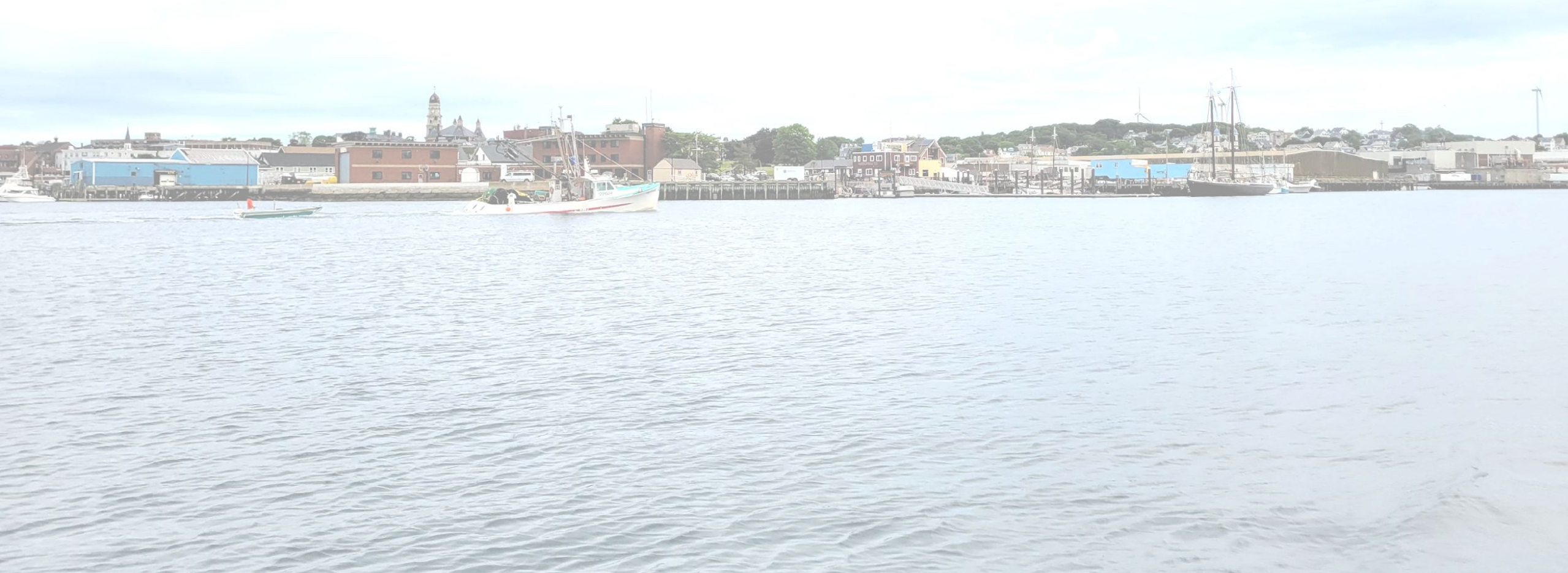


# Gloucester Municipal Harbor Plan Update

## Economic Strategy Framework

December 1, 2021



# Agenda

## **I. Debrief of Public Meeting (15 min)**

## **II. Approach (5 min)**

- Blue Economy - Relationship to Land Use
- Economic Strategy Framework

## **III. Foundational Trends & Influences (20 min)**

### Sector-Specific Economic Trends (Observations and Opportunities)

- Living Resources
- Wind, Ship & Boat Building/Repair
- Tourism & Recreation
- Blue Tech / R&D

## **IV. Economic Development Goal Setting (60 min)**

- 2014 Plan Recommendation Assessment
- 2021 Observations & Questions

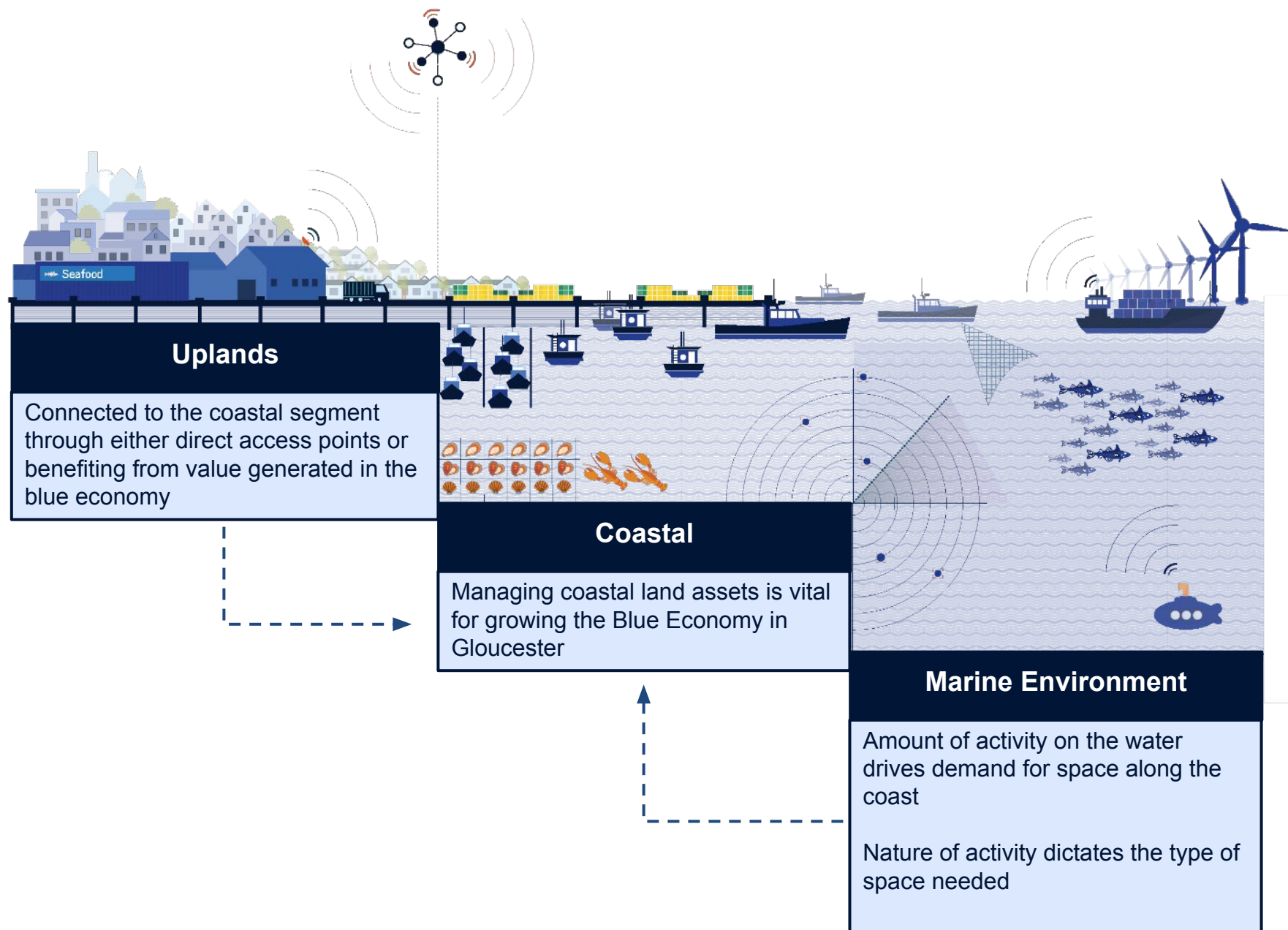
## **V. Next Steps (5 min)**

# Blue Economy Relationship to Land Use

The Blue Economy takes place in different parts of the land, shore and sea.

However, to fully maximize the industry opportunities in Gloucester's Blue Economy, the value chain has to be considered.

An industry value chain represents the range of business activities that add value to the ultimate product or service.

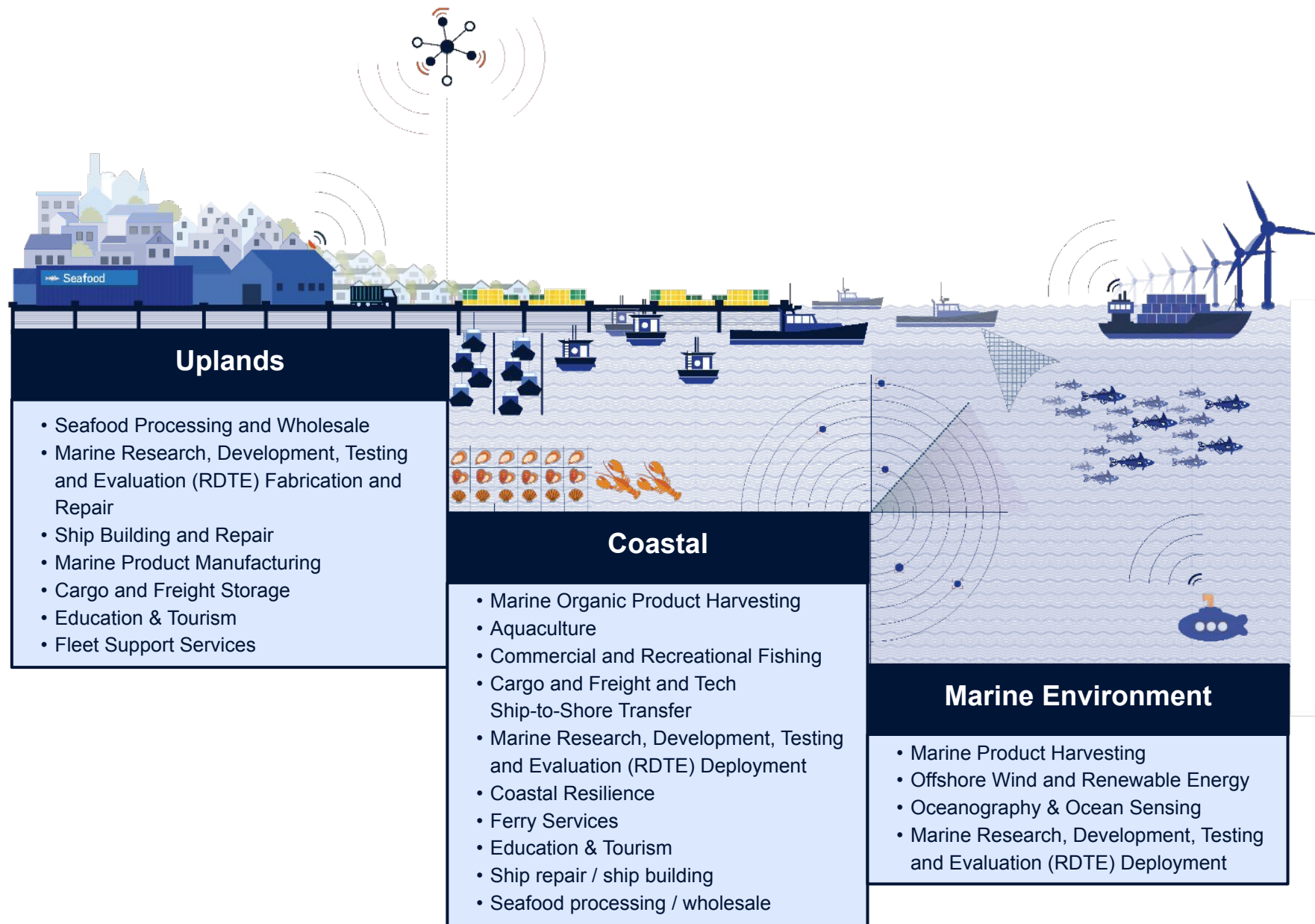




# Blue Economy Transect

The Blue Economy value chain, from a land use perspective, requires different types of physical environments for the industry to function.

