



*Special Legislative Commission to Study and Provide
Recommendations on the Issues Relating to the
Reduced Catch of Quahogs in Narragansett Bay*

Final Report

May 31, 2024

**Report Submitted to the
Rhode Island House of Representatives and Rhode Island Senate**

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Commission Members

- Representative Joseph J. Solomon Jr., Co-Chair, District 22, Warwick
- Senator Alana M. DiMario, Co-Chair, District 36, Narragansett, North Kingstown, New Shoreham
- Representative David A. Bennett, District 20, Warwick, Cranston
- David Borkman, PhD, Principal Environmental Scientist, Rhode Island Department of Environmental Management
- Jeffrey Willis, Executive Director of the Rhode Island Coastal Resources Management Council
- Dr. Marta Gomez-Chiarri, Professor, Department of Fisheries, Animal and Veterinary Science, University of Rhode Island
- Dr. Hisham Abdelrahman, Assistant Professor of Marine Biology, Aquaculture Extension Specialist, Roger Williams University
- Walter Palm, Director of Environmental Science & Compliance, Narragansett Bay Commission
- Michael Jarbeau, Narragansett Bay Keeper
- Jody King, Rhode Island Shell Fisherman
- Michael McGiveney, President, Rhode Island Shell Fisherman's Association
- Jim Boyd, Rhode Island Shell Fisherman's Association
- Mark Johnson, Rhode Island Shell Fisherman

A Letter from Co-Chairs Representative Joseph J. Solomon Jr. and Senator Alana M. DiMario

Dear Speaker Shekarchi and President Ruggerio,

We are pleased to provide you with the findings and recommendations of the Special Legislative Commission to Study and Provide Recommendations on the Issues Relating to the Reduced Catch of Quahogs in Narragansett Bay (the "**Commission**").

This thirteen (13) member Commission included dedicated professionals from various fields, including educational and environmental professionals, shell fishermen, and Narragansett Bay advocates.

Pursuant to its enabling legislation, 2023--S 1126, the Commission was convened to make a comprehensive study and provide recommendations on the issues relating to the reduced catch of quahogs in Narragansett Bay including, but not limited to:

- Nitrogen depletion;
- Hypoxic conditions - oxygen deficiency;
- Changing aquatic life; and
- Climate change.

Accordingly, the Commission heard related testimony, and studied written testimony, from the following sources that provided various perspectives regarding the aforementioned issues: the Rhode Island Department of Environmental Management (DEM), the Fulweiler Lab at Boston University, the University of Rhode Island Graduate School of Oceanography, the Narragansett Bay Commission (NBC), the United States Environmental Protection Agency, the Rhode Island Shell Fisherman's Association, and Rhode Island shell fishermen.

This final report is a culmination of eight (8) hearings that began in September, 2023 and ended in May, 2024. It contains information presented by various witnesses who testified before the Commission, as well as presentations made, which the Commission has studied.

We would like to express our gratitude to all members of the Commission for their willingness to take part in this worthy initiative and we appreciate the investment of the time and talent that they graciously provided.

Sincerely,



Representative Joseph J. Solomon Jr.
Co-Chair



Senator Alana M. DiMario
Co-Chair

Commission Findings

The following sets of findings from various Commission members are based on topics that were raised or discussed during Commission meetings, and a consensus was reached to accept the Commission's findings on April 30, 2024.

In 2004, the Rhode Island General Assembly enacted legislation that required DEM to reduce nitrogen loading by 50% to the Upper Bay from wastewater treatment facilities (WWTFs). R.I. Gen. Laws § 46-12-2(f).

In 2005, DEM implemented a 5 mg/L nitrogen wastewater effluent standard (May/October) for eleven (11) Rhode Island WWTFs to meet the 50% nitrogen loading reduction goal mandated by state law.

In 2012, DEM achieved the 50% wastewater nitrogen load reduction goal with loading from the eleven (11) WWTFs decreasing from 12,043 lbs/day as measured in 2004 to 5563 lbs/day in 2012.

By 2017, wastewater nitrogen load reductions resulted in a significant decrease of primary production of 31% in the upper Bay and 45% in the mid-Bay. Nutrient load reduction statistically improved water clarity in the mid and upper Bay and reduced summer hypoxia by 34%. Nitrogen reduction also reduced the winter spring diatom bloom, while winter chlorophyll levels after nutrient reduction have been significantly lower than before the reduction.

