Shaw Institute

OVER 35 YEARS OF HEALTH AND ENVIRONMENTAL IMPACT RESEARCH

Impact Report

2026



“The Shaw Institute is a great example of what can happen when an organization is deeply rooted in a small community but thinks well beyond it. They’re bringing meaningful research, education, and opportunities to Blue Hill while giving young people a chance to see that important work doesn’t have to happen somewhere else. As a local business and employer, that matters to us. Strong organizations like the Shaw Institute make this community a better place to live, work, and raise a family.

Peter Belinsky
President & CEO
Hewes & Company



Photo credit: Jessica Smith

Cover photo credit: Elijah Vollendorf

Dear Friends, Supporters, and Partners:

It is with great pride that I share what we achieved together in 2026. This was a year guided by an idea I return to constantly: a seal eating the same fish as a human patient is a signal worth listening to.

Before I was born, my older brother fought leukemia; by the time I came along, he was already in remission. I didn't experience the crisis firsthand—I grew up on the quiet side of it, inheriting the stories rather than witnessing the fear. Yet that experience was always present in our home, shaping why the core question behind our tissue research has always felt deeply personal: *what is inside our bodies, and why?* That single thread weaves through everything we do here, from our laboratory science to our work in the community.

We did not set out to become Maine's only winter-open aquarium or a research institute collaborating with leaders at Harvard, NYU, and Arizona State University. We grew into this role by answering two distinct calls: our community's request for year-round coastal access, and a scientific scope that outgrew our original methods. Saying yes to both led to a landmark year—headlined by a $7 million Horizon Europe grant, our largest award to date, dedicated entirely to expanding our international research on nanoplastics and Alzheimer's disease.

None of it stays behind closed doors. This fall, I donated my time and expertise to design and teach the *Scientific Research Experience-Honors* course for George Stevens Academy, engaging local students in our real-world PFAS sampling, coastal monitoring, and tissue research. Seeing former intern Oliver Boit translate his work on our Alzheimer's tissue studies into acceptance at a top forensic science program proved what's possible when big-picture research is driven by local hands.

Here is the honest budget story. Grants make groundbreaking research possible, but they do not help pay the heating bill, purchase everyday lab supplies, or keep our lights on through a Maine winter. Closing that operational gap requires local community support. As we look ahead, I ask for your continued help to keep our doors wide open.

Stop in at any time. I'd love to hear from you.

Thank you for your continued support of the Shaw Institute.