The following transect diagram provides some examples of the land use requirements and observations for the value chain for Living Resources, Marine Tech, and Tourism.



# Framework

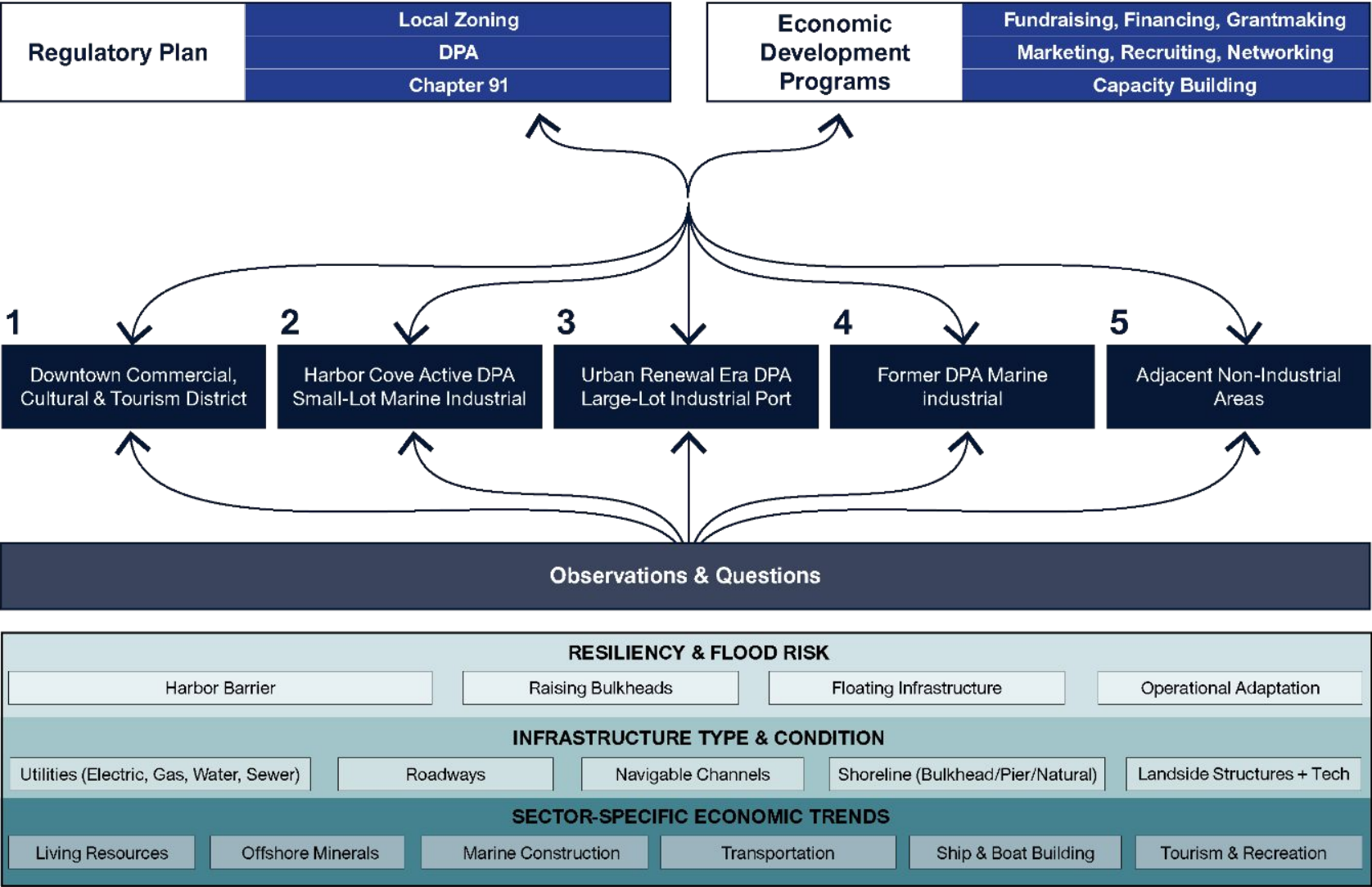
**LAYER 4:**  
Implementation Tools

**LAYER 3:**  
Sub-Area Character & Potential

- 3-5 Representative Parcels per Sub-Area
- Infrastructure Condition Overview
- Overall Assessment of Physical Character
- Prediction of Resiliency Strategy Mix
- Site-Specific Opportunities:
  - Inland (non-DPA + non-Ch91)
  - Upland (DPA + non-Ch91)
  - Coastal (DPA + Ch91)
  - Near Shore
  - Offshore / Deep Ocean

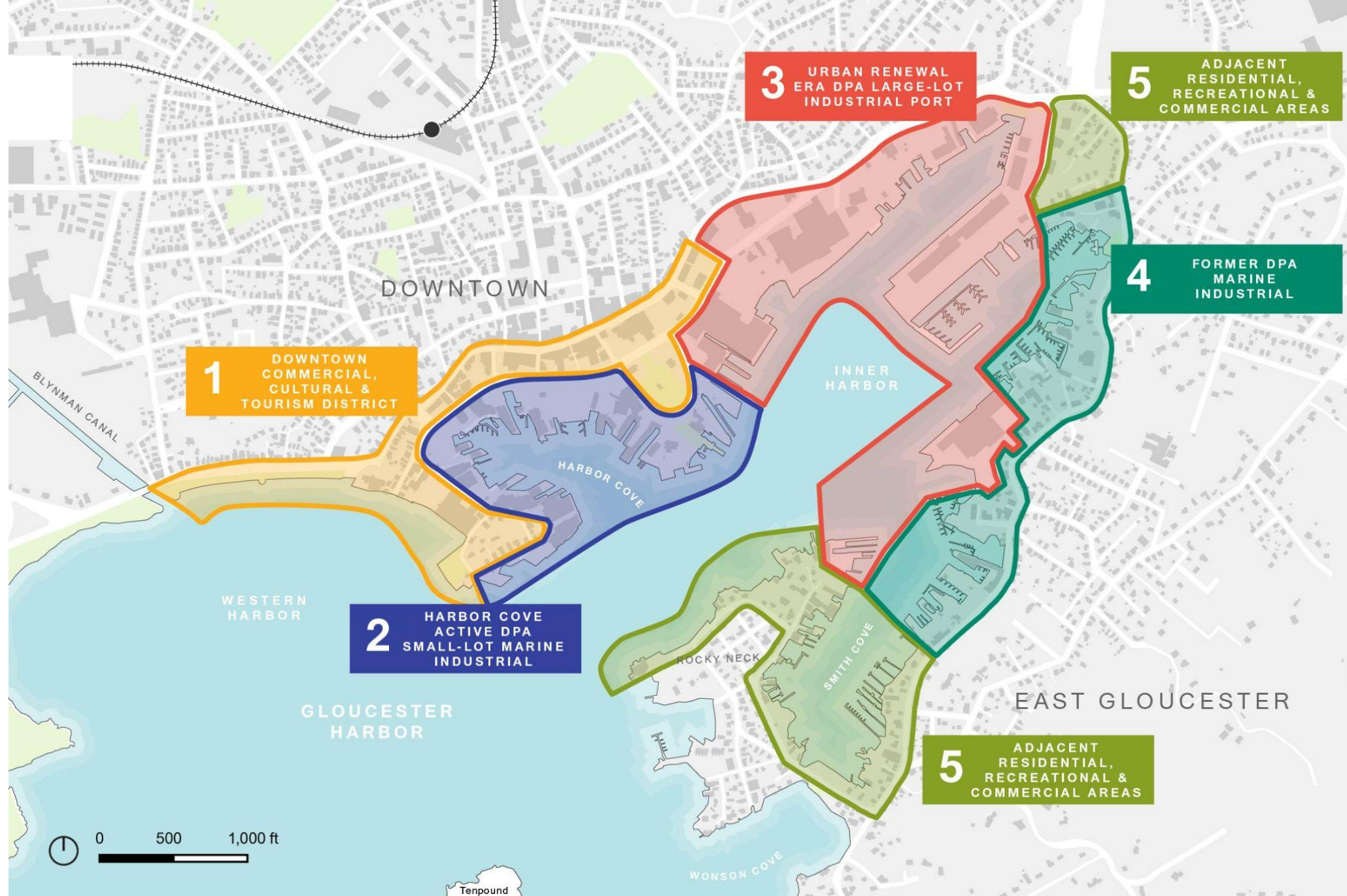
**LAYER 2:**  
Economic Development Goal Setting