Since 2013, there has been a decline in hypoxia and during recent years hypoxia has been essentially absent for the moderate and severe thresholds (dissolved oxygen measured at 2.9 mg/L and 1.4 mg/L, respectively). The Bay appears to have reached a new state characterized by reduced chlorophyll levels and one that is effectively free of all but mild hypoxia during summer months.

The average nitrogen load over the 3-year period of 2020-2022 from the eleven (11) RIWWTFs during May-October is 2616 lbs/day, a further decrease of 53% from the 2012 nitrogen loading of 5563 lbs/day. Total nitrogen load reduction into the Bay from these eleven (11) WWTFs from 2004 to 2022 is 78%.

Rhode Island quahog landings precipitously declined 56% from 902,988 pounds harvested in 2012 to landings of 397,442 pounds in 2022.

The number of commercially licensed Rhode Island shellfish harvesters has remained relatively stable over the last decade with 540 in 2012 to 527 in 2022.

Average annual rainfall has increased 0.4 to 0.7 inches per decade since 1895 across the Narragansett Bay watershed. The total air temperature increase across the watershed is 2.3 to 3 degrees F (1960–2015). The total surface water

temperature of the Bay has increased 2.7 to 3 degrees F (1960-2015). In the last 20 years, there are significantly more summer days exceeding 73 degrees F. In addition, there has been a steady decrease in wind speeds and an increase in cloudy days. In summary, climate change due to a warming Earth continues to affect the Narragansett Bay ecosystem.

Changes to the Narragansett Bay ecosystem as a result of global climate change are reportedly impactful, but minimally incremental as measured over many decades. Nitrogen loading reductions in the upper Bay, however, have been dramatic (78% between 2004 to 2022) and achieved over a comparatively shorter time period.

By 2013, primary production in the upper Bay had been reduced by one-third as a result of wastewater nitrogen load reductions that started in 2005. It is very likely that primary production in the Bay has further decreased since 2013 (over the last decade) as a result of additional reductions in wastewater nitrogen loads by 50% above and beyond the significant reduction achieved by 2012. Consequently, the decline in phytoplankton (as measured by chlorophyll a) over the period substantially reduced the amount of food available for the Bay quahog resource.

The evidence suggests that the drastic decline in Rhode Island quahog landings of 56% from 2012 to 2022 may be more closely correlated to the substantial and contemporaneous reduction in wastewater nitrogen loads (a further 53% reduction between 2012 and 2022), rather than a coincidental decline as has been attributed to other minimally incremental factors, such as a warming Bay, over the same period of time.

The University of Rhode Island (URI) Sea Grant mesocosm experiments suggest that the winter-spring diatom bloom enhances the reproductive potential of quahogs. A recommended management option to potentially consider is the release of nutrients from the three big WWTFs on the Providence and Seekonk Rivers to support a winter-spring bloom in the Upper Bay. URI data indicate that release of nutrients in the winter may not cause summer hypoxia.

The evidence shows that the Bay is now effectively free of all but mild hypoxia limited to infrequent events during the warm summer months. Increasing the amount of nitrogen from wastewater facility discharges in the Providence and Seekonk Rivers during the winter months may not result in a violation of state water quality standards for dissolved oxygen in the Bay.

Annual Rhode Island quahog landings are variable and have had two peaks over the past 75 years. These periods of elevated quahog landings have been attributed to changes in the management of Rhode Island's quahog fishery (1950s) and improved water quality (1980s). The decline in Rhode Island quahog landings from the 1980s to the present is similar in magnitude and timing to that seen in other northeast states. Commercial bivalve mollusk landing in states from Maine to North Carolina fell by approximately 85% between 1980 and 2010.

Fishery independent assessments of quahog abundance via dredge surveys indicate that abundance of quahogs in Narragansett Bay proper (which includes the Upper Bay, Mt. Hope Bay, and the Sakonnet River) and Greenwich Bay have been relatively consistent at 1-3 quahogs/m² [quahogs/squared meter] for the past 30 years (1993 to 2022). Quahog abundance in the lower Providence River increased to approximately 6-10 quahogs /m² during 2015 to 2022 as compared to approximately 5 quahogs per m² during 1993 to 2013. m²

Upper Bay quahog grounds have dramatically different commercial harvest daily limits. The Greenwich Bay and Lower Providence River shellfish management areas have harvest schedules that are carefully negotiated by regulators and the industry to maintain sustainable harvest of the resource. The commercial harvest schedules for Upper Bay Area A and Area B have not been subject to similar harvest schedule management to account for improved water quality and the concomitant increase in days these areas are open for shellfish harvest.

