

# **The Great Heat and the Rhode Island Deep Water Bay Scallop**

**(*Argopecten irradians*) Fishery 1875-1905**

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## Abstract

In the cold 1870s, New England had extensive bay scallops (*Argopecten irradians*) beds associated with firm bottoms clear of sea grasses but adjacent to areas thought to contain both red macro algae and coralline red algal species. Storms kept sea grasses at minimum depths but favored, it was thought, colder coralline red species in deeper waters that produced a grey sticky substance, suspected to be maerl called “Monkey dung” by fishers. Live maerl, an alkaline habitat type, also has been linked to scallop setting and spawning habitat preferences overseas.

At this time, Rhode Island had its largest bay scallop fishery in deep waters on “beds” that stretched some twenty five miles in a generally north-south direction from Mount Hope Bay south on the east side of Narragansett Bay and on the west south of the Providence River to the Wickford, Quonset Point area. Bay scallops were in waters out to thirty five feet deep. Ernest Ingersoll, writing in Section V of the United States Commission of Fish and Fisheries (1887) described this unique deep water fishery, detailing a hard bottom dredge modified with a “kettlebail” and flat blade dredge which then was termed a “scaper.”

The cold and often brutal fishing conditions were described in an annotated report about this fishery (Visel 2011). The account spoke of marine grasses covering formerly productive bay scallop beds and the “dung” between which dredge tows were often made. This grayish sticky paste of shells and sediment was noticeable to scallopers and also is mentioned in the early trawl fisheries accounts. This “dung” now is suspected to be

maerl, produced by coralline red algae which are a colder alkaline habitat tolerant species.

As eelgrass became prevalent in the 1890s during The Great Heat (1880-1920), bay scallops disappeared from these beds. By 1900, dense eelgrass meadows were thought to have covered much of this former coralline red algal habitat. The Narragansett Bay scallop fishery collapsed and ended as eelgrass life history in high heat tends to produce acidic soil conditions, not alkaline.

In fact, several historical government agency and state reports point to a negative correlation between eelgrass growths and shellfish populations during this period. Later, more primary source documents detailed the enormous growth of eelgrass meadows and concurrent declines in New England bay scallop fisheries during the 1960s.

There appears to be a direct climate (temperature) and energy link to bay scallop habitat quality and likely that an algal population's reversal from dominant coralline reds to eelgrass meadows occurred at this time.<sup>1</sup>

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<sup>1</sup> The Great Heat is a period that started in 1880 and extended to 1921. By 1905 following a period of intensive summer heat, many of the coastal cottages were built during this time, and few storms; Narragansett Bay experienced a shift in species range and dominance. A thick dense blanket of eelgrass covered previously firm alkaline bay bottoms as eelgrass meadows became the dominant vegetation type. This reversal in vegetation red microalgae thought to be *Agardhiella subolata* to eelgrass *Zostera marina* ended this deep water bay scallop fishery in Narragansett Bay. After 1860, New England experienced a cooling period and a dramatic increase in Nor'easters, powerful coastal storms which raced up the New England seaboard. These destructive storms terrorized shipping and navigation interests; the federal breakwater construction program of the 1890s followed. While the massive granite breakwaters remain a reminder of the 1870s, storms and bitter cold – The Rhode Island Deepwater Bay Scallop Fishery history had been lost.

**NACE Conference December 14, 2012**

**The Narragansett Bay Deep Water Fisheries 1870s – 1880s**

**And The Deep Water Bay Scallop Dredge**

**The Scallop Fishery – by Ernest Ingersoll**

**(Argopecten irradians)**

**Part I**

**Compiled from Historical Reports by Timothy C. Visel**

**The Great Heat and the Rhode Island Deep Water Scallop Fishery 1875-1905**

**The Scallop Fishery Page 565**

**U S Fish Commission Report Section V, volume II**

**Washington – Government Printing Office 1887**

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Note this chapter by Mr. Ingersoll, regarding US bay scallop fisheries has many sections that refer to the 1870s as much better period for New England bay scallop fisheries – this period however is remarkable for its very cold and brutal winters. The most interesting section is the one about the Narragansett Bay Deepwater Bay scallop fishery. The Bulletin shows a publication date of 1887 by ‘GPO’ Government Printing Office but the United States Commission of Fish and Fisheries Reports wasn’t available to the public until the spring of 1888\*. Several additions of quality exist – gold leaf covers, heavy embossing for members of Congress and gold leaf prints for covers, and black print for regular editions, but the content is the same. George Brown Goode was Editor. Rhode Island Bay Scallop

Fisheries are mentioned to be the largest in the country and on page 57 is found this section:

“In 1879 an immense areas of young growth was discovered about Crawford’s Island, in Narragansett Bay; yet all died off in an incomprehensible manner before fall. Speaking of this subject to Mr. Kumlien, Mr. Wilson remarked: “when they first began catching scallops about twenty years ago in Cowesett Bay there were a hundred bushels to one. I can give no theory for their increase and decrease. One year there may be hardly at all, and the next year a great plenty. I think the severity of the winter temperature has much to do with it. The year 1879 was a poor season, but this season (1880) young scallops are more plenty than ever before known.”