Dr. Charlie Rolsky, PhD
Executive Director and Senior Research Scientist



OUR MISSION

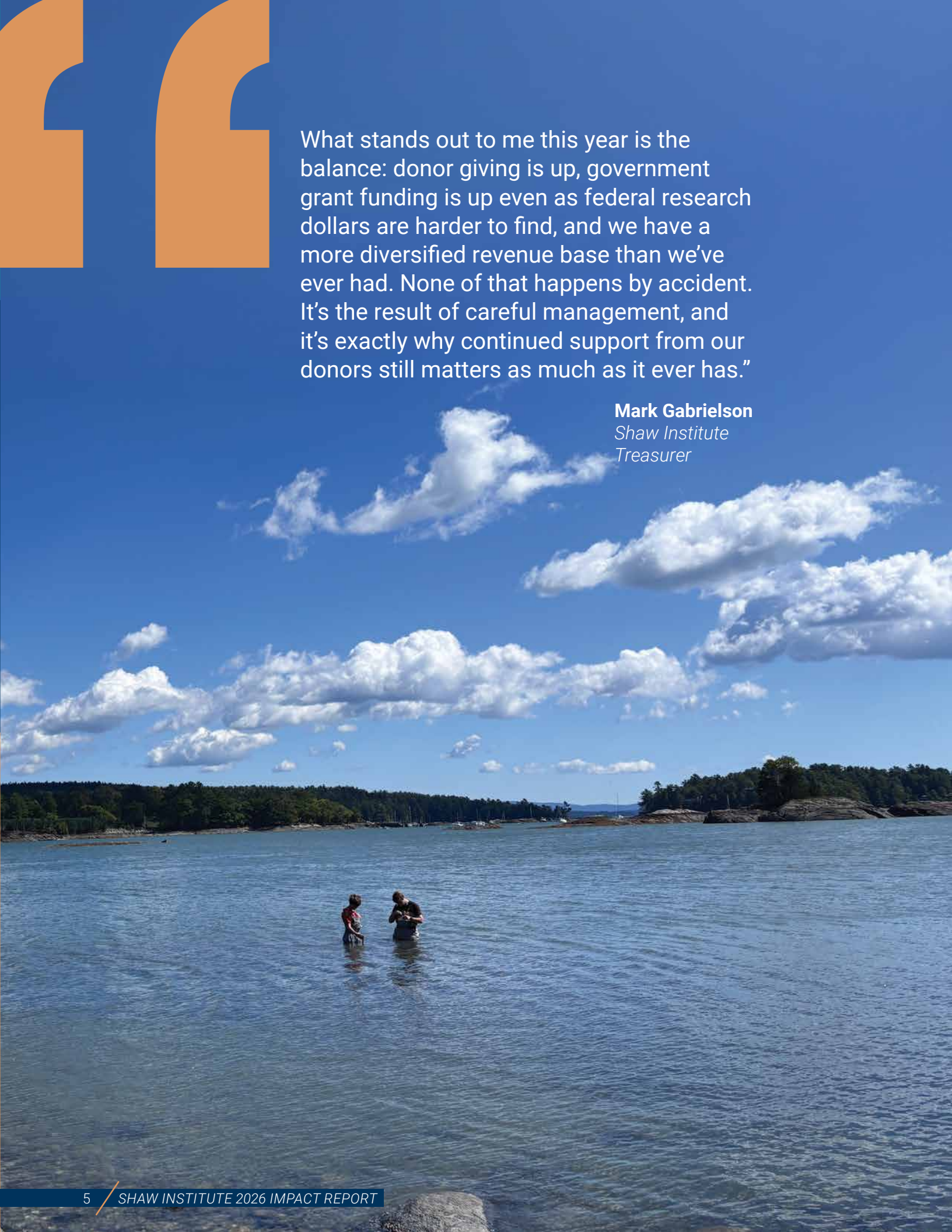
The Shaw Institute connects environmental health with human health through innovative science, collaboration and community outreach.

OUR VALUES

- Conduct evidence-based science with integrity and purpose.
- Provide an inclusive learning environment for community engagement and outreach.
- Establish a role in our academic field that promotes cross-discipline collaboration.
- Ensure our reputation serves as a source of inspiration for those around us.
- Focus on emerging technology and diverse funding sources for the advancement of scientific knowledge.

OUR PRIORITIES

- Strive to improve the health of Maine ecosystems.
- Understand the connection between land and sea.
- Focus on Maine but collaborate and influence on a global scale.
- Turn our scientific research into tools for community empowerment.
- Improve our facilities to lead with cutting-edge research and meet the educational needs of surrounding communities.



What stands out to me this year is the balance: donor giving is up, government grant funding is up even as federal research dollars are harder to find, and we have a more diversified revenue base than we've ever had. None of that happens by accident. It's the result of careful management, and it's exactly why continued support from our donors still matters as much as it ever has."

Mark Gabrielson
Shaw Institute
Treasurer

COASTAL MONITORING

Bacteria and Harmful Phytoplankton in Blue Hill, Maine:

