

The History of Madison's Finfish and Shellfish  
Industries

The Bauer Lecture Series - February 21, 2009

Native American Fisheries of the Connecticut  
Shoreline

The Sound School Regional Vocational Aquaculture  
Center

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Programs

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## The Sound School Regional Vocational Aquaculture Center

By the time Columbus set sail for the New World and what was to become America, change had already occurred here. After all, the New World was home to very organized cultures and societies before discovery. While one society was fragmenting because its agriculture had failed to sustain the carrying capacity of its population, the other was experiencing agricultural stability and growth. In both, the new and the old world populations recognized the importance of fish and seafood. One only needs to look at Madison's Town Seal, which has a picture of a "white fish" - a member of the herring family called *menhaden*.

Important to the Colonial merchant fisheries, it was a critical resource to the Hammonasset Indians that resided here. Agriculture it seemed was a stabilizing influence, but also raised the importance of seafood with it. That is not a coincidence; the hunter/gatherers for 400 years in Madison found that 50% of a hunter's circle lay over water. Therefore, shellfish and finfish were critical to providing the sustenance to a more stable lifestyle, a new fishing/farming society was emerging along New England's

coastline. Long before the Lords Sayle and Brook's arrival at the mouth of the Connecticut River, shellfish/finfish had become a staple in the diet.

One of the features of this change was the establishment of camps - semi-permanent seasonal villages especially in coastal areas, while planted crops such as beans, squash and corn (maize) matured fishing became an important life-sustaining activity. Previously, many researchers felt that groups, after utilizing all the quickly and easily consumed resources, moved on to new lands. The practice of slash and burn agriculture is a constant reminder of this resource-depleting activity. But the reliance upon fisheries was something different; it created a future at least in how it related to fisheries. What evidence do we have of this cultural and societal change the anticipation future of fisheries - fishing gear manifested by the construction of stone/brush fish weirs in our town and along Connecticut's coastline.

The construction of fish weirs in itself is an anticipatory act: it requires a future possible harvest in a given location. The concept of future resource use but perhaps not "ownership" at first. Ownership or harvest rights often comes with an effort or work which is the building of a brush fish weir. They required several

important processes, organization and collection of labor, materials, prior knowledge (observation) and trial and error or a fisheries history. Today, we may call them successful fishing "spots" and fish "runs."

While some groups continued a resource harvesting and largely migratory existence, evidence exists that others planned to depend upon certain fisheries year after year. Excavations for the Boston Public Library for example, unearthed the remains of huge brush/stone fish weirs that showed several generations of building and rebuilding. A fisheries history therefore, indicated a pattern of work that only an organized and anticipatory culture could sustain. They rebuilt the weir each year with the anticipation of fishing success pure and simple. That created the need to become keen observers of seasonal and natural events.

What does this tell us about the Native Americans who lived here before us and how they utilized fish and shellfish in their lives? We do have some clues left us by their presence and early Colonial records about what they fished for. Locally, they were termed the Hammonasset, a group that inhabited our shores, planted crops and built fish weirs. Their villages or camp made them more sedentary and less nomadic, but limited the carrying

capacity from purely hunting and gathering. This semi permanent population by its very nature, tended to maximize the use of natural resources within a given boundary or range. Agriculture compensated this depletion, and fishing made it possible to undertake agriculture; you needed both to survive. Thus, an early perhaps cultural break took place between those living inland and these tribes living along the coast.

In our town, several references refer to two large yet distinct communities of Hammonasset - perhaps branches of a single family - those who inhabited the "Neck," i.e., the Neck River road area and those who lived at the "Plains," an area that encompasses Hammonasset State Park and much of the west bank of the Hammonasset River, north of present day Route 1. A farming/fishing existence is documented and natural resource availability made more stable in coastal areas. You did not need to chase after oysters and clams as compared to early hunting. One of the richest and predictable resources were the migratory fish such as andromous runs of menhaden or "bunker," smelt, alewife and shad, our state fish. The latter made its way up into Madison's creeks and rivers to spawn.

We have good historical and oral accounts of these fisheries. A 1962 CT Board and Game Report in fact said that the Hammonasset could be considered a "cold water" river and sustained salmon runs - not large like the Connecticut, but significant habitat existed for them here. A cold-water river is one that is primarily fed by ground water and glacial aquifers and that tends to be cooler and even "cold" (as compared to warmer surface waters) providing the ISO thermal instant temperatures necessary for salmon reproduction. Rivers like the Hammonasset are scarce in New England, and fisheries biologists fifty years ago became concerned about newer road surfaces warming the water and creating thermal pollution into the Hammonasset. So, it seems very plausible that shad and salmon both came into the Hammonasset until its watershed was altered to harness mechanical energy to run mills. The paper mill in the Green Hill Road area, for example, blocked fish that sought to return here, but that dam was breached over a century ago. To restore fish to the Hammonasset, the state built (1920's) a hatchery at the upper reaches of the salt-water tide wedge at the River Road Bridge. Today you can still see the remains of the old hatchery on the Madison side north of the bridge.