Under Apparatus and Methods of Capture also on page 571 describes the bar type dredge shown to me at the Wickford Campus of the URI Fishery School (1980). Note the number of dredges in this fishery is about 500.

#### Apparatus and Methods of Capture

The method of catching scallops everywhere pursued at present is by dredging. This would seem to be the only practicable way, and has been proved so, but early accounts of the fishing show that scoop-nets, usually on the end of long poles, were formerly used. This was speedily condemned, however, because it could be employed only where “scallops are a foot thick and miles in length,” as one fisherman expressed it.

Following this came the invention of the small, triangular dredge, intended to be hauled astern of either a row-boat or sailing craft. I

have never heard of any steam dredging for scallops. The ordinary scallop dredge holds from one to two bushels, but varies somewhat in form at different points along the coast. That in use in Buzzard's Bay, according to Mr. W. A. Wilcox, consists of an oval iron frame 3 ½ feet long. In front (or underneath) it is wire-netted but behind (above) is made of twine. Small sail-boats (dories) with a crew of two men fish with from one to twelve of these dredges over at once, sailing with just enough "sheet" to allow a slow headway. As soon as a dredge is felt to be full they "luff up" and haul it in, then empty and go on. If the wind is unfavorable one man will row while the other attends to the dredge.

In Narragansett Bay sail-boats, generally cat-rigged, are used, and the dredges are of special construction in two shapes. Mr. Ludwig Kumlien reports:

"The dredge for a soft bottom differs from the other in having the 'blade' adjusted to swing in the 'eyes' of the arms in order to prevent its sinking into the mud. This is called the 'kettle-bail' style of dredge. The blade will fly up instead of digging into the bottom when undue pressure is exerted upon it.

"For a rocky bottom a dredge is used which has the blade immovably fastened to the arms; otherwise it does not differ from the 'kettle-bail' and it is known as a 'scraper.'

"In calm weather a small iron-framed dip-net on a long pole, is employed in shoal water."

"The dredges are simply dragged by the boats until they are full. The large boats haul six to eight at a time; the smaller ones three, four or five."

The number of dredges thrown out at once depends on the strength of the wind. The boat sails itself with two reefs in, and is steered by the dredges. When they are full, as can be told by feeling the cables, the boatman "starts up his sheets all around," and hauls in his catch.

"At Greenwich, R.I., the scallops are "shipped loose in small wooden boxes, without ice," according to Kumlien, "as ice spoils their flavor and swells them up. They are obliged to ice those sent to New York in the early part of the season, nevertheless, but the flavor is much impaired by the meat coming in contact with the sweet water."

There is and ought to be little or no waste in the scallop fishery. The oyster-planters of Providence and Taunton Rivers justly regard scallop shells as the best possible cultch for their seed-beds and pay a higher price for them than for oyster shells. The same disposal is made of the shells accumulating at New Suffolk, "piles of which to the height of 8 or 10 feet and covering a quarter of an acre were alongside the opening houses." They are used to deposit on the oyster beds of Long island sound, and no less than 50,000 bushels, for which \$1,250, at 2 ½ cents in bushel, was paid, were sold at new Suffolk alone in 1880. One single firm in Fair Haven, Conn. Has ordered 25,000 bushels to be saved for them from the scallop-opening in 1881.

Scallop Fishing in Rhode Island page 575\* is reproduced in complete text in the appendix, but readers are directed to the entire section that contains the reference. The fishing ground lies in the channel to 35 feet in depth. This ground is known as the North Shore or Apponaug Scallop Grounds. This could be the area described me by the person whose father actually participated in the fishery, and is part of an account told to me at the University of Rhode Island and is the second part of this report. Also after 1860, winters

turned colder and storms more frequent. Into the 1870s, winters grew colder and the winter of 1873 killed most of the apple and fruit trees here in CT. Long periods of minus 15° to 30° degrees F temperatures were recorded, but at the same time Bay Scallop production in CT soared especially in the Greenwich, CT area. In the late 1860s bay scallops “suddenly appeared” as similar to areas of Massachusetts and New York Fisheries. It appears as the storms and cold set the habitat conditions for these remarkable bay scallop fisheries. The beginning of this habitat transition is often not noticed because it supported no previous harvest. So evidence of transitioning habitat types and shifts of species often comes as a surprise or gifts in time of financial hardships. Note: Ingersoll estimates 500 dredges –at \$4.00 apiece. It is very probable that a few of these dredges have survived to modern times, as that number refers primarily to the Greenwich Bay fishery. Also be aware of an earlier scallop drag found used in Chatham in 1900s it is a variant of the Nova Scotia deep water drag (see pg. 74 Making a Living Along Shore by Phil Schwind 1976 LCCCN#76-8785). It is a metal rectangle or box – the bottom a flat bar (similar to the triangle dredge and the “mesher” 10 inches above. The bar has chain mail, and the top twine manila meshes. This dredge is suspected to be the first shellfish dredges of the 1830s and 1840s. In most records the appearance of large bay scallops appears to be 1863 to 1868. This period is marked by the Hurricane of 1866 October 30 and September 8, 1869 (Lee 1980) and later 1877, Oct 4-5 and 1879 Oct 23, (Lee 1980). This is the beginning of a cold period marked by coastal energy as two as the primary indicators for habitat clock/condition to favor bay scallops. These are the habitat

conditions in which coralline and red macro algae thrive, as they contain scallop spawning and setting stimulants worldwide.