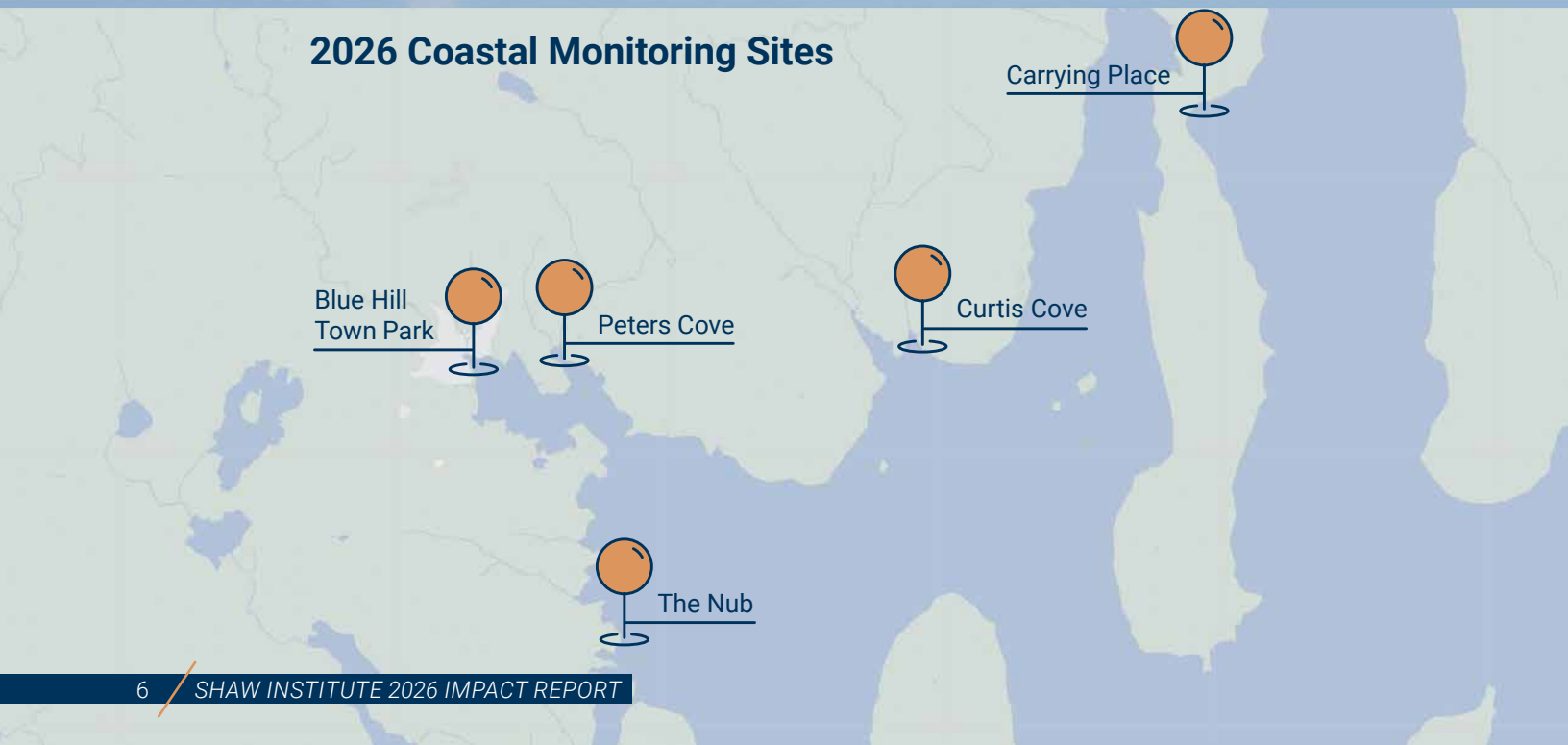
The Shaw Institute has been collecting data on fecal bacteria and harmful phytoplankton blooms for nearly twenty years. Alongside bacteria, we watch for *Pseudo-nitzschia* and *Alexandrium*, two phytoplankton species capable of producing toxins dangerous to people and wildlife. Whenever we identify a bloom or either species, we report it directly to the Maine Department of Marine Resources.

This year, we added The Nub to our sampling rotation, a popular swimming spot owned by the Town of Blue Hill. Its first season of results came back clean, with every sample well within safe limits.

Thanks to support from Clearview Energy, our TECTA B16 testing tech delivers same-day bacterial data, powering free SMS safety alerts for local swimmers and visitors. Running these tests costs $5,000–$8,000 a summer and depends entirely on community donations.

