Bigelow Laboratory for Ocean Sciences

Economic Contributions to Maine People and Businesses

Stepwise Data Research | March 2025

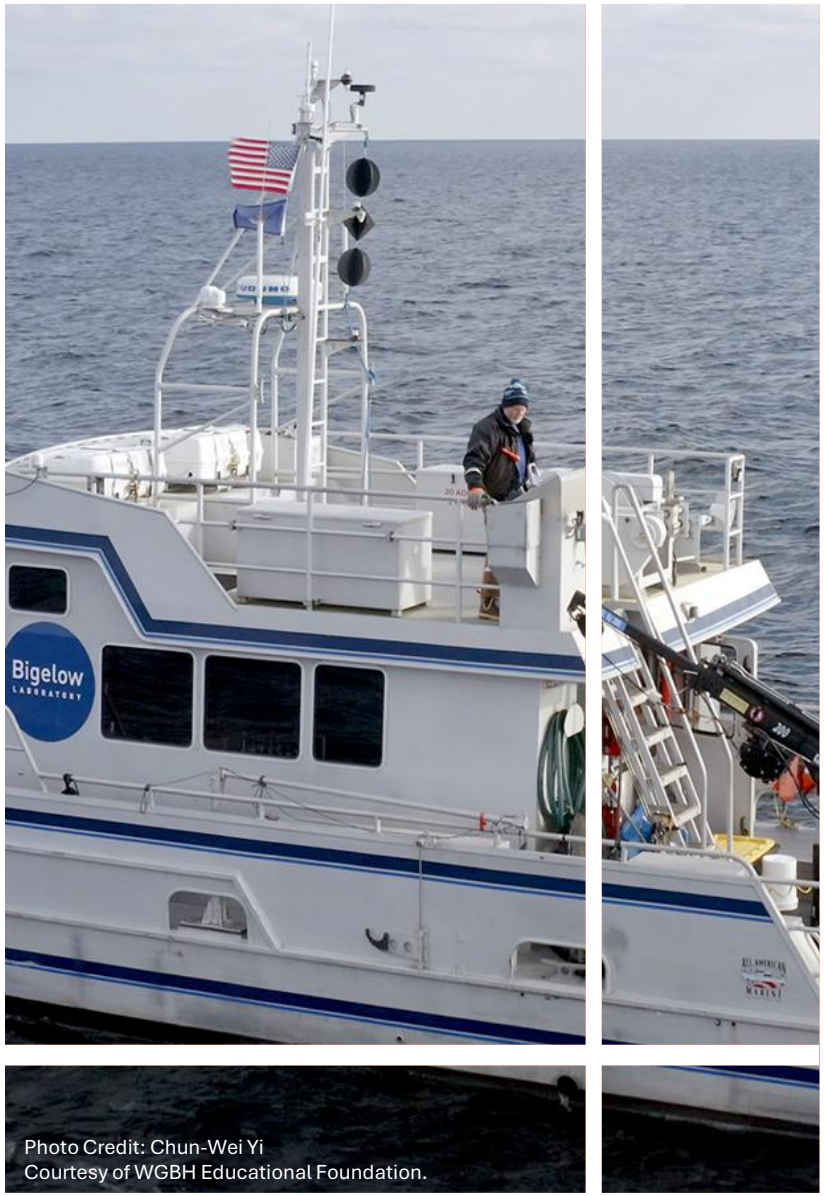

Photo Credit: Chun-Wei Yi
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Summary

Bigelow Laboratory contributes significant value to the Maine economy.

- The statewide economic contribution of Bigelow Laboratory's ongoing operations in 2024 is estimated to be $36.1 million in business output, including $14.7 million in earnings and 270 jobs.
- Construction of the new ocean education and innovation center has given an additional boost to Maine's economy; in 2024, the project supported $15.8 million in business output, including $5.4 million in earnings, and 100 jobs.
- Bigelow Laboratory's vendor network spans almost 100 Maine communities. With $9.9 million in purchases to Maine vendors from 2022 to 2024, its economic contribution extends far beyond East Boothbay.
- Bigelow Laboratory's impact is particularly valuable in Lincoln County, where most of its employees live. The median salary of a full-time staff member is $61,400, about 60% above the county median of $38,400.

Bigelow Laboratory

Bigelow Laboratory for Ocean Sciences is a nonprofit research institute in East Boothbay, Maine. Through creative, cutting-edge science, it studies the foundations of global ocean health and how to unlock the ocean's potential to improve the welfare of all life on this planet. Its research and education programs attract visitors and scientists from around the world and make it a hub of learning and discovery. It is also a valuable source of year-round economic activity in coastal Lincoln County.