As in the later much smaller New England Oscillation (1950-1969) Bay Scallops appeared first north of Rhode Island and spread south past Buzzards Bay into Rhode Island and then Connecticut. The combination of cold and energy may act to start bay scallops habitat clock, while periods of warmth and less energy ends it. What we do (regulation) can help start the clocks (seed transplants) or lengthen it, fishing seasons spawn periods and catch limits but cannot stop it. While Rhode Island Bay Scallop Fishery was huge in 1878 by 1900 it was largely gone. The 1900 Rhode Island Annual Report of the Commissioners of Shellfish Fisheries made to the General Assembly at its May sessions 1900, Providence E.L. Freeman & Sons Printers to the State Pg 8, details the lack of any recognized scallop fishery.

“We are unable to give a very favorable account of the catch of scallops during the past year. The scallop law should be revised and made more certain, and at the same time more stringent in some respects; we hope this law may receive your early consideration.”

The sudden decline in coastal fisheries was most often assigned (blamed) on the fishers but just as quickly as they appeared under change habitat conditions they could leave also.

No regulation however could jumpstart habitat conditions, they must come first. What the report includes is the rapid rise of the oyster industry which thrives in periods of heat and little storms, (to some extent oysters and bay scallops reverse under habitat conditions) on page 7 is found this report.

“Last year we reported a very large set of oysters in our waters; the season before (1899) the set was not as large last summer as the previous season (1898) though the reports from some places were very satisfactory. According to all reports, the last set in the Connecticut waters has never been surpassed, thus benefitting the planters in this State, as most of the oysters planted here are the states of adjoining states.”

Although regulation is mentioned in the hope of improving scallop fisheries this failure is a habitat one, not a regulatory one. The climate and energy patterns (storms) was now turning against the bay scallop, it was getting warmer and storm frequency declining and more habitat change from summer hurricanes than winter Nor'easters. The truth of the matter is the bay scallop fishery died under the weight of The Great Heat, a four decade long (1880-1920) period of warming temperatures which spread north – even into Canada. While the 1900 shellfish report tells of the increase in oysters, so did our neighbor to the north- Canada. The higher heat would continue well into the teens and by 1913 temperatures of sea water continued to rise, to the delight of more northern oyster fisheries. In 1913, Commissioner of Conservation Report by Joseph Stafford, Ottawa, October 13, 1913 reports record temperatures in the Malpeque Oyster Fishery at August 13, 1909 at 69° F and Departure Bay July 28, 1911 of 75°F. These temperatures now

created ideal oyster spawning and setting conditions. Oyster populations were dense; Maine also had an oyster bloom-let under these intense heat waves. But extended heat and new dense populations dealt heavy blows to those new monocultures after reaching meteoric heights. Heat waves in 1914 would set records in the Canadian Maritimes (records that still hold today) but the heat and density related biological stress would hit the oyster industry hard as it has ours, after long periods of heat, oyster disease. In 1915, the Malpeque Oyster Fishery would become diseased as frequently follows habitat reversals, and Galtsoff Reports (1964) that 90 percent of the oysters perished then and hit mainland oysters also. Again, no regulatory intervention could have mitigated this loss as it was related to biological habitat conditions; it was hot and disease decimated these dense oyster populations. As early as the 1880s, Connecticut oyster growers posted do not buy notices for certain sections of the Chesapeake Bay as they thought oysters had diseases – they were largely correct (George McNeil, personal communication, 1980s).

Although Rhode Island shellfish reports in the teens continued to lament the loss of the bay scallop fishery, The Great heat would collapse the Lobster fishery as well by the loss of cooler kelp/cobblestone habitats, while the Rhode Island blue crab fishery soared. That greatly perplexed Rhode Island officials at the time 1904-5. The Great Heat would last until 1921, then a series of colder winters and storms changed the habitat conditions (clocks) back; by 1922 bay scallops had returned to the Cape, Buzzards Bay and in Rhode Island in 1923 the August 26 Hurricane of 1924 set the stage for Niantic Bay to see a huge increase in bay scallops again in 1925, helped by eelgrass harvesting and fishers sponsored seed scallop transplants. But most of all it was the return of cold winters that

