

WAYPOINTS

COMMUNITY INDICATORS FOR MAINE'S COAST & ISLANDS



ISLAND
INSTITUTE

WAYPOINTS

Maine is an extraordinary place to live. We revel in the character of our communities and the enjoyment and beauty we find out-of-doors. And yet it is a notoriously difficult place to make a living.

Today, we are living in a lobster boom. Like those who live in rural areas around the world, our local economy is built on our local resources and the market for these resources is driven by people hundreds and thousands of miles away. But families who have been here long enough have lived through multiple economic booms: timber and cod supported generations of boat builders and fishermen, limestone and granite supported entire towns that were built, and then abandoned, as distant markets shifted.

The coast-wide geography in *Waypoints* reflects the Island Institute’s mission to support both island and coastal communities with data and analysis to inform discussions of community sustainability. The economic, community and environmental topics addressed here reflect the priorities of the community partners and trustees we rely on to steer our work as an organization.

This first edition of *Waypoints* is aimed at communicating the character of our communities, and the challenges and opportunities before us, to those whose actions and opinions impact us, including government staff and elected officials at the state and federal levels. We hope it will also be informative and useful for local leaders as they weigh priorities and tackle local challenges.

The process of creating *Waypoints* has answered some of the questions we started with, but many more remain unexplored, including the cost of doing business, economic drivers such as the creative economy, transportation, and health and well-being. These data also raise many questions that we seek to explore going forward through a series of future research reports.

Thank you for picking up *Waypoints*. We hope you find it helpful and informative. Data on each community are available at www.islandinstitute.org/waypoints, where you can also provide us with your feedback and suggestions. We want to know what you think about it, how you are using it, and what we can improve to make future editions as useful as possible.



Heather Deese
Vice President, Research & Strategy



Rob Snyder
President

2016 COMMUNITY INDICATORS

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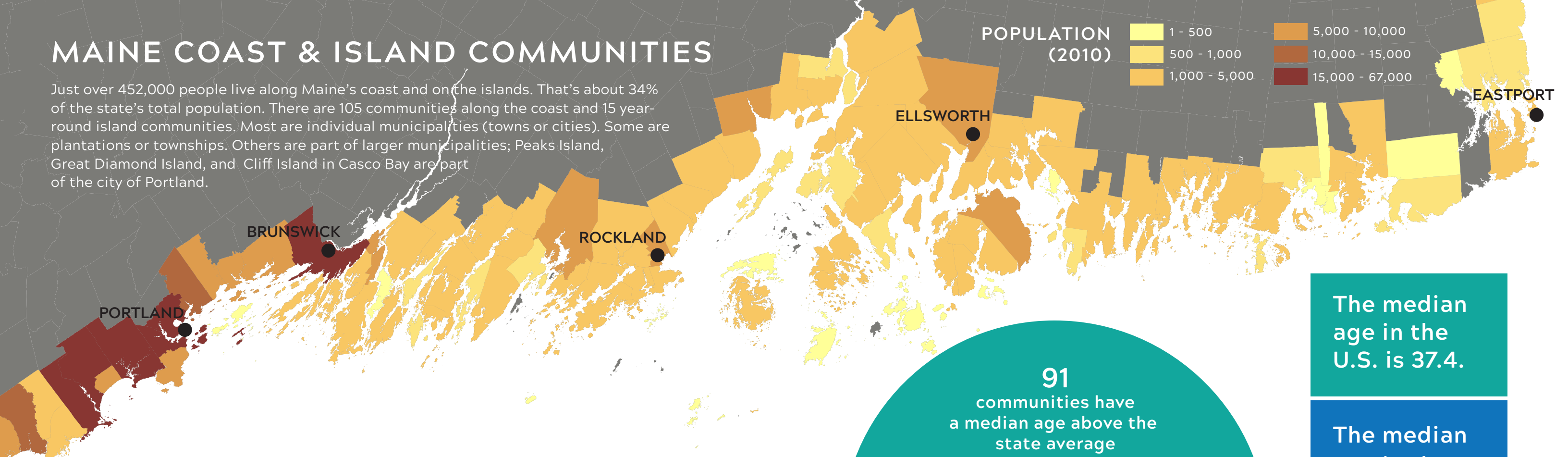
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Island Institute extends sincere appreciation to the many community partners and topic experts who provided data and advised on this project. *Waypoints* was researched and written by Heather Deese, VP of Research & Strategy, with support from Maren Granstrom, Media Associate, Island Institute. Stan Carte and Elena Smith made major contributions to this project during summer internships with Island Institute. The report was designed by Naretiv and printed by J.S. McCarthy. **COVER PHOTO: BERNARD, MAINE, taken by DOUG LEMKE.**

MAINE COAST & ISLAND COMMUNITIES

Just over 452,000 people live along Maine's coast and on the islands. That's about 34% of the state's total population. There are 105 communities along the coast and 15 year-round island communities. Most are individual municipalities (towns or cities). Some are plantations or townships. Others are part of larger municipalities; Peaks Island, Great Diamond Island, and Cliff Island in Casco Bay are part of the city of Portland.



THESE
ARE
SMALL
TOWNS

92.2% of them have fewer than 10,000 residents

compared to 85% of towns in the U.S. overall.

9 have more than 10,000 residents (all are south of Brunswick)

14 have 5,000 - 10,000 residents

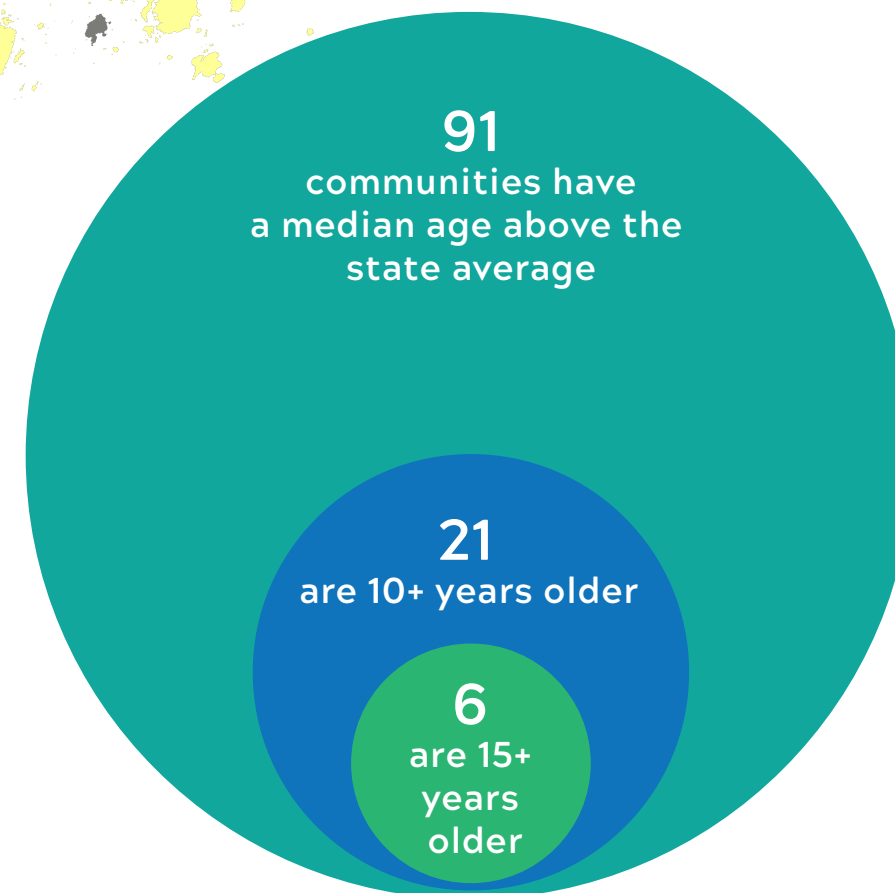
16 have 2,500 - 5,000 residents

42 have 1,000 - 2,500 residents

14 have 500 - 1,000 residents

19 have fewer than 500 residents

Population estimates are less precise in the smallest communities due to under-sampling.



The median age in the U.S. is 37.4.

The median age in the state of Maine is 43.5.

In Maine's coastal and island communities it is 47.6.

THERE ARE A NUMBER OF CHALLENGES ASSOCIATED WITH MAINE'S AGING DEOMGRAPHICS

According to the Maine State Plan on Aging 2012-2016:

As older people retire, the overall percentage of the population in the workforce decreases.

Businesses struggle to find replacement workers with necessary skills.

Areas with aging populations find it difficult to attract new businesses.