Quahog transplant, or controlled relays, were an important part of the fishery's management when much of the upper Bay was closed to shellfish harvest due to bacterial pollution. The quantities of quahogs transplanted peaked at approximately 2,500,000 pounds/year (1954–1974) and currently stand at 44,000 pounds/year in recent years. While the magnitude of transplants seen in the 1960s and 1970s are no longer viable because there are less closed areas in the upper Bay, several evaluations of declining quahog catch have identified regular and sustained quahog transplants as an important tool for rebuilding the Narragansett Bay quahog fishery.

To address the negative impacts of excess nitrogen loading to Upper Bay aquatic life, a goal of reducing Rhode Island WWTF loadings by 50% was adopted in the spring of 2004 by the Governor's Narragansett Bay and Watershed Planning Commission and signed into law during the 2004 legislative session. Estimated nutrient reduction required to achieve acceptable Narragansett Bay eutrophication and dissolved oxygen improvements were based on studies conducted at URI's Marine Ecosystems Research Laboratory. Between 2013 and 2016, the May–October nitrogen loads from the eleven (11) Rhode Island and six (6) Massachusetts WWTFs have been reduced 62-73% when compared to the early 2000s (pre-nitrogen reduction). These reductions coupled with other watershed loading changes have resulted in drastic improvements in dissolved oxygen levels and water clarity in the Bay.

The ecosystem within Narragansett Bay is both highly complex and multifaceted. There are many potential environmental impacts regarding the declining quahog population in Narragansett Bay, including but not limited to, climate change, a changing ecology within the Bay, and a reduction of nitrogen loadings to the Bay.

NBC, in accordance with permits issued by the DEM, has invested great resources, primarily funded through NBC rate payer dollars, into the collection and treatment of municipal and combined wastewater. These efforts which include the construction of two

Combined Sewer Overflow storage tunnels and multiple upgrades to the collection system and the Field's Point and Bucklin Point WWTFs, have resulted in vastly improved water quality within the Bay and the opening of historically closed shellfish areas.

A complex combination of physical, biological, and chemical treatment processes need to be properly operated to transform highly polluted wastewater influent into a high-quality treated effluent that can be safely released back into the environment. NBC's Field's Point and Bucklin Point WWTFs, much like all other seventeen (17) WWTFs in Rhode Island, are designed to operate within specific engineered design criteria that in turn are based on facility specific permit requirements.

To address concerns regarding the reduction of nitrogen loadings to the Bay it has been proposed that Rhode Island WWTFs, including NBC, be allowed by DEM to increase current discharge levels of nitrogen to the Bay from their treatment facilities. While this suggestion seems practical on its surface, in actuality it is difficult to effectuate because the biological treatment process is so complex. The nitrogen removal processes at WWTFs are integrated into the overall biological treatment process and cannot be disconnected or turned off separately. NBC's WWTFs were redesigned with major internal tank and flow reconfigurations and treatment equipment upgrades specifically designed for nitrogen removal. Any attempts to operate these facilities other than within design parameters may produce unknown and unwanted results.

Commission Recommendations

The Commission reached a consensus to accept the recommendations on April 30, 2024.

Increase Quahog Transfer and Seeding Programs and Study Potential Shellfish Hatchery

The state budget should continue to include funding levels that may substantially increase the existing minimally-funded quahog seeding and transplant programs to more robustly enhance the quahog resource within the Bay.

Evaluate funding strategies for regular quahog transplants or controlled relays to shellfish management areas for stock augmentation.

Establish additional spawner sanctuaries in the Bay and potentially fund regular transplants to these spawner sanctuaries to enhance larval production. Location of spawner sanctuaries should be determined via a collaborative process with scientists, regulators, and the shellfish industry.

Develop a long-term quahog restoration plan for the Upper Bay. This plan could be modelled after work done in Long Island and would include stock augmentation and reduced fishing effort in selected areas of the Bay to promote an increase in quahog density and an increase in quahog reproductive potential. Coupled biological-physical models of the Bay bolstered by field surveys should be used to identify areas of the Upper Bay that are the best candidates for restoration efforts to promote quahog larvae production and retention.

Review current quahog harvest regulations and evaluate whether designation of Area A and Area B as shellfish management areas is appropriate.