Links from our fisheries history can provide a glimpse of one of our first Madison residents. We have written accounts from Guilford, the first Colonial established "town." Native Americans could be found at all times of the year, but the winters here were particularly brutal. Even the settlers at times doubted that New England winters could keep them alive and sometimes unfortunately they did not. It is hard to describe to my students what it was like without refrigerators or cold packs and to depend entirely on smoking, drying, brining with salt and earthen burial to preserve foods. Their eyes just glaze over. The link to the past is just too long.

When you examine what areas were good to support and maintain populations you need three basic items; shelter, food and climate stability. Climate was the big unknown, thus it became very important to know as much as could about it. The written "survivor" accounts of the Blizzard of 1888 can attest to this fact that you had to be a keen observer of natural events or the natural sciences. Reliance upon the land necessitates this; planting too soon and your seeds could rot in icy wet soil; planting too late and your crop could fall victim to a relatively short growing season as many gardeners today painfully

experience. The same could be said about returning fish runs to our shores: first came the smelt, then shad followed by salmon and finally the alewife. This was a great food source after a long New England winter and sustained Native Americans so they could go and prepare the soil and gardens for agriculture. Without the fish, I doubt that the amount of native American populations that Henry Whitfield described could have stayed here.

Hunting was poor along the shore and those areas that were productive were closely watched. But coastal areas also provided a great advantage - food availability and most importantly stability. The food was stationary, such as clams and oysters or fish returned to the shore at certain times. Thus it could be reasonably estimated that the fisheries were the key to coastal populations that turned to agriculture and plant matter construction - materials or food. This annual return to shores and planting crops made communities more sedentary and less nomadic, but limited the carrying capacity of hunting/gathering; new techniques such as fish weirs would be required. This tended to maximize the use of resources within a given boundary or range. Rivers often became the dividing lines or defined edges, limits of communities and families. In our town, two major branches of the

Hammonasset - those who lived at the "Neck" and those who lived upon the Hammonasset plains, most of which is Hammonasset State Park today. Both lived in areas with rich shellfish and fish resources. The "sett" ending, it is theorized, signifies catching of fish or areas which are fished. One only has to look at names and places with the ending which frequently were shore areas: Hammonasset, Patagansett, Narragansett or even Massachusetts. The ending "sett" does appear to be significant. In the Algonquin language family, the "sett" ending is nearly always associated with water and the "aug," associated with shellfish or fish such as Pochaug-oysters/shellfish - Westbrook; Quonochentaug - blackfish spot; Coginchaug - fish place, where drying and curing occurred; Apponaug - where oysters/shellfish are roasted. My research is to determine fishing practices and fisheries while examining the efforts the fish gear/methods themselves. We have some great examples of this today in our language - tautaug (blackfish) and quahoag (quahog) hard shell clams are reminders of the first shell and fin fishers.

What made the Neck Road and Hammonasset areas so attractive? Well, for the very reason early Colonial settlers sought them out- cheap, good food. These areas were close to rich sources of seafood: to the Sound,

schooling fish, seals and porpoise; to the north into the estuary, clams, oysters, turtles and tidal fishes. The soils, left by the most recent glaciers were thin, but usable, with help. The practice of fish fertilizer tells us two things; first, a good understanding of husbandry trial and error, and secondly, they had a lot of fish in the spring and using it was agriculturally quite effective and rewarding. Witness the last two decades, the practice of using fish emulsion and fish soluble for soils has dramatically increased its great plant nourishments, and the Native Americans who lived here knew it.

One of the coastal conditions we do not consider today is biting insects, mosquitoes for example. We have some records that indicate occupation, springtime and early summer, then a period to middle August of absence, returning by the so called "Indian summer" for the fall and until the first snow fall. Early oral histories often tell of fierce biting insects; for instance, Hammonasset Point was called Mosquito Point until the turn of the century. No one wanted or could live there during some times of the year, our own coastal wood fly season. So, planting could have occurred with fish obtained from herring runs in the spring and then return in August during the dry period when insect populations are lowest, fishing

and then harvesting the squash, maize and beans. This is quite possible? Fall is the harvest season, and we also know that in the fall, a sort of seafood thanksgiving occurred in the form of a huge ceremonial "clam bake," a tradition that continues as part of our seafood use.