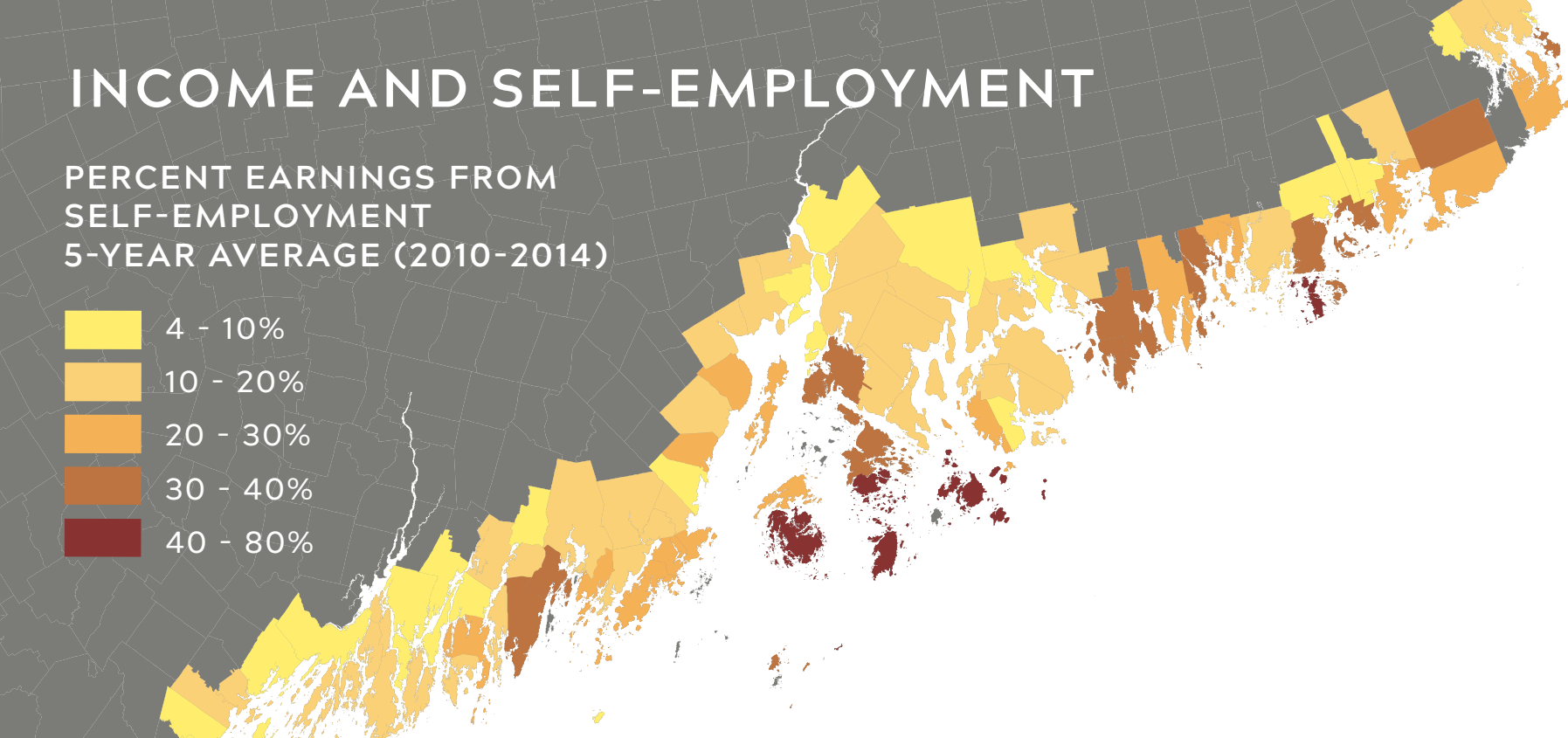
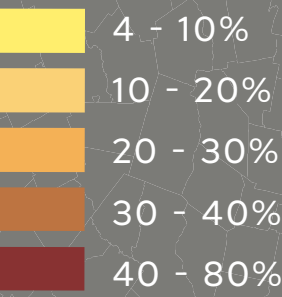
A smaller number of skilled health care workers are available to care for a growing population of older people.

Retirees can strengthen local communities through involvement in town government, local non-profits and volunteerism.

FOR DATA ON ALL COMMUNITIES, VISIT WWW.ISLANDINSTITUTE.ORG/WAYPOINTS

INCOME AND SELF-EMPLOYMENT

PERCENT EARNINGS FROM SELF-EMPLOYMENT
5-YEAR AVERAGE (2010-2014)



The Maine coast and islands have income levels similar to the state as a whole, but are distinguished by high levels of self-employment, especially in some of the smallest communities on the islands and Downeast.

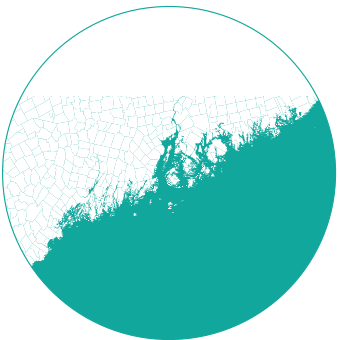
ANNUAL MEDIAN HOUSEHOLD INCOME



\$53,482
U.S.

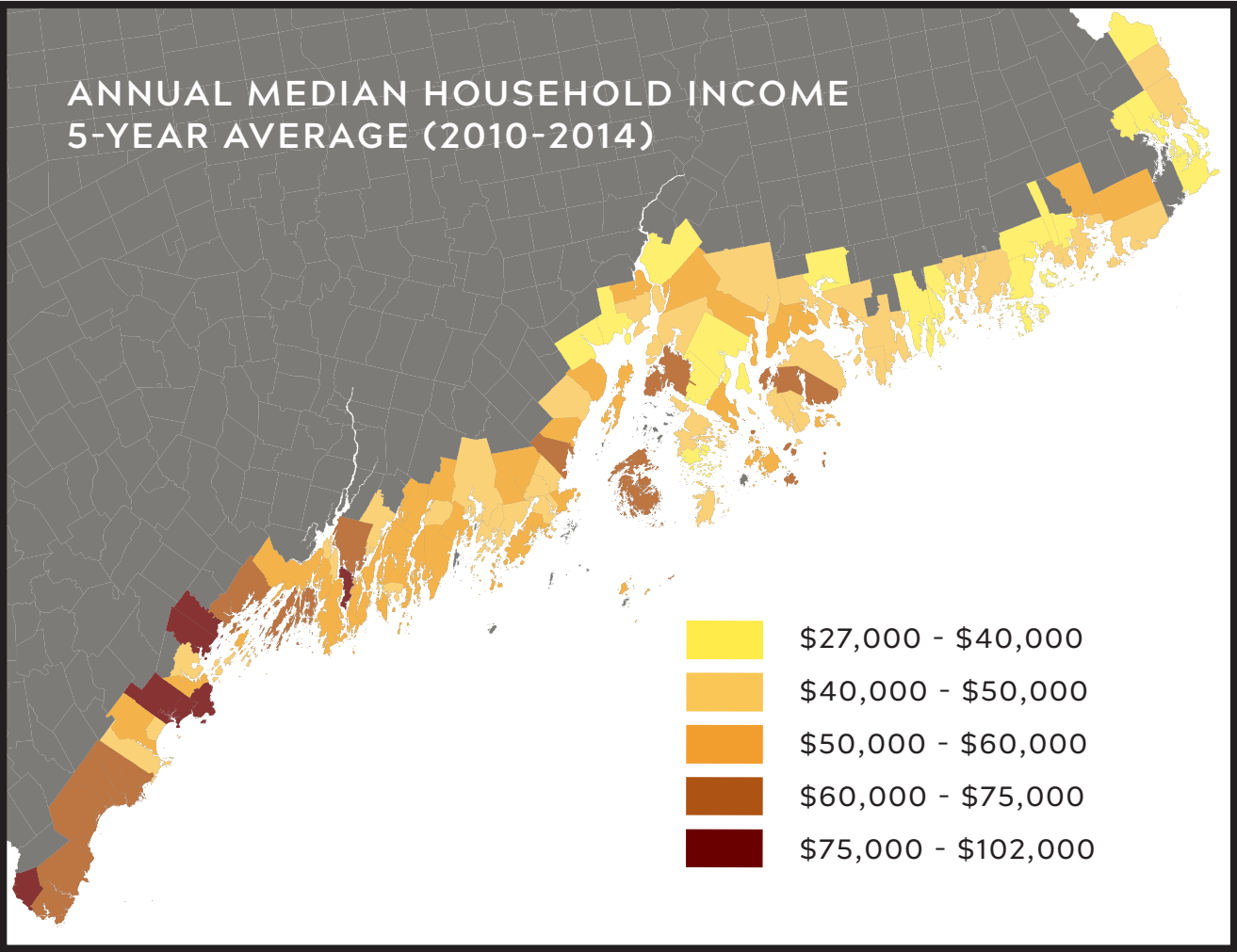


\$48,804
MAINE



\$50,489
COAST
& ISLANDS

The median income of coastal and island communities ranges from a high of \$102,000 to a low of \$27,000.

