

**Bay Scallop Genetics and Transplant Programs**

**To Niantic Bay, 1916 to 1935:**

**An Historical Account**

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## Bay Scallop Report For Dr. Sheila Stiles

### Abstract

For years I was told accounts of spring “fresh sets” destroying young of the year oysters set and seed bay scallops, *Arogopecton irradians*. In the Guilford, Madison area, several “wonderful” sets of seed oysters were killed by prolonged spring rains and runoff, reducing the salinities in the estuaries below lethal tolerances for the Eastern oyster – *Crassostrea virginica*. The same was true in Clinton and Niantic about spring floods killing and sweeping the Bay scallops away. One such account for Bay scallops describes a spring fresh set in Niantic during the late teens. What started as a pure resource replenishment activity gradually turned into a breeding or genetics effort. Scallop fishermen (or more properly termed “small scale” commercial fishermen) fished the “seasons” as they had for decades – even hundred of years. Only the implements or fishing gears seemed to change. In Niantic Bay, one of the most important seasons was Bay scalloping. Here the tasty smaller version of the offshore “sea scallop” (*Placopecten magellanicus*) inhabited coastal bays (thus the term) and provided a fall season fishery between the summer fluke and lobster and the late fall winter flounder tub trawl fishery. It is this small boat, inshore fishery that interested me both as a participant and historical accounts. From this information, I was able to learn the Bay scallop is extremely sensitive to runoff and water quality in general. Accounts in the Colonial literature describe Bay scallops in western Connecticut, but as the watersheds altered with development and increased flows of industrial and sewage effluents entered them, these fisheries and populations had retreated east as the water quality declined. Norwalk and New Haven scallops had disappeared before the Civil War. By the early 1900’s, the only areas that still had sizable fisheries were Middlesex and New London counties. Here scallops were found in Clinton, Old Saybrook, and Niantic Bay and in several locations along the Groton and Stonington coasts.

This report describes a fresh set that in the late teens had apparently eliminated the Bay scallops from the Niantic Bay. Familiar with the concept of transplanting seed oysters into areas that previously contained few or no oysters, attempts were made to “replant” (similar to agricultural practices), with a hope that the Bay scallops would “stay.” After some initial success with transplanting seed scallops cast upon the shore in Massachusetts, discussions centered about “inbreeding” and a desire to introduce Bay scallops from several different locations. Which did happen and large yields as measured in thousands of bushels occurred. Although no direct correlation could possibly be made today, fishermen at the time believed increased catches were a direct result of “mixing the breeds” and noticed the distinct and uncommon color variations of the resulting seed populations of evidence of success. (The predominant color in Connecticut had been dark reddish brown). What complicates the account is that the highest Niantic Bay catches were recorded during a period of the eelgrass blight of the 1930’s. Indications of lower water quality/nutrient levels and possible eutrophic conditions abated as the thick blankets of eelgrass subsided allowing better water exchange and possibly higher dissolved oxygen levels in the seawater.

Regardless the presence of eelgrass wasn’t as highly regarded to scallop fishermen as with the scientific community. Although the presence of eelgrass was associated with

Bay scallop environment good tidal flow and clean clear bottoms is what scallop fishermen looked for. They often mentioned this fact, high scallop catches during the blight that perhaps too much eelgrass was just that too much!

I was not aware at the time that in the 1950's and 1960's eelgrass got so thick. "It stopped the tide" and in one federal project dynamite was used to clear these choking beds.

In December of 2006, the University of Connecticut Sea Grant hosted an Aquaculture Conference and exhibition. During the conference, I spoke with Dr. Sheila Stiles of the National Marine Fisheries Service about some of her genetics research concerning our Bay scallop.

The attached report is the result of some conversations about bay scallop genetics and the nutrient enrichment and change in habitat indices associated with the bay scallop.

Report to Dr. Sheila Stiles, NMFS, Milford, CT  
January 2007

After a Sea Grant workshop about die offs of eelgrass next to Camp O'Neil for the Shellfish Restoration/Management program for the Waterford/East Lyme Shellfish Commission, I was approached after the meeting to speak privately with a retired, commercial Bay scalloper.

It was 1984-1985. [This was not an unusual occurrence, since oftentimes retired fishermen attended these workshops, based upon personal interest; they had stories to tell if someone would listen.] I said, "certainly," and after all of the questions had been answered, and nearly all of the attendees left, I went over to the gentleman and his granddaughter. This gentleman was in his 80's and had a sight problem and his granddaughter had driven him to the meeting.