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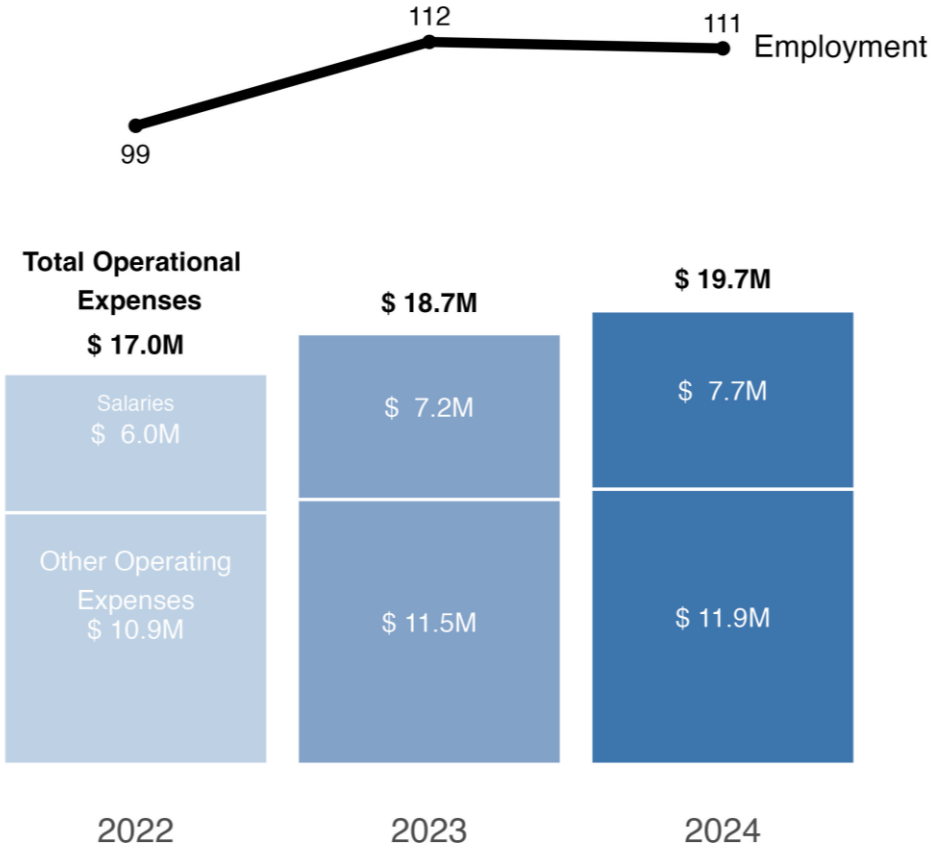
"Economic Contribution"

"Economic contribution" refers to the amount of activity in an economy attributable to an organization such as Bigelow Laboratory. It is calculated as the sum of three factors: **direct** spending on employees, goods, and services; **indirect** spending by vendors on the inputs to those goods and services; and **induced** spending within the local economy by employees of Bigelow Laboratory and employees of its vendors. The sum of these three contributions constitutes Bigelow Laboratory's **total economic contribution**.

See "Methodology" and "Definitions" for more detail.

Operating Contribution | Direct Spending and Employment

In 2024, Bigelow Laboratory spent $19.7 million on operations,[1] including $7.7 million in wages and salaries for 111 employees.



Bigelow Laboratory's direct contribution to Maine's economy has grown in recent years as it has expanded its research and educational offerings. Since 2022, Bigelow Laboratory has welcomed 12 new scientists and staff members and increased its operating budget by over $2.6 million (15%).

M=million

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Operating Contribution | The Ripple Effect

In total, Bigelow Laboratory's 2024 operational spending supported an estimated $36.1 million in business output, $14.7 million in earnings,* and 270 jobs throughout the Maine economy.

In 2024, Bigelow Laboratory spent $19.7 million on operations,[1] including $7.7 million on salaries. As this direct spending rippled through the Maine economy, it generated an additional $16.4 million in indirect and induced spending by suppliers and employees, including an additional $6.9 million in wages across 159 Maine jobs.

	Output	Earnings*	Jobs
Direct Spending on Operations	$19.7M	$7.7M	111
Indirect & Induced Contribution	$16.4M	$6.9M	159
Total Contribution	**$36.1M**	**$14.7M**	**270**

M=million
*Note that earnings are included in output.

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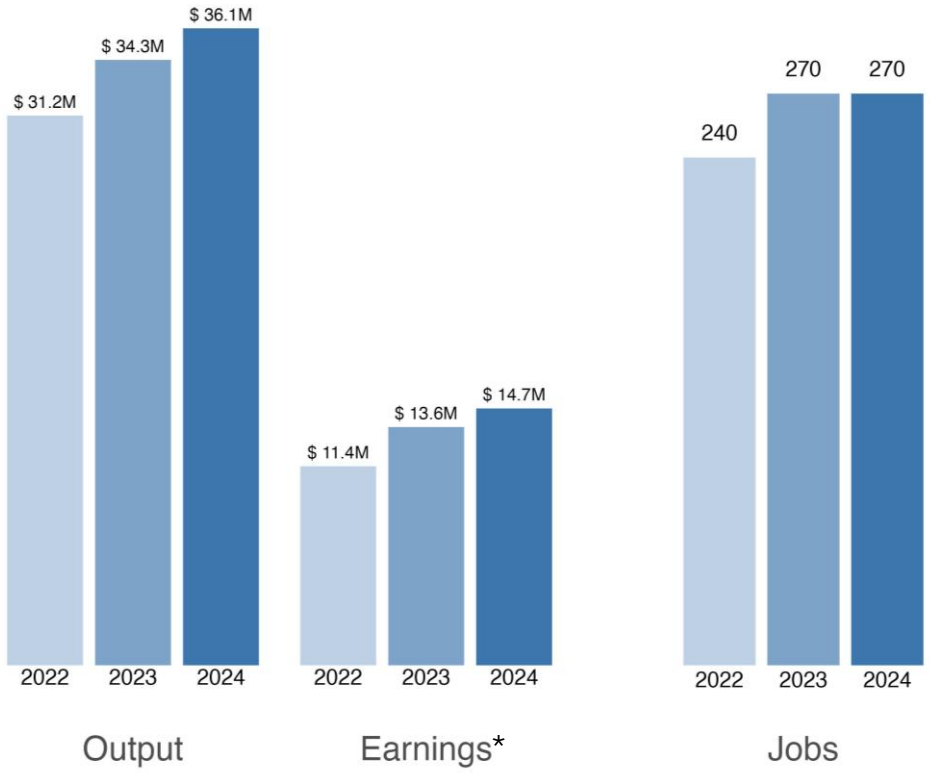
Operating Contribution | Three Years of Growth

As Bigelow Laboratory has grown, so has its contributions to Maine's economy.