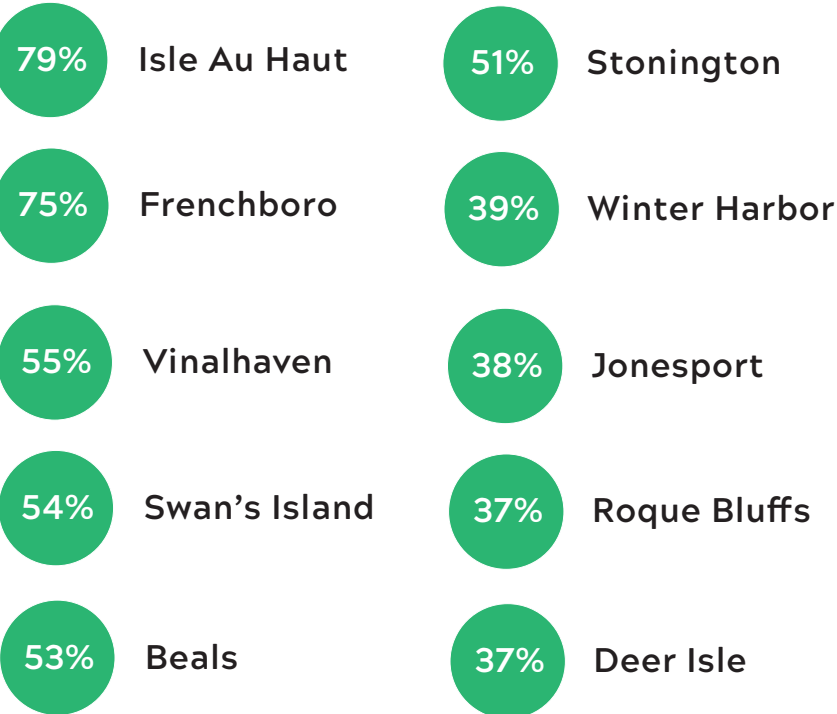


In Maine, 9% of earnings come from self-employment income.

On the coast and islands, 19% comes from self-employment.

87 island and coastal communities are above the state average for self-employment.

COMMUNITIES WITH THE HIGHEST PERCENTAGE OF SELF-EMPLOYMENT



FOR DATA ON ALL COMMUNITIES, VISIT WWW.ISLANDINSTITUTE.ORG/WAYPOINTS

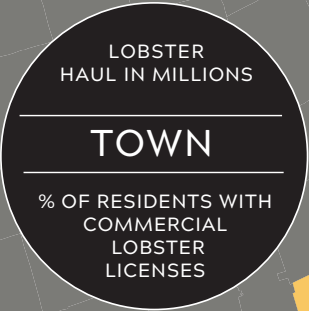
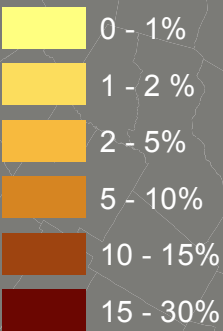
ECONOMIC IMPACT OF LOBSTER

- Lobster-landed pounds and value have increased in recent decades throughout the state and the percent of residents working in the lobster fishery is now very high in some communities.
- A number of factors, including warmer water temperatures and fishery conservation measures, have contributed to this growth. (See pg. 18 for more info)
- Lobster landings were reported for 60 communities in 2015; 18 other communities had reported

landings during the last 8 years. (For confidentiality reasons, landings are reported only if 3 or more dealers buy lobster in a community)

- The 10 communities with the highest landed \$ value in 2015 are highlighted here. Together, they account for 49% of the state total in 2015.

PERCENT OF RESIDENTS WITH LOBSTER LICENSES



4,500

ESTIMATED ACTIVE LOBSTER BOAT CAPTAINS, REPRESENTING 80% OF THE 5,652 COMMERCIAL LOBSTER LICENSES ISSUED BY THE STATE FOR 2015

8,000 - 10,000

JOBS ON LOBSTER BOATS

\$500 MILLION

IN DIRECT SALES AT THE DOCK

\$1.5 BILLION

ESTIMATED ECONOMIC IMPACT

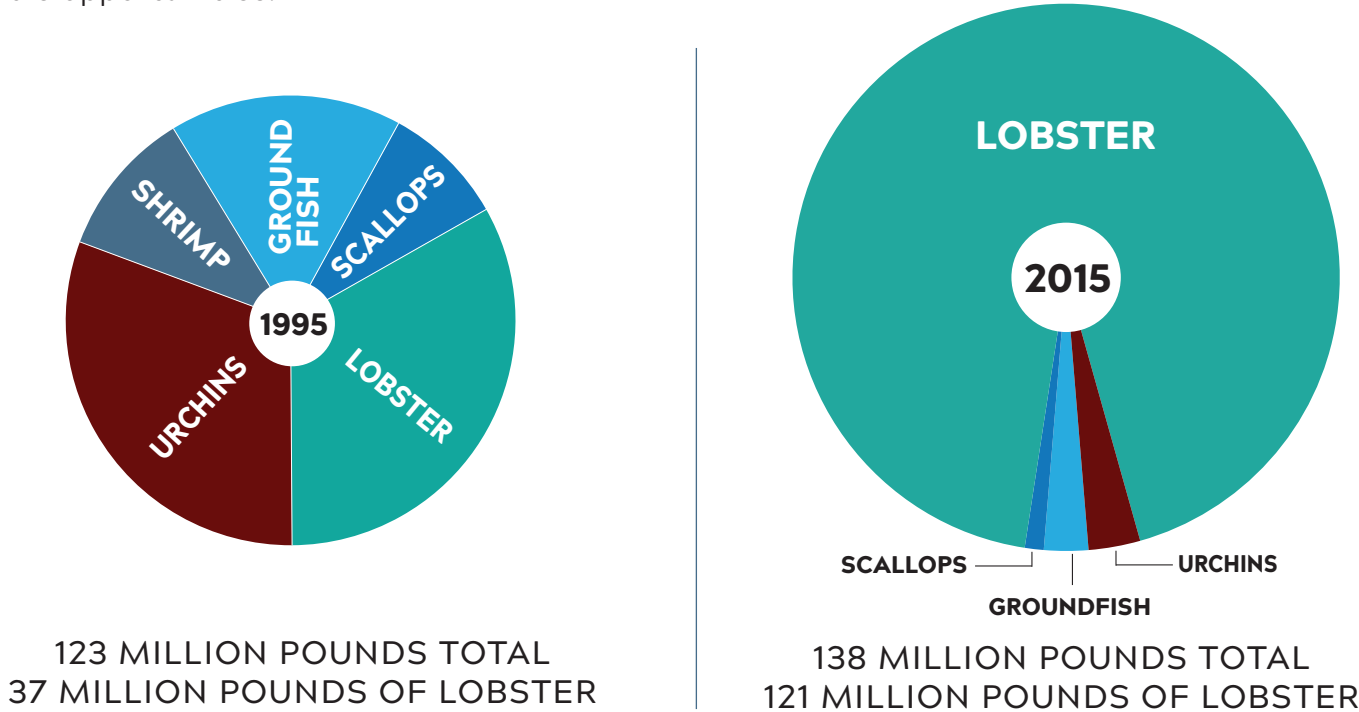
Over 25% of year-round residents hold a commercial lobster license on Matinicus, Frenchboro, Islesford and Isle au Haut (4 of the islands with smallest populations).

Lobster landings have increased throughout the state, but have increased the most in eastern Maine. York county is the southernmost in the state, Washington county is the easternmost.

