

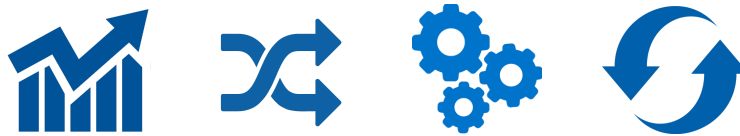


PLANNING A 21st CENTURY HARBOR

Recommendations for the Future of Boston's Working Waterfront

The 2018 report *Innovation in Boston's Working Port: Planning a 21st-Century Harbor* set the stage for an overdue discussion of Boston Harbor's working waterfront and the significance of its contribution to the city and the region's economy and way of life. In early 2018, Boston Harbor Now convened national and local experts to discuss the working waterfront issues highlighted in the report and explore solutions employed by other national and international port cities.

Our year-long research revealed that there is a large body of academic literature on ports (see Appendix, in general). However, literature that specifically deals with and responds to the challenges of an evolving working waterfront and its relationship to cities is still rare. The second installment of *Innovation in Boston's Working Port* focuses on developing recommendations that respond to the needs of Boston's working waterfront and the four themes that emerged from our discussions with stakeholders, industry experts, advocates, and city and state officials: **Growth, Flexibility, Synergy, and Change.**



Our goal is to deliver an ideas document that, when implemented, can respond to the challenges our working waterfront is facing. Forty-years after the establishment of the Office of Coastal Zone Management and the subsequent creation of Designated Port Areas, it is imperative that we reevaluate this framework and ensure that our policies and plans accurately reflect our priorities and continue to preserve and promote our water-dependent maritime industrial uses.

The release of the City of Boston's *Resilient Boston Harbor* plan highlights the importance of implementing resilient projects along Boston Harbor from the Neponset River to the Mystic River to the Belle Isle Marsh. The plan offers a vision for a resilient, accessible, and well-prepared waterfront. As a significant contributor to the economic health of our harbor, the working port must also prioritize executing a vision and implementing solutions that ensure the industrial waterfront is resilient in the face of rising seas.

GROWTH

Areas within Boston's Inner Harbor that are underused or vacant offer multiple opportunities for growth and improvement. Designated Port Area Master Plans are an important tool for preserving Boston's waterfront industrial parcels. To remain competitive, Boston's working waterfront must go beyond preserving waterfront parcels and begin to invest in its competitive advantages. Charting the future of Boston's working waterfront requires an economic and strategic business development plan as well as a culture that champions new innovative, cutting edge ideas and business concepts.

A business group entirely focused on increasing the economic growth of the working port and elevating the public presence of the working waterfront would be a key contributor to the economic health of the harbor. Through the creation of a strategic business alliance, senior-level maritime industry leaders (CEOs, executive directors, and presidents) can lend their expertise and experience to understanding future maritime trends, analyzing the strengths of the working port, and capitalizing on key opportunities for Boston's maritime sector. In recent months, Massport help moved this initiative forward by creating the **Port Industry Alliance**—a coalition of Boston's maritime leaders whose collective goal is to improve strategic collaborations and information exchange.

Maritime businesses, like other industries, must adapt to external changes such as e-commerce and evolving regulatory requirements such as cleaner fuels. These pressures create the potential for new business opportunities. Coastal cities around the world are beginning to invest and explore marine tech clusters as economic drivers for their blue economies.

Marine technology sometimes referred to as blue tech, is often thought of as complex and high-level work. In reality, it is a diverse industry with many different types of jobs. Production in the marine tech industry ranges from chains and ropes to vessel software to remotely operated vehicles and underwater sensors. While designers and engineers may be on the higher end of the wage scale, the industry is also rife with blue-collar job opportunities.

With help from interested stakeholder groups and advocacy organizations, government agencies are beginning to realize the economic advantages of supporting marine tech. An early example of this movement was the 2016 partnership of the International Trade Administration (a branch of the Department of Commerce) and The Maritime Alliance (a California based nonprofit) to create the first ever Maritime Technology Export Initiative to support small maritime businesses across the country.

A local initiative might mirror the MassChallenge model to create a **Working Waterfront Ideas Lab (WWIL)**—a locally-based maritime focused startup-friendly accelerator. The goal of the lab would be two-fold:

1. provide a platform for maritime-related pilot programs to exist on a temporary basis, and
2. raise funds to provide grants to help high-impact maritime related startups succeed.

Possible participants include local startups, universities, venture capitalists, and nonprofits.