**LAYER 1:**  
Foundational Trends & Influences



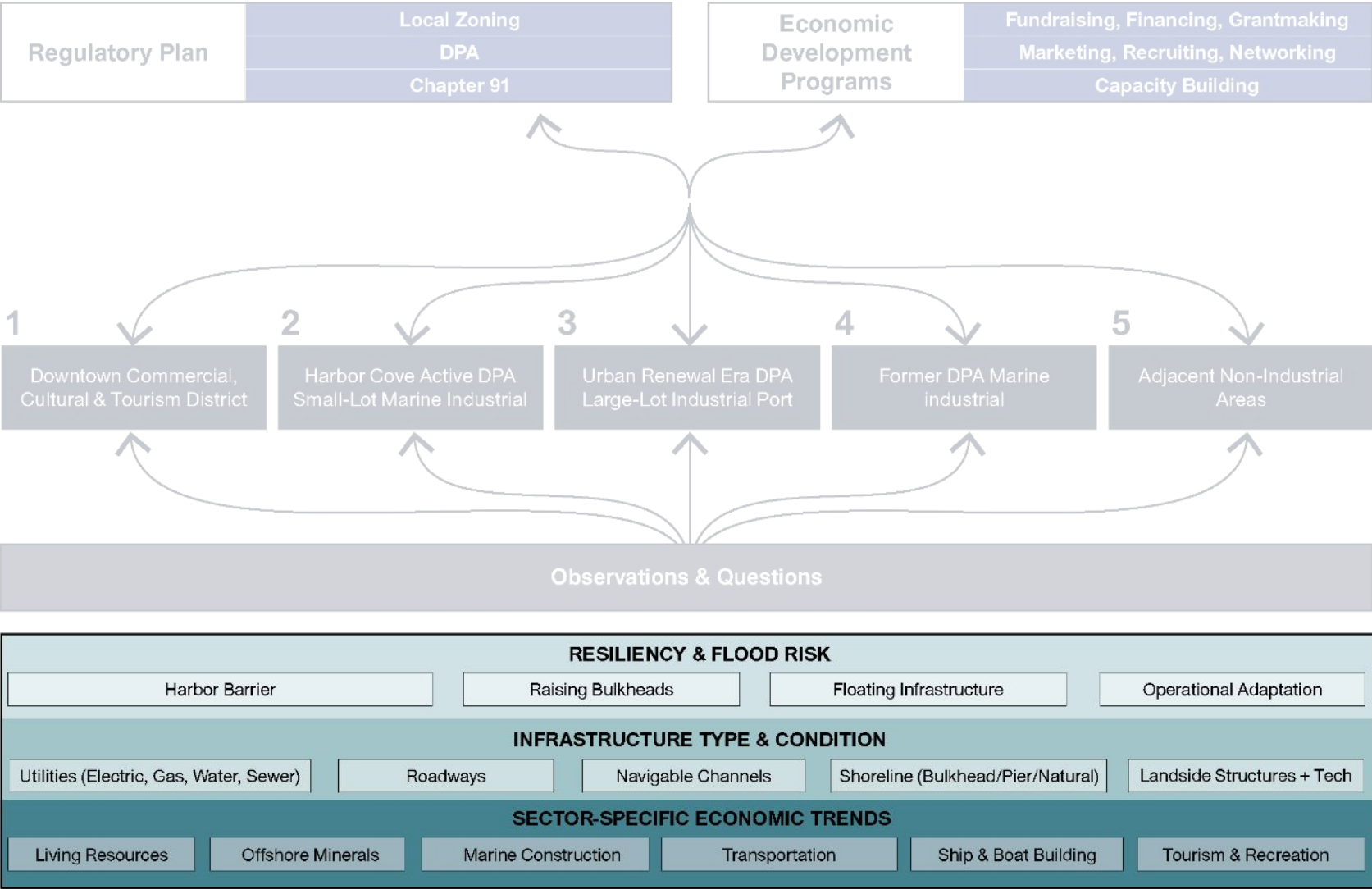


# Sub-Areas



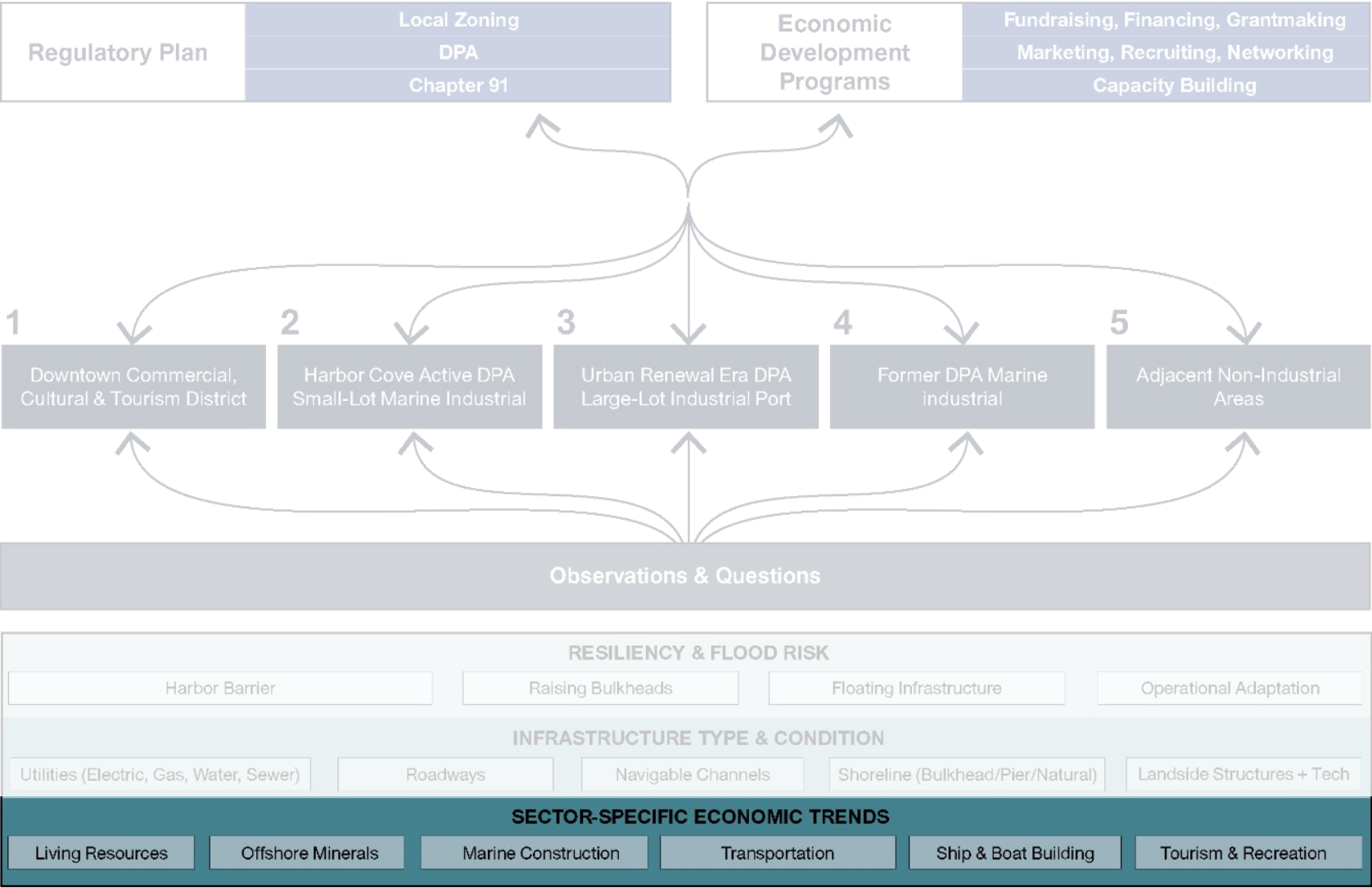
# Layer 1.

## Foundational Trends & Influences



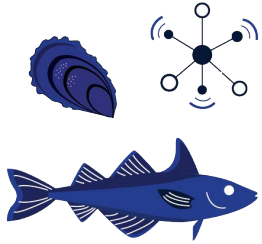
Layer 1.  
Foundational  
Trends &  
Influences

# Sector-Specific Economic Trends



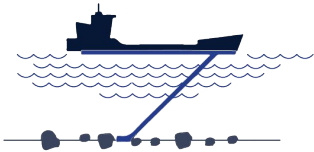


# Blue Economy Sectors



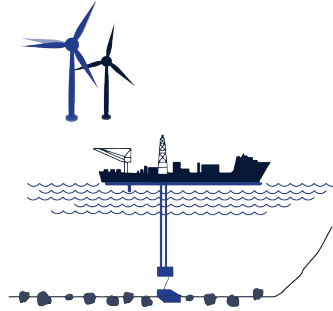
## LIVING RESOURCES

Fish Hatcheries & Aquaculture;  
Fishing;  
Seafood Markets;  
Seafood Processing



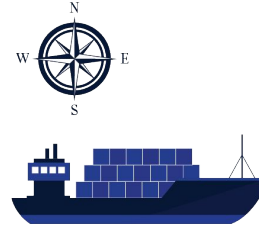
## OFFSHORE MINERALS

Oil & Gas  
Exploration & Production;  
Sand & Gravel  
Mining



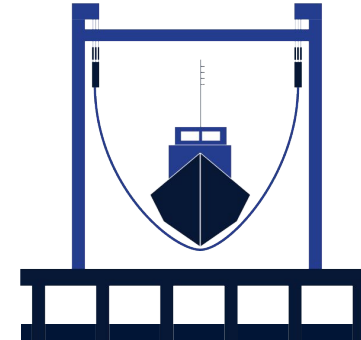
## MARINE CONSTRUCTION

Marine Related  
Construction  
(including offshore  
wind, dredging and  
environmental  
engineering)



## TRANSPORTATION

Deep Sea Freight;  
Marine Passenger  
Transportation;  
Marine  
Transportation  
Services; Search &  
Navigation  
Equipment;  
Warehousing



## SHIP & BOAT BUILDING

Boat Building &  
Repair; Ship  
Building & Repair

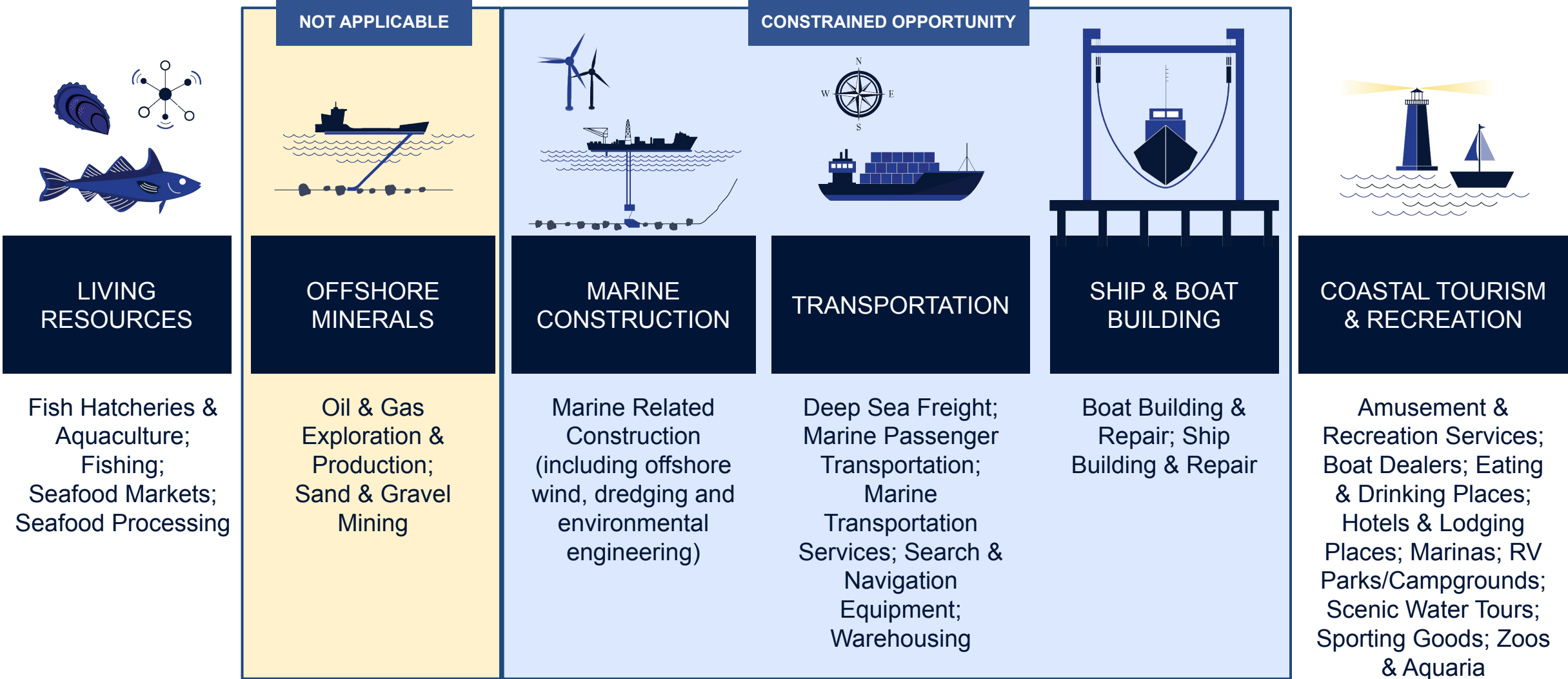


## COASTAL TOURISM & RECREATION

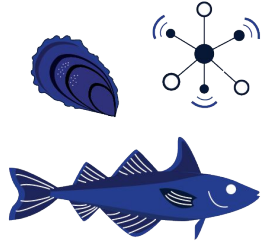
Amusement &  
Recreation Services;  
Boat Dealers; Eating  
& Drinking Places;  
Hotels & Lodging  
Places; Marinas; RV  
Parks/Campgrounds;  
Scenic Water Tours;  
Sporting Goods; Zoos  
& Aquaria