LOBSTER LANDINGS (POUNDS)	1995	2015	CHANGE
YORK COUNTY	2,288,242	3,859,671	1.69X
WASHINGTON COUNTY	2,538,271	21,077,810	8.3X
TOTAL IN MAINE	37,208,324	121,083,418	3.25X

ECONOMIC IMPACT OF FISHERIES AND AQUACULTURE

While lobster has increased in landings and value, other fisheries have decreased. The combined value of five of Maine’s wild caught fisheries in 1995 was \$180 million. By 2015, it had increased to \$512 million, but \$495 million of this was from lobster. The increased percentage of fisheries landings from lobster has created concerns about economic resilience and an interest in diversifying marine livelihoods. Aquaculture and some wild caught fisheries provide viable opportunities.

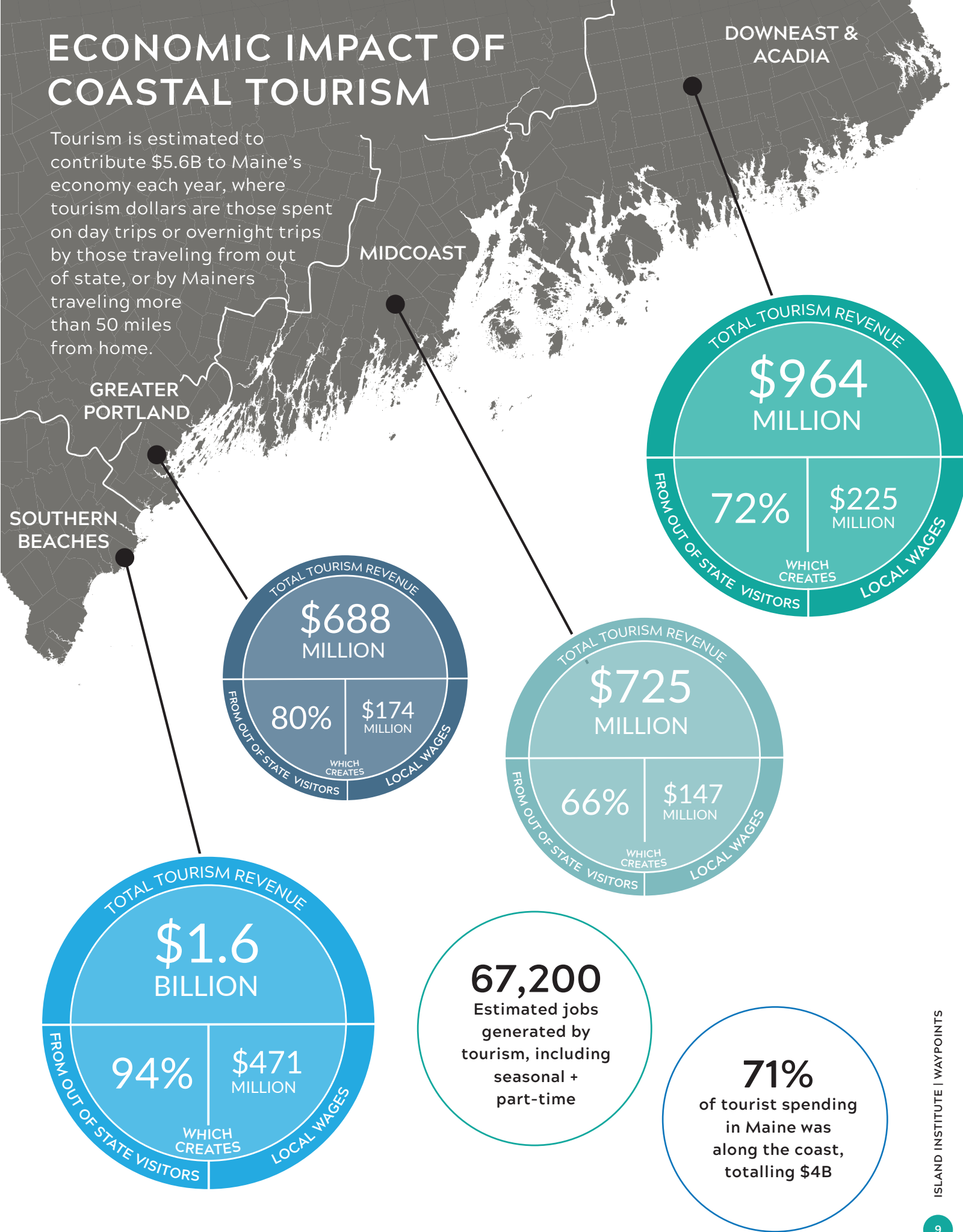


There are wild-caught fisheries and aquaculture opportunities in Maine that could potentially improve economic diversification.

AQUACULTURE KELP SCALLOP MUSSEL OYSTER The economic impact of shellfish aquaculture in 2015 is \$15m. Projected to be \$75m by 2030.
WILD FISHERIES SQUID SCALLOP HALIBUT, JONAH & ROCK CRAB A number of species with growing populations could support larger fisheries in the next decade.
WILD FISHERIES BLUE CRAB BLACK SEA BASS Other species have potential if Maine waters continue to warm with projected climate change.

ECONOMIC IMPACT OF COASTAL TOURISM

Tourism is estimated to contribute \$5.6B to Maine’s economy each year, where tourism dollars are those spent on day trips or overnight trips by those traveling from out of state, or by Mainers traveling more than 50 miles from home.

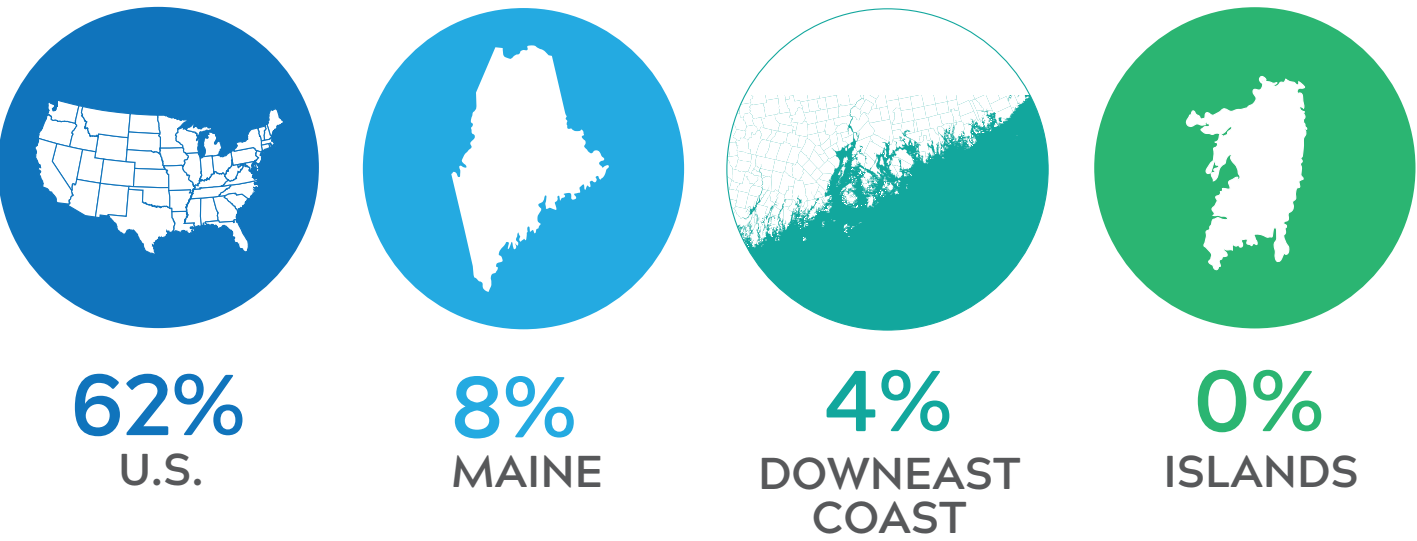


BROADBAND ACCESSIBILITY AND USAGE

Broadband is critical infrastructure for local economic development, K-12 education, adult education & professional development, home-based healthcare, eldercare, community social engagement, and e-government. Access to broadband is currently low in Maine, lower on the downeast coast and zero on the islands, where geographic isolation arguably makes digital connectivity even more important.

ACCESS TO BROADBAND IS LOW IN MAINE, LOWER ON THE DOWNEAST COAST, AND ZERO ON THE ISLANDS

*where broadband is defined as 10 Mbps upload and download speeds by ConnectME authority



MAINE BUSINESSES STAND TO GAIN DRAMATICALLY BY INCREASING THE USE OF WEBSITES, MOBILE-FRIENDLY INFORMATION AND THE INTERNET IN GENERAL FOR MARKETING AND SALES.

45%
OF BUSINESSES IN MAINE USE
A WEBSITE FOR MARKETING.

