QUAHOG BAY CONSERVANCY

2024 ANNUAL REPORT

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DIRECTOR'S STATEMENT

Each year, we are motivated to expand our reach, grow our programs, and strengthen our efforts to protect Quahog Bay. We'd like to share some of this year's highlights and plans for the future.

QBC supported four dedicated interns and two post-doctoral researchers this year. Their work focused on the effects of ocean temperature changes on native species, ecotoxicological impacts on microalgae and zooplankton, and shifts in coastal fisheries. Other projects addressed microplastic contamination, invasive species, and aquaponics, in collaboration with students from Multiple Pathways Academy.

We continue to partner with institutions like the University of Maine and the Gulf of Maine Research Institute, advancing marine science while raising awareness of our initiatives. Through scholarships, we help cultivate the next generation of environmental stewards.

Our fundraising efforts, including the sale of Snow Island Oysters, directly support our programs. Partnerships with local businesses and organizations, such as Casco Bay Estuary Partnership and Patagonia, have bolstered our trash and debris removal work.

Looking ahead, we are excited to expand our research efforts with leasing space at the new Marine Research Center in Harpswell at Waddles Wharf. This facility will foster collaboration among students, scientists, and community members to further enhance marine exploration in the region.

With your support, we can continue making a meaningful impact on Quahog Bay and beyond.

Thank you!

PATRICK SCANLAN
Executive Director

NONPROFIT STATUS

The Quahog Bay Conservancy (QBC) is a registered 501(c)(3) non-profit organization. 100% of every dollar raised goes towards funding our programs and paying the staff who implement them. We are an extremely lean and efficient organization.

QBC is funded in part by generous individual donors, private foundations, and state grants. The balance of our revenue comes from QBC's sustainable oyster farm, which grows hundreds of thousands of oysters each year, selling them to restaurants and wholesale buyers.

The donated funds and 100% of the proceeds from the sale of Snow Island Oysters go to QBC's programs, ensuring that we protect the ecological integrity of the bay.

OUR BAY. OUR RESPONSIBILITY.

The mission of Quahog Bay Conservancy is to revitalize the ecosystem of Quahog Bay to a robust and resilient state for all communities that depend on it. Through sustainable aquaculture, ecosystem monitoring, and community education, we aim to conserve natural habitat, protect native wildlife, foster environmental stewards, and support Maine's working waterfront.

Quahog Bay CONSERVANCY

CONTACT INFORMATION

QUAHOG BAY CONSERVANCY
286 Bethel Point Road
Harpswell, Maine 04079
Phone: (207) 522-1105
Email: office@quahogbay.org

SCIENTIFIC RESEARCH

MARINE RESEARCH

As climate change accelerates ocean warming, scientists are investigating how marine species might adapt to these rapid changes — starting with their tiniest, most vulnerable stage: larvae. Alex Ascher, a postdoctoral research associate with QBC, is researching how larvae may contribute to rapid adaptation, especially in the rapidly warming Gulf of Maine. Many marine animals — including American lobster, Atlantic cod, and Atlantic scallop — live on the seafloor as adults but reproduce by producing thousands to millions of small, free-swimming larvae. By producing so many offspring, these species increase their chances of producing a larva well adapted to warming waters, which can mature and pass on its adaptations to its own offspring. Millions of larvae moving through diverse ocean environments could offer numerous opportunities for plasticity — the ability to change characteristics in response to environmental shifts — to drive beneficial changes that may then be passed on to future generations.

MEET OUR POSTDOCTORAL RESEARCH ASSOCIATE

Alex Ascher, ***Boston University 2017;*** B.A. in Marine Science with honors, minor in Biology. ***University of Maine 2023***; Ph.D. in Marine Biology; ***Postdoctoral Research Associate with the Quahog Bay Conservancy:***

Alex is a marine biologist with a strong interest in larval ecology and a background in lobster research. He grew up in upstate New York, but moved to Maine in 2018 to start his doctoral work at the University of Maine with Dr. Richard Wahle and Dr. David Fields, where he studied lobster, their larvae, and what those larvae eat.