Since 2022, Bigelow Laboratory has increased its contribution to Maine's economic output by about $5 million and earnings by over $3 million. The number of direct and indirect jobs it supports has risen by 30.

Total economic contribution, 2022-2024



M=million
*Note that earnings are included in output.

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Construction Contribution | Education & Innovation Center

Recently, construction of Bigelow Laboratory's new ocean education and innovation center gave an additional boost to Maine's economy.

A preliminary assessment shows that in 2024, $10.4 million of direct spending related to the construction of the new Center **supported $15.8 million in business output, including $5.4 million in earnings, and 100 job-years.**[2] Unlike the economic contribution from Bigelow Laboratory's ongoing operations, the economic boost from building the Center lasts only while construction is underway. Nonetheless, including this spending in Bigelow Laboratory's 2024 economic contribution yields a **total contribution of $51.9 million in business output, including $20.1 million in earnings, and 370 jobs.**

	Output	Earnings*	Jobs[2]
Construction Contribution (2024)	$15.8M	$5.4M	100
Operations Contribution (2024)	$36.1M	$14.7M	270
Total 2024 Contribution	**$51.9M**	**$20.1M**	**370**

M=million
*Note that earnings are included in output.

Employees | Building Maine's Human Capital

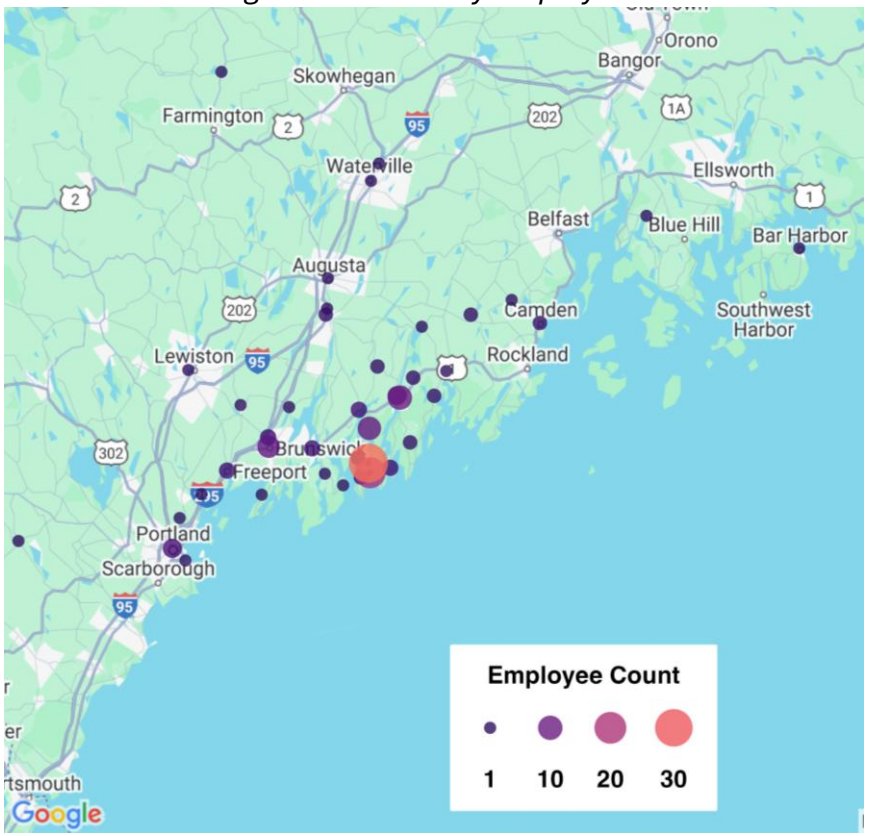
Bigelow Laboratory employees are highly educated and live in over 40 Maine towns. Their combined wages totaled over $7.7 million in 2024.

In 2024, Bigelow Laboratory employed 111 people from 40 towns across Maine, with most residing in and around East Boothbay. Together, these employees earned a total of $7.7 million. They also bring valuable human capital to coastal Maine. 86% have a bachelor's degree or higher, compared to 35% of Maine residents and 40% of Lincoln County residents. And 55% have a graduate degree, compared to 13% in Maine and 16% in Lincoln County.[3]

<u>Bigelow Laboratory Employee Credentials</u>

- 41% hold doctoral degrees
- 14% hold master's degrees
- 31% hold bachelor's degrees