helped bay scallops. This is the weather that was described to me by a visitor to the URI Fisheries School in 1980; 1981 bitter cold conditions. The colder water and increased storms no doubt cleaned some soft bottom habitats, raised pH and favored bay scallops not oysters; the next 3 decades would see the return of the bay scallops, but it would mean the end of the oyster industry in Narragansett Bay. The New England oscillation 1951 to 1965 would be defined by a period of cold and unprecedented storms. The cold and storms ruined the oyster industry but bay scallops came back not as thick as the 1870s but quite a reversal. By 1955, Narragansett bay-wide oyster populations were gone. Bay scallop fisheries increased. Another species would also benefit during the time of the oysters decline, quahogs *Mercenaria mercenaria*. As oyster companies closed unable to recover from the 1938 and 1950 hurricane season, Narragansett Bay men noticed widespread and intense natural sets for hard clams. The great sets of quahogs were about to reach legal size.

#### A Century Ago

The amazing bay scallop turnaround delighted shellfish officials in Rhode Island who expressed surprise if not shock, at the return following the brutal winters of 1922 and 1923, but that was precisely what the Rhode Island bay scallop habitats needed, cold and energy (storms). Their surprise at the return of the bay scallops is found on the first page of the State of Rhode Island and Providence Plantation Annual Report of the Commission of Shellfishing for the Fiscal Year ending November 30, 1923. Providence, the Oxford Press-1926, Chapter 204 of Scallop Fisheries." (Presented Rhode Island General Assembly at its January Session 1924)

## **Commissioners of Shell Fisheries**

### **AND THEIR DEPUTIES**

#### COMMISSIONERS OF SHELL FISHERIES

Edward Atchison

P.O. Address, Slatersville, R.I.

Milton Duckworth

P.O. Address, Carolina, R.I.

Henry K. Littlefield

P.O. Address, New Shoreham, R.I.

Arthur I. Smith

P.O. Address, Barrington, R.I.

Charles F. Brooks

P.O. Address, Conimicut, R.I.

#### REPORT

*To the Honorable General Assembly of the State of Rhode Island and Providence Plantations:*

(Chapter 209) "Of Scollop Fisheries."

We have probably had the largest crop of scallops during the Fall season of 1923 ever known in the history of Rhode Island, at least not within the memory of the oldest inhabitant has such a fine crop, both in size and number, been harvested as has been taken since the first day of September, and this in spite of the fact that the Winter of 1922 and 1923 was one of the most severe that we have had in a number of years. We attribute it somewhat to the fact that during the late Fall of 1922 permission was given the Free Fishermen to move under the supervision of our Deputies seed scallops from the shallow water in shore, where they invariably are winter killed, to deeper water off shore, where the chances are good that they will survive the cold weather and become strong and healthy. As we stated in the 1922 Report, about 3,000 bushels were thus moved. From results obtained we feel that the move was a good one, and the experiment, if it may be called such, has been repeated this Fall, and at this writing something over 67,000 bushels of seed have

been placed in deep water, taken from the shores, where it would inevitably die when cold weather came- more than double the quantity that was moved one year ago with such splendid results. In this work, we have received the hearty and earnest co-operation of the Association of the Free Fishermen, who have been indefatigable in their efforts to assist the Commission in conserving the supply of seed scallops as much as possible.

The scallops taken have been of very fine quality, and have opened about one gallon to the bushel, and sometimes a little more, so they have been unusually large. At this writing the crop has not all been gathered, and won't be at the time the law goes on the first of January. Estimates of the size of the crop of course differ vary widely, but taking the lowest estimate that has been made, viz., 300,000 bushels, the crop has been worth to the citizens of Rhode Island at least \$500,000.00 when taken from the water one dollar per bushel, they cut one quarter to three and one-half dollars per gallon, so that we believe that one half million dollars is a very conservative estimate of the value of the scallop crop of the year 1923. There have been 299 licenses issued to citizens engaged in the taking of scallops. They are allowed to take on any one day under the law fifteen bushels to each boat, and one bushel for each of the two men allowed on each licensed boat, or seventeen bushels per boat per day. In addition to that, any citizen is allowed to take one bushel per day without a license, and hundreds of our citizens avail themselves of that privilege on all convenient occasions. Also scallops that happen to be found on leased oyster ground are the property of the lessee, and the lessees of oyster ground have also reaped a very fine harvest of scallops which they were privileged to dredge and catch in any quantity desired, not being confined under the law to fifteen bushels per day, as the licensed fishermen are on the free ground. We have been informed that as high as one hundred bushels per boat per day have been taken and during most of the season one lessee has had as many as four boats gathering scallops from a large private bed. Our estimate of the catch applied only to the licensed fishermen. The lessees of oyster ground, and the general public were not included. The lessees of oyster ground, and the general public were not included. Scallops taken by them will add thousands of bushels to the above estimate. All of this very large sum of money has gone directly into the pockets of citizens of our own State, it has enriched our own people, and has furnished a livelihood.