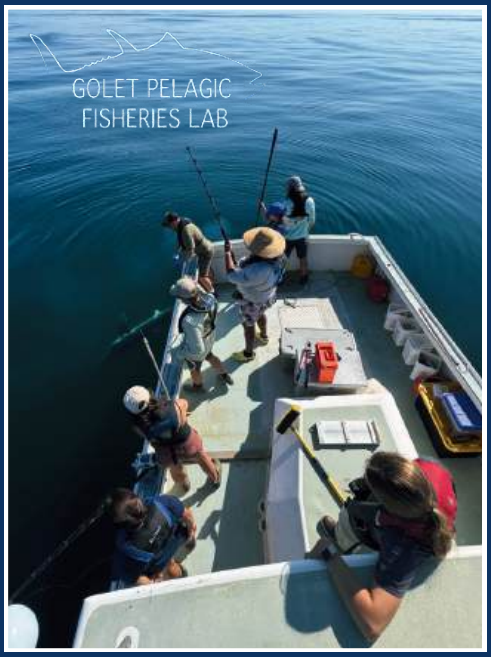
While studying at UMaine Alex spent time as a Teaching Assistant, and also mentored half a dozen undergraduates through researching and writing their capstone projects. He is eager to continue his mentorship of undergraduates through Quahog Bay Conservancy's internship program, helping students to gain hands-on experience and learn important research skills.

UMAINE INTERNSHIP PROGRAM ACCREDITATION

QBC AND THE UNIVERSITY OF MAINE

In 2024, we launched the first accredited QBC internship program in partnership with the University of Maine, allowing students to participate in a unique, hands-on, paid eleven-week internship while earning college-level credit. The course, Field Experiences in Marine Science, is hosted and managed by QBC, with oversight from University of Maine professor Dr. Walt Golet.

The QBC internship program provides students with exposure to various marine-related fields, offering hands-on experience that prepares them for success in future education and careers. By immersing interns in diverse marine disciplines, we equip them with practical skills and real-world knowledge to enhance their effectiveness. Our multidisciplinary approach empowers students to tackle complex challenges in marine ecosystems with innovation and insight, contributing to the long-term health and sustainability of coastal environments.



INTERNSHIP & SCHOLARSHIP PROGRAMS

Our mission is to engage and educate the community about the natural environment and marine ecosystems, fostering responsible stewardship of both land and sea.

QBC offers an accredited and competitive summer internship program for undergraduate students and recent graduates. Interns work alongside our team on various projects, including fishery ecosystem research, community outreach, and educational initiatives, gaining hands-on experience both at sea and in our lab. This internship is ideal for students pursuing careers in marine biology, marine science, environmental science, fisheries science, oceanography, aquaculture, or related fields.

If you need support for your project, we encourage you to apply.

For more information on internships and the scholarship program, visit our website (www.quahogbay.org) and download the requirements.

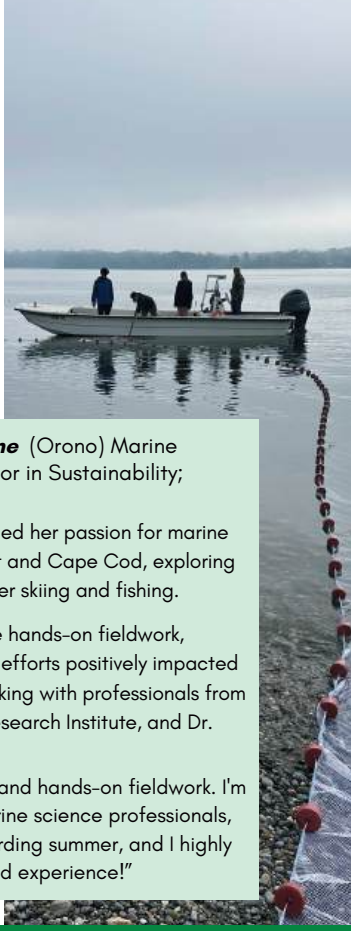
LEARN WITH QBC

Scholarship Program. In our effort to inspire future marine scientists, QBC provides funding for senior-level research projects for undergraduate students attending universities in Maine and New England. Each year, we allocate $10,000 to support student-driven marine science projects. Additionally, we collaborate with local high schools to offer hands-on learning experiences and support local students planning to attend college through our Working Waterfront Science Scholarship.

