URBAN OCEAN LAB

A Path to Protect and Support Working Waterfronts

December 2024

Introduction

For centuries, working waterfronts have influenced the character, growth, and economies of coastal cities and communities.[1] They can be large industrial ports supporting international trade, or a small town's landing used by local fishers and aquaculturists. In recent decades, working waterfronts have transformed, and are increasingly threatened by: reduced waterfront access from gentrification and competing development, sea level rise and intensified storms driven by climate change, difficulty recruiting a skilled workforce, and competition from other industries limiting onshore services.

Residents throughout the country, including in Alameda, CA, Sausalito, CA, Port Townsend, WA, and York, ME, have formed volunteer groups and coalitions to protect working waterfronts. In Maine—a state with 5,300-miles of shoreline—only 175 miles have the right characteristics to support waterfront activities, of which fewer than 20 miles of working waterfronts remain. The loss of these important coastal areas limits whether and how coastal communities and businesses can access the water, and creates logistical and operational challenges that can stymie economic activity.

1 Per the federal Keep America's Waterfronts Working Act of 2023/2024: "The term 'working waterfront' means real property (including support structures over water and other facilities) that— (A) provides access to coastal waters by coastal users; and (B) is used for, or supports, commercial and recreational fishing, recreational fishing and boating businesses, and boatbuilding, aquaculture, and other water-dependent, coastal-related business". In the absence of a consensus definition, this one will be used for purposes of this memo.

Benefits of Working Waterfronts

Working waterfronts help drive coastal economies and support jobs, foster diverse coastal industries while supporting climate preparedness, and maintain maritime heritage and traditions.

Strengthening the Economy

Thriving working waterfronts can create economic opportunities and support upward mobility in less-resourced communities. In 2022, the marine sector provided 2.4 million jobs. In that same year, fishing, recreation and tourism, energy, shipping, transportation, and other marine activities contributed over $476 billion to the U.S. GDP.

A diversified, well-resourced, and resilient working waterfront makes a compelling investment prospect for maritime industrial uses. New Bedford, MA has been able to attract new businesses and revenue to support growing industries, like offshore wind, because of their shoreside infrastructure and services. New York City, Humboldt County, CA, and other U.S. coastal communities with existing working waterfronts are also playing a critical role in the developing offshore wind industry. This infrastructure can also support more resilient supply chains. Likewise, investing in ocean farming and fishing infrastructure like shoreside processing facilities—which, with floating processors, generated $13 billion in revenue in 2022—can support domestic seafood production.[2] Climate resilient investments can help waterfront communities be more prepared for disasters like the storms that struck Maine in 2023 and 2024, so that economic activities can continue or resume more quickly after.

New York City's Comprehensive Waterfront Plan aims to build an equitable, resilient, and healthy waterfront, including by bolstering the city's marine economy, which supported more than 23,000 businesses and contributed $27.2 billion to the GDP in 2021. Since 2015, New York City has certified a record number of minority and women-owned small businesses and awarded more than $10 billion in contracts to improve inclusion and diversification.

Ports in California—which handle 40% of U.S. containerized imports and 30% of U.S. exports—have received a number of recent investments that create co-benefits for the economy and local communities. In October 2024, the Biden Administration awarded seven ports including Los Angeles, Oakland, Stockton, and San Diego, more than $1 billion to support more climate-ready infrastructure and emissions' reductions. Last year, Governor Newsom awarded $233 million in grants to the Port of Los Angeles for infrastructure projects, including a marine support facility and improvements to rail and highway systems, to more efficiently move products and goods through the port.

2 More than 70% of American voters said they would eat more seafood if it was domestically produced.

Supporting Fishing and Ocean Farming
Investing in facilities that can provide waterfront access and provide places to land catches and harvests, repair boats and gear, and to process products can benefit both wild fisheries and aquaculture farms. Such investments, particularly in processing facilities, can help ensure more consistent work and economic opportunities in the seafood sector. Aquaculture is one of the fastest growing food sectors in the world, and the U.S. federal government is interested in expanding the industry. Regenerative ocean farming of seaweeds and oysters produces lower-impact food sources—when compared to aquaculture practices that require freshwater, feed, or fertilizer—and provides localized benefits like improving water quality. It can also, given differing peak harvesting seasons, complement wild-caught fisheries and provide a continuous supply for seafood processors.