Where Bigelow Laboratory Employees Reside



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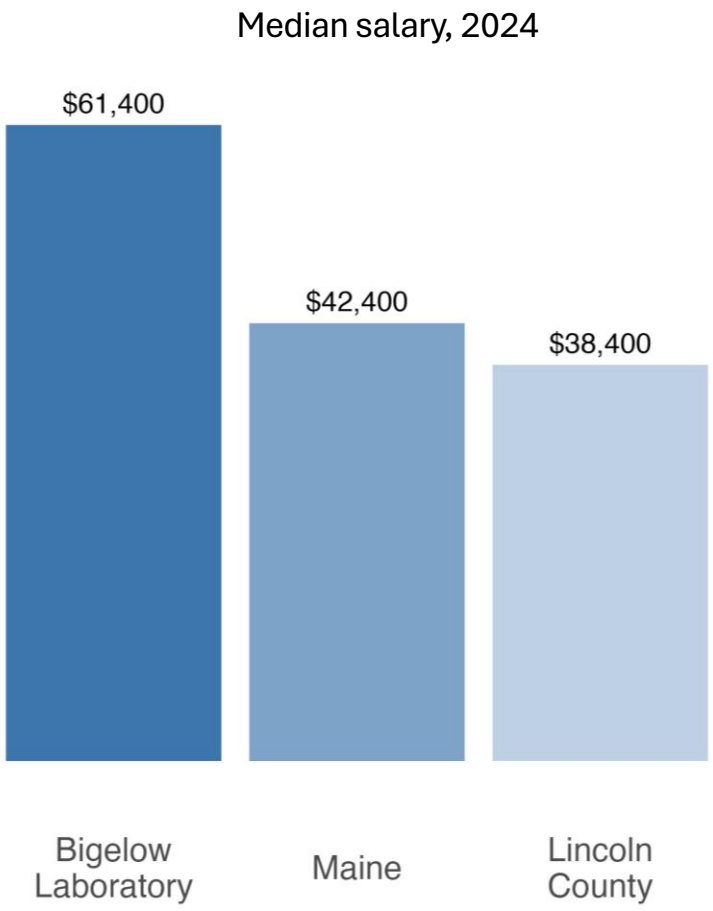
Employees | Median Salaries

Bigelow Laboratory offers competitive salaries by both Maine and Lincoln County standards.



In 2024, the median salary of a full-time employee at Bigelow Laboratory was $61,400, about 45% above the state median ($42,400) and 60% above the median for Lincoln County ($38,400).[4]

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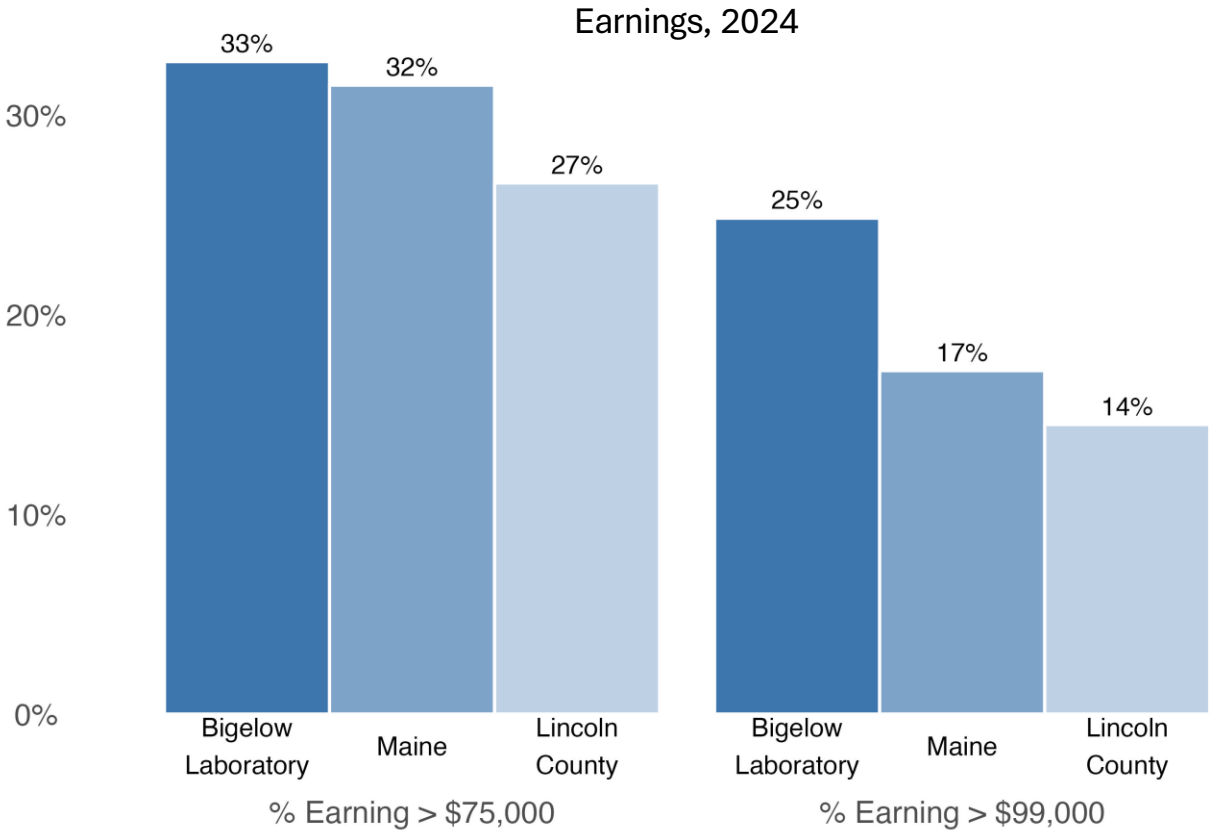
Employees | Top Salaries

Bigelow Laboratory offers more high-paying jobs than the state or local average.