Marine Science Award. QBC is pleased to also provide support for undergraduate students conducting senior-level research projects at any university in New England. Since 2016, we have allocated $10,000 annually to fund student-driven capstone projects through the Marine Science Award (MSA). These projects should align with QBC's mission and programs, focusing on fields such as marine biology, marine conservation, marine science, aquaculture, and climate change.

To be eligible, applicants must be full-time undergraduate students in good academic standing, pursuing or planning a senior-level research project in marine science or a related field.

INTERNSHIP & SCHOLARSHIP PROGRAMS
— CONTINUED



Emma Archambault, *University of Maine* (Orono) Marine Science concentration in Biology and minor in Sustainability; ***Summer Intern 2024:***

Emma, from Western Massachusetts, developed her passion for marine science through summers on the Maine coast and Cape Cod, exploring tide pools and enjoying water sports like water skiing and fishing.

During her internship with QBC, she loved the hands-on fieldwork, especially crabbing, and valued knowing her efforts positively impacted the ecosystem. She also appreciated networking with professionals from institutions like Woods Hole, Gulf of Maine Research Institute, and Dr. Walter Golet's Pelagic Fisheries Lab.

"The QBC internship provided a perfect blend of classroom knowledge and hands-on fieldwork. I'm incredibly thankful for the people I met, the chance to network with marine science professionals, and the meaningful work we accomplished. It was both a fun and rewarding summer, and I highly recommend this experience to any student eager to gain real-world field experience!"

Courtney Swenson, *Hobart and William Smith Colleges* *(Geneva, NY);* Biology and Geoscience Major and a minor in Environmental Studies; ***Summer Intern 2024:***

Courtney, from Woolwich, Maine, grew up fishing and exploring marine habitats, sparking her passion for marine life and conservation. Her QBC internship allowed her to protect an area close to her heart while spending time on the water. Her favorite project was removing invasive Green Crabs, and she also enjoyed working on the oyster farm and assisting with the CBASS project. Courtney valued learning from field trips and networking at Woods Hole, Gulf of Maine Research Institute, and UMaine Pelagic Fisheries Lab.

She plans to pursue a marine science career focused on oceanography, applying the field, lab, and R programming skills she gained at QBC.

"The QBC internship was invaluable. I learned so much about marine science and different career paths. It was the most fun and rewarding summer I've ever had, and I'm deeply grateful to everyone at QBC for making it such a positive experience."

INTERNSHIP & SCHOLARSHIP PROGRAMS
— CONTINUED

Reuven Frye, Bates College (Lewiston, ME); Environmental Studies with a concentration in Ecology Major and a minor in Environmental Studies; **Summer Intern 2024:**

Reuven, from Montclair, New Jersey, developed his passion for marine biology through beach trips and ocean documentaries. He pursued an internship at Quahog Bay Conservancy, where he gained valuable research experience and applied classroom knowledge to various conservation projects, particularly in bivalve aquaculture in Maine. This internship helped him develop skills in experimental design, collaboration, communication, and patience. Memorable experiences included shark tagging with the Pelagic Fisheries Lab and visiting the Woods Hole Oceanographic Institute.

"The internship at Quahog Bay Conservancy was an extraordinary and inspirational experience that deepened my passion for the marine environment. I'm grateful for the opportunity and the skills I've gained, and I will always remember the incredible memories made."

Sydney Ulland, *University of Maine* (Orono); Marine Science with concentration in Marine Biology and minors in Aquaculture and Climate Science; ***Summer Intern 2024:***

Sydney Ulland, originally from Lakeville, Minnesota, developed her passion for marine science during family trips to the coast as a child. This led her to explore various aspects of the field. Her internship at Quahog Bay Conservancy allowed her to bridge classroom knowledge with practical experience, gaining valuable research and professional skills. Drawn to the program by her interest in aquaculture and the Conservancy's mission, she was inspired by their sustainable approach to protecting the bay and its ecosystem.