Improving Climate and Community Resilience
Creating more climate resilient working waterfronts can benefit local economies and cultures. For example, a study conducted by the town of Vinalhaven, ME found that waterfront adaptation measures can reduce disruptions to ferry service and flooding of critical fishing infrastructure caused by sea level rise. To address climate impacts, like sea level rise and marine heat waves, on local fishing and other water-dependant businesses, the City of Fort Bragg, CA has created the Noyo Harbor Blue Economy Visioning, Resiliency and Implementation Plan to identify harbor infrastructure improvements needed for climate resiliency. Protecting working waterfronts can also preserve community and cultural identities for communities whose heritage and histories are rooted in coastal waters.

Regenerative ocean farming is a climate-friendly model of aquaculture where seaweeds and/or shellfish are grown in a way that requires no freshwater, feed, or fertilizer. Read our policy memo to see how it can be advanced in the U.S.

An oyster farm in Casco Bay, Maine. Photo by Morgan Rielly

Challenges of Working Waterfronts

Waterfront businesses and communities face a number of challenges resulting from reduced waterfront access, climate change, reduced workforce, and a lack of supporting services.

Reduced Waterfront Access

Lack of access to working waterfronts—because of redevelopment or gentrification—suppresses coastal industries and the jobs they provide, plus impacts cultural uses. In some cases, commercial developers buy working waterfront properties and convert them to residential or commercial without incorporating water-dependent uses into redevelopment plans. In other areas, an influx of wealthier residents is driving up the cost of coastal properties, resulting in the gentrification of waterfront communities. In most places, Indigenous communities have been displaced from their lands or experienced reduced access to waterfronts as a result of colonial policies and practices.

Climate Change Impacts

Many working waterfronts were not historically designed for climate change hazards and impacts. Climate change increases the intensity of hurricanes, storm surges, and floods, not only threatening coastal infrastructure such as docks, launch ramps, and dockside facilities, but also raising the cost of flood insurance for waterfront facilities. For example, storms that hit the coast of Maine in between December 2023 and January 2024 severely damaged working waterfront infrastructure: 520 coastal businesses in the state submitted damage reports, many due to storm surge which peaked at least 5 feet above regular high tide. In response, the state allocated $60 million in storm relief for communities, the single largest government investment in storm recovery in Maine's history.

Storms and changes in water circulation patterns can also affect channels and other waterways, as well as critical habitats, thereby impacting navigation and fishing. In the Chesapeake Bay in Virginia, for example, declining crab catch due to climate change has contributed to a significant decrease in the number of Black fishers.

The Passamaquoddy Tribe in Maine and New Brunswick, Canada, has harvested shellfish for thousands of years. Currently, the Tribe can harvest on only two mudflats in Sipayik, part of the tribe's ancestral lands. They are unable to harvest clams on nearby land they historically used because their fishing rights are not acknowledged, and local laws only allow town residents to obtain clamming licenses.

Storms that hit the coast of Maine between Dec 2023 and Jan 2024 severely damaged working waterfront infrastructure. Photo © Jack Sullivan, Island Institute

A worker empties a basket of shrimp at a dock in Chauvin, Louisiana. Photo © Will Widmer

Workforce Development Barriers

Throughout the country, the maritime workforce is dwindling, primarily in industries using small and medium boats such as the seafood sector. In places like South Carolina, New England, and Alaska, industry professionals are concerned about difficulty recruiting new employees into the seafood sector, due to climate impacts on fish and crab populations and costs for equipment, training, and permitting. Regenerative ocean farmers face similar workforce challenges including complex permitting, lack of worker protections, and a need for more workforce training. Working waterfronts cannot thrive without a trained, available workforce.

Lack of Supporting Onshore Services

Onshore services like fuel, docks, cold storage, and processing infrastructure are integral to waterfront economies. In Louisiana, for example, small-scale businesses must compete with offshore oil and gas companies for access to waterfront infrastructure, creating logistical and operational challenges. While some businesses may utilize microprocessing to pack and sell their harvest themselves or reach a scale where they can establish their own processing facilities, these solutions are not broadly accessible due to associated costs, risks, and regulatory requirements, and they still often require waterfront access.