Study the feasibility of funding, building, and operating a large scale shellfish hatchery with the capacity to raise quahogs (and potentially other shellfish) for stock augmentation and shellfish restoration efforts. This study should include identification of potential hatchery location, construction costs, annual operation costs (including staffing), and potential funding streams to maintain long-term hatchery operation.

Identify and protect areas that would serve as spawning sanctuaries and support restoration projects. The location of spawning sanctuaries and restoration projects should be informed by science and fishers/farmers input on site selection to target sites with the most likelihood to enhance populations targeted by commercial and recreational fishing. The success of these restoration projects should be designed to target particular biological, ecological, and social (e.g., contributions to fishing and the local economy, tourism, etc.) benchmarks, and be assessed yearly through careful monitoring to determine success in reaching those benchmarks.

Increase Narragansett Bay Nutrient Monitoring Programs and Targeted Research

DEM should potentially develop a plan to modify the discharge permits for the big three WWTFs on the Providence/Seekonk Rivers (NBC Bucklin Point/Fields Point and East Providence) to increase nutrients to support winter-spring phytoplankton blooms in the Bay.

Plan development should begin in 2024/2025 with meetings to include DEM Director (or designee), DEM Water Resources, DEM Division of Marine Fisheries, WWTF Operators, the shellfish industry, and university scientists (e.g., University of Rhode Island Graduate School of Oceanography, and Roger Williams University).

The plan should be considered for implementation after meetings are completed with key stakeholders that may allow WWTFs in the Providence/Seekonk Rivers to discharge higher levels of Nitrogen during the winter to enhance robust winter-spring phytoplankton blooms starting in 2025. Accountability and implementation of the plan should be ensured by requiring the submitting of progress reports to the General Assembly.

Explore feasibility of increasing the May-October WWTF discharge limits of 5mg/L N (perhaps 6-7mg/L N?) to improve year-round phytoplankton biomass and improve productivity and the quahog resource throughout the Bay.

Evaluate funding for a fixed site buoy network and nutrient monitoring to document changing environmental conditions in shellfish growing areas, which will provide data to support an analytical assessment of trends in water temperature, oxygen, pH, nutrient concentration, and phytoplankton pigments on quahog growth and condition in the Upper Bay.

Consider funding experimental and field studies to evaluate:

- a) WWTF nitrogen loading and climate change impacts on Upper Bay ecology, especially the formation of high biomass winter-spring bloom phytoplankton biomass and effects of climate change on benthic-pelagic coupling.
- b) The impact of reduced rain closure frequency and increased number of harvest days per year on the quahog stocks of the Upper Bay.
- c) Quahog condition (pre- and post-spawning) in historically important harvest areas of the Bay. Regular evaluations of quahog condition should be completed to develop a time series of quahog condition that is suitable for quantitative analysis of effects of climate variability, nutrient loading, and other factors on quahog condition.
- d) The distribution and fate of quahog early life stages in the Bay; Studies of the distribution and abundance of quahog larvae, quahog reproductive output, and factors associated with larval settlement selection and success; Studies

identifying linkages between N-loading, temperature, and quahog reproductive success.

Consider expansion of State and Federally funded monitoring programs that provide the background data necessary to adequately manage our marine resources. These monitoring programs should: evaluate key species abundance at all life stages (from larvae to reproductive adults), include disease monitoring, have adequate spatial and temporal coverage, and consider interactions between species and their environment (ecosystem-based approach). These monitoring programs should also be redundant, ensuring complementarity and communication between monitoring efforts from different constituents (fishers, farmers, state and federal agencies, and non-governmental organizations).

Potentially establish a fund that supports collaborative research (academia, fishing industry, non-profit environmental organizations, regulators, and community members) geared to investigate the factors driving population declines and testing of the effectiveness of potential management tools and mitigation strategies. These funds should complement other sources of funding (federal, state, and non-profits) and provide funding to locally relevant projects that cannot be funded through other means.

A potential goal would be to try and maintain nutrient loading near the Redfield Ratio (the ratio of nitrogen to phosphorus in phytoplankton).

Consider Establishing a Permanent Quahog Advisory Commission or Board Composed of Stakeholders

Consider establishing a permanent advisory commission or board composed of stakeholders that meets at least annually and is charged with coordinating and evaluating the success of efforts derived from these and other recommendations. The composition of this board could mimic the structure of the Quahog Commission, but may also include representatives from coastal communities, the Rhode Island Coastal Resources Management Council, and other representatives from funding bodies.