Sydney's favorite experiences included dissecting an Atlantic bluefin tuna, shark tagging with Dr. Walt Golet's Pelagic Fisheries Lab, and visiting the Woods Hole Oceanographic Institute. She also enjoyed days on the boat with the team, appreciating how even the toughest days could be rewarding when shared with the right group.

Looking ahead, Sydney plans to pursue graduate studies and continue expanding her knowledge of marine ecosystems through research and fieldwork. She emphasizes teamwork, flexibility, and a positive attitude were some of the most valuable skills she gained at QBC.

2024 AWARD AND SCHOLARSHIP HIGHLIGHTS

MARINE SCIENCE AWARD

Ben Gowell, University of New England; Major: Marine Science; Class of 2025

Ben Gowell received QBC's 2024 Marine Science Award. With our support, he conducted summer research using acoustic telemetry to track striped bass in the Saco River and Saco Bay. He deployed hydrophones across southern Maine to detect tagged fish, recording data to study fish movement. WIth MSA Funding Ben was able to purchase 12 more acoustic tags for his project with UNE's Shark and Fish Ecology Lab and present his findings at AFS.

Ben plans to pursue a Master's program, using this project for his thesis, with hopes to publish his findings and run his own research lab.

WORKING WATERFRONT SCIENCE SCHOLARSHIP RECIPIENT

Ella Davies *Bowdoin College*, Environmental and Oceanographic Sciences 2028

"This scholarship has helped me tremendously. I have been able to focus more on my academics and extracurricular activities without the burden of financial pressure. I've also been able to keep up and excel in my academic work with the computer also gifted in the scholarship that I couldn't be more grateful for."

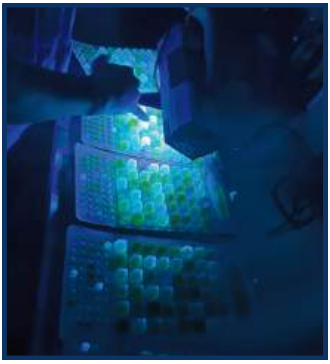
After graduating from Bowdoin College, Ella plans to pursue a Ph.D. in the field of marine science.

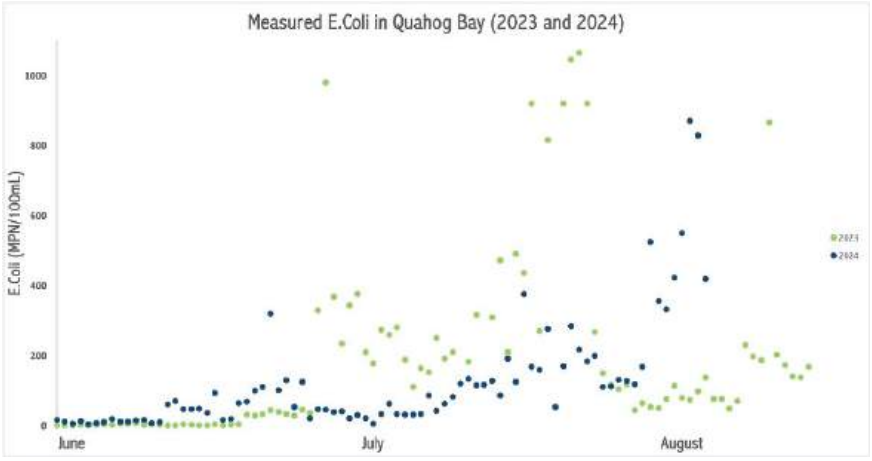
WATER QUALITY MONITORING

Each week, the QBC team visits nine different sites around Quahog Bay to gather water samples. Surface water from each location is collected, processed, and analyzed at our lab. The primary measurements taken include:

- water temperature
- dissolved oxygen
- salinity
- acidity
- conductivity
- turbidity

Additionally, we monitor total coliforms and E.coli in Quahog Bay. These measurements and observations help us assess water quality and demand for our pump out service. As you can see below, bacteria levels increased throughout the bay as the water warms and recreational use of the area increases.