After introducing himself to me, he asked that the conversation be between the two of us only. I agreed, and his granddaughter left us alone in the East Lyme Meeting Room. We each took a seat and he said, "I don't want my name mentioned." I solemnly agreed.

"I did some things during prohibition and my grandchildren don't know...do you understand what I'm saying?" I did, and I responded that this information would be used in a fisheries history, but no names would be used. He took my hand and shook it.

"I'm holding to your hand and word, Mr. Visel." I accepted and answered him; he had my confidence.

First, he liked the workshop about Niantic Bay ecosystems, but felt it was too late. He told me that the ecology of the bay had changed tremendously from when he was a boy, and even when his father had fished Niantic Bay.

"The bottom is gone, and what little good bottom is left, is getting smaller every year. But, that's not what I want to talk about – I want to talk about scallops and my father, who was one of the first scallopers in the Bay.

"When my father scalloped," he continued, "we used to push pull nets, a metal frame with netting and a long pole. The scallops were in the channels and over the sand was best – less *picking* -- all the weed and shells out. We didn't use hand dredges until outboards were available later on. The scallops were good for us – lobstering was slow in the fall and the hotels still had summer boarders,

so prices were good. The flounder arrived the first week of December – so scallops got us into the fall when other fishermen were slow.

“Around the time I was born, (I’m thinking it was 1900 – 1905), the bay produced a lot of clams and flounder. My father used fyke nets made from manila twine; it was a type of trap. Later we would bait tub lines (tub trawls) to hook the flounder. Fykes had gone from use. Scallops were plentiful every year. But, in the teens, portions of the upper bay bottom died and turned black. This is when the scallops started to decline. It got harder to push/pull; also we had more weeds, leaves and sticks. In the late teens, we didn’t have scallops two years in a row; this was after two years of heavy rains. My father thought that all the scallops had been washed out of the bay. I didn’t think that was possible, but we couldn’t find any adults or seed. After the second year, my dad announced, ‘we have to make our own scallops.’

“Before I knew what was happening, I was raking seed scallops from a beach in Westport, Massachusetts. Seed scallops were everywhere and they would have died. Together we got twenty-five bushels of seed scallops and brought them back to the bay. Next spring we had scallops, but not a lot. We brought in more seed in the fall. My father told some of the other fishermen and we waited to see what would happen. This was in 1920. I think in the following year, 1921, we had a bumper crop of Bay scallops. We didn’t get seed if we had a lot, so it wasn’t until 5 or 6 years later all the scallops disappeared again. By this time, talk of ‘seeding’ again was discussed. Also, for the first time, concerns about bringing in ‘new blood’ – if cattle could become inbred, what about scallops? This time we got seed from Westport, Massachusetts and Cape Cod. I don’t know what towns --and the Islands (Martha’s Vineyard). Since we had trucks leaving the bay for Boston, to carry ‘goods’ for bushels of seed scallops for the return trip.

“When my father opened the bags, he brought samples of them for us to look at. The scallops had similar shells but the colors were very different. Our scallops were reddish, brown and dark brown, but Cape scallops were all orange or clear (white) and yellow – we just didn’t see these colors here. The Island scallops were the most different, they were striped like an oriental fan – we could really tell these were not from the bay. After some discussion, it was agreed to dump all of them into the bay. The following year, the seed was tremendous, and we had a crop that hadn’t been seen in years. Needless to say, we continued our “trades” as long as the trucks kept going to Boston.

“We were encouraged by the harvest of adult scallops with stripes and brilliant colors – we knew the ‘new blood’ had mated and spawned (sort of what was happening with mercenaria). After prohibition, the trucks stopped and no one wanted to risk transporting seed – we never went public with it, but the harvests

were good in the 1930's, so we didn't think about it much. By the time World War II broke out, many of us fished out of Stonington, or were in the service or in factories for the war effort. In the forties, many of us would scallop part time, because we just wanted to. Just a few were full time fishermen, less than 10, and flounder had declined in the bay. Many bought larger boats and gave up the small boats. The 1950's we had grass (eelgrass) everywhere, so we started to use the lookers (scopes and dip nets). In the 1960's, the eelgrass was very thick and large portion of the bay turned soft. It got so thick it stopped the tide. The government starting using dynamite to blow it up, and we noticed many spots had deep muck where we used to fish. We considered eelgrass the reason why scallops left – it was just too much and choked the bay. I know that the eelgrass is dying, but I think it's from other causes; the bay has certainly changed in my time. I think you should know the best years we had was when eelgrass was nearly gone from the bay and the bay bottom was 'clean' – by clean I mean large patches of sand and shelly bottom—it was firm. Today, silt from the land has made the bay bottom soft, and much of the fishing is gone.