When Hammonasset State Park was being developed, the remains of such a ceremonial fire pit were discovered as the first storage shed/facility was constructed. An eyewitness was amazed at the size of the fire pit, some 30 feet or more in diameter and about 15 feet deep. What perplexed the builders was absolutely no sign of its previous use was visible until the ground was disturbed for the foundation. But Madison has other incidences of archeological discoveries, and the Neck River Road area has yielded several Hammonasset Native American burials in recent times. In addition, a huge oyster shell midden was uncovered north of the Griswold Airport by the old Route 1 Bridge in the 1950's. Artifacts continue to be uncovered by construction or erosion.

One of the ways we can learn about Native American fisheries is to look at how they were caught. In our area of Connecticut's coast, a type of gear evolved that was in response to seasonal migrations of fish. These migrations or runs were of limited length but immense in size. A

natural display of musical chairs occurs in this case returning salt-water fish ready to spawn, all seeking a spot in the fresh water creeks and rivers. Today, it is still an annual event although at a much reduced level. At one time, smelt, herring and alewife returned to Madison in substantial numbers, to Tuxis Brook, Neck River, Fence Creek and Madison's border rivers, east Native Americans called *Kuttowo* and *Hammonasset* Rivers.

These runs are detailed in several publications available on our school website: [www.soundschool.com](http://www.soundschool.com) under *Publications*, then *Directory*. Rather than review three publications here I will review the fish traps in our area to focus on Native American fish brush weirs. The first paper on shad fishery details some of the cultural significant sites at Hammonasset State Park; the second paper is titled Evidence of a Native American Brush Fish Weirs about fish weirs and lastly, the Trap Fisheries of East Guilford, which talks about the nineteenth and twentieth centuries trap fisheries in Madison for menhaden. The following paper was written for a Heritage Day event last year at the Sound School. It contains a couple of recipes for conch chowder, a Native American favorite. Many wampum beads were made from conch shells and not the hard shell clam, which has the scientific name of

mercenaria or money, merely a reminder of when these shell beads were associated with commerce. Finally, the use of these types of fish traps in North American has almost been extinguished. A few can still be found in Canada.

Declining fish runs, pollution and habitat modifications have taken their toll on the inshore fisheries. What we have today in no way can compare to what was here 400 years ago. Several groups are looking at restoration of fish ways and installing fish ladders to make possible herring and smelt runs again (Hummers Pond). Therefore, the purpose of today's presentation is two fold, first an opportunity to explore the fisheries before Madison was "Madison" and secondly, to provide an historical description of these Native American brush fish weirs.

I hope you will find it interesting.

#### **Appendix - 1**

**The Sound School Regional Vocational Aquaculture Center  
Timothy C. Visel, Coordinator**

**The History of Madison's Finfish and Shellfish Industries  
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- 1) Madison Commercial Fishing in 1970's - habitats and early Native American fisheries later important

fisheries for early settlers UCONN and people who helped with Marine Advisory Program - Land Trust Exchange Club Alewife/Shellfish Commissions, State Dept of Health.

- 2) Clean Water Healthy Marshes - healthy fisheries - you can really see that from the air - Aerial Views Madison and Marsh Systems - estuaries production for fish/shellfish large expense of intact watersheds/marshes. Madison all shellfish waters open until the 1960's - 1970's for direct or "certified" shellfish but water quality has declined in recent years.
- 3) Smelt Alewife and Shad - Shad Bakes - Native American Fisheries  
Shad slides - The First Shad Fishery - Colonial fisheries simply replaced Native American fisheries. Several were important to Madison - migrating herrings, shad, fish roast - Roe - Hammonasset river pits found for seafood bakes. Conflict in the East River with the Quinnipiac other smelt/alewife runs - the right to build a herring weir.
- 4) Alewife Restoration into Hammers Pond - Important to Native Americans Stone Weir - Remnants found in Tom's Creek Hammonasset State Park - smoked smelt long haul seines along the beach. Smelt arrived a few days before the alewife. Smelt were caught with dip nets, gill nets and seines.
- 5) How Madison got its seal - Menhaden fisheries fish oil fertilizer menhaden or "White Fish" - Jelly Fish Reports - Night fishing to empty traps late May/June. The area between Hammonasset and Guilford Harbor formed a counter current and created natural place for the herring (mossbunker) white fish to group Wilcox handout Walton Trap Net. Designs - Brush Weir in Clinton Harbor. Long Haul Seines used along Hammonasset Beach in three locations (E. Miller). Wood pile "cartways" and corduroy roads were built over the sand.
- 6) The Indians River flounder fyke nets, George McNeil Oystermen  
South Cove Fish Brush Weir Publication flounder fykes basket and types

Oyster and Flounder a Habitat Association. The "Indians" River, fyke nets for flounder still in use up until the 1970's in Rhode Island.