IDEAS FOR GROWTH | Think Outside-of-the-Container

[The Maritime Alliance](#)

Headquartered in California, The Maritime Alliance (TMA) is a nonprofit organization that plays an integral role in promoting sustainable science based ocean and water industries in San Diego. The Alliance is a key cluster organizer for San Diego's marine tech industry and the largest blue tech cluster in the United States. It is funded by corporate memberships, grants, and earned revenue.

TMA promotes regional collaboration between relevant agencies, hosts industry related events like tech trade shows, and partnered with the International Trade Administration to create the first-ever US Maritime Technology Export Initiative. TMA was partly responsible for creating a new fisherman's market and is currently working with the San Diego school district to create a maritime education program that will act as a blue economy pathway to a floating maritime school.

[Startup Wharf](#)

Startup Wharf is the first accelerator catering specifically to the maritime sector. The initiative is focused exclusively on nurturing and advancing shipping, ports, and maritime services to create a more robust Maritime Innovation Ecosystem in several port cities across the globe. The accelerator works with tech startups that have potential maritime industry applications and helps accelerate their development to make them investment-ready.



Photo credit: Courtesy of [Port XL Rotterdam](#)

[Port XL](#)

Port XL considers itself the world's first port and maritime accelerator. Offered in several locations across the globe, its main purpose is to build a local port industry ecosystem that creates value for all stakeholders. Following the accelerator model, the organization works to bring startups to full build-out in three months via its mentoring programs.

[SeaAhead](#)

SeaAhead supports growing companies by offering technical solutions to ocean sustainability. Its core mission is to support "new venture development at the intersection of innovation + sustainability + the oceans." It creates an "ecosystem of bluetech innovation" by bringing together technologists, scientists, startups, corporations, governments and other ocean

stakeholders that are interested in advancing “greener shipping and ports, aquaculture and fishery processes, offshore alternative energy and smart cities.”

FLEXIBILITY

Boston Harbor stakeholders, community groups, and members of the public understand that DPAs serve a specific purpose. They are also acutely aware that there are underutilized and vacant parcels in Boston’s Inner Harbor DPAs, but they lack the context and understanding of regulations to advocate and participate in shaping these working port areas. In the context of today’s Boston Harbor, many feel strongly that DPAs are too traditional and should be modernized.

While other coastal cities have embraced modern maritime industry, many people in Boston still think the term “water-dependent uses” relates only to fishing and worldwide shipping from the days when Boston used to be primarily a port city. Many stakeholders we interviewed identified a need to pivot away from DPA and Chapter 91 regulations that focus on Boston as a traditional port city and move towards regulations that acknowledge growth areas like research, fish processing, and small-scale transportation (ferries and water taxis).

A **working port policy roundtable**, composed of working-port stakeholders can be tasked with leading the conversation about the current DPA program and working waterfront related policies. The goal of this group would be to lead a public discussion to develop a better understanding of DPA policy, to carefully analyze existing and vacant DPA land, and if necessary, recommend updates to existing working port regulations—especially the necessary discussions about the resiliency of our working waterfronts.

The main purpose of the working port policy group would be to achieve coast-wide consensus about the current status and future of our working waterfront related policy. This group would be entirely policy focused and complementary to the business-focused Port Industry Alliance. Although the two groups may operate independently of each other, they would meet quarterly (or as needed) to share information and exchange plans to ensure both the policy and economic plan of the working waterfront move forward in a collaborative way to achieve the best and highest use of our working waterfront areas.

IDEAS FOR FLEXIBILITY | Collaborate to Coexist

Local Port Communication Committee

Made popular in Paris, France, the committee is a forum for consultation between the sponsors of redevelopment projects and all other stakeholders—including local residents. Established in 2011, local meetings were held in the ports of the Ile de France region. They brought together local residents and condo associations, representatives of local communities, industrial stakeholders and “Ports de Paris”, providing them with information about the activities and audits carried out at industrial sites and allowing them to discuss potential changes and improvements. A calendar of meetings is scheduled annually, depending on current developments at ports.

[Port Lands](#)

A project led jointly by Waterfront Toronto—a local nonprofit, the City of Toronto, and the Toronto and Region Conservation Authority to redevelop a former industrial port site. An Advisory Committee of interested stakeholders as well as consultation meetings with the local community were organized throughout various stages of the project. A dedicated website acts as an information gateway, with a report on the progress of the overall project and a library of useful documents relating to projects up for consultation. The website also allows visitors to explore the different port sites and offers information about the opportunities created by potential projects, especially around job creation and economic benefits.

