

2023

SEA Maine Roadmap

for the Marine Living
Resource Economy

WWW.SEAMAINE.ORG

Introduction & Background

Since its inception in 2019, SEA Maine's mandate has been to develop a strategic economic development Roadmap for Maine's marine living resource economy. SEA Maine (Seafood Economic Accelerator) is an industry-led effort funded by the U.S. Economic Development Administration (EDA) with support from Maine Technology Institute (MTI) and FocusMaine.

Vision

Maine produces some of the best seafood in the world, and our coastal ecosystem, featuring cold clean water, is ideal for the production of seafood and other marine-based products. By expanding and training our workforce, supporting working waterfront communities and the fishermen and farmers who work on the water, addressing infrastructure needs, promoting Maine seafood, and developing marine-based products, our industry will expand and become more resilient to the effects of climate change and economic disruption. Our proximity to major markets will foster consumer enthusiasm and robust sales now and in the future.

Photo Credits: Cover and inside right, Merritt Carey



Roadmap Goals

- + Grow the overall value of Maine's marine living resource economy by 10% by 2030.
- + Grow employment within the sector and related value chain by 1,000 employees by 2030.
- + Increase sector-wide financial investments to support infrastructure, available capital, market development, and research and development.
- + Maintain and expand Maine's working waterfront access and the capacity of working waterfront communities to support infrastructure and businesses.
- + Enhance the ability of the sector to respond to challenges and opportunities resulting from climate change and demographic shifts.



Photo Credit: Island Institute

SEA Maine commissioned a series of reports based on the work of its committees and industry stakeholders. The data collected, along with input provided from industry stakeholders and information from a number of external reports (such as *Maine Economic Development Strategy 2020 – 2029*, *Maine Won't Wait*, and the *Maine Aquaculture Roadmap*), formed the basis of this Roadmap. The full version of the Roadmap, along with SEA Maine's reports and affiliated projects, can be found on the SEA Maine website (seamaine.org).

Definitions

What is the Marine Living Resource (MLR) Economy?

The MLR economy includes fishing, lobstering, aquaculture, life sciences, and value-added processing as well as critical supply chain elements, like shipping and logistics, that support this economy.

What is Maine's working waterfront?

Maine's working waterfront refers to land, legally filled lands, piers, wharves and other improvements to lands all adjacent to the navigable coastal waters of Maine.

It encompasses the land necessary for accessing the waterfront for commercial fishing and aquaculture activities such as walking paths to the intertidal zone and parking, as well as land for other vital infrastructure such as bait, ice, fuel, and gear necessary for harvesting seafood and marine products. This infrastructure and land can be located on the coast, but increasingly it is found further inland.

Economic Impact

The economic impact of the Marine Living Resource sector is significant; Maine's future depends on continued growth in the sector.

Key Economic Impact Roadmap Goals

- + Attract business investment that fosters growth of production, processing, distribution, and market development.
- + Develop post-harvest processing (facilities, specialty equipment, training and support for product development and testing) that will add value to and improve the quality of marine living resource products.

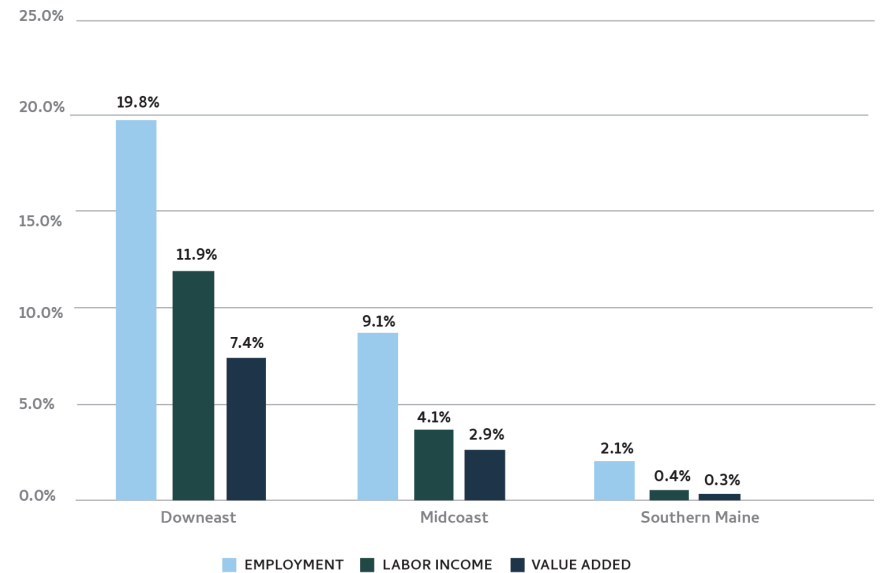
Maine Seafood Sector Economic Impact Summary