At the high end, 25% of Bigelow Laboratory employees (1 in 4) earn over $99,000, compared to 17% (1 in 6) statewide and 14% (1 in 7 workers) in Lincoln County.[4]



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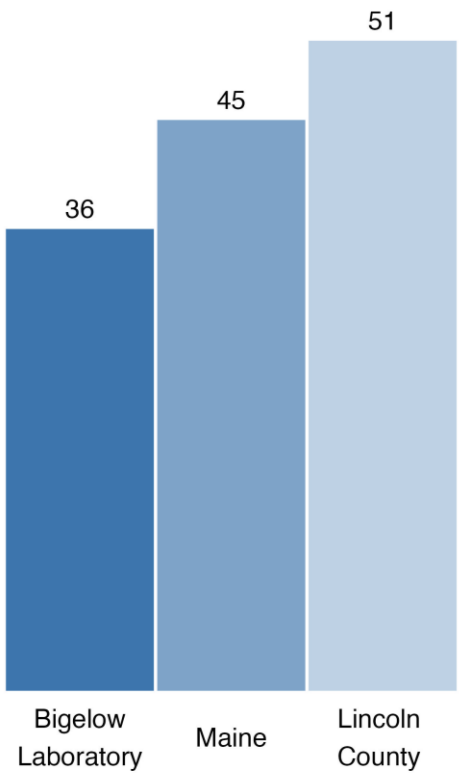
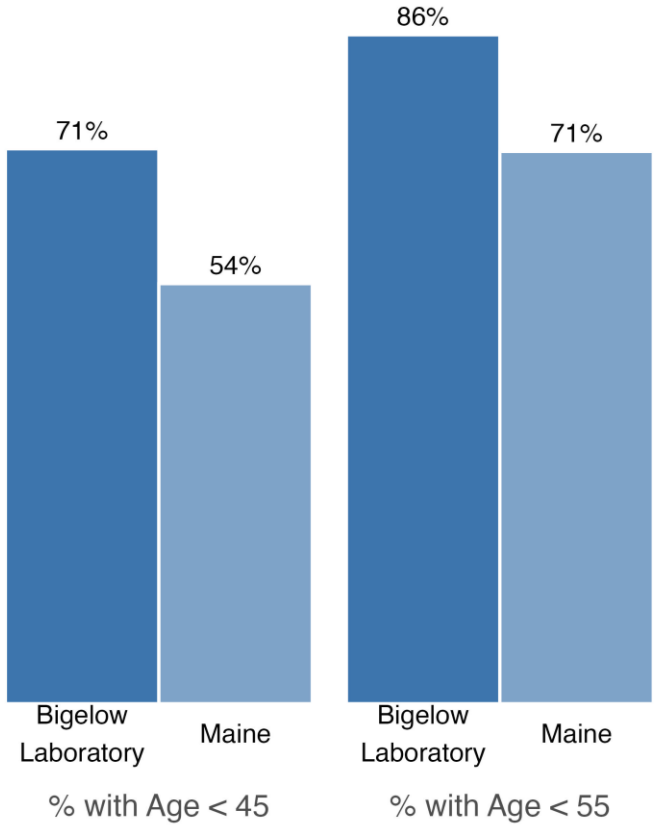
Employees | Age

The median age of Bigelow Laboratory employees is 15 years younger than the median age in Lincoln County. 71% are under age 45, compared to 54% of Maine workers.

Median age, 2024[5]



Employees by age range, 2024[6]



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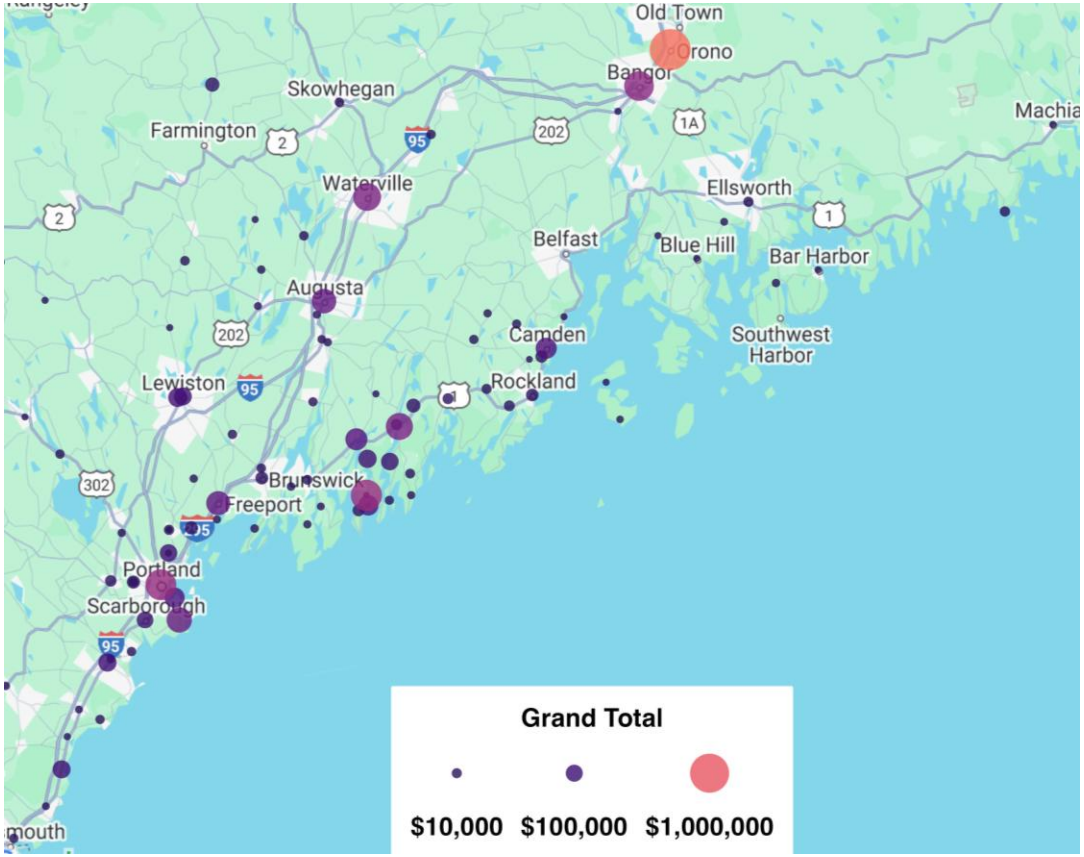
Vendors

Every year, Bigelow Laboratory purchases millions in goods and services from vendors in towns across Maine.

