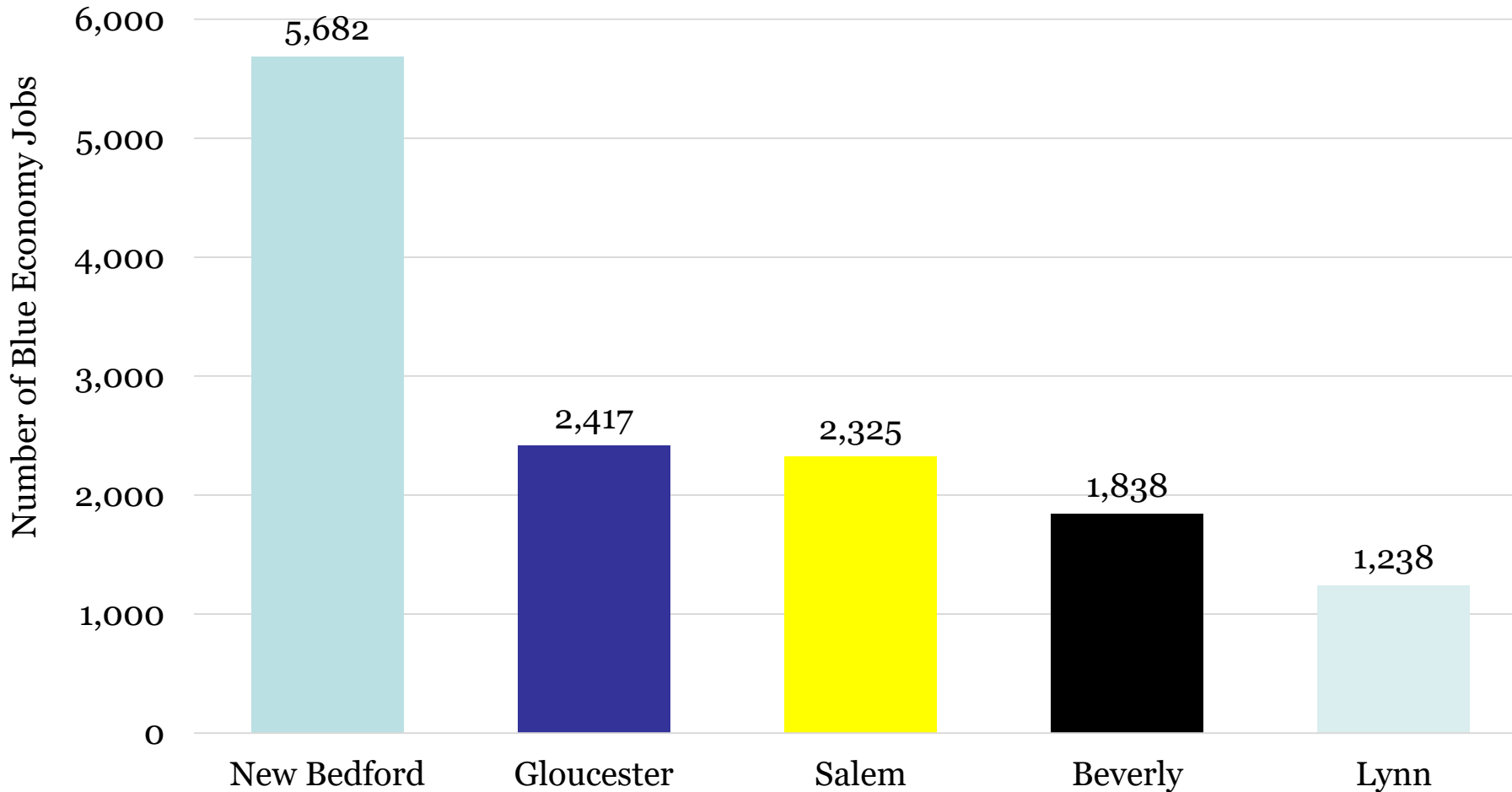
The Reliance of the Core North Shore Region on Major “Blue Economy” Sectors, 2018



Source: Emsi Industry Table, Author's calculation



Scale of “Blue Economy” Employment in Selected Coastal Cities, 2018



Source: Emsi Industry Table

Questions?



Coffee Break



THINK LAB



SUMMARY



NEXT STEPS



Next Steps...

- How will today's information be used?
 - Report summarizing the day, data collected - emailed to you
- How will we learn about final NSBE Assessment findings?
 - Next Engagement planned for Winter 2020 to report findings



Stay Engaged!

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