SYNERGY

A common thread among all successful port cities is a sense of pride and ownership of their working waterfront. We know that community support is critical to the long-term success of working waterfronts. While short term support can be just as critical, long term support is easier to generate if local benefits are periodically highlighted and negative impacts are limited. Sustained community support requires a more intentional effort.

To be successful, working port communication strategies need to extend beyond the traditional maritime sector and include additional stakeholders like employees, abutters, developers, elected officials, the general public, and advocates. Increasingly popular community port centers are an opportunity to create strategic alliances between the working waterfront, local businesses, and the general public. Port centers can play an important role in highlighting maritime activity, as well as the industry's current and future role in the economic and environmental well-being of the harbor and waterfront communities.

Port centers can also provide an opportunity to attract community youth by offering a variety of educational programs and facilitating class field trips. Similar to the trips led by Boston Harbor Now's Harbor Bound program to the Deer Island wastewater treatment facility—intended to inspire the next generation of waterfront stewards, class trips to community port centers can spark interest in maritime activity and develop a pipeline of working waterfront professionals.

A working port center can also offer guided tours of sections of the working waterfront, visits to local cargo-handling/ship repair companies, and a behind-the-scenes peek at maritime operations that affect our daily lives. Port centers are also an ideal venue for basic training seminars or seasonal maritime-focused camps for kids and teens.

The key to success hinges on minimizing both physical and mental barriers between port activity and community life. By offering specific and strategic points of contact, the community can begin to understand the importance of the working port and the maritime industry can begin to embrace the community as a key ally.

There is a striking disconnect between Boston's working port and its knowledge economy. Within commuting distance of Boston's Inner Harbor are numerous science and engineering undergraduate and graduate degree programs, a dozen community colleges, Mass Maritime Academy, NOAA regional offices, and the standard-setting Woods Hole Oceanographic

Institution. An increasing number of ports and coastal areas are offering marine educational programs at a younger age and seeing positive results. Today, maritime training and education in the New England area predominantly exist only at the college level.

Members of the community, East Boston in particular, expressed concern for the lack of connection between community youth and the working waterfront. This concern grew out of a desire to invest in early educational and vocational opportunities to ensure that local, neighborhood communities also benefit from a growing working waterfront.

According to a 2016 workforce study commissioned by the Massachusetts Marine Trades Educational Trust¹, Massachusetts is set to experience a considerable maritime workforce shortage. The report states that all of the 64 employers with over 1,500 full-time employees surveyed, indicated a need to increase their full-time staff by 2021. Those same respondents identified the need for local education centers to provide training and 80% of the companies indicated that the growth of their business was inhibited by an inability to hire qualified employees. Interviewees describe a specific need for training programs for harbor pilot tugboat engineers, vessel crews, port operators, and planners.

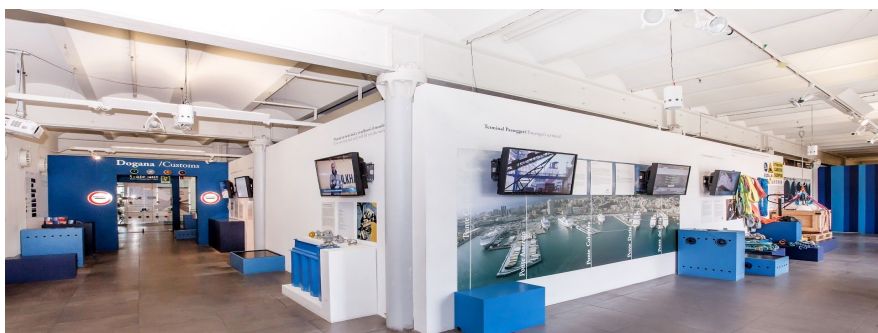
A maritime vocational program has the potential to strengthen Boston's working port and revitalize our aging maritime workforce. An academy on Boston's waterfront focused on providing hands-on maritime education opportunities can be a center of excellence for education, research, and job training. East Boston and Chelsea are ripe for maritime-themed schools and hands-on training opportunities for the youth communities of Boston Harbor.

IDEAS FOR SYNERGY | Break Down Physical & Mental Barriers

[Centre Mainport Rotterdam](#)

An initiative of the Port of Rotterdam, the Centre was founded in 1994 to educate youth about the port and industrial areas of Rotterdam and increase their exposure to maritime-related professions. A core mission of the center is to raise awareness among youth in middle school through college of the important role the Rotterdam port and industrial areas play nationally and globally.