From 2022 to 2024, Bigelow Laboratory purchased $9.9 million in goods and services from 300 Maine-based vendors.

Bigelow Laboratory's vendor network spanned almost 100 communities across Maine, from York to Machias and as far north as Skowhegan and Orono.

Geographic Location of Vendors



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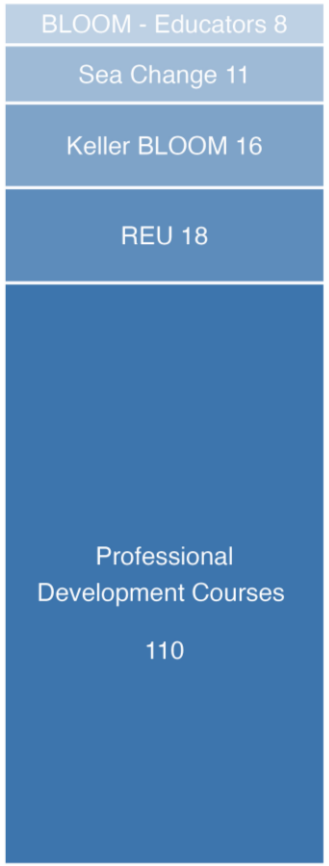
The Next Generation

Bigelow Laboratory's education programs attract students, educators, and workers from across Maine and beyond. In the last three years, Bigelow Laboratory welcomed 469 people to its campus to learn about marine research, including 163 in 2024. These visitors included high school and college students, researchers, and professionals who engage with topics as diverse as algae taxonomy to bioinformatics.

- **Bigelow Laboratory Orders Of Magnitude (BLOOM) For Educators:** Four-day ocean science experience for educators
- **Sea Change Semester:** Semester-long program for undergraduate students preparing for careers in ocean science
- **Keller BLOOM:** One-week ocean science experience for high school students
- **Research Experience for Undergraduates (REU):** Ten-week marine research internship for undergraduate students
- **Professional Development Courses**: Skill development for working professionals across multiple disciplines, including "OceanHackWeek," a five-day course on computational and data science skills

2024 Education Program Participants



Visitors

Every year, Bigelow Laboratory attracts hundreds of visitors to the region for educational programs and other events. Recent visitors hailed from three countries and 37 U.S. states.

Between 2022 and 2024, almost 2,400 visitors attended an event at Bigelow Laboratory, including 600 visitors in 2024. The largest attractor was Bigelow Laboratory's "Café Sci", an education series led by the Institute's scientists on issues facing the world's oceans.

While the economic contribution of visitors is not quantified in this report, it is large. Visitors support significant economic activities in the region through their spending on restaurants, hotels, transportation, and recreation. An estimated 44% of Bigelow Laboratory's visitors came from outside of Maine.

Where Bigelow Laboratory Visitors Are From

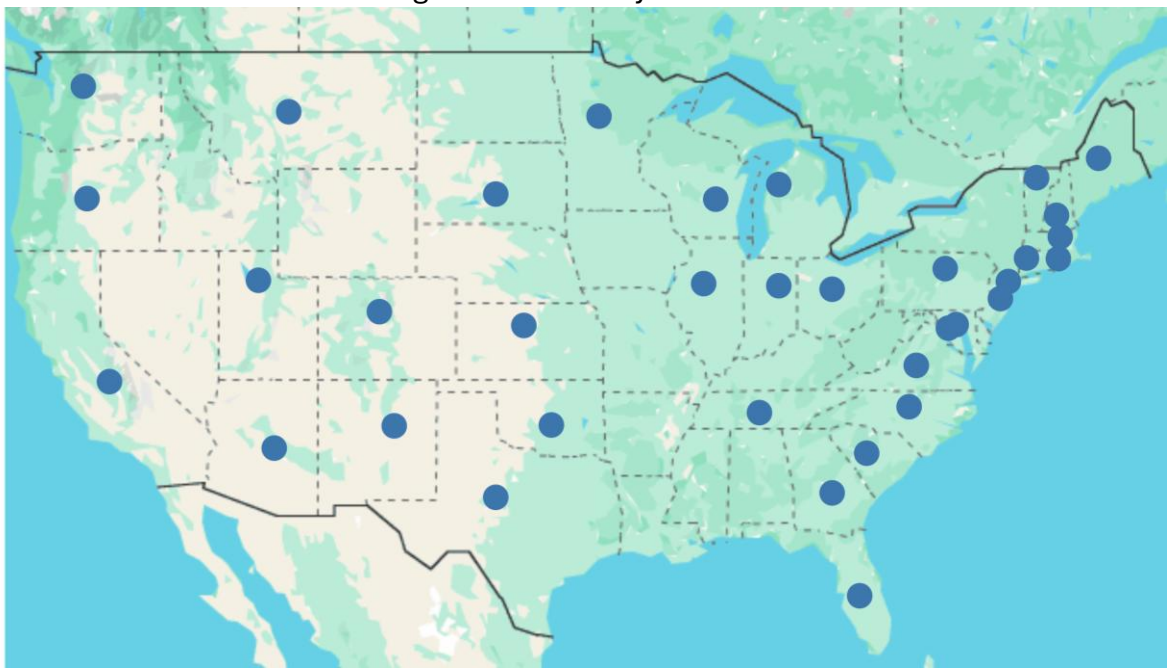


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Photo Credit: Peter Countway