State of Rhode Island and Providence Plantations

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**ANNUAL REPORT**  
OF THE  
**COMMISSIONERS OF SHELL FISHERIES**  
FOR THE  
**FISCAL YEAR ENDING NOVEMBER 30, 1923**  
AS MADE TO THE  
**GENERAL ASSEMBLY**  
AT ITS  
**JANUARY SESSION, 1924**  
PROVIDENCE:  
THE OXFORD PRESS  
1924

The Rhode Island oyster industry was dying; the same report details the lack of oyster sets and 1,618 acres of oyster leases were abandoned. The loss of the oyster industry would continue for the next 30 years. During the 1950s and 1960s cold winters with storms

usually produced good crops of bay scallops- that would end again as our winters grew milder, and summers warmer. The 1980 period to present would also be warm, and few storms also would bring back the oyster, and also the blue crab but would decimate the bay scallop and inshore lobsters populations. It has however never been as cold here again since the 1870s the height of the New England Bay Scallop productivity. But in 2004, the bay scallop has returned to more northern areas and the winter of 2011 was a 1950s winter in CT, with some 76 inches of snow; more energy and storms would improve habitat conditions for the scallop and oysters then would be expected to decline. This appears to be part of larger habitat cycle linked to climate and energy systems of which four have occurred since 1850.

The report is part of a two part report – an historical account of the 1880 Rhode Island Bay Scallop Fishery. They should be viewed together and not separately. This combined report will be sent to any Rhode Island Historical organizations interested and the explanation for the report can be found in the section.. It is more hope that some additional historical references oral accounts can be found and some dredge examples of this once huge deep water bay scallop be identified. If some of the bay scallop deepwater dredges have survived to our time, they are most likely in storage in Rhode Island historical organizations. Copies of this report will be sent to all such groups in the hope of uncovering additional fisheries history source material.

Tim Visel

**The Rhode Island Deep Water Scallop Beds 1875-1895 - Part 2**

**A Fisherman's Account - Wickford Rhode Island URI Fisheries School 1980-1981**

**Timothy C. Visel, The Sound School January 2012**

**Also see US Fish Commission Report – Part 1**

**The Bay Scallop Fisheries of Rhode Island (1887)**

**Contacts in Progress to Rhode Island Historical Groups and Societies**

It was Richard Wing my former URI fisheries engineering professor who took an interest in my interest – fisheries history. After my teaching was finished (I had just been hired for a international program at the fisheries Dept (ICMRD) to teach fisheries gear technology to 32 students from Guineau Bissau Africa; I worked on a series of historic model trawl nets – some dating back to the turn of the century. They were needed for evening fisherman workshops for both the Rhode Island and Connecticut Sea Grant programs. (Note this research work (1980) has been recently put on line by GEAR NET – The History of New England Trawl Net Design.) It was the Cruz Cotton Trawl introduced from Portugal in the 1930s and a popular design in New Bedford. I had researched and found about 50 old net plans of trawl dating back to the first Boston eastern rig side trawlers. I had shown the report to Dick Levy and he seemed surprised at the trout net design transition.

Dick was intrigued and offered a retired fisherman from Jamestown who always enjoyed talking about the past fisheries – I welcomed it. I had been mentored by such “retirees” since high school in Madison, CT they included Frank Dolan, George McNeil, Charles Beebe and many others. So the chance to talk fisheries history – my favorite topic was to good not to accept. A few weeks later, Dick came into the Wickford fisheries laboratory twine lab with an elderly gentleman and Dick carried his old shellfish dredge. I recall, at first I was a little disappointed, I had towed a similar hand dredge in CT in 1974 – a hand hauled seed oyster dredge on the Hammonasset River in Clinton/Madison before a navigational dredging project. (Move the oysters or loose them, etc) So the seed oyster dredge wasn’t that historic or different until I came closer. It was wrought iron made in a Blacksmith shop not the rebar welding dredges that my friend Lucian Simone of Clinton built for me, similar but not the same. “That’s old,” I said, he responded something like “you bet it is.”

At first, we generally spoke about oysters – my topic of interest in the early 1980s but eventually we turned the dredge I commented – it’s a seed oyster dredge – no this man replied, it looks like one but its not, it’s a Rhode Island deep water bay scallop dredge. I never heard of such a thing – and he said something to the effect and you never will again – the account – as much I can recall is a follows,

- The Rhode Island Deep Water Scallop Dredge 1875-1895, it wasn’t his dredge, I had suspected it was but it was his fathers and was about a hundred years old, towed from a cat boat (and it looked it). The round stock sections had flat hammer marks the tow eye not a perfect circle – but a bend around another round object and then hit hard to close the eye. The rings were rusted thin and remains the chain bag wasn’t linked by smaller links but elongated rings he called chain mail – each has been lapped and hammered shut – a open link but tapered so it has to longer than the rings. The scallop dredges I used in Stonington and Niantic didn’t look like this – it was a very different type of chain bag we used.