While in the field late this fall with our *Scientific Research Experience-Honors* class, we detected a major spike in bacteria at Blue Hill Town Park and the adjacent stream following September's nor'easter. Levels remain elevated, and our class is testing weekly as part of their hands-on coursework.

Funded by: Stanley Chevrolet, Stanley Subaru, Clearview Energy, Shaw Institute and our donors



Marine Mammal Health and PFAS Exposure:

Since 2023, Shaw Institute has partnered with the Marine Mammal Stranding Network and Allied Whale at College of the Atlantic to respond to stranded seals along the Maine coast and collect tissue samples for contaminant testing.

In 2025, that work grew into a $150,000 award from NOAA to study PFAS levels in harbor seals over a 30-year span, looking at how exposure varies by age, sex, and region, and whether levels are shifting in response to state and federal PFAS restrictions. This year we processed the first third of our expected sample set: 28 seals. We found that PFOS, the most persistent and well-studied PFAS compound, turned up in every single sample.

Decades ago, before PFAS was household knowledge, Shaw Institute founder Susan Shaw was already tracking it in Northwest Atlantic harbor seals. Twenty-five years later, we continue to monitor the same seals along the same coast, driven by ongoing evidence that there is still much to uncover.

This year, we partnered with the University of Maine's Harrington Lab to study how PFOA—a common PFAS compound—affects postlarval lobsters during their vulnerable post-settlement stage. Early trials suggest lobsters exposed to higher PFOA levels eat and move less than those in clean water. With Maine's lobster fishery contributing over $1 billion annually to the economy, this is a vital early signal. Next summer, we will expand our research to examine how PFOA exposure interacts with warming ocean temperatures.

Funded by: NOAA, Shaw Institute and our donors



Photo credit: Karl Ramsdell



PLASTICS AND HUMAN HEALTH

A Question We Can't Un-Ask

Every one of us is potentially carrying plastic we never asked for. Microplastics have turned up in human blood, lungs, placenta, and now brain tissue; particles small enough to slip past barriers the body spent millions of years building. The question is no longer whether microplastics are inside us, but what they are doing to our health once they get there.

This year, Shaw Institute participated in the effort to answer that question, partnering with NYU Langone, Harvard, and Arizona State University to examine human tissue samples across studies on fetal development and Alzheimer's disease. George Stevens Academy senior Oliver Boit played a key role in this effort, processing brain and spinal fluid samples in our lab for Alzheimer's research—in the same lab where he first interned as a junior.

"My internship with the institute helped a lot with my resume," he said. This fall, he started a forensic science program at Virginia Commonwealth University, with training on the same instrument that's now helping researchers understand what plastic is doing to the aging brain.

His story proves that groundbreaking research often starts right in our local backyards.

Funded by: NYU, NIH, Harvard, ASU, Arizona Alzheimer's Consortium, Shaw Institute and our donors.

Where the Science Meets Impact

This year, our lab processed over 180 human tissue samples for leading research partners: 90 placenta samples with NYU Langone (exploring links to fetal growth and autism), 93 colon samples with Harvard (studying Crohn's disease, cancer, and gut inflammation), and 33 brain and spinal-fluid samples with ASU's Banner Alzheimer's Institute. A newly awarded Horizon Europe grant and support from the Arizona Alzheimer's Consortium will fund the next stage of this brain research—funding dedicated entirely to the science itself rather than general lab operations.

Early placenta data revealed a confirmed plastic signal in roughly one in four of the 90 samples run under our strictest contamination-controlled protocols. This emphasis on analytical rigor also inspired a new paper accepted by *Next Research*, in which our team critiques common thermal detection methods and advocates for tighter field standards.

Demonstrating the growing urgency of this field, Dr. Charlie Rolsky chaired a session on microplastics and human health at the SETAC Europe conference in Maastricht, the Netherlands, drawing a conference-leading 72 submitted abstracts.

Funded by: Woods End Laboratories, Shaw Institute and our donors.