Methodology

Economic contribution is defined as the gross change in economic activity occurring within a region as the result of an organization, event, or other change to the economy. Estimating an organization's contribution involves following dollars as they flow through the supply chain. The organization and its suppliers employ workers and make purchases from other businesses to conduct their operations. Workers from these businesses spend their wages in the local economy on things like food, housing, transportation, healthcare, and entertainment, which catalyze further spending cycles. Economic contribution assessments seek to estimate the cumulative scale of spending catalyzed by the activities of a particular organization or event.

Methodology

The economic contribution of Bigelow Laboratory consists of both direct spending on wages and benefits and operational and capital spending on vendor services and supplies. Together, the spending by Bigelow Laboratory generates its **direct economic contribution**. Its **indirect economic contribution** is the activity that results from recurring rounds of spending by its vendors on the inputs to their products. Its **induced economic contribution** refers to spending by employees of their wages in the local economy (in this case, the state of Maine). The sum of these three contributions constitutes Bigelow Laboratory's **total economic contribution**.

Direct operational and capital expenditures, as well as information on employees and vendors, were provided by Bigelow Laboratory. Indirect and induced spending effects were calculated using the U.S. Bureau of Economic Analysis Regional Input-Output Modeling System II (RIMS). RIMS multipliers are based on detailed accounts of the production and use of goods and services by industries and consumers, and the linkages between industries. They model how each dollar spent by Bigelow Laboratory ripples through the economy, stimulating additional economic activity as measured by three common indicators: economic output, earnings (which are included in output), and jobs. For more information on RIMS II, go to BEA.gov/RIMSII.

Methodology

Assumptions

The geographic region of focus is the state of Maine. Data provided by Bigelow Laboratory included detailed operating revenues and expenses and capital expenditures, information on employees including age and salaries, compensation data by home zip code, and vendor spending by zip code, among other descriptive data.

Estimating Bigelow Laboratory's Economic Contribution

1. The economic contribution followed the methodology for the U.S. Bureau of Economic Analysis Regional Input-output Modeling System ("RIMS II"), as detailed here.
2. Bigelow Laboratory's total 2024 operating expenses and employment were mapped to RIMS II industry codes for Scientific Research and Development Services – Code 541700 of the North American Industry Classification System (NAICS). Separate multipliers were used for salaries, other expenses, and employment to derive the total economic contribution in terms of output, earnings (a subset of output) and employment. Following the RIMS II methodology, expenses related to employee retirement accounts were excluded from the analysis.
3. For the preliminary estimate of the 2024 economic contribution of the construction of the new ocean education and innovation center, expenses for the project were organized by category and mapped to RIMS II industry codes for Construction, Wholesale Trade (for all equipment-related expenses), and Professional and Business Services. Expenses were first reduced by an estimate of the percentage of spending that went to non-Maine vendors. These percentages were derived by identifying the home location of the vendor for each expense. In total, roughly 80% of total expenses related to the project were paid to Maine vendors. To be conservative, only 75% of expenses paid to construction companies were included in the analysis (that is, 25% of expenses were excluded). For expenses related to equipment (e.g., heating equipment), the producer's value was excluded because most of these products are not manufactured in Maine. The BEA's Composition of Intermediate Inputs table separates the value for producers, transporters, wholesale, and retail trade components for commodities such as heating equipment. Based on information in this table for a range of equipment-related industries, 65% of spending was estimated to be related to the production of the equipment and therefore excluded from the analysis. 100% of expenses to companies in Professional and Business Services (all of which were located in Maine) were included in the economic contribution calculations.

Methodology

Multipliers

The table below contains the RIMS II output and direct effect multipliers used in the estimation of the economic contribution. The output multipliers represent the total dollar change in output, earnings, or jobs across all industries for each additional dollar of output delivered by Bigelow Laboratory. The jobs multiplier is per million dollars of output. For earnings and jobs, the second multiplier in the table below is the direct effect multiplier. The direct effect multiplier represents the total change in earnings or jobs for each additional dollar of earnings or jobs paid directly by Bigelow Laboratory. (Note that earnings are included in output.)

RIMS II Industry	Output	Earnings	Jobs
Scientific research and development services	1.88	0.61 / 1.88 (Direct)	9.67 / 2.40 (Direct)
Construction	1.94	0.65	12.14
Professional, scientific, and technical services	1.88	0.75	12.46
Wholesale Trade	1.78	0.49	7.99

A significant amount of Bigelow Laboratory's operating and construction costs were excluded from the economic contribution modeling. Operating expenses were first reduced to exclude retirement contributions. Construction expenses were reduced by the amount of spending that went to out-of-state companies. Equipment expenses were reduced by the percentage of the cost which was attributable to the production of the equipment manufactured outside of Maine. After accounting for these reductions, the implied total economic contribution multipliers are as follows:

Total Economic Contribution - Implied Multipliers

Contribution	Output	Earnings	Jobs
Operating Economic Contribution	1.83	0.74	2.43 / 13.7 (Direct)
Operating + Construction Economic Contribution	1.70	0.68	12.07

Definitions

Direct effects include those resulting from initial rounds of spending from Bigelow Laboratory's operations, capital expenditures, and other spending by Bigelow Laboratory during the year.