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

# Blue Economy Sectors

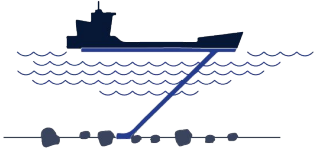


# Blue Tech / R&D Cluster is Cross-Cutting



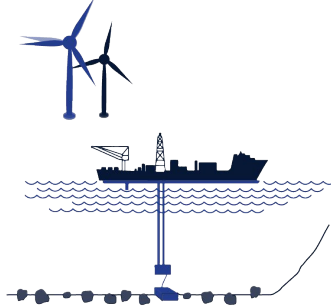
## LIVING RESOURCES

Oceanography  
Marine Life  
Sciences



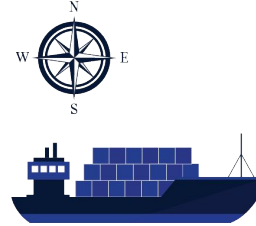
## OFFSHORE MINERALS

Resource  
Extraction  
R&D



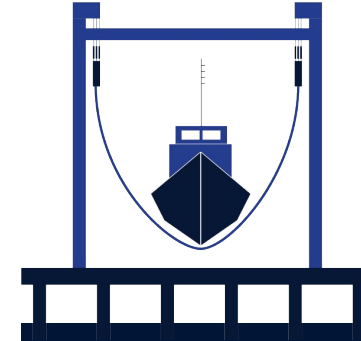
## MARINE CONSTRUCTION

Offshore Wind  
Environmental  
Engineering



## TRANSPORTATION

Search & Navigation  
Equipment



## SHIP & BOAT BUILDING

Materials research,  
prototyping and  
testing



## COASTAL TOURISM & RECREATION

Conservation, Zoos &  
Aquaria

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



# Gloucester’s “Blue Economy” is approximately 25% of the city’s job base <sup>(1)</sup>

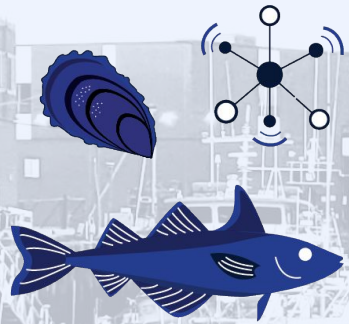
- Gloucester’s “Blue” economy (preliminary estimate) is:
- **25%** of the city’s employment base (both salary and wage)
  - **19%** of the income base (both salary and wage)

	2019 Jobs	2019 Wages \$M	
Marine Education, Advocacy, Research & Innovation	220-230	\$16-17	
Seafood (processing & wholesale)	583	\$46.0	} Note these constitute the Living Resource Sector in the Blue Economy Study
Fishing / Fleet Services	770*	\$41 <sub>(2)</sub>	
Tourism	1200	\$31	
Maritime Total	2700 - 2800	at least \$135m	

*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.*

(1) note initial estimates may change as new information becomes available to offset data suppression and privacy rules regarding company data  
(2) Employment is estimated based on the ratio of Gloucester W2 employees to Essex County W2 employees using the Blue Economy aggregate employment as the baseline minus seafood processing and wholesale employment.  
Wages based on BEA 2019 CAINC5N Hunting Fishing Trapping personal income for Essex County multiplied times the ratio used for employment

## Sector-Specific Observations and Opportunities:



### Living Resources

Living resources spans harvesting finfish, shellfish, kelp and other living resources from the marine environment for use as food, additives, pharmaceuticals, and biomaterials. An emerging field is restoration of kelp and eelgrass to help with carbon sequestration.

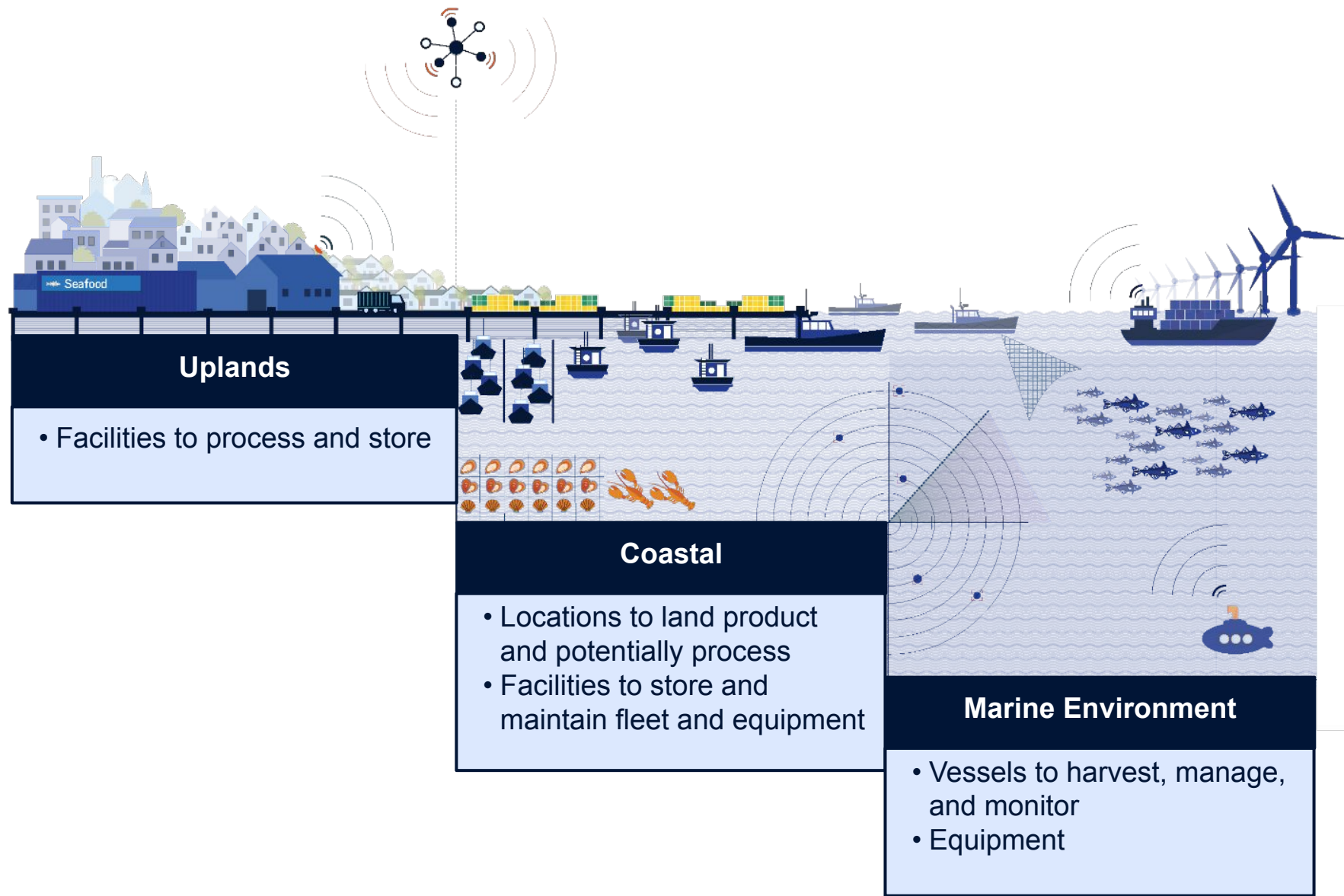
The overall market size of harvested living resources is estimated between \$150 to \$160b globally.

- **Food:** \$138b; 3.8% growth rate
- **Fish By-Products:** ~\$6b
- **BioPharma/Biomaterials:** \$5.4b; 5.8% growth rate
- **Additives:** \$1b; 6.7% growth rate

*Each of these sectors is represented in Gloucester's Blue Economy, with the exception additives.*