CASCO BAY AQUATIC SYSTEM SURVEY (CBASS)

IN COLLABORATION WITH THE GULF OF MAINE RESEARCH INSTITUTE

The Gulf of Maine Research Institute (GMRI) initiated CBASS in 2014 to exam nearshore environments around Casco Bay, and in 2023 the project was expanded north into Quahog Bay.

This year we sampled 72 CBASS sites across 12 weeks, beginning on June 6th and ending on September 6th, and collected 216 eDNA field samples. The interns collected, identified, and measured more than 5,500 fish over the course of the summer. These fish represented 20 different species, from commonly observed species like Atlantic silverside and mummichog to species we don't expect to see this far north like crevalle jack, white mullet, and permit. We also captured the first Atlantic saury to ever be seen in the seine. Though saury are common in the Gulf of Maine, they are not usually so close to shore as to be available for us to catch.

The rainy weather also affected the environmental conditions at our sites. Our sites were on average higher in salinity this year as compared to last year. However, the average surface temperature was slightly cooler this year.

As part of this collaboration, scientists at GMRI work with Quahog Bay Conservancy to design research protocols and study topics of interest.

The goal is to provide essential information for fisheries and coastal resource management by understanding the influence of physical and biological environments on coastal populations and communities.


Garrison Cove, Harpswell

FMI on the GMRI CBASS Project, visit: www.gmri.org/projects/casco-bay-aquatic-systems-survey-cbass/

Quahog Bay Conservancy

SNOW ISLAND OYSTERS

MARINE DEBRIS REMOVAL

QBC conducts year-round patrols to remove marine debris from the bay and along the shoreline. We also collaborate with like-minded organizations and companies to help preserve and protect the natural environment.

Recently, QBC teamed up with Patagonia Freeport, Kevin Browne Architect Associates, the University of Maine, and the Harpswell community in an effort to clean up the bay following a winter and spring of record storms. This was made possible with support from the Casco Bay Estuary Partnership and our volunteers.

If you would like to schedule a clean up event with your organization, email us at office@quahogbay.org!

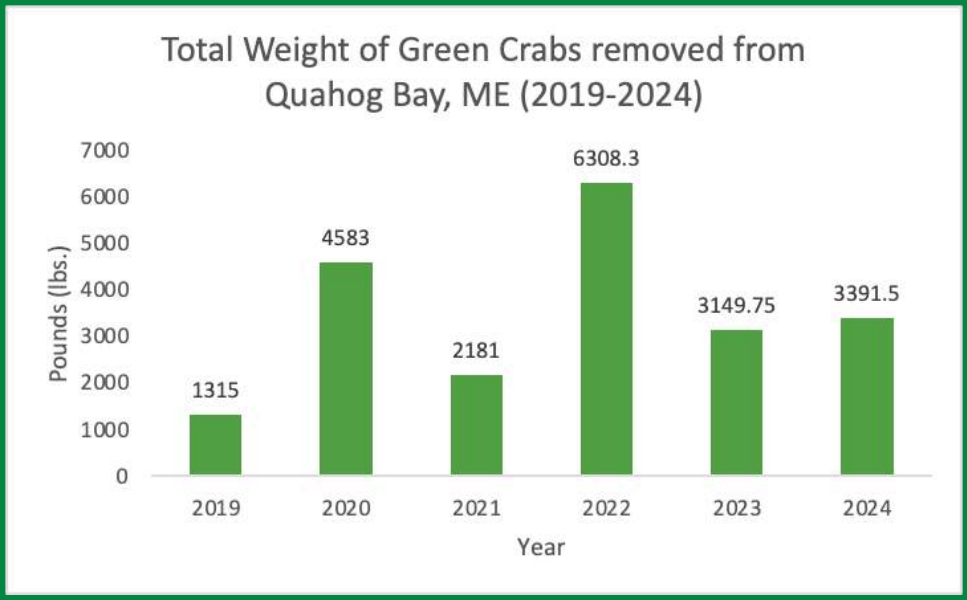
Casco Bay Estuary PARTNERSHIP

INVASIVE SPECIES

European green crabs (Carcinus maenas) are aggressive, non-native predators introduced to new environments through human activities. In the Gulf of Maine, rising water temperatures have led to a surge in green crab populations.