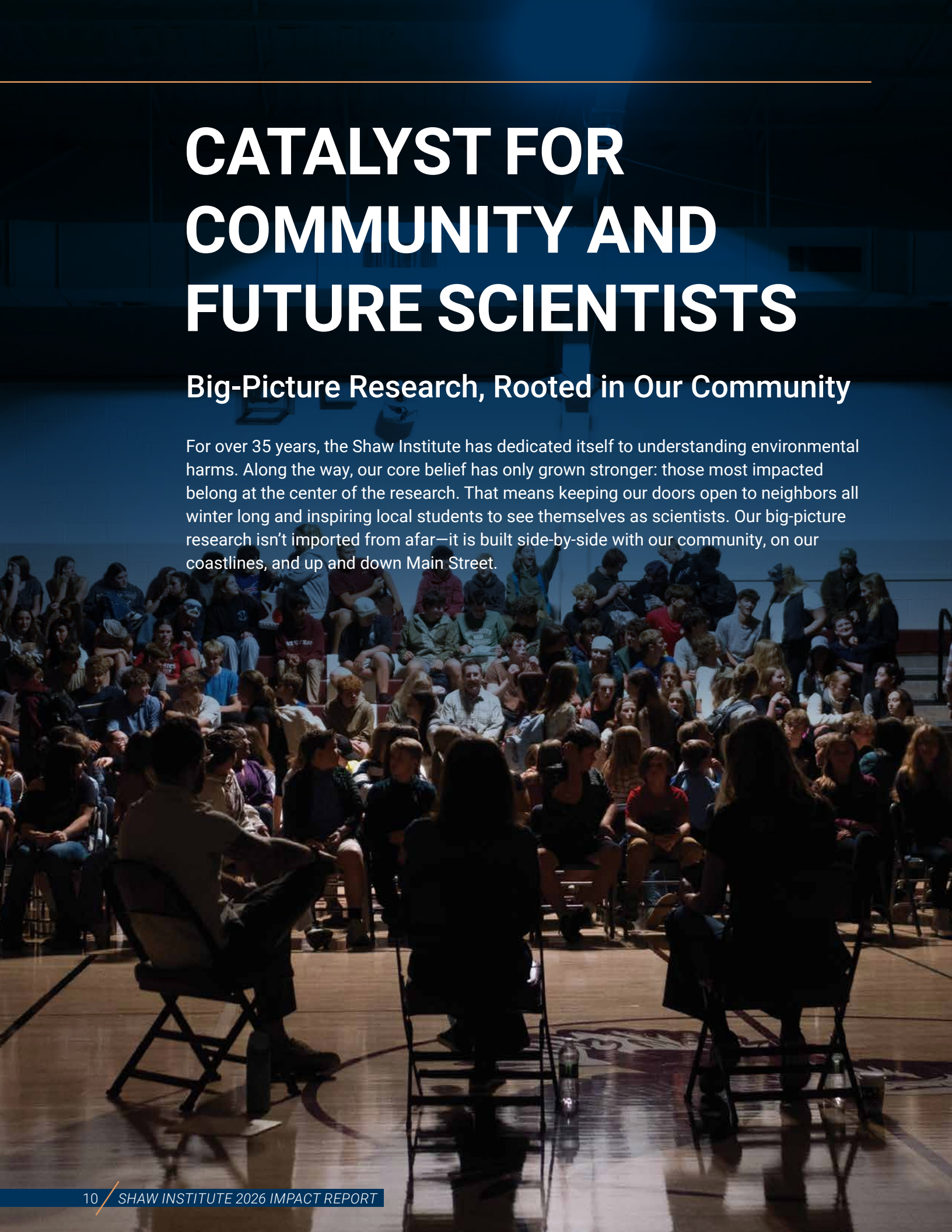
The central question—how plastic moves through bodies and ecosystems—reached Washington County this year, bringing hands-on marine science into classrooms that rarely get these opportunities. We spent a day with 227 students (grades 2–8) at Rose M. Gaffney Elementary School in Machias, Maine, and 21 students in Deer Isle, tracing plastic up the food chain from microorganisms to the seals we study in the field. Now, we're expanding our footprint to bring more counties, classrooms, and kids into the fold—asking the very same questions we analyze in the lab.