97%
OF AMERICAN CONSUMERS
LOOKING ONLINE FOR GOODS
AND SERVICES.

“The annual sales of Maine’s sole proprietorships and small businesses amount to approximately \$21.7 billion a year. If these enterprises were at the national average, the result would be increased annual sales of nearly \$50 million a year.”

(source: ConnectME Strategic Plan 2016-2018)

Read more at www.islandinstitute.org/whatworks

Eastport is home to a growing number of telecommuters: software developers, online internet security experts and freelance writers who can work anywhere, as long as there is an internet connection. Some are artists and crafters who market their products online. The city is hoping the trend continues—they recently launched a website intended to educate and recruit new residents, www.telecommute-maine.com.

The website was the brainchild of Lora Whelan, a telecommuter who works at her home office as assistant publisher and editor for *The Quoddy Tides* newspaper, and Elaine Abbott, the city manager. “We wanted to see what it was that brought people from places like California and New York City and made them relocate here, of all places,” said Abbott. “We started finding a common theme. It’s the affordability of living here, the safe, tight-knit community, the small schools where children are always supported. We have people here from global corporations working from Eastport. To be able to live someplace you love and to be able to do the work you love—that’s amazing.”
– *The Working Waterfront*, November 2016

Lora Whelan at her desk in Eastport.

ENERGY AND HOME HEATING

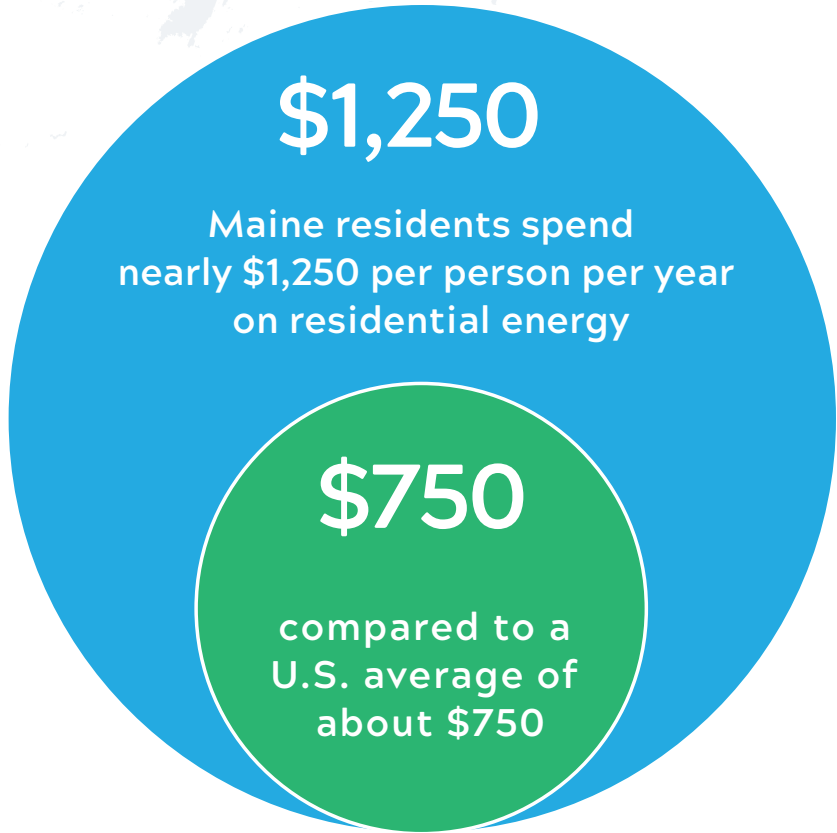


During his two years on Matinicus and Monhegan as an Island Fellow, Ben Algeo organized a bulk purchase of energy-efficient LED bulbs. The LEDs, which consume a fraction of the energy of traditional incandescent bulbs, significantly reduced energy usage for homeowners. On Matinicus and Monhegan, where the power companies produce electricity with diesel generators and consumers pay prices more than four times the mainland average, a simple lightbulb switch makes a huge difference.

Most LED bulbs are already marked down through an Efficiency Maine program. Because the bulbs for Monhegan were purchased in bulk, the LEDs were just \$1 each. Monhegan homeowners save an average of \$7/year for each bulb (more if replacing incandescents, less for CFLs) with this simple DIY energy upgrade. All together, savings on Monhegan are about \$15,000 a year.

Read more at www.islandinstitute.org/whatworks

Mainers spend more on energy for their homes relative to GDP than residents of any other state in the country. Maine has some of the oldest housing stock in the nation and a high reliance on heating oil.



#1
PER PERSON, MAINE'S HEATING OIL CONSUMPTION IS THE HIGHEST IN THE U.S.

#4
MAINE'S RESIDENTIAL CARBON EMISSIONS PER PERSON ARE THE FOURTH HIGHEST IN THE U.S.

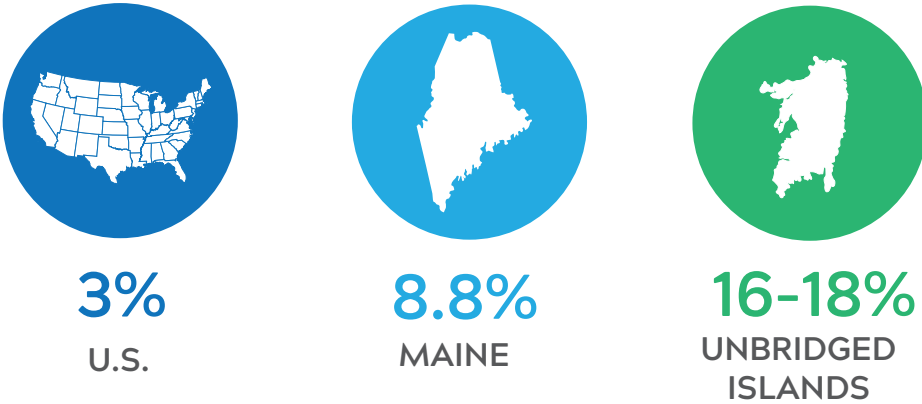
WHY?

Maine is the most rural state in the country, with 61.3% of residents living outside cities. This makes it extremely difficult to create a natural gas infrastructure.

Maine has some of the oldest housing stock in the nation. It is drafty and highly energy-inefficient.

3.09% of Maine's GDP is spent on residential energy.
2.37% is the New England average.
1.54% is the U.S. average.

PERCENT OF MEDIAN HOUSEHOLD INCOME THAT GOES TO HOME HEATING AND ELECTRICITY



HOUSING AVAILABILITY & AFFORDABILITY

Maine has the highest percentage of seasonal homes of any state in the U.S. High rates of seasonal home ownership make it difficult for working families to find an affordable place to live.

PERCENT OF HOUSING THAT IS YEAR-ROUND



96.5%
U.S.



83.5%
MAINE



72%
COASTAL & ISLAND
COMMUNITIES



33%
UNBRIDGED ISLANDS

AT 16.5%

Maine has the highest percentage of seasonal homes in the U.S.

FOLLOWED BY VERMONT

15.6%

AND NEW HAMPSHIRE

10.4%

There are 16 communities along the coast that have **less than 50% of their housing units available for year-round residents.**

11 of these are islands.



Statewide, a Maine family with a median income can afford a house sold at the average home sale price.



On the coast and islands, that same family can afford only 88% of an average home.



In 11 of these coastal and island communities, a family with a median income can afford only half of an average home. **Six of these 11 are unbridged islands.**



Walls Family. Photo © Scott Sell

This is the paradox of living year-round on an island in Maine: Housing is everywhere, but very few homes are affordable or even available to year-round residents. Most of the islands have a nonprofit or community group dedicated to creating affordable houses to rent or sell. The properties benefit longtime island residents and bring in new people.

Cranberry Isles Realty Trust has refurbished homes and built new ones since the organization was founded 20 years ago. It has been instrumental in bringing in new families to the community. CIRT President Phil Whitney explained, "In the 1980s, prices along the coast of Maine skyrocketed and never really looked back, so, if islands were going to avoid becoming entirely summer residences, something had to be done to

provide year-round housing for average people. Now it has grown into the idea that we should be looking for people who not only need affordable housing, but can also bring useful skills to the island, especially families with school-aged kids."