In recent years, this dramatic population growth has posed a serious threat to Maine's shellfish resources, particularly blue mussels and soft-shell clams, endangering the state's third-largest wild fishery. To combat this, the Department of Marine Resources (DMR) issues Green Crab Exemption permits, enabling municipalities to conduct trapping and removal programs. Through this exemption, QBC participates in green crab removal efforts without needing additional permits or landings reports. QBC remains dedicated to protecting bivalve shellfish populations and will continue to focus on education, research, and the reduction of green crab populations.

QBC continues to partner with Wolfe's Neck Farm to deliver crushed European crabs for use in their compost operations. It is then used to fertilize the fields for growing organic food for the community.



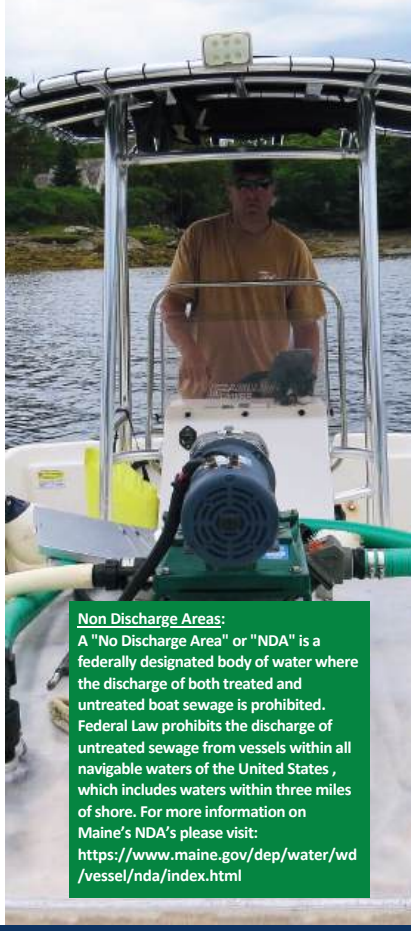
OVERBOARD DISCHARGE

Overboard discharges (OBDs) refer to the release of treated or untreated domestic wastewater into Maine's surface waters, such as rivers, streams, and coastal areas. While regulated by the Department of Environmental Protection (DEP) since the 1970s, these discharges can still pose risks to water quality.

Eliminating OBDs is a critical objective for Maine to achieve its water quality goals, consistent with the Federal Clean Water Act. The Maine Legislature emphasizes the need to:

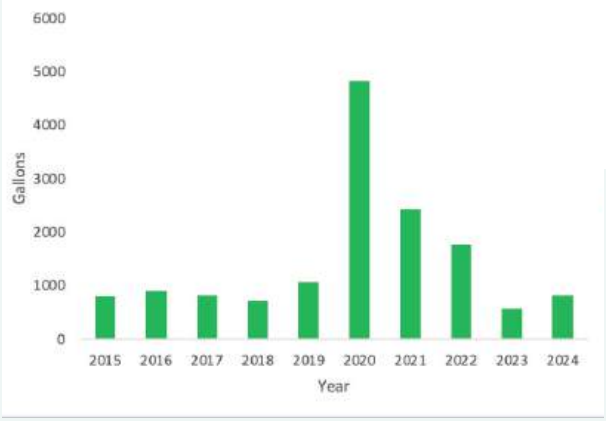
- Eliminate pollutant discharges where feasible.
- Ensure adequate treatment for all discharges to meet water classification standards.
- Maintain water quality to support:
  - Recreational activities (in and on the water),
  - Fishing,
  - Aquaculture,
  - Shellfish propagation and harvesting,
  - Wildlife protection.

These measures aim to restore and preserve the chemical, physical, and biological integrity of Maine's waters.