Appendix A-Enabling Legislation

2023--S 1126

JOINT RESOLUTION

CREATING A SPECIAL LEGISLATIVE COMMISSION TO STUDY AND PROVIDE
RECOMMENDATIONS ON THE ISSUES RELATING TO THE REDUCED CATCH OF QUAHOGS
IN NARRAGANSETT BAY

Introduced By: Senator Mark P. McKenney

Date Introduced: June 14, 2023

1 WHEREAS, A quahog is a large, hard-shelled clam, whose shells were used for many
2 years by the Narragansett people for wampum; and

3 WHEREAS, Native to the Atlantic coast, Quahogs feed on plankton, and plankton feeds
4 on nitrates, which water treatment plants can't filter out, making quahogs a natural source for
5 filtering impurities out of the water, as well as being a much sought-after food; and

6 WHEREAS, In 1987, the Rhode Island Legislature designated the quahog to be the
7 "Rhode Island State Shell" and today, the quahog industry remains a vital part of Rhode Island's
8 food industry, however, due to simply less clams, it has become a shrinking industry; now,
9 therefore be it

10 RESOLVED, That a special legislative commission be and the same is hereby created
11 consisting of thirteen (13) members: two (2) of whom shall be members of the Rhode Island
12 House of Representatives, to be appointed by the Speaker of the House; two (2) of whom shall be
13 members of the Rhode Island Senate, to be appointed by the President of the Senate; one of
14 whom shall be the Executive Director of Save the Bay, or designee; one of whom shall be the
15 Director of the Department of Environmental Management, or designee; one of whom shall be
16 the Executive Director of the Coastal Resources Management Council, or designee; one of whom
17 shall be a representative from the University of Rhode Island, to be appointed by the Speaker of
18 the House; one of whom shall be a representative from Roger Williams University, to be
19 appointed by the President of the Senate; one of whom shall be the Executive Director of the

1 Narragansett Bay Commission, or designee; one of whom shall be the President of the RI Shell
2 Fisherman's Association, or designee; one of whom shall be a RI Shell Fisherman, to be
3 appointed by the Speaker of the House; and one of whom shall be a member of the public, to be
4 appointed by the President of the Senate.

5 In lieu of any appointment of a member of the legislature to a legislative study
6 commission, created by a General Assembly resolution, the appointing authority may appoint a
7 member of the general public to serve in lieu of a legislator, provided that the majority leader or
8 the minority leader of the political party which is entitled to the appointment consents to the
9 member of the general public.

10 The purpose of said commission shall be to make a comprehensive study and provide
11 recommendations on the issues relating to the reduced catch of quahogs in Narragansett Bay
12 including, but not limited to:

- 13 • Nitrogen depletion;
- 14 • Hypoxic conditions - oxygen deficiency;
- 15 • Changing aquatic life; and
- 16 • Climate change.

17 Forthwith upon passage of this resolution, the members of said commission shall meet at
18 the call of the Speaker of the House and President of the Senate and shall select co-Chairpersons
19 from among the legislative members.

20 Vacancies in said commission shall be filled in like manner as the original appointment.

21 The membership of said commission shall receive no compensation for their services.

22 All departments and agencies of the state shall furnish such advice and information,
23 documentary and otherwise, to said commission and its agents as is deemed necessary or
24 desirable by the commission to facilitate the purposes of this resolution.

25 The Speaker of the House is hereby authorized and directed to provide suitable quarters
26 for said commission; and be it further

27 RESOLVED, That the commission shall report its findings to the General Assembly no

28 later than May 31, 2024, and said commission shall expire on June 30, 2024.

Appendix B-Meeting Agendas

These documents have been posted in the Quahog Joint Commission section of the Commissions tab of the State of Rhode Island General Assembly website:

<https://www.rilegislature.gov/commissions/pages/commissions.aspx>

1. September 19, 2023 Agenda

- Election of Co-Chairs
- Review of Senate Resolution 2023 1126

2. October 24, 2023 Agenda

- Dr. Conor McManus, RIDEM-Status of Narragansett Bay Quahog Resource
- Joseph B. Haberek, P.E., RIDEM-Narragansett Bay Permitting Requirements

3. November 15, 2023 Agenda

- Dr. Robinson W. Fulweiler, Fulweiler Lab at Boston University
- Dr. Candace A. Oviatt, URI Graduate School of Oceanography
- Heather Stoffel, URI Graduate School of Oceanography