INDUSTRY	EMPLOYMENT	LABOR INCOME (\$M)	VALUE ADDED (\$M)	GROSS INPUT (\$M)
Aquaculture	\$540	\$28.9	\$190.1	\$198.4
Harvesting (Non-Lobster)	\$7,7663	\$154.7	\$174.8	\$1962
Harvesting (Lobster)	\$5,037	\$393.0	\$446.9	\$511.6
Processing	\$735	\$36.5	\$48.6	\$343.1
Retail	\$8558	\$285.3	\$425.9	\$692>4
Wholesale & Logistics	\$1,313	\$68.6	\$91.0	\$212.6
Total Direct	\$23,846	\$966.9	\$1,377.3	\$2,154.3
Indirect (all other)	\$3,154	\$106.4	\$169.7	\$353.8
Induced	\$6,319	\$229.9	\$419.4	\$732.6
Total	\$33,319	\$1,303.22	\$1,966.35	\$3,240.72

Source: *The Economic Impacts of the Maine Seafood Sector*, SEA Maine

The seafood sector contributed over \$3.2 billion dollars in total economic output to the Maine economy in 2019, two-thirds (\$2.15 billion) resulting from direct sales in sector industries and roughly \$1.97 billion accounted for as value added. Employment supported \$1.3 billion in total labor income.

Relative Size of Seafood Sector in Maine Regions



Source: *The Economic Impacts of the Maine Seafood Sector*, SEA Maine

Almost 20% of employment in the Downeast region is directly or indirectly related to seafood. This compares to about 9% in the Midcoast and 2% in the Southern Region. Seafood accounts for almost 12% of labor income in Downeast and 7% of value added. This concentration of the seafood industry in the rural economies of Hancock and Washington counties is one of the key findings of the economic impact analysis.



Photo Credit: Merritt Carey



Photo Credit: Island Institute

Libby Davis, Oyster Farmer, CEO/Founder, Lady Shuckers, Portland, ME

Lady Shuckers is a mobile raw bar and event catering company based in Portland, sourcing world-class Maine oysters directly from its own farm and a network of women-owned farms for a wide variety of catering and educational events. In addition to running a successful business, Lady Shucker's mission is to create more visibility for underrepresented groups on the water.

"Teaching people how to shuck oysters through hands-on "learn to shuck" classes and demonstrations is incredibly rewarding. I love educating people through speaking events about the importance of sustainable aquaculture for Maine and for our planet, empowering women, queer folx and minorities to get involved in entrepreneurship and how to turn their passions into a career is part of what we do.

Maine boasts a skilled and knowledgeable sector workforce thanks to our history with fishing, aquaculture, and other maritime trades: fishermen who harvest a wide range of species using various methods and aquaculturists who farm a variety of marine organisms including shellfish, finfish, and seaweeds.



I'm a native Mainer and got into this industry in 2018 after returning from three years serving in the Peace Corps. On the water, I met people who were doers and cared about the environment and about the impact our food systems and climate change had on our oceans.

I started out with a rolling ice cart with oysters, popping up once a week at breweries, and now we have the food trailer, eight part-time shuckers who rotate at different events, and we started our own oyster farm this year! The company is still young and I think the future of aquaculture is bright."