Indirect effects result from spending on inputs by vendors who supply goods and services to Bigelow Laboratory.

Induced effects result from spending of wages by employees of Bigelow Laboratory and its vendors on goods and services such as food and housing, which in turn support further economic activity.

Employment is estimated as the number of jobs, both full-time (FT) and part-time (PT), including wage and salaried employees, sole proprietors, and active partners. Both FT and PT jobs are counted with equal weight and are not distinguished by the model. This unweighted job count is commonly used in government employment data as well as other economic models.

Earnings include all pre-tax wage and salary earnings, employee supplements (benefits), and proprietor income resulting from direct, indirect, and induced employment. Total earnings are not additive to total economic output. Rather, they are accounted for in that measure and can be understood as the associated labor income.

Economic output (also referred to as "business output") is the total value of all goods and services produced as a result of the operational and capital expenditures, including payroll, value-added from production, and intermediate sales. Economic output can also be interpreted as total industry sales, inclusive of all intermediate inputs. Economic output is inclusive of total earnings.

Endnotes

1. Includes a small amount of ongoing capital expenditures (repairs and maintenance) spent in Maine: $141,000, $106,000, and $40,000 for 2024, 2023, and 2022, respectively.
2. Because construction often takes place over multiple years, when estimating the economic contribution from construction projects, the job figures refer to “job-years” – the equivalent of one job held by one person for one year.
3. U.S. Census Bureau 2023 American Community Survey 5-Year Estimates, age 25+.
4. U.S. Census Bureau 2023 American Community Survey 5-Year Estimates, reported for all workers age 16+. For just full-time, year-round workers, median salaries are $57,000 and $53,500 for Maine and Lincoln County, respectively.
5. U.S. Census Bureau 2023 American Community Survey 5-Year Estimates.
6. Maine Department of Labor, Demographics of Employment.

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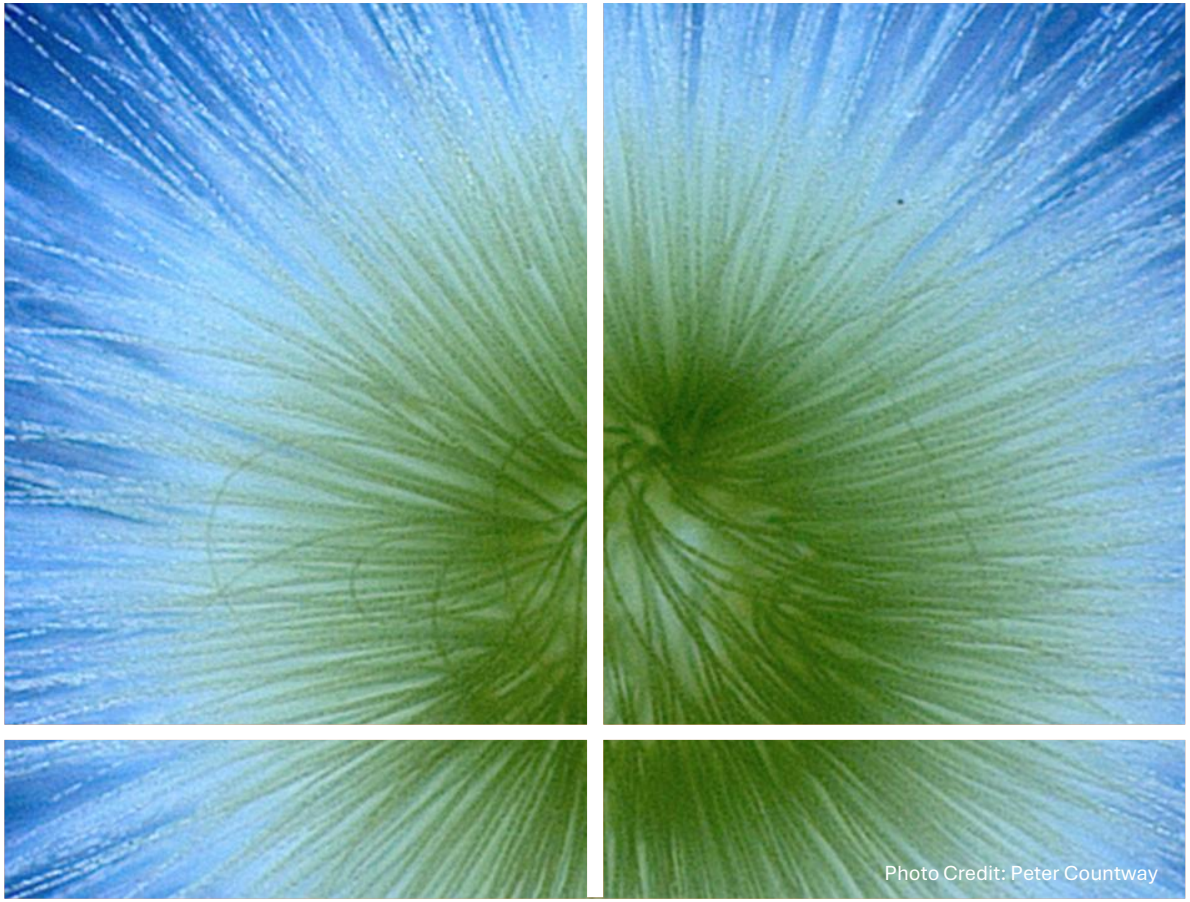

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