[The Genoa Port Centre](#) ²



A community center created in 2009, The Genoa Port Centre promotes the port and creates awareness of the economic and social role of the maritime

¹ Massachusetts Workforce Survey, Massachusetts Marine Trades Educational Trust, 2016

² Photo credit: [Genoa Port Center](#)

industry. The center was created through a public-private partnership between the local port authority, the province, the local university, and the Porto Antico company. It plays an important role in promoting port education, workshops, and tours to students, teachers, and members of the community.

[Port of Melbourne: Port Education Centre](#)

Located in the heart of the Port of Melbourne and across the Yarra River from the international container terminal, the Port Education Centre (Port Ed) is a welcoming learning environment that offers a window to the world of traded goods and commodities central to Australian's daily life. Most of the activities within the Port of Melbourne are not accessible to the general public. Port Ed provides a unique opportunity to see and learn about the port's operations and the vital role it plays in the national economy.

As part of its education program, the center offers resources for elementary to high school teachers to explore port operations and international trade within the framework of existing school curriculums. The center also works with third-party institutions to highlight career opportunities in the maritime sector.

IDEAS FOR SYNERGY | Invest in Youth Education

[New York Harbor School](#)

The New York Harbor School began as a maritime-themed academic program at a publicly funded Brooklyn high school with a core mission to improve the graduation rate. A few short years after it launched, the Harbor School's graduation rate improved by 200%. Capitalizing on its success, the school moved to an on-water location at Governor's Island and began admitting students from all five boroughs of New York.

Today the New York Harbor School is a public high school that offers hands-on education through unique on-water programming along with traditional coursework. In addition to partnering with the U.S. Coast Guard for training, the students learn boat building, marine science, aquaculture, marine systems technology, and vessel operation skills.

[Port of Houston Maritime Education and Workforce Development Program](#)³



New York is not the only state that is introducing marine education and training programs for youth. In 2009, through a collaboration between maritime industry leaders, educational institutions, and business organizations, the Port of Houston created a nationally-recognized Maritime Education and Workforce Development Program. The initiative implements maritime academy programs in

³ Photo credit: Courtesy of [Port of Houston](#)

local high schools through partnerships with the port authority, port employers, and educational institutions.

Currently, there are six maritime education high schools in four school districts along the Houston Ship Channel. According to the Port Houston, the private sector maritime employers are particularly supportive of the program as the key to ensuring maritime education programs are accessible and effective in developing tomorrow's maritime workforce.

[Maritime Industries Academy High School](#)

Founded in Baltimore, Maryland, with support from the Maritime Industries Academy Advisory Board (MIAB) and the nonprofit Maritime Industries Academy Foundation (MIAF), the Maritime Industries Academy High School is focused entirely on championing the importance of the maritime industry.

The Academy offers a specialized maritime curriculum to educate youth in key maritime principles and the value of the maritime industry to America's economy, security, environment, and quality of life. The main purpose of the curriculum is to attract the next generation of mariners and maritime leaders by fostering interest in and appreciation of the industry as a career option.

The model of the Academy prepares students for trade or vocational school, college, or the maritime and naval academies. The curriculum of the Academy is also made available at no cost to any school wishing to incorporate a maritime track into its current academic program.

CHANGE

Dan Adams, founding principal of the Landing Studio—an architecture, design, and research practice whose work negotiates the intersection of large scale global industry with urban environments—questions the assumption that maritime industry needs are necessarily contradictory to recreational uses. During the 2018 Working Port Symposium, Adams shared an example of the [multi-use aspects at the Eastern Salt site along Chelsea's industrial waterfront](#). This area, mostly used for salt storage, functions as a public basketball court and recreational area during the offseason. This kind of creative thinking supports the notion that a city- and people-oriented working harbor is within our grasp if we take steps to reimagine our essential relationship to the harbor through an updated regulatory framework and a concerted collaborative effort among public and private stakeholders.

Some ports of the future will no longer need to be walled off from the community or be separated by regulatorily imposed boundaries. If we focus on improving the port-city connection, portions of our working waterfront can become part of the next generation's urban experience. The working waterfront can be absorbed into the story of every harbor community.

Here's a novel idea: make it float! Barges, or flat-bottomed boats, have for centuries been used to transport heavy cargo along rivers and canals. As waterfront land becomes increasingly scarce, cities are turning to the water as a convenient alternative to traditional land-based projects. Water-based developments are becoming increasingly commonplace as both a solution to the

lack of available space and a way to pilot or “try out” innovative programs and uses along working waterfronts.