# Living Resources

## Land Infrastructure Requirements



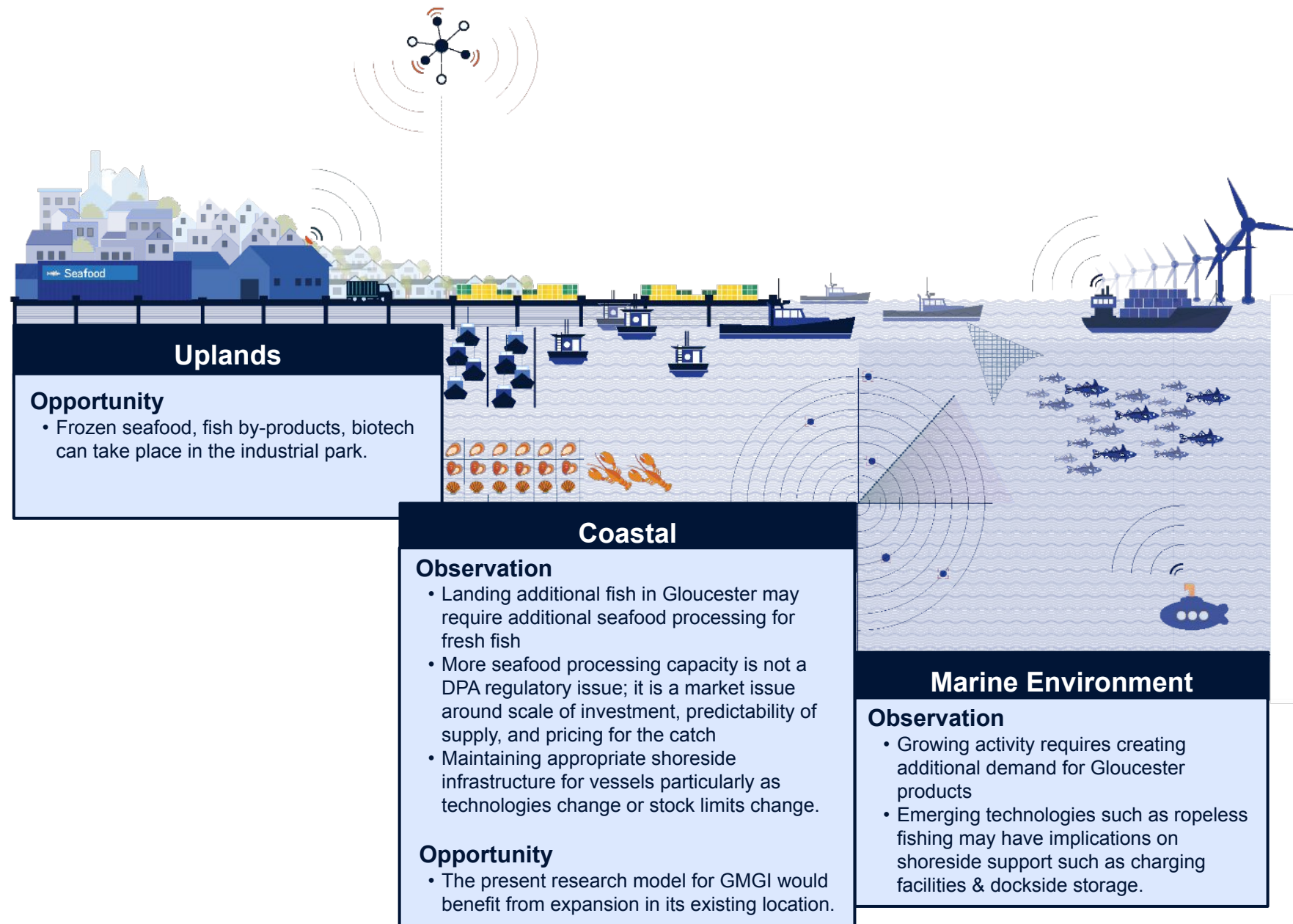


# Living Resources

## Observations & Opportunities

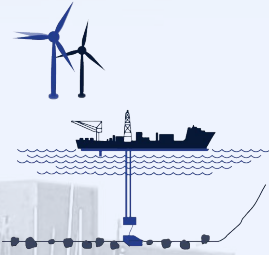
Growth in Gloucester's Living Resources Sector has three primary opportunities.

- Expansion of the seafood industry
- Additional value capture from the catch by expansion into more by-products
- Growth in the marine biotech industry



## Sector-Specific Observations:

### Marine Construction



### Offshore Wind Value Chain

Gloucester's offshore wind opportunity is limited primarily because of parcel size.

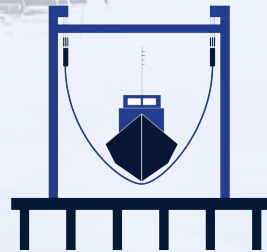
### Transportation



### Waterborne Cargo and Freight

Similar limitations to wind.

### Ship & Boat Building

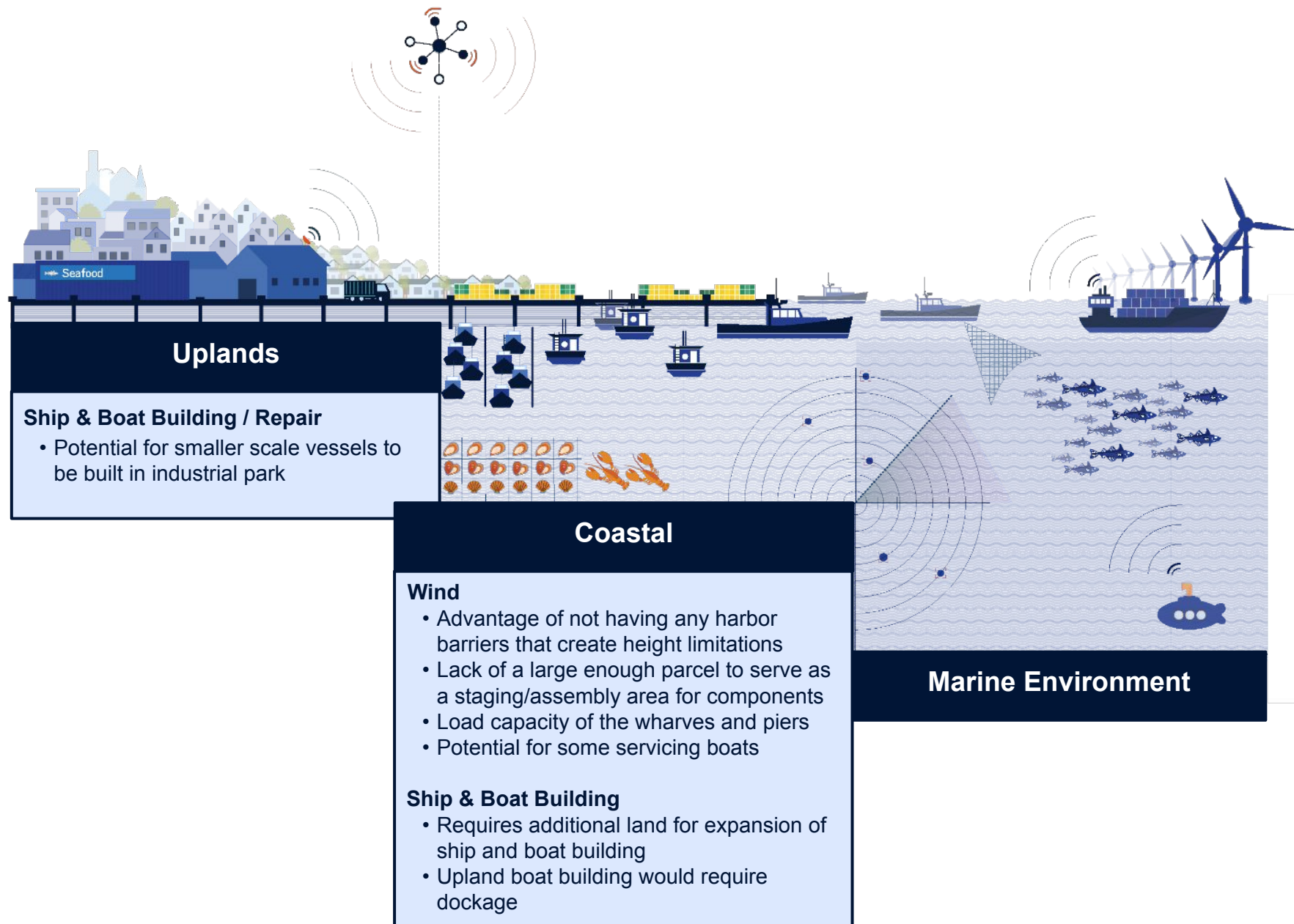


### Ship & Boat Building

Ship and boat building may be limited to the industrial park because of limited existing parcel size.

# Wind, Ship & Boat Building/Repair

## Observations & Opportunities





## Sector-Specific Observations and Opportunities:

### Tourism & Recreation

Coastal county tourism in Massachusetts is a \$3.7b industry <sup>(1)</sup>:

- **Summer tourism (Quarter 3) represents 35% of the industry**
- **At minimum, summer related tourism is at least \$1.3b**
- **Historic and educational related tourism represents 12% of primary visitor activity (~ \$450m).**

Recreational fishing through charter boats and party boats had increased from 2018 to 2019 by more than 50% with party boat activity more than doubling during the peak months of July and August. <sup>(2)</sup>

Northeast Ocean Data Portal noted that Cape Ann to Boston is one of the densest areas for recreational boating activity. However, boat registrations in Massachusetts fell from 2019 to 2020 by approximately 1,000 <sup>(3)</sup>.

*Gloucester has substantial amounts of activity, including the largest concentration of whale watching businesses in the Northeast, it is an active charter fishing base, and is a branded destination.*

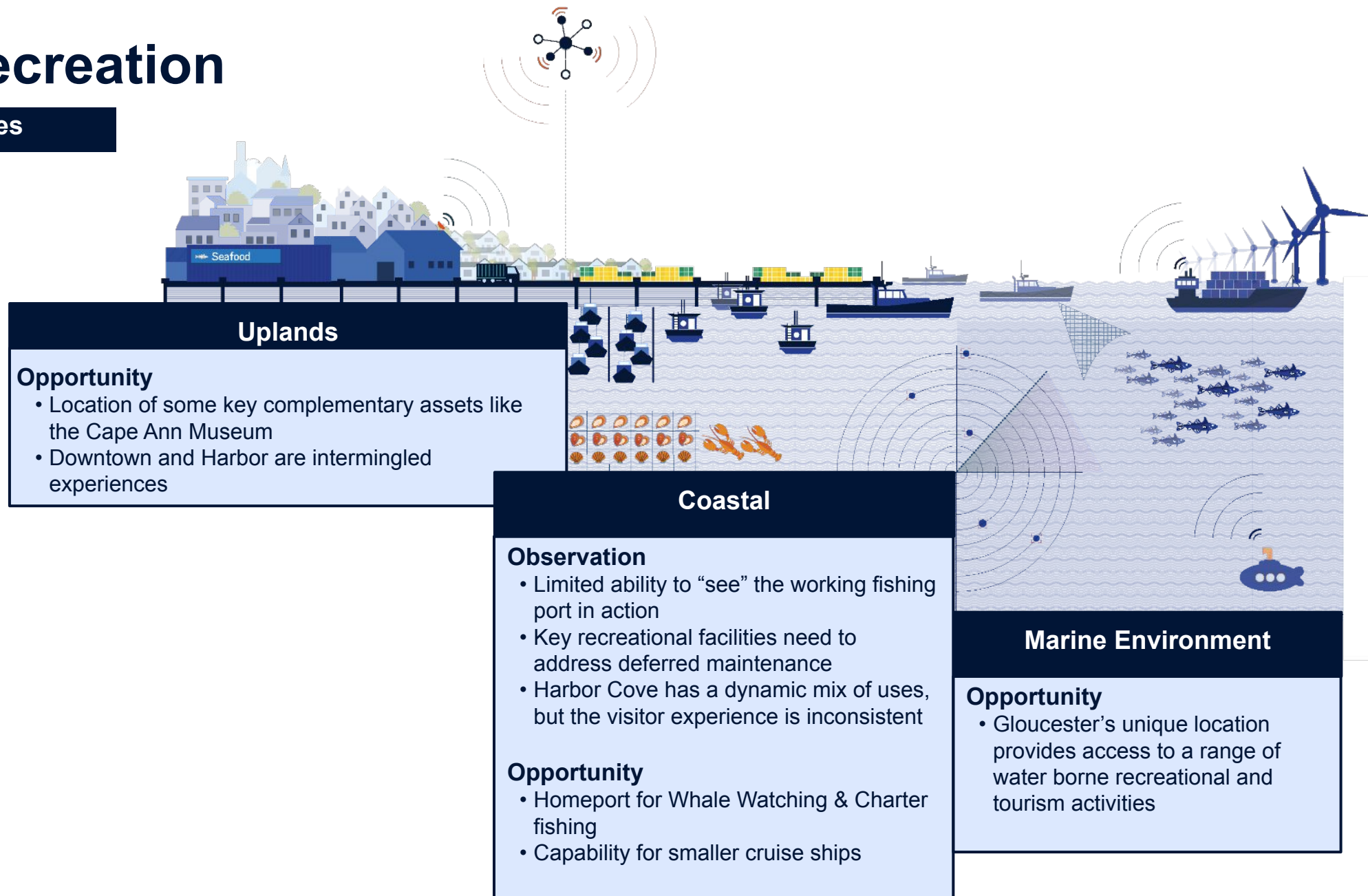
(1) includes Barnstable, Bristol, Dukes, Essex, Nantucket, Plymouth; MOTT 2020 Annual Report

(2) NOAA, MRIP Wave Reports

(3) US Coast Guard Recreational Boating Statistics, 2020

# Tourism & Recreation

## Observations & Opportunities



## Sector-Specific Observations and Opportunities:

### Blue Tech + R&D

Marine or Blue tech for the purposes of this sector is primarily focused on digital and electronics equipment.