Recommendations

City-Level Actions

There are many actions coastal cities can take to preserve and provide equitable access to waterfront infrastructure, address the climate crisis, expand community involvement and strengthen waterfront economies, including:

Provide Equitable Access to Waterfront Infrastructure

- → Identify and preserve adequate spaces for water-dependent industries.
- → Create appropriate public access facilities as part of waterfront development projects. Federal funding, such as Community Development Block Grants or the Land and Water Conservation Fund, may be available.
- → Establish an investment fund, or utilize financing mechanisms like public-private partnerships, to offset project costs for maintaining and improving waterfront infrastructure for the benefit of water-dependent businesses and the public.
- → Improve green public transportation to and from working waterfronts by operating and maintaining electric buses or trains, bike lanes, and walking paths.

Photo © Will Widmer

Reduce Carbon Pollution and Increase Resilience

- → Require or incentivize climate resilient design standards for new development and retrofits.[3]
- → Invest in more resilient infrastructure, including by incorporating natural barriers (like mangroves and wetlands).
- → Elevate critical infrastructure and relocate some port facilities to less climate-vulnerable areas.
- → Electrify ports and working waterfronts:
  - ○ Build and improve access to electric vehicle charging stations.
  - ○ Incentivize vessel electrification by establishing grant and low-cost loan programs.
  - ○ Provide shore power to reduce or eliminate emissions from docked vessels, and provide reduced cost opportunities, such as grants, low cost loans, and tax incentives, for retrofitting vessels to accept shore-based power.

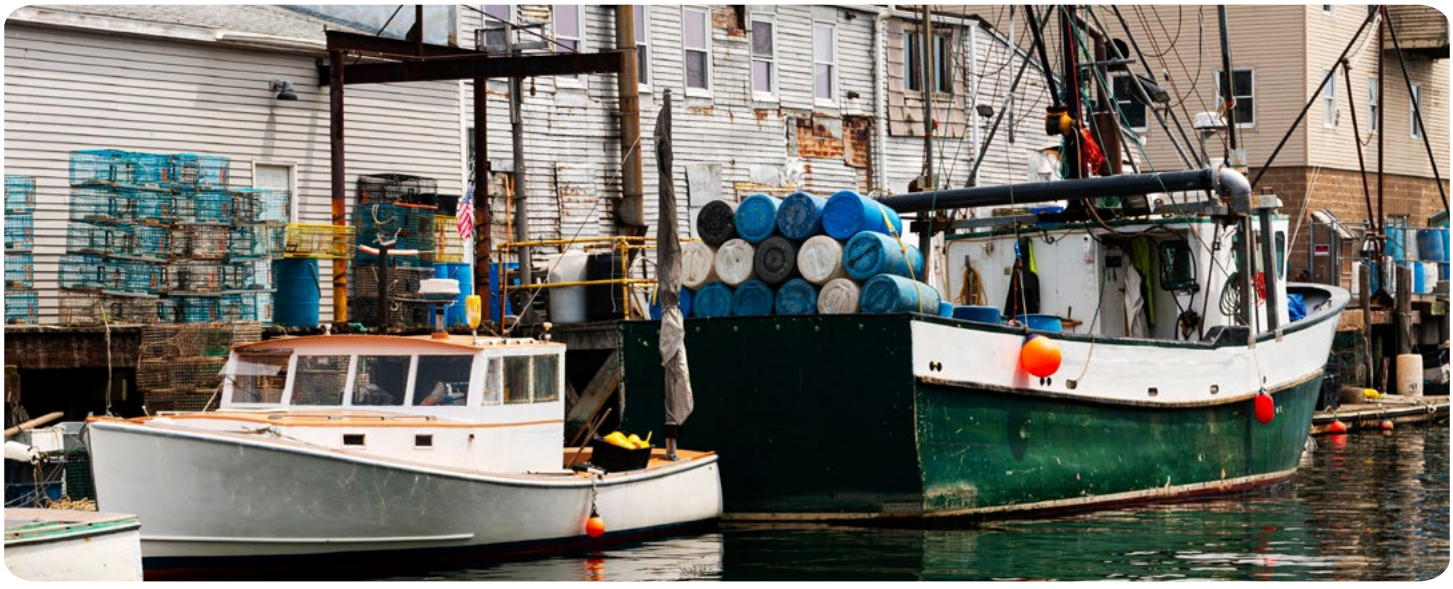
3 These can include nature-based solutions for flood risk reduction and storm surge protection through restoring marshes, and wetlands, oyster reefs, and seagrass restoration, and by construction living seawalls.