CATALYST FOR COMMUNITY AND FUTURE SCIENTISTS

Big-Picture Research, Rooted in Our Community

For over 35 years, the Shaw Institute has dedicated itself to understanding environmental harms. Along the way, our core belief has only grown stronger: those most impacted belong at the center of the research. That means keeping our doors open to neighbors all winter long and inspiring local students to see themselves as scientists. Our big-picture research isn't imported from afar—it is built side-by-side with our community, on our coastlines, and up and down Main Street.



Youth and STEM Outreach

This fall brought a unique crossover event to Blue Hill. The Shaw Institute helped host a series of high-impact community events with retired NASA astronaut Nicole Stott—the first person to paint with watercolors in space.

Across two days of programming, the Institute connected Stott with local residents through two school assemblies, a community art night, and a coastal cleanup.

Younger students created illustrated postcards bound for space on a future mission, while high schoolers engaged in an in-depth dialogue on life aboard the International Space Station. That evening, local educators and artists showcased their work alongside Stott's book signing at an institute-hosted reception catered by local partners Humblebee Cafe, Hannaford, and Rioux Catering.

Stott concluded her visit by working side by side with staff and volunteers at a local beach cleanup—embodying the hands-on stewardship the Shaw Institute drives year-round.









Photo credits: Elijah Vollendorf

> Partnering with the Shaw Institute in Blue Hill was an unforgettable experience. Seeing their team's focus on community and directly engaging with local youth through science, art, and hands-on beach cleanups reminded me of how essential local ocean stewardship is to the health of our entire planet. It was great spending time with fellow crewmates on our planetary spaceship!"

Nicole Stott
NASA Astronaut, Artist, Earthling
Founder, Space for Art Foundation

Bridging the Gap: Bringing High-Impact STEM Education to Rural Maine

This year, one of our most striking pieces of plastics research didn't come from a university lab, it came from a sixth grader at Blue Hill Consolidated School. For her project in *Findings from the Field*, the Gulf of Maine Research Institute's student science journal, Lucy Gray set out to compare microplastics across two local shorelines: Curtis Cove, a quiet stretch used mostly for swimming, and Carrying Place, a busier cove ringed by residential homes, boat moorings, and a restaurant.

Collecting fifty sample plots at each site, Lucy brought her isolated plastic fragments to the Shaw Institute to analyze their chemical composition on our FTIR spectrometer—the exact laboratory instrument our senior researchers use to identify polymer types.

Her findings were striking. Carrying Place contained over seventy times more plastic by weight than Curtis Cove, and its chemical signatures revealed a distinct story. Rather than the fishing line and packaging common to boating hubs, the samples were dominated by adhesives, sealants, and building materials—pointing to land-based runoff from nearby roads and structures rather than marine debris. It is the kind of insight professional researchers spend entire grant cycles chasing, uncovered here through a tape measure, sample bags, and an afternoon in our lab.

> "Not all plastic pollution is the same, and you need to understand where the plastic is coming from."
>
> **Lucy Gray**
> *Student, Grade 6*



COMMUNITY AND THE LOCAL ECONOMY



"This past summer, the interns became so interested in our farm that they volunteered to come back for a second day to help us organize and care for our baby oysters. Their enthusiasm, curiosity, and willingness to get their hands dirty made the experience especially memorable.

Partnering with the Shaw Institute and helping cultivate the next generation of scientists, environmental stewards, and ocean advocates is always one of the highlights of our summer at Tapley Cove Oyster Company. We are grateful to be a small part of their journey!"

Kristen and Joe Tapley
Owners of Tapley Cove Oyster Company

A Year-Round Anchor for Blue Hill

Operating the only aquarium in Maine open throughout the winter creates a ripple effect across our region. For local visitors, it offers a warm place of discovery in the winter. For Main Street, it provides vital foot traffic during the six months when a seasonal economy typically goes quiet. Our community has met this commitment with extraordinary generosity—ranging from the gift of an EV for our mobile science outreach, to dedicated funding for winter electricity, lab supplies, and essential operations. This support isn't driven by warm summer breezes; it comes directly from the people who live here, who have decided that a year-round Shaw Institute is a vital community pillar worth sustaining.