- **Ocean Observation Market:** \$7 billion; 23% growth rate
- **AUV/ROV Market:** \$3.8 billion; 18.2% growth rate.
- The 2017 national Ocean Enterprise Study noted that Massachusetts was the 4th largest state in terms of the number of companies involved in the Ocean Measurement, Observation and Forecasting.

*Gloucester has several activities related to the use of marine tech ranging from using lobster traps as a monitoring platform, AUV/ROV\* startup, Seabin, and the SnotBot whale health monitoring drone.*

*In addition, there is a growing amount of research, development and testing on smart fishing technologies and ropeless technologies.*

\*AUV stands for autonomous underwater vehicle and is commonly known as uncrewed underwater vehicle. A remotely operated vehicle (ROV) is an unoccupied underwater robot that is connected to a ship by a series of cables.



# Blue Tech + R&D

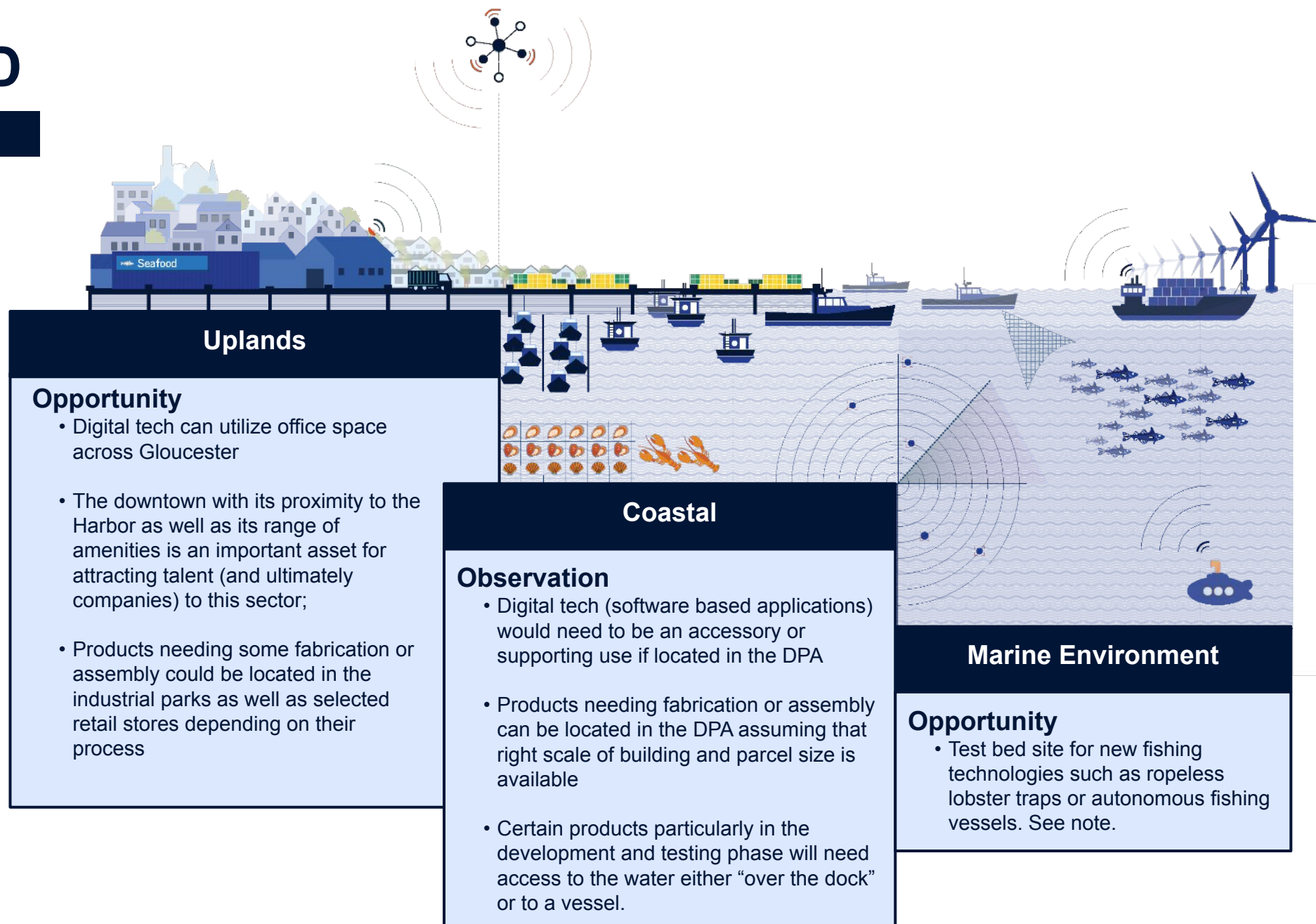
## Observations & Opportunities

### A note on terminology:

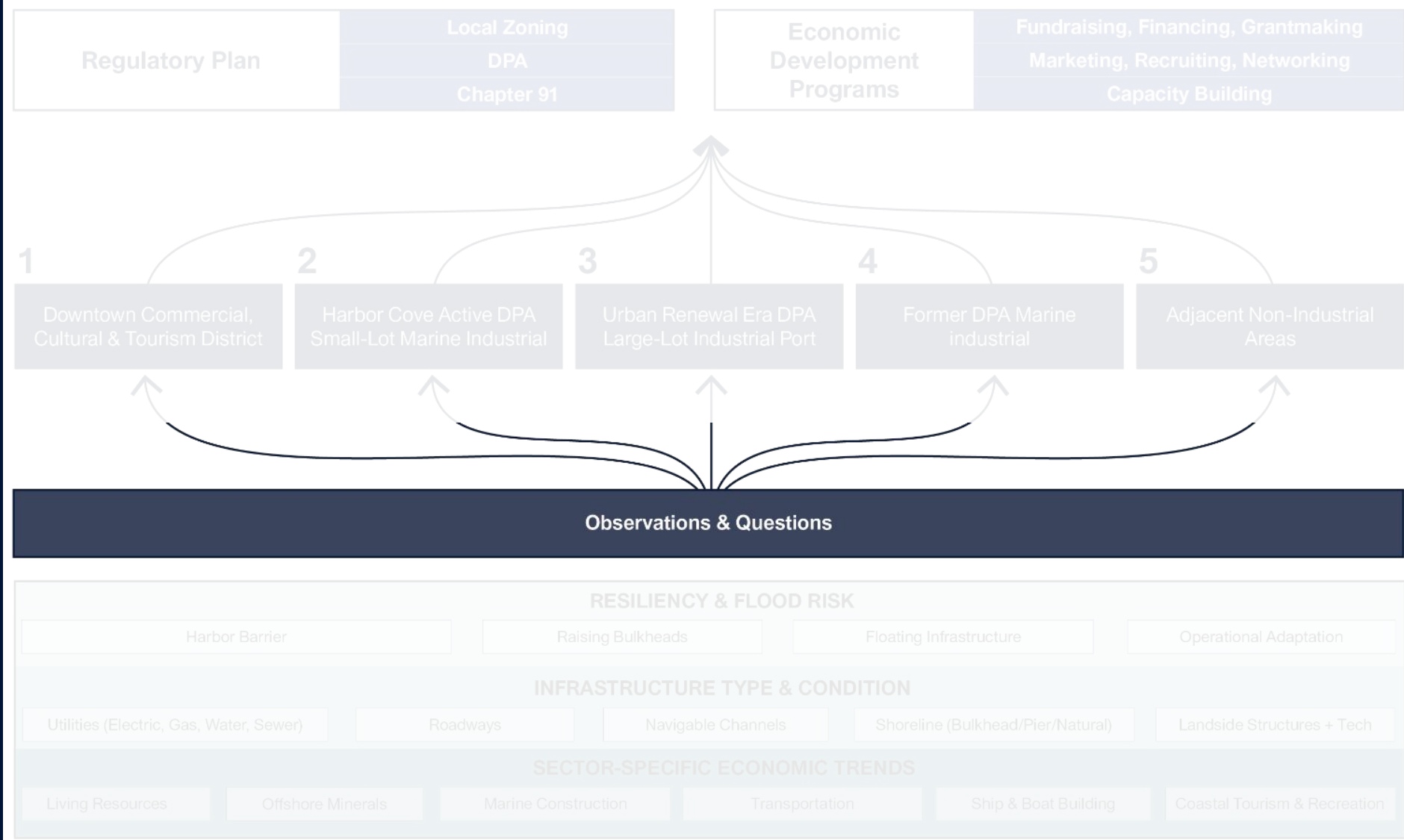
“Blue Tech” or “Marine Tech” are interchangeable umbrella terms for the many different technologies that are relevant to the marine environment, whether they are biological, mechanical, electronic, or software-based. When we refer to “digital or electronic tech” in this presentation we are speaking about a subcategory of blue tech or marine tech that involves software based applications.

### A note on ropeless lobster trap technology:

Beth Casoni, executive director of the Massachusetts Lobstermen's Association commented on ropeless lobster trap technology in a [February 2021 NPR interview](#), saying "We need a large-scale, scientific, unbiased feasibility study on the whole thing. We need to put five boats out in a big square, fishing ropeless, mobile gear, and see what really happens."



# Layer 2. Economic Development Goal Setting



# Topics

- Blue Tech + R&D *(including technology change in the fishing industry)*
- Tourism
- Capturing more value from fishing
- Building Capacity
- Local Zoning

# Blue Tech + R&D

Relevant 2014 MHP Recommendations

2014

## OBSERVATION 1

The Marine Biomaterials industry, Unmanned Undersea Vehicles, and Ocean Observation are sectors that Gloucester should target for growth. There currently exists interest and investment by the private sector in this space. It is also a point differentiation from most existing marine science in Massachusetts.