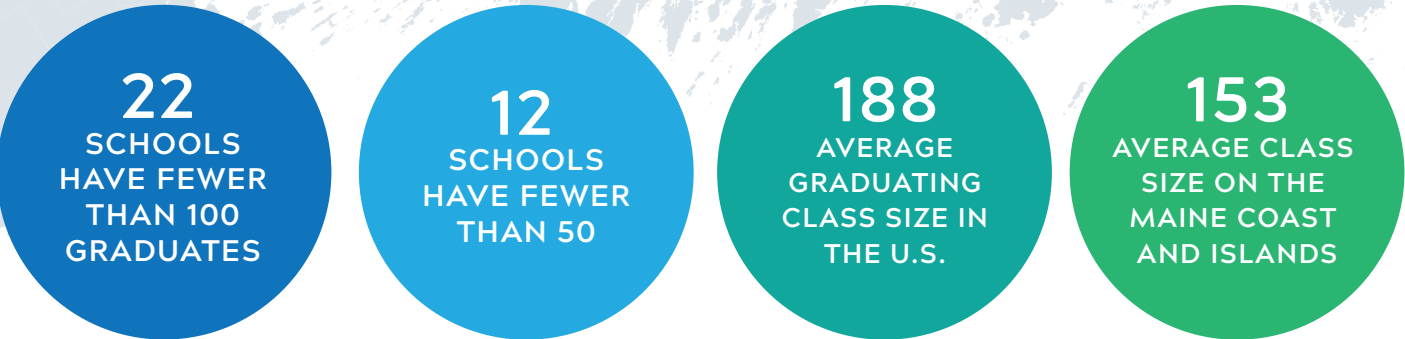
The Walls family moved into a new year-round rental on Great Cranberry from Biddeford in fall 2014. "Everywhere else, it was so hard to find housing," Jen Walls said. "I'd call, and they'd say, 'How many in your family? . . . Oh, our septic can't handle five people.' Or, 'The space isn't big enough for five people.' But when we looked at this place, [the people at CIRT] were like, 'Oh, you have kids.' And they were excited."

– 2015 *Island Journal*
Read more at www.islandinstitute.org/whatworks

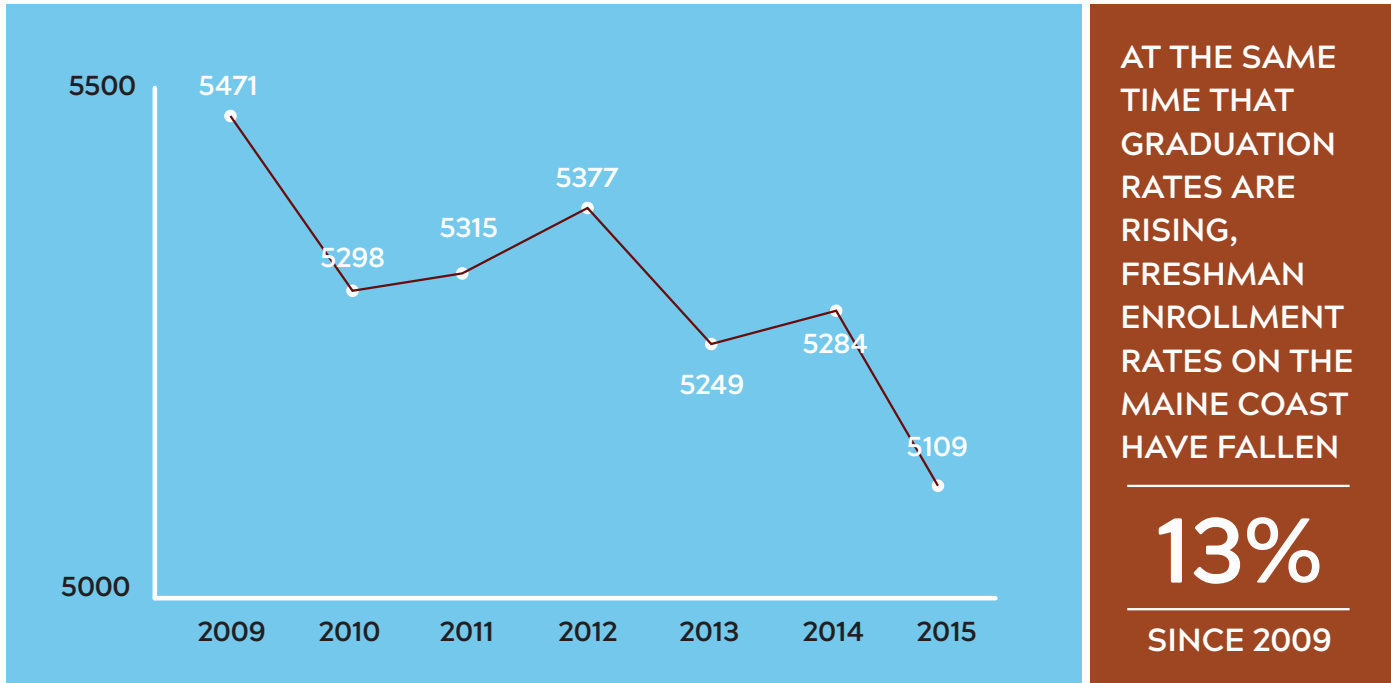
EDUCATION - HIGH SCHOOL ACHIEVEMENT

Students from the 120 island and coastal communities attend 44 public high schools: 41 on the mainland and 3 on islands. These are mostly small schools, which can bring advantages, like small class sizes and individual attention. Enrollment at most schools has been declining in recent years in line with demographic shifts. At the same time, graduation rates at most schools have been increasing.

OUT OF 44 COASTAL AND ISLAND MAINE HIGH SCHOOLS **37** ARE SMALLER THAN THE U.S. AVERAGE



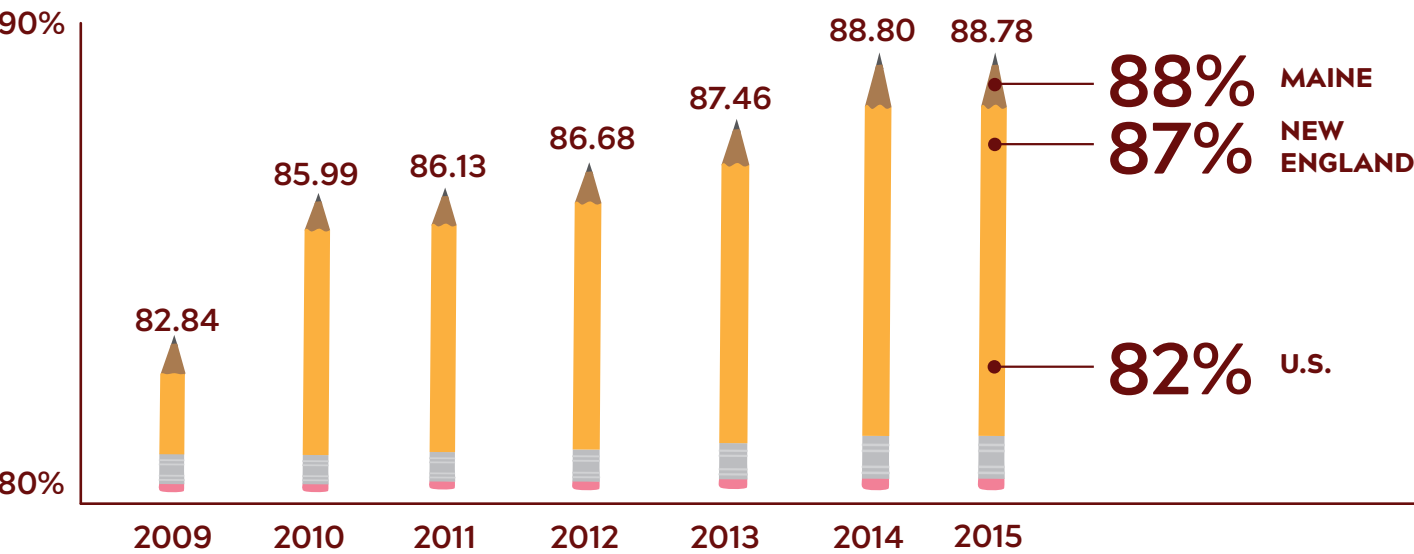
COASTAL AND ISLAND FRESHMAN ENROLLMENT NUMBERS



Decreasing freshman enrollment rates are in line with overall demographic trends of decreasing numbers of young people in our communities.



% OF STUDENTS WHO GRADUATE FROM COASTAL AND ISLAND PUBLIC HIGH SCHOOLS



Graduation rates are highly uneven among school districts up and down the coast.

6 schools graduate fewer than 80% and 9 schools graduate more than 95%.