"I don't know if this helps your current research, but we (the scallop fishermen) didn't care too much for eelgrass – it would make raking difficult, it blocked the sun and choked off the tide. We were happy to see it go. That's why I came to the workshop today."

This is the "story" about the Niantic Bay genetics effort; I don't know if it helps your research. One interesting fact is that during the height of the eelgrass blight, catches of Bay scallops soared on the Cape. This was confirmed by some of the retired commercial shell fishermen I met on Cape Cod during the early 1980's. Clint (John) Hammon of Chatham told a very similar story about thick eelgrass impacting scallop fisheries. At one point, Clint hired some students to run one of his boats to cut the eelgrass free, so it would leave the Oyster River in Chatham. After the eelgrass was cut, it provided better water exchange and scallops (fishing) improved.

## **Niantic Bay Estuarine Quality**

**D.E.P. Public Hearing Comments by Tim Visel**  
**July 9 1986**

**Re-keyed on October 2006**

PROPOSAL:

The regulations of Connecticut State Agencies are amended by adding Section 26-159a-8 as follows:

(NEW) Section 26-159a-8. Winter flounder.

The taking of winter flounder by any method from the waters of the Niantic River upstream from the highway bridge on Route 156 during the period December 1 through March 31 is prohibited.

COMMENTS:

A staff member of the University of Connecticut Marine Cooperative Extension Service observed that he was also very concerned about the winter flounder populations in the Niantic River.

"I have been working with the East Lyme and Waterford shellfish Commissions for two years. There has been a major die-off of (eelgrass) algae near Camp O'Neill. We have examined it, and it would seem the cause is a brown algae of a filamentous type that is blocking sunlight so it cannot reach other plants. I agree there has been a significant change in the vegetation. I believe it is related to a more serious problem, and that is the accelerating eutrophication of our estuaries, and I would like to direct the DEP to two 'side studies,' not yet completed. One, we are finding that the buildup of organic matter on the bottom is very acidic and can produce fin rot in flounder. Secondly, there seems to be a greater abundance of algae and higher oxygen debts due to the increased buildup of organic matter on the bottom. I feel that we should look at dissolved oxygen content and eutrophication of the sediments. I don't believe this has anything to do with the (Millstone) sampling program."

The staff member of the Sea Grant Program further noted that, over the last few years other states have experienced environmental degradation of their salt ponds and coastal rivers, and have totally lost their flounder resources. Also, three salt ponds on Cape Cod have gone completely anaerobic, two on Martha's Vineyard, and several large salt ponds in Connecticut have been lost; Holly Pond is one of the largest ones.

"I think we should initiate a habitat restoration program. You can turn some of these areas around. There has been some work done by Clyde MacKenzie down in New Jersey, where he found a strong correlation between pH, shellfish beds, organic matter, and flounder. I think we have lost a lot of our shellfish beds in this state and we have lost a lot of flounder habitat, too."

From: Sheila Stiles [sstiles@clam.mi.nmfs.gov]

Sent: Fri 3/23/2007 3:51 PM  
To: VISEL, TIM  
Cc:  
Subject: Re: Report about Niantic Bay Dive Survey Results for Scallops in Stonington  
View As Web Page

Dear Tim,

Thank you so much for the very interesting and historical report about bay scallops. There certainly are important lessons to be learned from the past which might provide some hope for the present and future. If you can find additional documentation, I would like to read it Also, if you have any suggestions based on this information and other stories, please let me know.

Thanks again for sharing this valuable information.  
It also was a pleasure to see you at the NACE meeting.

Sheila

VISEL, TIM wrote:

> Dr. Stiles it was good to see you at the NACE conference in December. I was sorry to learn about the Stonington Dive Survey yielded only 4 bay scallops last fall.

>

> I promised you a report about a significant bay scallop "genetics effort" by local shellfishermen in Niantic Bay in the 1920's. Apparently fishermen had participated in some aquaculture seeding programs by themselves to increase fecundity. The person who came up after one of my workshops wanted to tell me about it and to be honest I did forget the man's name – but I do remember the story.

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- The part about the clear or clean areas was confirmed by scallops in New York, the Islands, the Cape (Chatham) and Westport. All noticed scallop fisheries decline when the bottom went "soft" and clean areas became grassed over. If you want some more references about this I can dig them up for you – just let me know.

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> Tim