First of all it had no chain sweep, instead a curved flat tapered iron bar, 3” inch wide the curve was very noticeable – apparently this helped the dredge “seat” and resembles an old sickle blade curved and attached to the triangle from the dredge frame was tapered flat and two iron pins held the blade to the frame these were hammered flat like a rivet. About two inches below the blade was as second rivet which held a smooth 3/8” diameter smooth ring stock that held the chain mail links for the chain (ring) bag. A second round

stock located about a foot above also about 12" called the "mesher" and held the manila twine for the bag top that was consistent but he recalled the mesh was gone when he was a young boy – that makes sense manila twine even in a barn will suffer bacterial damage. But surprisingly a barn in the Hamburg Cove section of Old Lyme, CT was found largely intact the Daniels family fyke nets (about 15 total and dozens of hickory poles were found 2006) with the manila twine still pliable from the 1920s. Hamburg Cove used to be deeper (its got 8 to 12 feet of leaves in it today) and had a winter flounder fishery during the cold period before the 1880s. The Connecticut River in Essex, CT has saved some of wood hoop fykes and made a video about them.

Here on this scallop the dredge mesher rod was split and wrapped around the frame stock – hammered one under one over. I looked at it and shook it hard and the joint was still tight. But all of the 1/2 iron stock made the dredge heavy. This is when it gets interesting – it had to because they were bay scallops in deep water on the western side of the bay – I want to say off Quonset but I just can't be certain – 35 to 50 feet deep – his father fished out of Greenwich.

It was definitely this side – Wickford side of the bay – his father worked on a sail sloop, setting and hauling these dredges up to four dredges per boat – depending on the wind – he kept mentioning how cold it was then as stories told by his father, he had never used the dredge but kept it as a reminder of his father and of the bay scallop fishery back then. His comments about the scallop fisheries today were small in comparison ' "just scraps" of what it was once. And the bay scallops were different also they were bigger in the deep water, what was caught today his father called "seed" even the fishery in Point Judith Pond. He called them "Greenwich scallops" but kept mentioning that the scallop today were about half the size of this deep water fishery which was a winter time event – when this father was young (perhaps born 1870?).

What happened, it's evident that the bay didn't support those deep water fisheries today (with the price of bay scallops even then that would be hard to ignore), the response he gave was the grasses came in and ruined it. Now that was a surprise (and he didn't say eelgrass but "grasses" so I don't know if it was eelgrass or another grass) and he explained that to sail on scallops certain tows were good, and his father mentioned "tows between the dung". This I believe is the monkey dung sometimes associated in the trawl fisheries, a grayish sticky mass usually full of shell pieces which is now attributed to coralline red

algae. I had some experience with monkey dung in trawl nets but never fully understood what it was (someone called it whale vomit, but growing up along Long Island Sound, I didn't see many whales, so I doubted that explanation) until now. It was an offshore fishery and supported many boats just not the one his father fished on (not certain if this man's father was a boat owner or crew) it was a cold, harse and brutal fishery his father recalled having to survive this fishery with "all of his fingers". But he did say that scallops even then brought "a price" and his father never complained about the fishery just the conditions in which it was pursued.

When the grasses came in it covered the dung and the scallops left. They had tried to keep the beds clean but storms just kept bringing more grass in and the scalloping dropped off. After a while the fishery ended, his father blamed the "grasses" for ending it. At the end of his father's life (1950s and 1960s), he became upset with scallop fishing in the "ponds" even in Point Judith Pond because according to his father it was these ponds that provided the scallop seeds for the deep water beds, the ones he used to fish as a young man. His feelings was that scallops spawned twice not once (\*) and if left alone the following year, they (scallops) would be in the deep waters Narragansett Bay as he had known as a boy. The dredges used today were "grass dredges" designed to slip over vegetation not the hard bottom blade dredges before. I really don't remember much more, but I asked if I could keep the dredge, take some pictures, etc. He was reluctant – he had promised it to a Rhode Island Historical Society but I persisted and he left it. I used it for several years at Sea Grant Workshops in CT. I took it to Riverhead New York for a Cornell Extension Fishermen's forum; fishermen there had never seen anything like it. And unfortunately lost track of it and never returned it to him. In 1990 I left Sea Grant University of CT and they took down the building in which I used to work. I'm contacting the Sea Grant staff there to see if it is still around, but I suspect it's not the only one, in fact dozens of them may still survive. I didn't think much about this account. I have talked to dozens of fishermen in four states over the past four decades so I know how oral accounts can drift over time. The concept of three year old giant bay scallops in 50 feet of water seemed impossible at the time. That was until 1998 when my wife Pamela surprised me with a nine volume US Fish Commission George Goode series about historic fish census fishing reports. The past decade I have read and re-read them, they are a fascinating series if you like fisheries history, which I do. When I read the scallop section, I chilled as it described the deep water bay scallop fishery in Narragansett Bay in the 1870s, it's all there, what my visitor described, the one Dick Wing introduced to me. This was a substantial fishery and it was a dredge fishery, in deep water using hundreds of dredges (estimated US Fish Commission 500 dredges).