Workforce

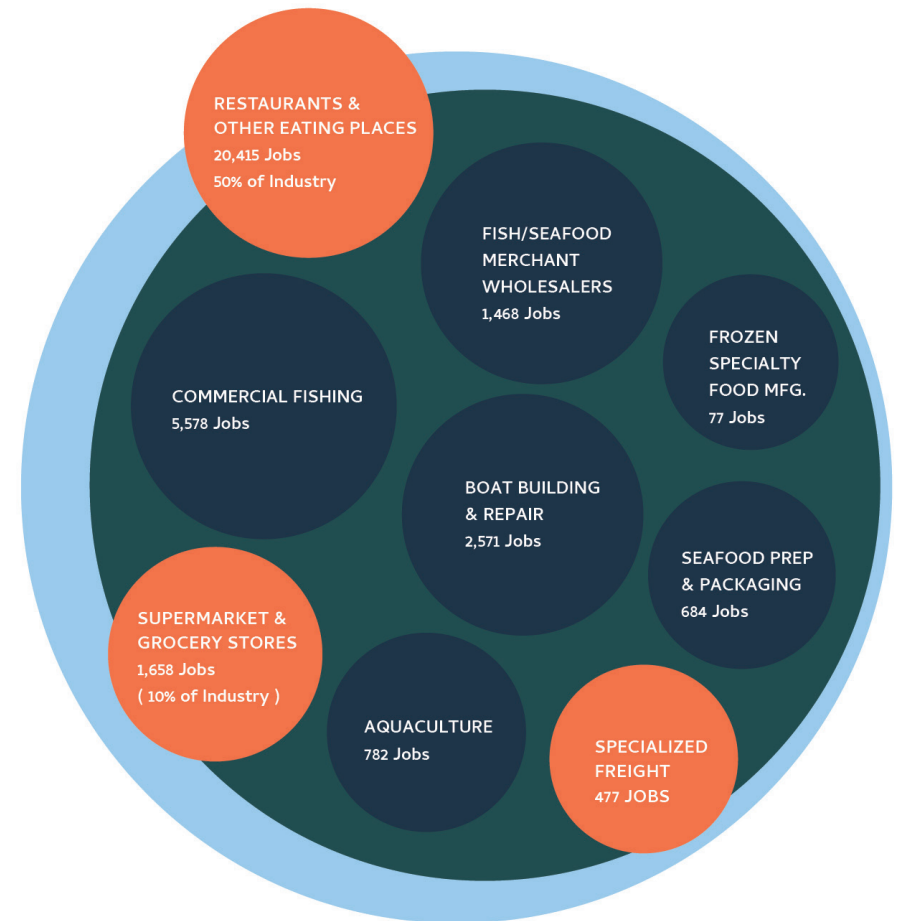
Number of Jobs in Central and Peripheral Marine Living Resource Industries

The people who ply their trade on the water, the people living in coastal communities, the owner-operators of small businesses, the entrepreneurs with great ideas, the scientists who study our marine resources - these people make up the heart and soul of our marine living resource economy.

Our workforce is unquestionably both one of our greatest assets as well as one of our greatest challenges. Workforce attraction and the development of a more diverse workforce are both key elements of a robust coastal economy.

Key Workforce Goals

- + Diversify jobs and opportunities for business owners as the sector evolves and grows and production increases.
- + Improve employer access to appropriately trained workers.
- + Create access to requisite training for potential employees of all backgrounds.
- + Develop sector-specific skill-building and credentialed educational programs through existing entities (universities, technical colleges, etc.).
- + Develop sector-specific recruitment campaigns to highlight the diverse career opportunities and increase understanding of the sector both in and out of state.
- + Access, recruit, and retain diverse talent from within and outside the state.



Source: *Workforce Needs Assessment, Phase II*, SEA Maine

All told, including both payroll employees and self-employed individuals, estimates place the entire marine living resource economy's employment at approximately 34,125, with 12,052 in central industries (solely dependent on seafood and seafood products for continued employment) and 22,073 in peripheral Industries (partially dependent on seafood and seafood products for continued employment).

The Place: Little Cranberry Isle

Even by Maine standards, Bruce Fernald's connection to fishing runs deep — he's a 6th generation fisherman who hails from Little Cranberry Island as his forebears did.