## RECOMMENDATIONS

- Recruit marine biomaterials industry leaders and identify opportunities to attract private sector investment.
- Pursue opportunities to become a seaside campus for universities/institutions marine research. Develop a satellite for a preexisting observation center or a new fisheries observation center built in conjunction with The National Marine Fisheries Service.
- Develop I4C2 property as the anchor location for an Ocean Innovation & Development Center that facilitates the continued diversification of the Harbor.
- Capitalize on growth in offshore marine renewable energy and fisheries monitoring in the Greater Boston Area to advocate for location of deployment capability in Gloucester.

## What has changed?

The development and construction of the GMGI facility has provided space to support research and tech companies locating to Gloucester.

2021

## OBSERVATION 1

Marine tech (electronic and life science) is making slow and steady progress in Gloucester. However, its physical footprint is different from the traditional fishing sector, and it's a “talent” driven field.

## INITIAL IDEAS

- Recruit Institutional Research Partner
- Ocean Innovation & Development Center
- Deployment Center for Marine Construction & Monitoring



# Blue Tech + R&D

Advancing 2014 Recommendations

## 2021

### OBSERVATION 1

Marine tech (electronic and life science) is making slow and steady progress in Gloucester. However, its physical footprint is different from the traditional fishing sector, and it’s a “talent” driven field.

### QUESTIONS

- How does Gloucester ensure that the Harbor can accommodate growth of what is there now without pushing out the fishing related uses?
- Is there a role for the downtown or other parts of the Uplands to play with this sector?
- How does Gloucester continue to support innovation in this sector?
- What is an appropriate way to encourage limited office-type uses to round out the ocean cluster?

#### A.

##### Expand presence of Institutional Research

Pursue opportunities to become a harborside campus for marine research of universities/institutions

##### EXAMPLES:

UMass Amherst Gloucester Marine Station

Northeastern

MIT/ WHOI Sea Grant auxiliary office

Potential UMASS Northeast Center for Coastal Resilience

#### B.

##### Ocean Innovation & Development Space

Support development of additional space like 417 Main Street on the harbor with supportive infrastructure such as high capacity broadband, and direct water access

##### EXAMPLES:

GMGI

The HUS

#### C.

##### Deployment Center for Marine Construction & Monitoring

Capitalize on growth in offshore marine renewable energy, fisheries monitoring and marine geomatics in the Greater Boston Area to advocate for location of deployment capability in Gloucester

##### EXAMPLES:

Orsted O&M Facility Ocean City MD

# Blue Tech + R&D

Relevant 2014 MHP Recommendations

2014

OBSERVATION 2

Changes in fishing regulations, as well as the rise of Portland ME as a landing port, threatens the viability of Gloucester as a fishing port.

RECOMMENDATION

Catch diversification, collaborative research and management innovation, nimble management, and economic stability planning and implementation.

What has changed?

The principal catch from a dollars perspective in Gloucester Harbor has changed significantly from finfish to lobster.

Portland, Maine landings have decreased 40% since peaking in 2018.

2021

OBSERVATION

Technological change is taking place in a variety of sectors: e.g. electrification of engines and powertrains, deploying “smart tech”, tracking, cold chain requirements, among others.

INITIAL IDEAS

Expand presence of Institutional Research

Ocean Innovation & Development Space

New Fishing Tech “Test-Bed”

# Blue Tech + R&D

Advancing 2014 Recommendations

2021

## OBSERVATION 2

Technological change is taking place in a variety of sectors: e.g. electrification of engines and powertrains, deploying “smart tech”, tracking, cold chain requirements, among others.

## QUESTIONS

What is taking place in the fishing industry specifically that Gloucester as a port and a fleet will need to adapt to?

Does Gloucester have access to the right technical expertise to assist with adaptation?

**A.**

### Expand presence of Institutional Research

Pursue UMASS expansion to build additional innovation depth and research capacity around emerging technologies. Pursue SeaGrant expansion to Gloucester.

#### EXAMPLES:

Northeastern

MIT/ WHOI Sea Grant auxiliary office

UMass Amherst expansion

**B.**

### Ocean Innovation & Development Space

Build an innovation center (with supportive infrastructure such as high capacity broadband, and direct water access) that can support emerging technologies that require fabrication, assembly and training on use.

#### EXAMPLES:

GMGI

The HUS

**C.**

### New Fishing Tech “Test-Bed”

Create a pre-permitted test bed “facility” or zone in the water to test new fishing/harvesting technologies. Continue to monitor status of evolving technologies and implications for Gloucester.

#### EXAMPLES:

Orsted O&M Facility Ocean City MD

# Tourism

Relevant 2014 MHP Recommendations

## 2014

### OBSERVATION

Tourism is an increasingly important part of the local economy. Gloucester has taken small steps along the Harbor to increase its value as an asset.

### RECOMMENDATIONS

- Make the fishing port more sight-seeing friendly
- Increase opportunities for eco/ocean-related tourism
- Enhance the visitor experience of the existing harbor and downtown sites and attractions
- Use programming to extend the length of the traditional summer tourism season by adding additional activity during the “shoulder” seasons of spring and fall.
- Support efforts to diversify and develop innovative products in the tourism industry.

### What has changed?

Growth in charter fishing, particularly for tuna, has created demand for dock space

Additional assets such as the Beauport Hotel serves as an anchor for harbor and downtown tourism.

Discover Gloucester, Gloucester’s destination marketing organization, was formalized.

The Local Rapid Recovery Program (LRRP) Plan, completed in 2021, focused on the downtown area and its connections to the industrial waterfront.

## 2021

### OBSERVATION

Harbor tourism appears to create synergies with the downtown and the coastline.

### INITIAL IDEAS

Working Waterfront Visitor Program Partnerships

Targeted Wayfinding & Pedestrian Infrastructure Improvements

Shoulder Season Programming



# Tourism

Advancing 2014 Recommendations

## 2021 OBSERVATION

Harbor tourism appears to create synergies with the downtown and the coastline.

## QUESTIONS

What more should be done?

What is going too far?

### A. Working Waterfront Visitor Program Partnerships

Integrate seafood processing and wholesaling operations into unique visitor programs that support and celebrate the working waterfront (e.g. fish pier, fish/seafood festivals, how-to workshops and shadowing, factory tours).

#### EXAMPLES:

Honolulu Pier 38

Working Waterfront Festival  
New Bedford

EU Maritime Affairs and Fisheries Fisheries and Tourism Guide

### B. Targeted Wayfinding & Pedestrian Infrastructure Improvements

Improve the visitor experience by investing in interpretive signage, wayfinding, sidewalk and crosswalk improvements, and beautification along dedicated loops or “string of pearls” linear experiences (esp. between Downtown, Stacey Blvd & Harbor Cove).

#### EXAMPLES:

Boston’s Freedom Trail

Bethlehem, PA Steel Stacks

PORT Park Chelsea

### B. Shoulder Season & Tourism Programming

Provide programming ideas to support extension of visitor experiences on either side of the summer peak season.

#### EXAMPLES:

Cleveland’s Brite Winter Festival

Working Waterfront Festival  
New Bedford (September)

# Capturing more Value from Fishing

Relevant 2014 MHP Recommendations

## 2014

### OBSERVATION

The fisheries/seafood industry is a fundamental component of the city's economy, but for the fleet and core support services to survive, the fishery needs increased volumes and higher margin products.

### RECOMMENDATION

Strengthen the fisheries/seafood industry through supporting efforts to:

- Diversify
- Develop Innovative Products
- Capture a larger percentage of the value added in the seafood value chain (this may require branding and positioning, product development, distribution channel development, and demonstrated sustainability including food-mile carbon footprint impacts).

### What has changed?

Gloucester Fresh was launched but its penetration into the market has slowed considerably. While Gloucester Fresh has had some success, in order to penetrate the market you need a larger program.

## 2021

### OBSERVATION

The slim margins and unpredictability of catch volume, particularly in fin fishing, could limit future capital investments (boats, docks, processing).

### INITIAL IDEAS

100% Fish Strategy

Seafood Coop

# Capturing More Value from Fishing

Advancing 2014 Recommendations

## 2021

### OBSERVATION

The slim margins and unpredictability of catch volume, particularly in fin fishing, could limit future capital investments (boats, docks, processing).

### QUESTIONS

How can Gloucester's fishing industry extract more profit from its catch by capturing more from the value chain or using “whole fish” approaches?

Are there opportunities to better rationalize needed investments to reduce the risk and concentrate capital effectively?

**A.**

#### 100% Fish Strategy

Utilization of 100% of fish through byproducts.

#### EXAMPLES:

##### New England Ocean Cluster

Extension of the Iceland Ocean Cluster and part of the Global Ocean Cluster

**B.**

#### Seafood Coop

Vertically integrated Product Coop that purchases, processes, markets, and distributes.

#### EXAMPLES:

##### Martha's Vineyard Seafood

Collaborative, a project of the Martha's Vineyard Fishermen's Preservation Trust

Seafood Producers Cooperative, headquartered in Bellingham, WA

Other food product coop examples:  
OceanSpray, Sunkist

# Building Capacity

Relevant 2014 MHP Recommendations

## 2014

### OBSERVATION

There is a lack of sufficient staff and financial capacity within the government/nonprofit sector to lead, execute and monitor economic development initiatives.

### RECOMMENDATION

Create a new entity (or expand an existing entity) with substantial increased resources and ability to:

- Facilitate the assembly and disposition of larger parcels
- Execute real estate development & programming
- Monitor and measure the city's maritime economy to inform policies and programs that require changes or increased resources
- Define and start initiatives (grant writing, providing seed funding, creating business plans, and technical support)
- Manage and deploy financial capital resources
- Marketing and institutional partnership development

### What has changed?

A Port Maintenance and Improvement Fund was created.

A Harbor CDC was also created, but its status is uncertain at this time.

Infrastructure has continued to deteriorate and the cost of construction has continued to rise.

## 2021

### OBSERVATION

Gloucester still has limited capacity to execute business development, promote innovation, drive marketing, and conduct recruitment at the scale necessary to “move the needle.”

### INITIAL IDEAS

Non-Profit Development Corporation

“Port Authority”



# Building Capacity

Advancing 2014 Recommendations

2021

## OBSERVATION

Gloucester still has limited capacity to execute business development, promote innovation, drive marketing, and conduct recruitment at the scale necessary to “move the needle.”

## QUESTIONS

What has gotten in the way in the past?

What kind of organization makes sense?

How does Gloucester build more capacity in a sustainable way?

Can Gloucester continue to do this work through “volunteer” labor?

A.

### Non-Profit Development Corporation

Acquire selected marine infrastructure and properties, and drive reinvestment into buildings and facilities, support grant writing, and find sources of capital for refurbishment of the marine infrastructure.

### EXAMPLES:

Greenpoint Manufacturing & Design Center GMDC (CDC / Industrial Development Corporation)

B.