So, the chances are very good that one or more of these antique deep water “blade” dredges still exists. For example, in many of CT Antiques Store along the coast you can still purchase antique blacksmith eel and flounder spear heads. The problems with these dredges is they were heavy, and perhaps had the blade not been there could have been converted or reused in the ponds as scallop dredges. (The newer dredges have chain and net, a bar and were according to this man, pond or “grass” dredges, not hard bottom dredges). Perhaps some of them survive in barns, like the wood hoop fyke nets of Hamburg Cove mentioned earlier. I feel bad that I never returned the dredge but good about one thing he wanted people to know how his father caught scallops a century ago. (\*) He was not alone, in the 1950s (Niantic Bay, CT) according to Paul Kumpich, a deepwater bay scallop fishery from Niantic existed and about a third of the scallops had a second growth ring but only the scallops in the deep waters had this. The local lore about double growth rings continues in the Niantic area to this day. It might signify a second spawning event – not certain, but perhaps only in the coldest of weather and the deep naturally cooler bottoms.

So I’m writing this account up and sending in it to Rhode Island historical groups to see if another dredge or similar account exists. To be honest, I didn’t pay that much attention to the account at the time, it was so different than my own scalloping experience. I kept thinking that hauling up a scallop dredge in the bitter cold from 35 to 50 feet of water was almost impossible. I hauled hand seed oyster dredges in 8 to 12 feet of water with my brother Ray and that was hard enough. That was before I turned my attention decades later to habitat histories and the impact of energy pathways and climate temperature upon shellfish and finfish habitat quality. Now what I realize is that this man was describing to me-- exactly the habitat conditions of The Great Heat 1880-1920 a period of brutally hot summers, more vegetation, record fish kills and the collapse of several cold water species including lobsters, bay scallops. That would reverse the intense storm filled and bitter cold period of the 1870s a period in which New Englanders felt the Ice Age had returned.

This account of the cold water, deepwater bay scallop fisheries makes perfect sense now and confirmed by the US Fish Commission Reports. I’m certain to one of more of these iron hard bottom deep water scallop dredge still exists, perhaps confused with a seed oyster dredge or pond scallop dredge, it is the bar (without teeth) that makes the difference. It’s also possible that the bars were removed and re-equipped with chain.

If anyone has ever seen or knows of the existence of this type of scallop dredge please email me at [Tim.visel@new-haven.k12.ct.us](mailto:Tim.visel@new-haven.k12.ct.us). As for which historical society he intended the dredge to go I am not certain so I plan to reconstruct this account and combine with the George Goode accounts of the Narragansett Bay fishery and send it to all of them.

That is my long overdue thanks for his time that day.

(\* See similar bay men accounts in the salt pond and bay small trawl net flounder fishery, keeping the bottoms clear of vegetation improves bay scallop fishing).

UNITED STATES COMMISSION OF FISH AND FISHERIES

SPENCER F. BAIRD, COMMISSIONER

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**THE FISHERIES**  
AND  
**FISHERY INDUSTRIES**  
OF THE  
**UNITED STATES**

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PREPARED THROUGH THE CO-OPERATION OF THE COMMISSIONER OF FISHERIES

AND THE SUPERINTENDENT OF THE TENTH CENSUS

BY

**GEORGE BROWN GOODE**

ASSISTANT SECRETARY OF THE SMITHSONIAN INSTITUTION

**AND A STAFF OF ASSOCIATES**

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**SECTION V**

**HISTORY AND METHODS OF THE FISHERIES**

IN TWO VOLUMES WITH AN ATLAS OF TWO HUNDRED AND FIFTY-FIVE PLATES

VOLUME II

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WASHINGTON

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1887

THE SCALLOP FISHERY

PAGE 575

SCALLOP FISHING IN RHODE ISLAND.- The next scalloping ground is in Mount Hope Bay and Cole's River, Massachusetts, on the eastern side of Narragansett Bay, for information in regard to which I am indebted to Mr. Ludwig Kumlien. The best grounds in this neighborhood lie between Gardiner's neck and Warren's Neck and for a short distance up Cole's River. The number of men employed there was reported at about twenty-five, seventeen of whom were "cutters," or those who open the shells as fast as they are dredged and extract the edible portion. This force was divided among eight boats. The season here begins September 1 and lasts until the weather becomes too cold and stormy for work. The product for the year 1879 was estimated by Mr. Kumlien's informants at 8,000 bushels, equal to 6,000 gallons, which sold at 60 cents, and so realized \$3,600, or \$150 apiece, on the average, for those engaged. Two-thirds of this catch was sent to New York, the remainder going to Boston, Fall River, Mass., and small neighboring towns. Complaint was made that much of the catch in 1878 had to be thrown away, since there was no market for it. The investment at Cole's River in this business Mr. Kumlien sums up at \$1,040, giving \$640 as value of sailboats and \$400 as value of dredges and other implements. I think this is too high, however, and prefer to make the sum \$800.