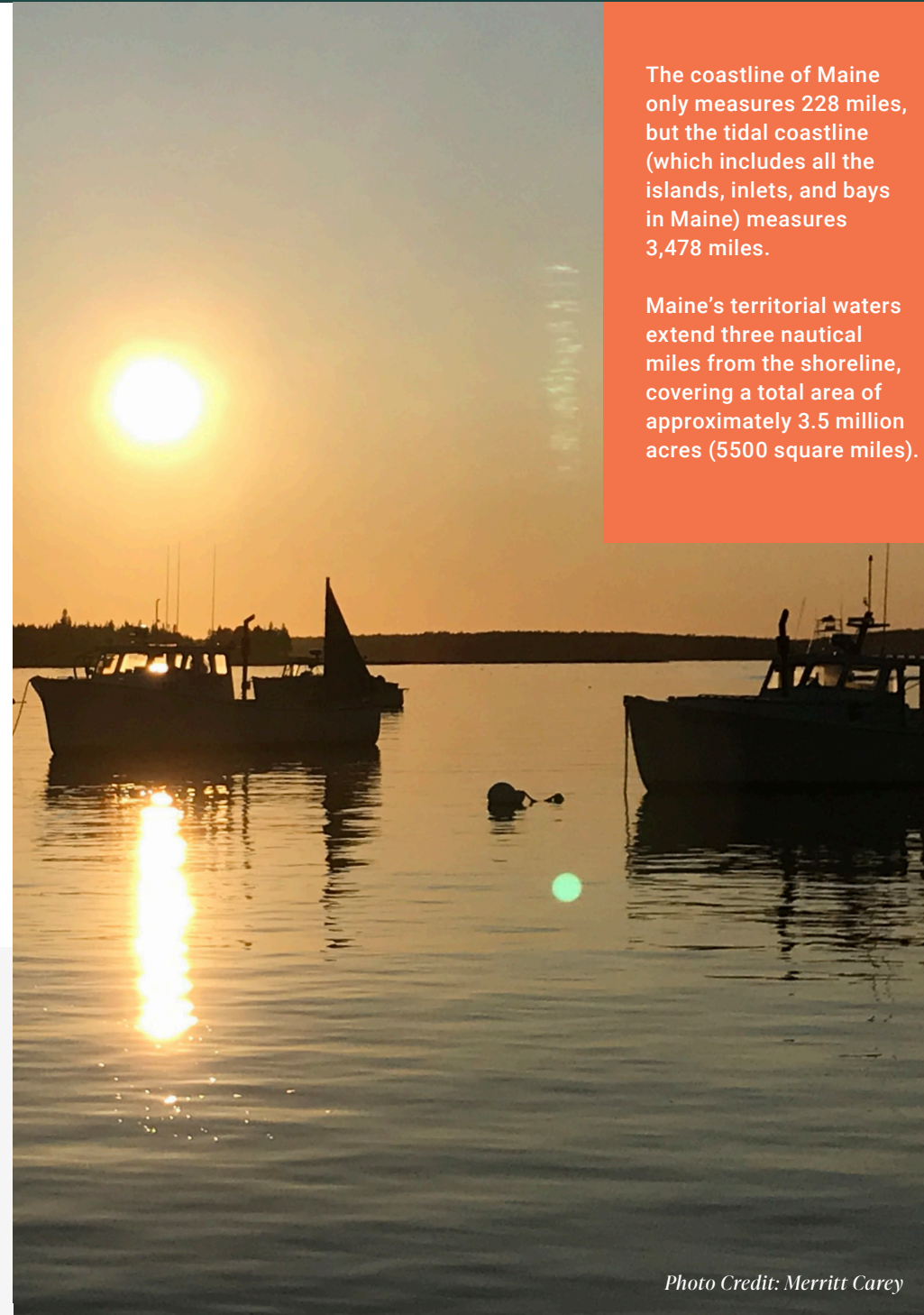
Nestled at the top of Penobscot Bay, Little Cranberry Island (and its surrounding islands, which include Great Cranberry Island) and Sutton Island lie just to the southwest of Mount Desert Island. No bridges means you come and go by boat; a limited ferry service (mail boat, etc.) runs the 30-minute ride between the mainland and the Cranberries. The small year-round community is made up of mostly fishermen, boat builders, and craftsmen. At the center of the fishing community is Little Cranberry Lobster, the fisherman's co-op, which supports the fisher-

men of the Cranberry Isles. There you will find Bruce Fernald, who has been a member of the co-op since its inception.