In response to a limited supply of waterfront space, community-focused solutions extend beyond the traditional land-based development to include everything from floating affordable housing to shopping malls to public pools to open spaces to urban farms and even museums. Minor improvements and curated programming like colorful murals on oil tanks, seasonal recreational spaces, mobile art/museum expositions, and working-waterfront-themed celebrations can have a big impact on the city-port relation.

IDEAS FOR CHANGE | Change Where the City Meets the Port

[Traveling Container Exposition](#)

The “traveling exhibition of marine-sector photos” is a shipping container-turned-art gallery that travels to different locations around Quebec City’s waterfront. Sponsored by the Port of Québec, it is a seasonal photo exhibition housed inside a cargo container. Through beautiful photos and informative text, the exposition spotlights marine infrastructure and offers the public a different perspective of maritime industrial sites and activities. The mission of the project is to connect port activity to the people it serves and the products they use daily.



Photo credit: [St. Lawrence Economic Development Council](#) (left), [Courtesy of Le Havre Tourisme](#) (right)

[Le Bains Des Docks](#)

Les Bains Des Docks is a 12-pool aquatic complex located inside the Port of Le Havre, a city along the northern coast of France. The project grew out of a mutual need for the city to attract visitors and for the port to attract additional businesses. The result was the creation of an indoor/outdoor aquatic complex that offers opportunities for individuals and families to engage in swimming lessons and recreational aquatic activities.

[Sugar Beach](#)

Sugar Beach is an increasingly popular fixture of Toronto’s working waterfront. The waterfront-parking-lot-turned-artificial-beach is available to the public year-round for sunbathing and recreation. The unique urban beach includes pink umbrellas, lounge chairs, white sand, and a front-row seat to an active berth.

[Silo Park at Wynyard Quarter](#)

In the early 2010's, Auckland, New Zealand, accepted the challenge of reimagining a section of its industrial waterfront. As some of the traditional port uses began to evolve, the need for waterfront lands began to change. Responding to public input overwhelmingly in favor of increased public access and open areas within the port, Waterfront Auckland created a dedicated website, a port newsletter, and an annual program of social, cultural, and business events. Since 2011, the Wynyard Quarter has hosted Workshops on the Wharf, Silo Cinema open-air film screenings, night markets, and Silo 6 art exhibits. Over 50 summer events are held in the public spaces developed around giant silos formerly used to store large quantities of cement.



Photo credit: [City of Toronto Parks](#) (left), Courtesy of [Silo Park at Wynyard Quarter](#) (right)

[Fuel Tank Facelift](#)

A graphics project led by the Port of Hamilton Authority in Ontario, Canada, provided a fuel tank facelift as the result of a joint marketing and PR campaign that recognized how important the aesthetics of the port are to abutting communities. To soften the appearance of numerous large white structures along its waterfront, the Port of Hamilton commissioned several large printed graphics to replicate the surrounding landscape and help the large oil tanks blend into the environment and “disappear.”



Photo credit: Courtesy of [Web Urbanist](#) (left), [Iris van den Broek](#) (right)

[Port Celebrations](#)

Celebrating the contributions of the port with a themed event or a multi-day festival is another way ports are inviting the public to the working waterfront. The annual Port Hueneme [Banana Festival](#) in Ventura County, California, invites people to the port for a day-long celebration of the diverse working port and to enjoy the ports number one import: bananas! The event offers attendees an opportunity to tour the port facilities and experience a behind-the-scenes look at port operations.

The City of Rotterdam has a long and proud working port tradition. Every year the Dutch port puts on the [World Port Festival](#) that includes nearly 200 events along the Elbe river over a long weekend. The events range from small gatherings to large public celebrations complete with fireworks and celebrity DJ electronic dance music parties.

To strengthen the synergy between its port and its residents, the [Port of Valparaiso](#) in Chile promotes interactions between local residents and the port by organising a variety of social, cultural, recreational, and sporting activities in port areas. Fifteen years of experience and a host of initiatives have shown that it is possible to open part of the port temporarily (approximately 10 days per year) with events that can attract up to 15,000 visitors at one time.

IDEAS FOR CHANGE | Make it Float!

[Swale](#)

New York City's Swale project is a 5,000-square-foot barge-turned-floating-farm and public open space. The barge was once used for hauling sand to construction sites but has been repurposed to host solar-powered vegetable gardens, aquaponics, and fruit trees, all available for public harvesting. The first of its kind, Swale travels to different piers on New York's waterways and offers educational workshops and promotes environmental stewardship. Funded through private and public partners and sponsors, the floating agricultural hub offers free public programming and professional development opportunities for South Bronx youth.