Support Community Engagement

- → Establish a community-led working group (one example is the Fishery Friendly Climate Action Campaign) to inform development decisions to minimize adverse impacts to local communities, identify local funding priorities, and balance representation from residents and local users of the waterfront.
- → Create or tap into engagement platforms or other community programs to educate and build partnerships across sectors and strengthen collaboration between waterfront industries, Tribes, community-based organizations, local community members, and government agencies.
- → Provide training opportunities to increase the capacity of community-based organizations to design and plan climate resilient waterfronts.[4]
- → Consider establishing nonprofits, trusts, and public-private partnerships to ensure that waterfront property is managed for both continued operation of working waterfront businesses and public benefit.

Strengthen Waterfront Economies

- → Establish climate-ready workforce development opportunities, such as job training or apprenticeship programs in climate-resilient technology or industries, in coordination with community-based organizations and using existing federal, state, or regional programs and funding opportunities—including reduced costs for training and permitting in beneficial industries such as regenerative ocean farming.
- → Support adaptive fishing opportunities for different species as warming temperatures drive fisheries north toward cooler waters.
- → Promote shellfish and kelp aquaculture (regenerative ocean farming) through educational programming and networking opportunities to facilitate knowledge sharing.
- → Improve broadband internet and cellular coverage of harbors, ports, and marinas.



Commercial fishing boats docked in a working canal in Portland, ME. Photo © David Wood

4 This could be similar to the process Boston planned in the Climate Ready Boston report to engage community members and stakeholders during their planning.

State and Federal Government Collaboration

Strong coordination at the state and federal levels can help ensure adequate funding, improve data collection, and support informed decision making.

Coastal State Governments Should:

→ Establish a permanent working waterfronts commission—an independent entity that develops a statewide strategic plan to coordinate maritime administration and management—with the power to advise state decision makers and inform legislation when needed. Such entities already exist in some coastal communities, for example Kingston, RI.

→ Preserve space for working waterfronts. For example, Maine allows land trusts to hold working waterfront covenants, similar to land conservation easements. In Massachusetts, Designated Port Areas have physical and operational features to support water-dependent industrial uses. City and state governments could support these actions through financial incentives such as tax deductions for working waterfront covenants.

The Federal Government Should:

→ Establish an interagency working group that centers working waterfronts as a strategic priority and provides a forum for coordination and partnerships between federal agencies. This could be modeled after Rep. Pingree (D-ME) and Rep. Whittman's (R-VA) proposal for a Working Waterfronts Task Force, or the American Climate Corps interagency working group.

Federal, State, and Municipal Governments Should, in Collaboration:

→ In areas where dredging is done, develop a collaborative dredge plan and a strategic placement program for dredged sediment from navigation channels to maximize environmental, financial, and other benefits, which can include: saving on fuel costs, improving emergency vessel response capabilities, and reusing sediment.

- Work with the National Dredging Team and regional teams to access funding opportunities for dredging grants and beneficial uses of the material.

→ Support programs and provide funding to map and inventory of working waterfronts—as well as relevant climate risks and nearby affordable housing, marine-based businesses, and points of access.

- This data should inform comprehensive waterfront plans and identify places that could support expanding working waterfronts, such as closed or inactive harbors.
- The federal government, should establish a working waterfronts mapping hub within the National Oceanic and Atmospheric Administration (NOAA) to track and consolidate relevant data in collaboration with interested stakeholders including: the NOAA Sea Grant program, other federal agencies, states, municipalities, Tribal governments and organizations, nonprofits, and others.

Conclusion

Working waterfronts—which can underpin the economic vitality, cultural heritage, and climate resilience of coastal communities—are threatened by coastal development and climate impacts. Local, state, and the federal government must continue to advance appropriate policies and funding opportunities to preserve and revitalize these places to help coastal communities thrive.

Contributors: Alexandra Carter, Morgan Rielly, Sheetal Shah, Alex Miller, Jenisha Shrestha, Jean Flemma, and Ayana Elizabeth Johnson

Acknowledgements: Ruth Driscoll-Lovejoy, Isabel Jamerson, Maddy Traynor, and Environmental Defense Fund staff contributed to concepts informing this memo. We are grateful to Nick Battista of Island Institute, Janelle Kellmen of Center for Sea Rise Solutions, and Kristin Uiterwyk of the Urban Harbors Institute at the University of Massachusetts Boston for providing valuable feedback.

URBAN OCEAN LAB