Bruce was in the Navy for three years but returned to Little Cranberry after he got out. "I wasn't planning on doing anything for a while, but after dinner that first night, my dad said, 'See you in the morning,' and sure enough, he woke me up and I was back to fishing."

His boat, Barbara Ann, is named after his wife of more than four decades. "Fishing doesn't owe me anything. I love being my own boss, being on the water, it's a good way to make a living. You see a lot of interesting things on the water — the birds and steaming out looking back at MDI (Mount Desert Island), that's pretty good."

The Gulf of Maine, surrounded by three U.S. states and two Canadian provinces, is the receiving water for several large river systems draining an overall watershed totaling 69,115 square miles (in the U.S. and Canada collectively). Nourished by cold ocean waters and characterized by a complex geomorphology made up of deep basins and shallow banks, this semi-enclosed sea is one of the most biologically productive marine ecosystems on earth. This allows for a rich diversity of harvested products.



The coastline of Maine only measures 228 miles, but the tidal coastline (which includes all the islands, inlets, and bays in Maine) measures 3,478 miles.

Maine's territorial waters extend three nautical miles from the shoreline, covering a total area of approximately 3.5 million acres (5500 square miles).

Photo Credit: Merritt Carey

Infrastructure, Sustainability, & Resilience

Maine’s long coastline, with its many peninsulas and remote coastal communities, makes Maine unique but also creates infrastructure challenges. Creating a robust infrastructure that can support existing and emerging opportunities and a changing climate is all part of the work required for a robust Marine Living Resource economy.

Key Infrastructure, Sustainability, & Resilience Goals

- + Create community/municipal capacity to plan for and secure funding to support a vibrant and growing marine living resource economy, including attracting and managing grants and conducting planning activities in an integrated way.
- + Develop reliable climate-focused solutions, such as solar power and electrification of the transportation system, to support marine living resource businesses and improve resiliency in the face of weather events and a changing climate.
- + Support research and development that will inform wild-caught fisheries management, aquaculture planning and best management practices, and coastal ecosystem management to maximize sustainable landings and seafood production.
- + Develop coherent and collaborative systems, policies, and support for existing and new businesses at all scales in the marine living resource economy and related supply chains.

- + Maintain and expand working waterfront access for the marine living resource sector.
- + Improve energy efficiency, storage capacity, transportation systems, access to power and other utilities, and logistics across the diverse geography and different sized marine living resource producers.
- + Create systems to handle byproducts and waste residuals that are currently discarded or underutilized; explore value added opportunities for these products.
- + Develop more robust, consistent, and comprehensive monitoring and observation data, particularly with regard to environmental quality and changing habitat.

Estimated Residual Volumes (000s lbs): By Species in Maine 2021

SPECIES	PRODUCT	VOLUME	RESIDUAL %	RESIDUAL VOLUME
Lobster	Live	54,451	4%	2,042
	Processed	54,451	38%	20,419
Seaweed/Algae		15,724	2%	338
Mussels		8,540	1%	85
Clam, Monkfish, Eelver/Eel		8,544	49%	4,219
Oysters		6,304	6%	378
Crab		2,570	55%	1,413
Quahog		1,442	na	na
Groundfish	Haddock	192	50%	96
	Hake	248	50%	124
	Cod	47	35%	16
	Hallibut	32	60%	19
	Pollock	323	50%	162
Tuna		411	3%	10
Sea Scallops		64	0%	-
Salmon	Hatcheries	1,884	1%	19
	Grow-out	16,960	3%	509
Other		54,099	50%	27,050
Total		226,288	25%	56,900

Source: *Marine Resource Residuals in Maine, SEA Maine*

Extracting maximum value from marine resources includes full utilization of residuals, and it is critical to know where, how much and what type of residuals are being produced. An estimated 57 million pounds of residuals were generated in 2021, representing about 25% of the total volume of seafood generated within Maine.



Photo Credit: American Unagi

American Unagi

Maine is best known for lobster, but there are a wide range of products harvested in the Gulf of Maine. Naturally occurring species are shifting because of climate change, for example, so what our catch looks like today will not be what it looks like in 20 years. These changes are happening quickly; there is no longer a commercial shrimp fishery, for example, but other species, such as black sea bass, typically seen further south, are showing up more regularly.