While graduation rates have been steadily increasing at most schools, **fewer than 50% of Maine 11th graders meet grade level expectations for proficiency in math and reading.** As a result, schools continue to focus on ensuring students are gaining the skills and knowledge they will need to succeed after graduation.

FISHERIES AND THE ENVIRONMENT

The lobster fishery in Maine is at record levels and is currently considered sustainable. The fishery has undergone a major shift over the last 40 years and is projected to continue changing in the future as water temperatures rise. As waters off the Maine coast continue to warm in future decades, conditions will likely be less hospitable for lobsters.

While lobster is booming, almost all other fisheries are not. Between 1985 and 2005, the economic diversity of marine resources harvested in Maine declined 70%. This makes our fisheries communities highly vulnerable to any environmental changes that impact lobsters.

SOUTHERN
NEW ENGLAND
LOBSTER
LANDINGS
PLUMMETED
FROM

22 MILLION
POUNDS IN 1997
TO
3 MILLION
POUNDS IN 2015

THIS MAP SHOWS THE GEOGRAPHIC
SHIFT OF THE LOBSTER POPULATION IN
NEW ENGLAND FROM 1975 - 2015

- 2015 LOBSTER POPULATION
- 1995 LOBSTER POPULATION
- 1975 LOBSTER POPULATION

THE LOBSTER FISHERY IN MAINE WATERS IS CONSIDERED SUSTAINABLE

Washington
County lobster
landings skyrocketed
from 2.5 million pounds
in 1995 to 21 million
pounds in 2015.

The lobster
population is at a
record high level,
with a large number of
breeding females that
are protected by
regulations.

248
million

official estimate of the
lobster population size
in the Gulf of Maine
and Georges Bank
(2011-2013)

Lobsters are
landed live and
fishermen throw 40-80%
of their catch back alive
over the side, to protect
the largest and smallest
lobsters and breeding
females.

The amount
of lobster caught and
sold in Maine is larger
than ever and is considered
biologically sustainable
by fisheries managers.

2015

1995

THE LOBSTER FISHERY IN SOUTHERN NEW ENGLAND HAS
COLLAPSED DUE TO WARMING OCEAN WATER, AMONG OTHER FACTORS.

12-18°C/54-65°F
IS THE IDEAL TEMPERATURE
RANGE FOR LOBSTER

WATER TEMPERATURES
IN SOUTHERN NEW ENGLAND
ARE NOW OFTEN HIGHER THAN

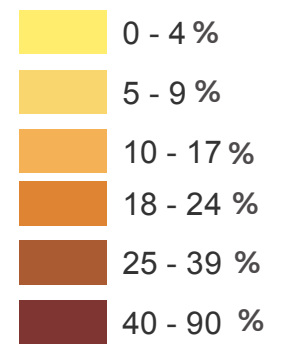
20°C/68°F

As waters off the Maine coast continue to warm in future decades,
conditions will likely be less hospitable to lobsters.

CONSERVED LAND

Land in conservation includes land owned by local municipalities, the state of Maine, the federal government, and non-governmental organizations, including local land trusts. Land is conserved for many reasons, including environmental protection, recreation, farming, forestry, working waterfront, or other uses, such as protecting public drinking-water sources.

PERCENT CONSERVED LAND



TOWN LAND IN CONSERVATION RANGES FROM A LOW OF LESS THAN 1% TO A HIGH OF 88%

Communities benefit from conserved land in many ways, including local economic benefits that can result from nature-based tourism. Communities can also struggle with challenges associated with conserved land, including the fact that these lands are often non-taxable, which can leave a larger tax burden on the other property owners.

9%

THE AVERAGE LAND IN CONSERVATION IN ISLAND AND COASTAL COMMUNITIES.

18%

OF MAINE LANDS ARE IN CONSERVATION

(A large amount of this is within the unorganized territories in the North Woods.)

10 COASTAL COMMUNITIES HAVE MORE THAN 40% OF THEIR LAND IN CONSERVATION

88%

Frenchboro

49%

Isle au Haut

57%

Mount Desert

49%

Cutler

55%

Southwest Harbor

47%

Beals

54%

Bar Harbor

46%

Edmunds Twp

54%

Winter Harbor

41%

Tremont

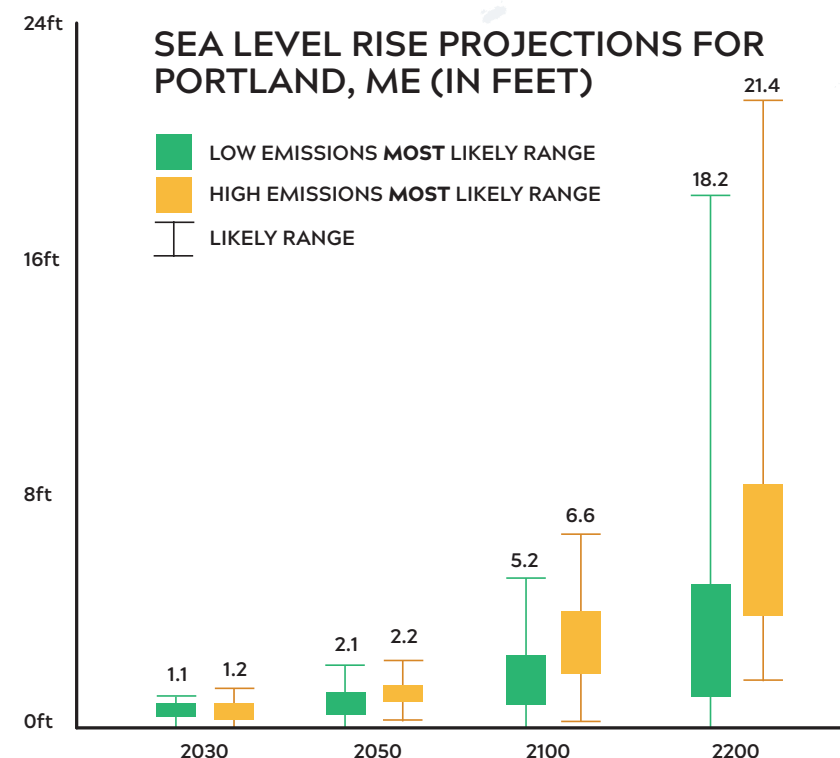
SEA LEVEL RISE AND WARMING

Global sea level has risen by about 8 inches since reliable record keeping began in 1880. On average, sea levels are projected to rise another one to four feet globally by 2100, but sea level change will vary regionally. (2014 U.S. National Climate Change Assessment)

A sea level rise of two feet, without any changes in storms, would more than triple the frequency of dangerous coastal flooding throughout most of the Northeast.

In Maine, a sea level rise of one foot will mean that the 10-year storm of the 21st century will cause the same damage that the 100-year storm caused during the 20th century.

THERE IS A SPECTRUM OF POSSIBILITIES FOR SEA LEVEL RISE IF GLOBAL EMISSIONS STAY WITHIN THE PARAMETERS OF THE PARIS ACCORD (LOW EMISSIONS) OR REMAIN AT A HIGHER LEVEL (HIGH EMISSIONS).



BETWEEN 2004-2013, THE GULF OF MAINE WARMED 2°C, A RATE FASTER THAN 99.9% OF THE GLOBAL OCEAN

The highest resolution model available shows a warming nearly three times faster than the global average. The Gulf of Maine will continue to be among the fastest-warming regions.

This enhanced warming is accompanied by an increase in salinity due to a retreat of the Labrador Current and a northerly shift of the Gulf Stream.

Depending on this shift, climate change projections for the Northwest Atlantic may be far too conservative.

DATA NOTES

Data on individual communities are available at: www.islandinstitute.org/waypoints.

Data precision and accuracy: Data on population, age, income, self-employment, and year-round housing percentages in this report are from the American Community Survey (ACS) administered by the U.S. Census Bureau. Due to sampling protocols, data have high margins of error for our smallest communities, in some cases higher than 50% of the estimate. These data should therefore be considered inaccurate in these places. Data tables in supplementary materials include margins of error for this reason.

Communities in this report: we include 120 communities in this report, 117 of which are municipal entities (towns, cities, plantations, or townships), and three of which are island communities that are part of the city of Portland (Peaks, Great Diamond, Cliff). Maine Coastal Program includes 148 communities in the state's coastal zone, including 31 communities that border on rivers with tidal influence [http://www.maine.gov/dacf/mcp/about/coastal_zone_map.htm]. Of the 15 year-round communities on islands, 11 are towns, cities, or plantations, representing 12 communities (Great Cranberry & Islesford are both part of the town of Cranberry Isles). The other three are part of the city of Portland, as noted above.