MORE HIGHLIGHTS FROM 2026!

Stanley Chevrolet generously donated a two-year lease on an all-electric Chevy Silverado, custom-wrapped to deploy the Shaw Institute's mobile science program across Downeast Maine. Already serving the community, the EV has transported "Charlie the Shark" to summer storytimes and safety talks, while serving as our primary vehicle for coastal research, marine mammal stranding responses, and year-round beach bacteria monitoring.

We added two new exhibits to the Environmental Education Center this year: a 70-gallon **seahorse aquarium**, complete with a synthetic eelgrass meadow modeled on the habitat these fragile animals depend on, and a rare **blue lobster**. He's a one-in-two-million find, and the community named him Blucifer through a public vote. Both have become instant favorites at the touch tank.



Homeschool Science Days launched this year after local families reached out seeking dedicated, hands-on learning experiences for their children. The Shaw Institute answered that call by building specialized programming tailored to non-traditional learning environments, creating a welcoming educational hub that local homeschool groups now rely on and return to regularly.

In the fall of 2026, the Shaw Institute expanded its commitment to accessing **STEM education** through an immersive partnership with George Stevens Academy. Executive Director Dr. Charlie Rolsky volunteered his time to design and teach a semester-long *Scientific Research Experience-Honors* course, granting high school students direct access to institutional laboratory resources, field monitoring methods, and active research projects.

In celebration of **World Oceans Day**, the Shaw Institute partnered with the Blue Hill Co-op to host a joint beach cleanup and community lecture. Volunteers spent the morning removing marine debris from local shorelines before gathering for an engaging presentation on the composition, sources, and broader ecological impacts of the waste washing up along Downeast beaches.

The Shaw Institute's **field team captured an exciting year** of local wildlife activity, recording diving puffins, herring runs, and seals hauled out along nearby ledges. The ecological story extended even further through community-submitted video, which documented a great white shark feeding off Mount Desert Island and a humpback whale surfacing in Blue Hill Bay. Together, these monitoring efforts and resident reports offer a vivid reminder of the diverse marine life navigating our coastal waters.



This year marked more than twenty years of the Shaw Institute's internship program. We collaborated with five interns representing four institutions: Bowdoin College, Oberlin College, Colby College, and George Stevens Academy. Together, they worked with ten partner organizations across six cities. Thanks to a generous $30,000 investment from the Pappas Family Foundation this spring, this year's cohort became a reality.

Our interns didn't just observe the work, they were part of it by assisting in evaluating samples for our human health research. Using advanced Py-GC/MS tech, they analyzed 60 human tissue samples and measured more than 20 plastic specimens for our human health studies. They also conducted over 200 bacteria tests, counted 2,500-plus phytoplankton for coastal monitoring, and advanced our NOAA PFAS seal study. Reflecting the real-world impact of their work, each intern will be credited as a co-author on future scientific publications.



Page edges photo credit: Elijah Vollendorf



FINANCIAL INFORMATION

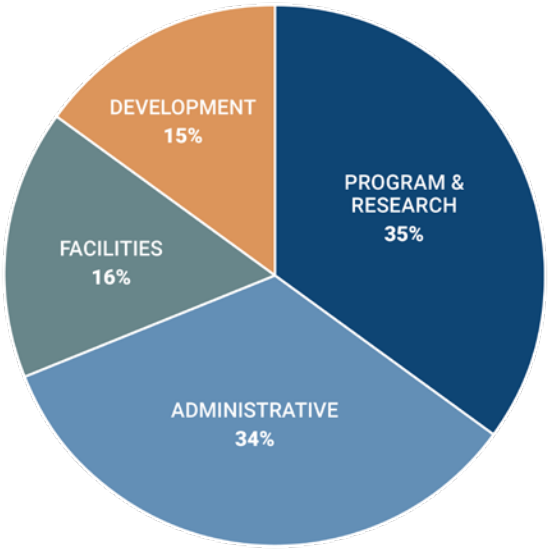
The Shaw Institute's fiscal year follows the calendar year. Through the third quarter of 2026 (unaudited), total revenue reached $365,238, with 87% from individual donations and 9% from competitive grants. This figure will grow once our newly awarded ASU grant is formally booked. The remainder comes from our educational programming and gift shop sales, which together have already surpassed their combined 2025 total.