Fish, shellfish, and seaweed species are harvested in the Gulf of Maine, both farmed and wild-caught. These species are primarily used as seafood, but increasingly, non-food products such as biostimulants, natural fertilizers, and health, beauty, nutritional, and medicinal products are being produced. Land-based aquaculture is also becoming more prevalent within the state as a viable means to produce protein for the world in the coming decades.

American Unagi, founded by Sara Rademaker, raises wild-caught eels in a state-of-the-art RAS (Recirculating Aquaculture System) in Waldoboro, Maine. Eels cannot spawn in captivity, and Maine has one of the only wild-caught eel fisheries in the country (along with South Carolina). The baby eels, or elvers, are harvested in the early spring, commanding upwards of \$2,000/pound, and were traditionally sold to farms overseas, where they were grown out and then sold back to American restaurants. American Unagi is keeping the value-added grow-out here in Maine, and in addition to selling live, mature eels to high-end establishments, also has their own line of smoked products on the market. “Globally, eel production has had a reputation of uncertainty, so bringing to market an accountable eel with responsible sourcing and farming practices has been a big part of our mission the last eight years,” Rademaker said. The new facility in Waldoboro began production in early 2023, and plans to produce over 500,000 pounds of eels annually.

Marketing & Market Development

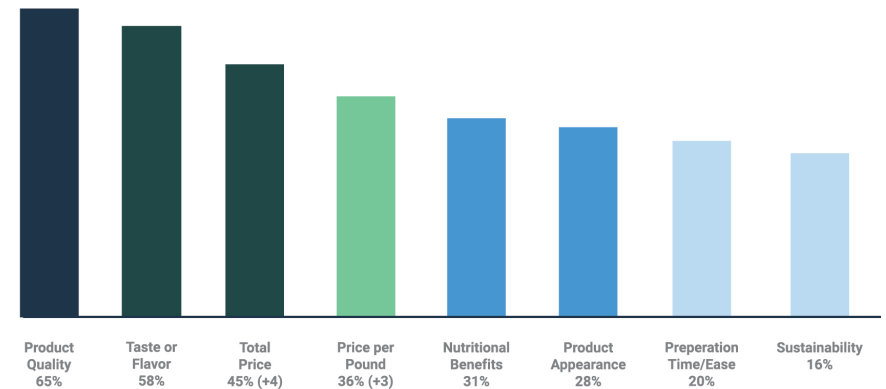
Marketing and market development are critical to expand Maine's production and scale up its marine living resource economy. Increasing the value of the Maine brand as well as exploring new market opportunities, such as expanding into more diverse markets and consumer populations, are integral parts of building and sustaining thriving coastal economies.

Key Marketing & Market Development Goals

- + Expand marketing efforts to include a wider range of products to support fishermen in diversifying their catches and aquaculturists in growing new species.
- + Expand market development and export logistics in regions where seafood is a popular protein choice, including the South Atlantic, Middle Atlantic, and East North Central (Great Lakes) areas.
- + Develop a broader and more inclusive local and regional consumer base that includes communities with a variety of ethnic and racial identities.
- + Pursue promising new species or products derived from species that will thrive in changing ecosystems.
- + Stand up a Maine Seafood Promotional Council.

IMPORTANT FACTORS WHEN SHOPPING FOR SEAFOOD HAVE EVOLVED

Product quality remains the most important purchasing factor. Pricing played a more significant role as a factor when shopping for seafood in 2022.



Maine Seafood Market Report, SEA Maine



Photo Credit: Merritt Carey

Funding

SEA Maine is the Seafood Economic Accelerator for Maine, an effort to develop an economic development roadmap for Maine's seafood economy. It was funded by the US Economic Development Administration from 2020 - 2023 with additional funding from primary applicant MTI and co-applicant FocusMaine. SEA Maine was organized into five thematic working groups that reported up to an Executive committee and a Steering Committee. Several contracts were awarded through these committees to develop a series of technical reports available on the SEA Maine website (www.seamaine.org) and listed at the back of this report. The Maine Development Foundation served as project manager.



Thank you to the offices of Senators Collins and King and Representatives Pingree and Golden for providing advice and support to SEA Maine.



Photo Credit: Merritt Carey