In 2013, the Boston Zoning commission approved an urban agriculture ordinance (Article 89) allowing ground-level, rooftop, and greenhouse farming within city limits. This kind of urban agriculture provides fresh, locally-grown foods and jobs to underserved Boston communities.

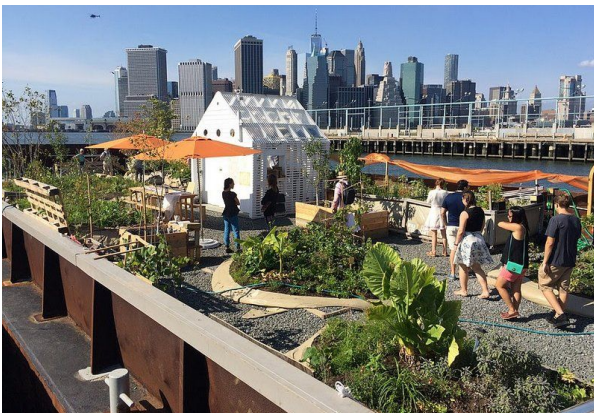


Photo credit: Courtesy of [Swale](#) (left), Courtesy of [CruiseChicago](#) (right)

[The Floating Museum](#)

Located in several locations throughout Chicago, the Floating Museum is a floating exhibit on the banks of the Chicago River. Placing site-responsive art, design, and programming atop a barge, the "River Assembly" exhibits pay homage to the industrial history of the city. Through art, the public is invited to make connections between the infrastructure, aesthetic, and relationship of the city's industrial heritage and its value as an urban cultural asset.

[The Floating Farm](#)

Inspired in part by Hurricane Sandy—a time when New Yorkers were reminded of the fragility of supply chains—the Netherlands launched the world’s first floating urban dairy farm. The farm has an educational platform, so local schools can bring students to learn where their milk and cheese originates.

[Barretto Point Park Floating Pools](#)

Hosted on a barge called the “Floating Pool Lady,” Barretto Point Park Pool is a public waterfront pool located on the East River in NYC. The 20,000-square-foot barge contains an outdoor 25-meter swimming pool with a pool house, locker rooms, showers, a children’s spray shower, and a gangplank leading to and from the barge.

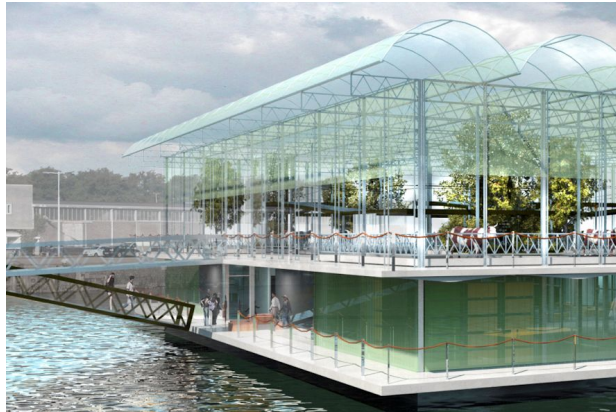


Photo credit: [Samali Bikangaga](#) (left), [Beladon Floating Farm artist rendering](#) (right)

BRINGING IT ALL TOGETHER

Boston’s working waterfront is a core part of our history and identity. It became the gateway and economic growth center of a British colony and then new nation in the 17th and 18th centuries. By developing a 21st-century approach to our working waterfront, we can ensure our ports remain innovative, thriving, and competitive with the very best ports around the world.

Boston Harbor Now embarked on this research concerned about the long-term viability of Boston as a port. Through conversations with national and local experts, working port stakeholders, DPA communities, city and state agencies, private developers, open space proponents, and climate preparedness advocates, we are convinced that viable public policy and collaborative investment opportunities exist to increase innovation and efficiency in Boston’s maritime industrial waterfront.

The recommendations offered in this report are intended to spur port stakeholders and advocates into action. This is not an exhaustive list and, as this brief suggests, there are many urban working waterfronts that serve as an example of the kind of out-of-the-box thinking Boston’s port should consider. By developing a 21st-century approach to our working waterfront, we can ensure that our urban waterfront remains innovative, thriving, and competitive with the very best around the world.

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Additional Stakeholders

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Channel Fish
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Eastern Salt Company
Fort Point Associates
Indian River Lagoon National Estuary Program
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