This brings me to perhaps the most important scallop fishery at present on the whole coast – that of Greenwich Bay, Rhode Island. There is said to have been some catching near Pawtuxet, in Providence River, but, if true, the fishery has not yielded anything of late to amount to much. The only beds of value, therefore, are to be found in Greenwich or Cowchuset Bay, an indentation of the western shore of Narragansett Bay. There the scallop beds, according to a map furnished by Mr. Ludwig Kumlien, are as follows:

I. About Chippanogset Island, at the western extremity of Greenwich Bay, extending about one-third of a mile from the island shore. These are considered among the best of all the grounds.

II. On the north shore, the beds begin near the mouth of Apponaug River and extend eastward, reaching out into the bay from a quarter to half a mile for a distance of about 2 miles, then extending southward in a curve as far as the channel, and opposite Spring Rocks, on Warwick Neck (where the beds seem to stop). The fishing ground lies in the channel to 35 feet in depth. This ground is known as the North Sore or Apponaug grounds.

III. On the south and east shores of the bay are found the most extensive and profitable beds. These begin about one fourth of a mile north of Potowomut Rocks in about 13 feet of water, extend eastward to the channel, and then curve gently southward, going outside of Hunt's Lodge; in fact, they may be said to take in almost the entire flats west and southwest of the main channel. These beds also extend southward as far as Quanset Point, a distance of about 5 miles, but not south of Pojack Point. The grounds are of little value in comparison to the Greenwich Bay beds proper.

The Chippanogset grounds are considered to be the best, as they seldom give out. When this occurs the remainder are sure to be of no account.

It appears that Greenwich Bay has not always been the home of scallop and scallop fishing. In the East Greenwich palladium of November, 1867, some quotable statements appeared.

"Only a few years ago Cowesett Bay . . . contained but few scallops or oysters. Clams and quahaugs were from time immemorial abundant along its shores . . . Some six years ago it was found by a few fishermen that large quantities of scallops had planted themselves upon the sand-bars and grassy flats in the bay, and that they were approaching a size suitable for table. The next year they were taken in small quantities. Subsequently the scallop fishery was carried on extensively, employing, perhaps, fifty boats and nearly one hundred men from September to May. Hundreds of bushels were caught daily, cut out, and sent to order from all points of the compass to market. Many thousand gallons were disposed of last year . . . at prices that well paid the fishermen."

Later, it was said: "the scallops have had to retreat from the bay to a great extent. . . . A new bed of 50 acres lying between Warwick Neck, the Middle ground, and the Spindle, in the shape of a triangle, has been discovered, where the scallops are large and plenty, and where every pleasant day a score of boats may be seen."

My information is, that in the winter of 1879-'80 there were ninety boats in the fleet. But Mr. Kumlien, relying upon the estimates of Mr. William Wilson, a large dealer, gives the number of boats as eighty, and intimates that additional boats from Massachusetts and elsewhere often dredge in the bay. These boats are nearly all cat-rigged, there being only two or three sloops and several small sharpies. At an average valuation of \$150, they would sum up \$12,000 as a total.

To man these Greenwich boats and "cut out" the meats employs about one hundred hands, twenty-five or thirty of whom are women and girls. This is in 1880; in 1879 less were employed in catching, but nearly double the number in opening for market. The previous year (1878) was an unusually good one in this business, and Mr. Wilson alone employed about twenty hands.

There are several methods of conducting this fishery here. The man who owns the boat may catch for himself or on shares with his companion. Shippers often furnish boats, dredges, etc., and pay various prices, at a certain rate per bushel, from 10 cents upwards, according to the abundance or scarcity of the stock. The opening is rarely done in the boats, since the throwing over board of the offal and waste matter (here known as "gauch") is considered injurious to the beds, and the practice gives an opportunity for fraud under the State law, as is charged against some Providence craft. Moreover, there is sale for the shells to neighboring oyster planters, to be used as "stools" for oyster spat to catch upon.

A law of the State of Rhode Island alluded to, specifics in respect to Greenwich Bay that not more than 15 bushels of scallops shall be taken by one boat in one day and only between the 15<sup>th</sup> of September and the 15<sup>th</sup> of May.

Restricted by this law and the circumstances, the catch of Greenwich Bay during the six active weeks in the autumn of 1879 was closely estimated at 24,000 bushels. Mr. Wilson considers this equal to 24,000 gallons, but I think they would hardly measure so much, and would prefer to say 20,000 gallons. At 60 cents per gallon (which the fishermen consider too low to be profitable or encouraging even) the value of the catch would be \$12,000. The bulk of the scallops caught here go to New York, but Providence,

Newport, and Connecticut towns receive small but regular supplies. They bear a high reputation in all markets.

To the value of the boats must be added five hundred dredges, at \$4 apiece, making \$2,000 and about \$500 for other accouterments. The total floating capital invested in the scallop fishery here is, then \$14,500.

At Wickford, R.I., there live a few scallopers, and three boats are owned; but these have been included in the statistics of Greenwich Bay, where they do all their fishing.