4. December 5, 2023 Agenda

- Jim Kelly, Environmental Science, Narragansett Bay Commission
- Dr. Autumn Oczkowski, Research Ecologist, US EPA's Atlantic Coastal Environmental Sciences Division, Narragansett RI

5. January 23, 2024 Agenda

- Dr. Chris Kincaid, URI Graduate School of Oceanography
- Jason Grear, Environmental Protection Agency (EPA)
- Public Testimony

6. March 5, 2024 Agenda

- Jody King, RI Shell Fisherman
- James Boyd, RI Shell Fisherman's Association
- David Ghigliotty, RI Shell Fisherman's Association

7. April 2, 2024 Agenda

- Discussion of proposed findings and recommendations

8. April 30, 2024 Agenda

- Discussion of Commission Final Report

Appendix C-Written Testimony, Material, and Presentations

These documents have been posted in the Quahog Joint Commission section of the Commissions tab of the State of Rhode Island General Assembly website:

<https://www.rilegislature.gov/commissions/pages/commissions.aspx>

04-30-2024---Agenda Quahog Commission

04-11-2024---Benjamin Shalant Public Testimony

04-05-2024---Mark Johnson Shellfisherman's Alliance Recommendations

04-03-2024---NBC Quahog Commission Letter Findings and Recommendations

04-04-2024---RI commission wants to help quahogs, but not by raising nitrogen levels ProJo

04-02-2024-RI Current, Shellfishermen, DEM officials at odds over increasing nitrogen discharges in bay to feed quahogs

04-02-2024---Dr. Marta Gomez-Chiarri URI Proposed Findings and Recommendations

04-02-2024---RIDEM Quahog Commission Proposed Findings and Recommendations

04-02-2024---RI Shellfisherman's Association Proposed Findings and Recommendations

04-02-2024---Agenda Quahog Commission

03-12-2024---Quahog Commission Permits and Legal Authority Joseph Haberek RIDEM

03-13-2024---What comes next for RI's disappearing Quahogs Alex Kuffner ProJo Part 3

03-13-2024---Human intervention changed life in Narragansett Bay Alex Kuffner ProJo Part 2

03-13-2024---The quahog holds a dear place in RI's culture. Could its days be numbered Alex Kuffner ProJo Part 1

03-07-2024---DEM authority to issue wastewater treatment facility discharge permits James Boyd RISA

03-05-2024---RISA_JQC-Presentation_Final_030224

03-05-2024---Agenda Quahog Commission

02-29-2024---DEM DMF Quahog Commission Memo license demographics

02-06-2024---2023 RISA Quahog Seeding Report

01-26-2024---RI DEM OWR WWTF Chlorine reduction standards

01-25-2024---Rebuilding a Collapsed Bivalve Population Long Island Chris Gobler 08302022

01-25-2024---Mackenzie and Tarnowski 2018 Fisheries Review shellfish and climate

01-23-2024---Mark Johnson comments

01-23-2024---Greg Renzulli Shell Fisherman

01-23-2024---Wayne Rice Shell Fisherman

01-23-2024---Manual Sousa Shell Fisherman Tiverton RI

01-23-2024---Kincaid Quahog Commission PDF

01-23-2024---Jason Grear presentation PDF

01-23-2024---Agenda Quahog Commission

12-05-2023---Dr. Autumn Oczkowski

12-05-2023---Jim Kelly NBC

12-05-2023---Agenda Quahog Commission

11-15-2023---Heather Stoffel, URI Graduate School of Oceanography

11-15-2023---Dr. Candace A. Oviatt, URI Graduate School of Oceanography

11-15-2023---Dr. Robinson W. Fulweiler, Fulweiler Lab at Boston University

10-31-2023---Commission hopes to address declining quahog population The Brown Daily Herald

11-06-2023---Study Commission Hears Testimony About Ocean State's Disappearing Quahogs - ecoRI News

11-15-2023---Agenda Quahog Commission

10-25-2023---In Rhode Island, a hunt is on for the reason for dropping numbers of the signature quahog clam WPRI

10-23-2023---Rhode Island Shellfisherman's Association Problem Statement

10-24-2023---RIPDES Nutrient Permitting In RI Joseph Haberek RIDEM PDF

10-24-2023---M. Conor McManus Quahog Commission PDF

10-24-2023---Agenda Quahog Commission

09-20-2023---quahog depletion letter from John Murray Johnston RI

09-20-2023---Enabling Legislation 2023-S 1126