Non Discharge Areas:
A "No Discharge Area" or "NDA" is a federally designated body of water where the discharge of both treated and untreated boat sewage is prohibited. Federal Law prohibits the discharge of untreated sewage from vessels within all navigable waters of the United States , which includes waters within three miles of shore. For more information on Maine's NDA's please visit: https://www.maine.gov/dep/water/wd/vessel/nda/index.html

Total Gallons of Waste Pumped (2015–2024)



Total pumped 2015–2024 = 14,713.2 gallons

In need of a boat pumpout?

Call (207) 522-1105
or reach us by email
Office@quahogbay.org

Quahog Bay Conservancy

Available for service mid-May to October

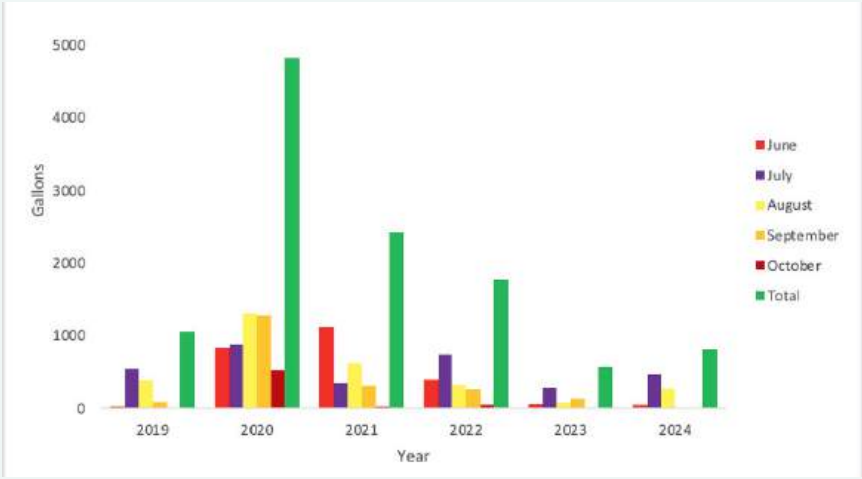
OVERBOARD DISCHARGE —CONTINUED

Protecting Shellfish Harvesting
The Department of Marine Resources (DMR) monitors and restricts shellfish harvesting areas to prevent contamination and protect public health and the shellfish industry. Eliminating OBDs improves water quality, allowing these areas to reopen.

Key Efforts in Action
QBC supports these initiatives with environmentally responsible solutions like pumpout boats, helping reduce coastal pollution and enhance water quality. These efforts promote sustainable marine practices vital to Maine's ecological and economic health.

To address OBDs, QBC operates a pumpout boat, offering boaters an environmentally responsible way to dispose of wastewater. These efforts play a key role in preserving water resources, supporting Maine's commitment to sustainable marine practices, and ensuring the long-term health of its coastal ecosystems.

Overboard Discharge Pumped (2019–2024)