Page 2-3: Population and age provided by Sam McReynolds, University of New England, analyzed and mapped by Island Institute staff. Data are 5-year average (2010-2014) from ACS. Census data on population size are available for 116 of these communities, with 114 having populations greater than zero for this time period. Age data is available for 113 communities. Source on size of U.S. towns: <http://blogs.census.gov/2015/05/21/growth-in-small-town-america/>. Maine's State Plan on Aging 2012-2016 available at [<http://www.maine.gov/dhhs/oas/docs/Aging-State-Plan.pdf>]. See *General Data Note, above, about high margins of error for population and age data*.

Pages 4-5: Income and self-employment data analyzed and mapped by Island Institute staff. Self-employment data are 2010 U.S. census data on sources of income for each community. Self-employment earnings percentage is calculated relative to total earnings (not total income), and represents aggregate at the community level (not individuals or households). Data

are available from U.S. census for 114 communities; 19% is the average of the % self-employment earnings for these communities. Income data are 5-year average (2010-2014) annual median household income from ACS for each community. Data are available for 113 coastal and island communities; \$50,489 is the median of the values for these communities. See *General Data Note, above, about high margins of error for income and self-employment data*.

Pages 6-7: Maine Department of Marine Resources (DMR) provided lobster license data by zip code and lobster landings data (pounds and value) by port. Island Institute staff aggregated data by municipality, analyzed and mapped data. Community landings data are for 2015. License data are for fishing in 2015, with % based on population data on Page 2. Estimates of % active licenses and number of jobs on boats by Island Institute staff. Maine DMR reported 2015 state-wide lobster landed value of \$495.4 million. Estimate of \$1.5 billion economic impact based on assumed multiplier of 3. Data considerations: Due to business confidentiality, landings data are only publicly available for ports (harbors) where more than three lobster buyers purchased lobsters in a given year. So community lobster landings are under-represented in this analysis, if only one or two buyers are active in a community's ports each year. Nonetheless, 78 communities had landings reported for at least one of the years between 2008 and 2015.

Page 8: Historical fisheries landings data provided by Maine Department of Marine Resources, available for download at <http://www.maine.gov/dmr/commercial-fishing/> and analyzed by Island Institute staff. Projections for future aquaculture and wild caught fisheries provided by Island Institute staff, informed by reports issued by the Hale Group in partnership with Gulf of Maine Research Institute [available at <http://www.gmri.org/our-work/fishing-industry-innovation/advancing-aquaculture>] and Maine Algae Cluster [available at: <https://ncma.bigelow.org/mac>]. *Data considerations: Economic growth of wild-caught fisheries and aquaculture depends on environmental and economic conditions, as well as investments in R&D, infrastructure and industrial development.*

DATA NOTES

Data on individual communities is available at: www.islandinstitute.org/waypoints.

Page 9: Tourism data are from the Maine Office Tourism 2015 Annual report and Regional Economic Impact reports for 2015 for 4 coastal regions, available for download at <https://visitmaine.com/research>, and analyzed by Island Institute staff. Data are based on December 2014–November 2015. Data considerations: Tourism impact data are estimates based on surveys of visitors conducted in-state and nationally. Margins of error or uncertainty in these estimates are not provided in data reports.

Page 10–11: Broadband access data for counties, Maine, U.S. are from ConnectME Authority Strategy Plan 2016–2018 [<http://www.maine.gov/connectme/>]. Business use of websites and consumer data from ConnectME 2015 Annual Report. Broadband access on islands and projected economic impact estimate of broadband upgrades by Tilson Technology. Data considerations: 10 Megabit per second download and upload speeds is the new standard definition for broadband adopted by ConnectME authority, which differs from the U.S. Federal Communications Commission definition of 25 Mbps down and 3 Mbps up.

Page 12–13: Energy expenditure, heating oil consumption, carbon emissions, % rural data are from Governor’s Energy Office, 2015 State Energy Profile [<https://www1.maine.gov/energy/pdf/Energy-Profile-final.pdf>], with sources including estimates from the U.S. Energy Information Administration and the U.S. Bureau of Economic Analysis. Comparison to household income based U.S. and Maine 5-year AMHI (see page 4–5). Estimates of unbridged island costs provided by Island Institute staff, based on electricity bills and fuel prices reported via personal communication.

Page 14–15: U.S. census data on percent year-round housing provided by Sam McReynolds, University of New England. State comparison based “Housing Characteristics: 2010” U.S. Census [<https://www.census.gov/prod/cen2010/briefs/c2010br-07.pdf>]. Affordability indices from MaineHousing were available for 91 communities [<http://www.mainehousing.org/policy-research/research-reports>]. Island Institute staff created estimates for 22 communities, using methodology provided by Maine Housing staff (Richard Taylor, personal communication, details available upon request).

Page 16–17: Graduation rate data from Maine State Department of Education analyzed by Lisa Plimpton. Average U.S. school size from National Center for Education Statistics [<https://nces.ed.gov/pubs2001/overview/table05.asp>]. Maine state, New England and U.S. graduation rates and state 11th grade proficiency rates from Maine Education Indicators 2016 [<http://www.educatemaine.org/research-reports>].

Page 18–19: Geographic extent of lobster population 1975, 1995, 2015 based on OceanAdapt portal hosted by Rutgers University [<http://oceanadapt.rutgers.edu/>], source data from National Marine Fisheries Service scientific trawl surveys, not fisheries catch or landings data. Lobster fishery statistics from Atlantic States Marine Fisheries Commission Stock Assessment Overview, August 2015 [http://www.asmfcr.org/uploads/file/56017d3cAmericanLobsterStockAssmtOverview_2015.pdf].

Page 20: Sea Level Rise projections provided by R. Kopp, Rutgers, University, based on data presented in R. E. Kopp, C. C. Hay, C. M. Little, and J. X. Mitrovica (2015). Geographic variability of sea-level change. Current Climate Change Reports 1, 192–204. doi:10.1007/s40641-015-0015-5. [available at <http://www.bobkopp.net/papers/>]. Change in storm impacts in Maine provided by Pete Slovinsky, Maine Geological Survey, personal communication. 2004–2013 Gulf of Maine temperature change from Pershing et al. 2015. Slow adaptation in the face of rapid warming leads to collapse of the Gulf of Maine cod fishery, Science, November 13, 2015. Vol 350, Issue 6262. Projections for future warming from Saba, V. S., et al. (2015), Enhanced warming of the Northwest Atlantic Ocean under climate change, J. Geophys. Res. Oceans, 120, doi:10.1002/2015JC011346. Data considerations: All future projections are subject to uncertainties, which are indicated on SLR chart, and described in full within referenced publications.

Page 22–23: Maine Coastal Heritage Trust provided data, sourced from Maine Office of GIS, Maine Department of Agriculture, Conservation and Forestry, Maine Coast Heritage Trust and local land trusts. Data were mapped by Island Institute staff. 18% of Maine lands in conservation source. Data considerations: These percentages should be considered estimates, as the data were compiled from multiple disparate sources, and did not include all types of conserved land in all communities.

OUR WORK

In response to consistent direction from our constituents, we have focused our efforts on three priorities. Here are some examples:

STRONG ECONOMIES

Investing in broadband: We’re supporting island broadband working groups through feasibility studies, negotiations with providers, and convenings.

Diverse marine livelihoods: The Aquaculture Business Development Program helped more than ten new kelp and shellfish growers get started in its inaugural year.

Sustainable, affordable energy: From home weatherization and efficiency retrofits to community energy planning and reducing reliance on fossil fuels, we’re helping communities dramatically shift energy generation and consumption.

EDUCATION AND LEADERSHIP

Broad support for island and coastal educators: The Island Teachers Conference and aquaculture education workshops provide inspiration and professional development.

Effective local leadership: Specialized training for nonprofits, educators, entrepreneurs and community leaders provide island and coastal residents with the tools and resources to learn and build networks.

Community development through fellowship: Since 1999, more than 100 Island Fellows (and counting) have provided much-needed capacity for priority projects at local schools, community-based nonprofits and town municipalities.

SHARING SOLUTIONS

A Climate of Change: Our documentary film series, screened up and down the East Coast, stimulated important conversations about the impacts of climate change on fisheries around the country.

What Works Solutions Library: This practical, web-based resource provides proven solutions to common community challenges at all scales. www.islandinstitute.org/whatworks



MISSION

The Island Institute works to sustain Maine’s island and remote coastal communities, and exchanges ideas and experiences to further the sustainability of communities here and elsewhere.

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