### “Port Authority”

Acquire selected marine infrastructure and properties, and drive reinvestment into buildings and facilities, support grant writing, and find sources of capital for refurbishment of the marine infrastructure.

### EXAMPLES:

Unalaska, Alaska Department of Ports and Harbors

New Bedford Port Authority

# Local Zoning

Relevant 2014 MHP Recommendations

2014

## OBSERVATION

The City of Gloucester needs to clarify zoning related to building envelope size and public access (physical or visual) to one of its prime tourist attraction, its 350 year old working fishing port in order to reduce uncertainty and facilitate investment in the harbor properties.

## RECOMMENDATIONS

- **Former DPA:** revisit MI zoning in East Gloucester.
- **Height:** Revisit 40 ft max height (consider view corridors, shadowing) given flood elevation and modern industrial floor-to-floor needs for uses like R&D. Currently MI zone height increases require variance vs. just special permit.
- **Parking:** Explore use-based requirements and shared parking to maximize use of valuable harbor land.
- **Non-Industrial:** Require non-industrial uses in marine industrial areas use quiet design, deed/rental notification.
- **Urban Design & Public Access:** Revisit public access requirements (physical or visual), setback and buffering given the small parcel sizes of most of the Harbor.

## What has changed?

Zoning has not been significantly revised or amended since 2010 when the MI District uses were aligned with Chapter 91 DPA uses.

MVP Planning process has highlight community desire to better regulate floodplain construction to promote resilience.

2021

## OBSERVATION

The majority of the harbor is zoned “Maritime Industrial” and so does not provide site-specific clarity on economic development potential and priorities.

## INITIAL IDEAS

Floodplain & Height Guidelines

Character-Based Industrial Sub-Area Zoning

# Local Zoning

Advancing 2014 Recommendations

2021

## OBSERVATION

The majority of the harbor is zoned “Maritime Industrial” and so does not provide site-specific clarity on economic development potential and priorities.

## QUESTIONS

How can local zoning signal preferred development to developers, property owners and investors?

How can local zoning be adjusted to allow modern water-dependent industrial uses (e.g. R&D/lab)?

How can the waterfront zoning be more site-specific in its guidelines on key local issues like view corridors, public access, parking and dimensional standards?

How can local zoning help to manage the balance between industrial uses and tourism at the working waterfront?

**A.**

### Floodplain & Height Guidelines

Address issues involving floodplain and height through typological studies and associated guidelines for public realm, ground floor treatments, building systems placement and design, and overall building height and massing.

#### EXAMPLES:

Boston Coastal Flood Resiliency Building Guidelines & Zoning Overlay District

**B.**

### Character-Based Industrial Sub-Area Zoning

Consider rezoning harbor based on districts that reflect the parcel size and existing and adjacent uses. This sub-area zoning could include more specific guidelines on things like view corridors, public access, parking and dimensional standards. Additionally, this sub-area zoning could address mixed-use transitions at the edges of the DPA.

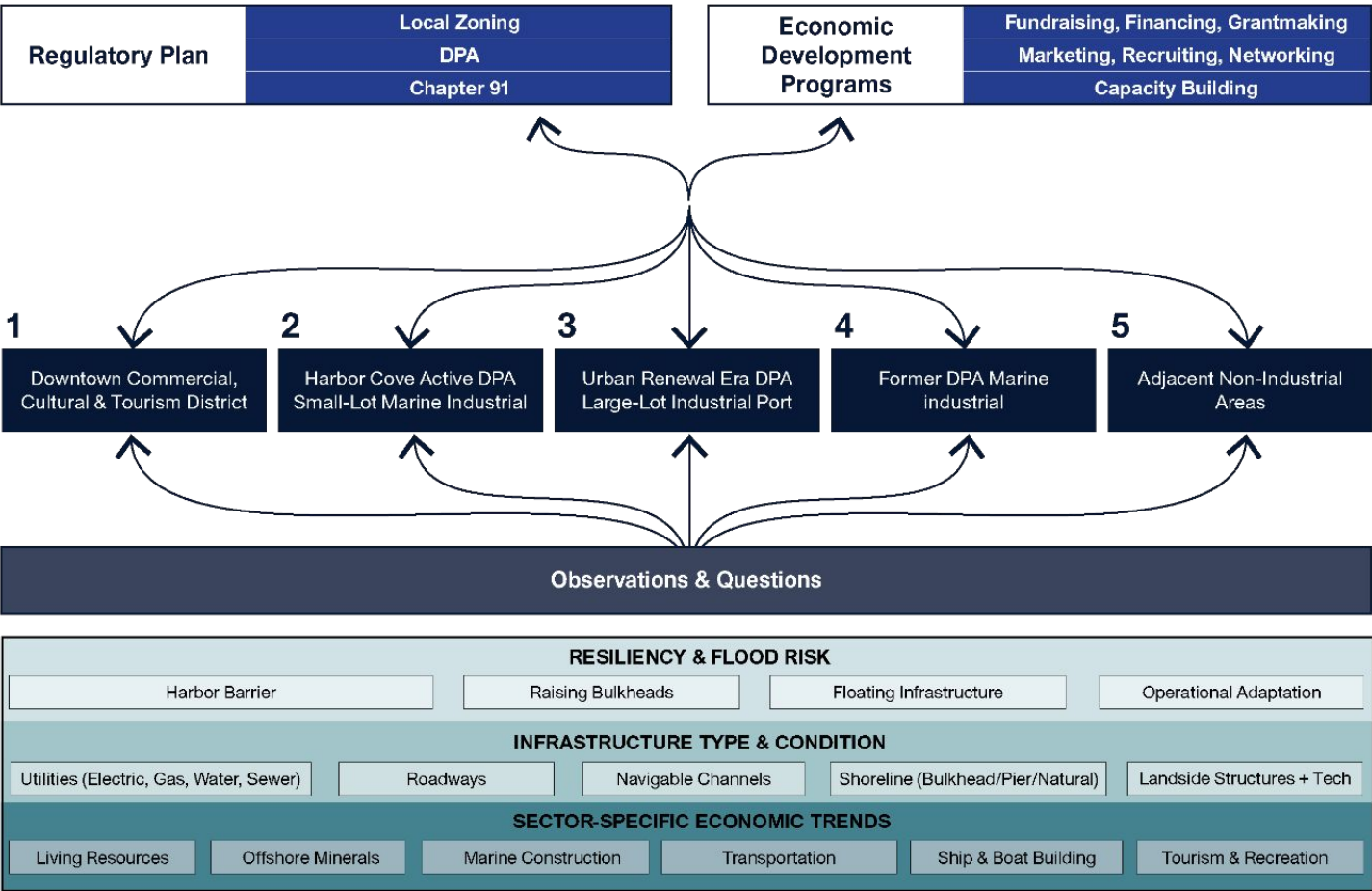
#### EXAMPLES:

Norwalk Industrial Zones Study

Chelsea Creek Municipal Harbor Plan

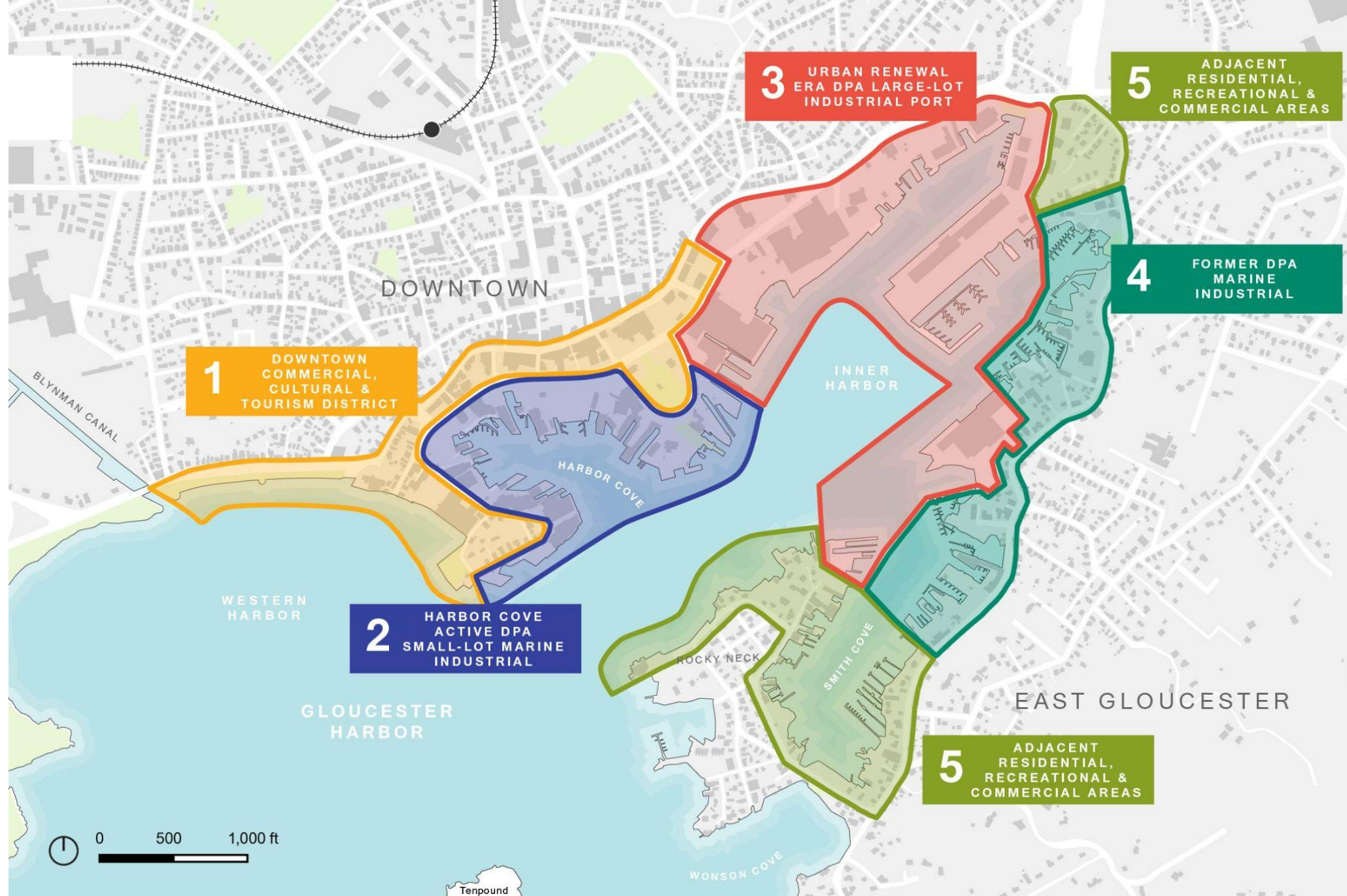
# Next Steps

- **Sub-Area Study (Ongoing)**
  - Place-specific issues and opportunities
  - Priority Parcels
  - Economic Strategies and Recommendations
- **Review Regulatory Environment**





# Sub-Areas



**- Thank you-**