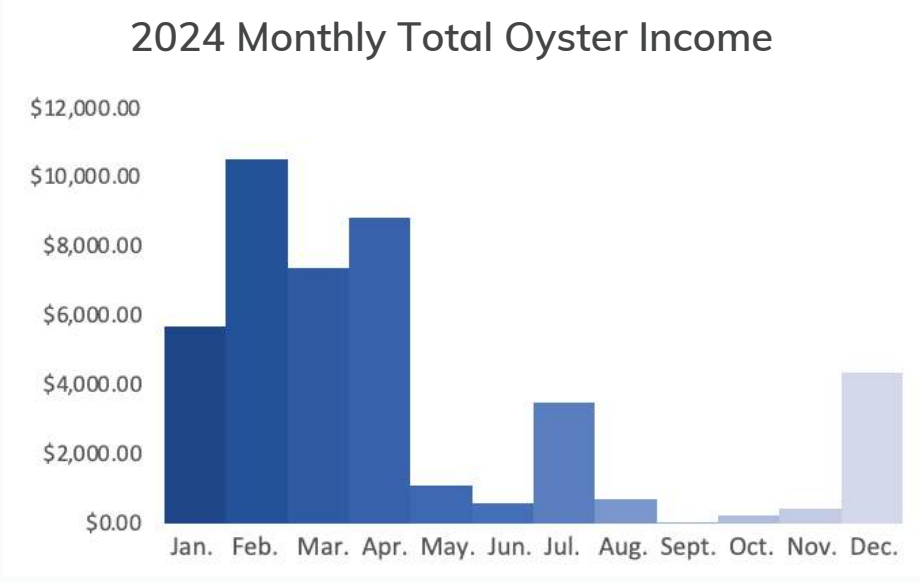


Total gallons pumped 2019–2024 = 14,713.2 gallons

SNOW ISLAND OYSTERS

Oysters are considered a keystone species due to their profound impact on ecosystems and other species. As highly efficient filter feeders, a single adult oyster can filter up to 50 gallons of water per day. This filtration helps significantly reduce nitrogen levels, limiting the growth of harmful algal blooms that can harm other marine life.

Shellfish aquaculture offers a cost-effective approach to improving water quality. Shellfish consume phytoplankton and absorb marine biotoxins, chemical pollutants, and pathogens, effectively purifying the water. They also help control harmful algal blooms, such as red tide, and promote the growth of vegetation like eelgrass by improving water clarity. Oyster farms, therefore, not only support economic growth but also strengthen the resilience and sustainability of coastal ecosystems.



SNOW ISLAND OYSTERS
—*CONTINUED*

QBC utilizes oysters not only to filter the bay but also to generate funds by selling them, with proceeds supporting additional conservation efforts.

Snow Island Oysters are cultivated in floating cages, growing by filtering the nutrient-rich waters around Snow Island and Dogs Head Island. It takes between 14 and 20 months for our oysters to reach the marketable size of 2.5 to 3 inches.

In 2024, we acquired 125,000 oyster seeds to raise as part of our ongoing aquaculture efforts.

QBC Yearly Oyster Income

2016	$6,460 & 9,900 oysters sold
2017	$40,693 & 61,650 oysters sold
2018	$45,203 & 55,705 oysters sold
2019	$74,393 & 100,255 oysters sold
2020	$9,483 & 12,286 oysters sold
2021	$234,062 & 375,918 oysters sold
2022	$53,231 & 64,775 oysters sold
2023	$30,298 & 38,173 oysters sold
2024	$42,343 & 49,994 oysters sold

OUTREACH

QBC remains committed to sharing our work with our community through outreach programs. Some of this year's outreach highlights include hosting volunteers from several community organizations, guided oyster farm tours with universities and non-profits, intern/apprentice exchanges with Wolfe's Neck Farm, elementary school marine conservation programs, and many more!

FINANCIAL OVERVIEW

The main sources of income for Quahog Bay Conservancy (QBC) include contributions and grants, fundraising activities, and revenue from oyster sales.

QBC relies heavily on the generosity of donors and grants, which are vital to our support structure. The organization also meets its financial needs through annual mailings, local events, and active social media campaigns. Revenue from oyster sales plays a crucial role in funding our conservation initiatives.

As a 501(c)(3) nonprofit organization, QBC prioritizes accountability and transparency. To uphold this commitment, our IRS Form 990s from previous years are available on our website, allowing donors, partners, and the public to review our revenue, the allocation of funds for bay conservation, and the overall effectiveness of our operations.

For more financial information please visit www.quahogbay.org

Quahog Bay Conservancy
Revenue and Expense Summary
2024 January – December

Revenue Total
$500,332

- Contributions — $457,989
- Oysters — $42,343

Expense Total
$253,501

Support Services Total
$66,464

- Overhead — $34,484
- Fundraising — $31,980

Programs Total
$187,037

- Conservation — $57,928
- Oysters — $50,912
- Research and Development — $42,617
- Education and Outreach — $35,579

NO EXECUTIVE COMPENSATION:
We are an extremely lean and efficient organization. Not a single penny goes to executive compensation because we don't have any executives to compensate.

100% of every dollar raised goes towards funding our programs and paying the staff who implement them.

Quahog Bay Conservancy

Snow Island Oysters

Quahog Bay Conservancy

OUR BAY. OUR RESPONSIBILITY.

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Snow Island Oysters

GIVE A SHUCK.