We are immensely grateful for this momentum, but our work isn't done yet. With your help today, we can close the final funding gap and fulfill our commitment to the community.

Expenses

Through the third quarter of 2026, our expenses reflected the true cost of expanding our mission and serving Blue Hill year-round. Property insurance rose nearly 15% to $18,617 as research expanded, while utility costs increased to keep our living aquarium climate-controlled and welcoming all winter long, long after seasonal neighbors have closed. We also invested in insurance for our donated electric outreach vehicle, broadened community communications, and added a dedicated aquarist to care for our marine exhibits. Every one of these investments directly honors our promise to this region. Operating year-round takes more resources each season, but your generosity guarantees our doors remain wide open to all.

2026 OPERATING EXPENSES THROUGH Q3



Thank you very much for your ongoing support as we continue to build financial and organizational capacity at the Shaw Institute.

STAFF AND BOARD

Dr. Charlie Rolsky, PhD
Executive Director & Senior Research Scientist

Emon Das, MS
Research Technician

Dani Rodriguez
Education & Outreach Manager

Johanna Barrett
Administrative Assistant

Shireen Dooling
Director of Marketing and Communications

Hana Johnson
Lead Aquarist

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Mark Gabrielson, *Treasurer*

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Tina Allen
Nell Herrmann
Martha S. Murray
Margaret Nivison
Susan Pappas

BY THE NUMBERS

17 volunteers contributed more than **300 hours**

Welcomed over **6,000 visitors** to our Environmental Education Center

125 lbs of trash removed across 2 beach cleanups

381 students served across 8 school visits

Counted over **9,000 phytoplankton**

Added **8** adorable **seahorses**

Processed **200 bacteria samples** when monitoring Maine's water safety

Engaged **over 2,500 participants** across structured programs, tours, and outreach events

Analyzed **180+** human tissue samples for plastic contamination

Mentored **5 research interns** from **4 institutions**

Collaborated with **13** Maine organizations in **9** cities

Secured **$7M+** in research funding across **3 grants**

YOU MAKE OUR WORK POSSIBLE

Thanks to generous donors like you, the Shaw Institute creates innovative research and educational tools. This work both empowers people through science education and drives research that creates meaningful change for our planet and communities. Last year's goals weren't just a wish list. From reaching classrooms across Washington County to building a stronger financial footing, real progress came from gifts like yours. This critical work depends entirely on your support. Please consider giving today to secure a healthier future for all.

Our Top Fundraising Goals for 2027

- Fund year-round educational access with continuous operations, exhibit maintenance, and community programming for our education center and touch tank through every season, not just the summer peak.
- Secure core operational support to keep pace with rising costs and sustain the organization's growth.
- Expand our customizable educational programs by funding the development of adaptable STEM curriculum and tailored field trips, allowing local teachers and community groups to build hands-on aquarium and field experiences around the specific subjects they are teaching.
- Build on this year's new exhibits. With a seahorse aquarium, a rare blue lobster, and a tank of golden shiners now drawing crowds, your support will bring even more tanks and hands-on experiences to the education center in 2027.
- Scale our laboratory infrastructure and processing power to meet growing research demands from leading institutions—including NYU, Harvard, and Arizona State University—which currently exceed our processing capacity.

Donations are tax-deductible to the fullest extent of the law.

DONATE TODAY @ shawinstitute.org/donate

If you would like to become a volunteer, let's talk. Give us a call, send us a message, or drop by.

SCAN TO DONATE!









Photo credits: Elijah Vollendorf

THANK YOU FOR YOUR SUPPORT!

RESEARCH COLLABORATORS

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Harvard University

The University of Maine

NOAA

NYU Langone Health

Department of Marine Resources

Emory University

University of New England

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