- 7) The Bay Scallop - Clinton and Madison had bay scallops up until 1950's - Scallop Board - Dardanells. Changed in Cedar Island. Native Americans ate scallops but early settlers did not. 1888 blizzard changed that and soon people realized scallops were good especially on Cape Cod. Clinton Harbor was a large producer of bay scallops in the early 1900's
- 8) The Madison's Oysters - Trade name and brand in New York City  
East River - Restoration Project - Mitigation to Navigation - Projects Army Corps of Engineers.  
Neck River - Management Slides - Oyster reef buildups.  
Fence Creek Aquaculture - seeding and oyster growth  
Tom's Creek - Flounder Habitat - Wayne slides of young flounder  
Tongs and seed oyster dredges - natural growth and planted beds.
- 9) Soft Shells Clinton Harbor  
Indian Dish - steamed with broth "Nassaup" - soft shell clams were the chowder hard shell clams were smoked for the winter use - while soft shells were dug at low tide - bull rakes, oyster rakes with oyster forks - push/pull long handled (hickory) to wood rakes were used in deeper waters.
- 10) Hard Clams - Madison 6,000 Acres of Area - once all clean "certified." 6,000 Acres - Shellfish map and Madison's oyster ground history. Clam Chowder - bull rakes and tongs Native American brush rakes push/pull. Steamed clams an important food source.
- 11) Hard clams were important to Native Americans they would string them on green briar or berry branches and smoked them, loss of shellfish from high bacteria counts, but eutrophication caused oxygen depletion and organic mucks often bury shellfish habitats - run off from land and development. Madison had the largest piece of open water in the country. Most of hard clams in deep waters offshore, 10 feet to 20 feet deep in the Madison reef area.

- 12) Dowd's Creek - Loss of Salt Pond Habitats so critical to Native Americans Nitrogen storm water runoff and closures. Loss of glacial salt ponds at Hammonasset by filling. State Park Shellfish and Finfish resources once much greater than they are today. Salt ponds were especially productive during colonial times.
- 13) Meigs Point Nature Center - Indian Campsite - Cultural aspects of renewable resources - Hammonasset the fishing tribe. All types of fishing gear seines, traps, weirs, pots, lines, and nets. Many quartz points "fish points" found along the beach. Program to educate the public on relationship between native people and resources at Hammonasset. Carrying capacity of the environment and ecosystems. Interactive programs about finfish/shellfish resources. Proposal to the Indian Affairs Council 1983-85.

Questions / Thank you.

## Appendix II

### What Coastal Native Americans Fished For

#### Sound School Heritage Day

Timothy C. Visel - January 2008

The coastal tribal people of New England, especially Connecticut, participated in a great variety of fisheries, both shellfish and finfish. It is difficult to imagine the former productivity of these coastal fisheries today, so much has changed and the last four centuries have not been kind to them. Some are gone (The Connecticut Salmon Run failed in 1793) and last year (2006), the alewife herring and river smelt were closed (prohibited) in Connecticut. Most of the resource loss can be attributed to our activities and how we treat the resource in general. Eight years ago, I attended a resource management seminar at Yale University, one of the speakers commented on resource dependency as a social and cultural one. In summation, his remark was something to the effect that "people who no longer depend on a natural resource are destined to lose it." At first, I found the statement harsh, but the more I study early Native American and Colonial fisheries; I have come to recognize its simple, yet powerful message.

What we know about Native American fisheries can be found in Colonial reports and oral history. We know just from so many Native American words for fish and shellfish here in CT, they were important and essential for survival in the harsh climate of what was to be called New England. They waited as fishermen today wait, for the return of migratory seasonal fisheries, the weakfish, striped bass, mackerel and herring. Other fisheries just were unattainable in cold weather, like tautog, a strong but good tasting reef fish. Winter Ice prevented most fishing activities even for those bottom sessile organisms such as oysters and the much then favored hard shell clam - the Quahog. Early spring brought the arrival of the freshwater spawning, ocean dwelling fish, such as Salmon, Shad, the herring and smelt. These fish returning from the ocean to spawn were a welcome relief to the dried and smoked seafood from the fall.

What we do know is that seafood, crabs, lobsters, shellfish and the "true fishes" were much more abundant and seasons

relatively short. It got colder quicker, and stayed colder longer. Those types of winters here in Connecticut are fast becoming a distant memory. We also know about how fish were caught, not unlike today with some noticeable exceptions. In general, Native Americans along the coast waited for fish to come to them; if anything has changed, the fisheries here and their sustainability have been the transition, from passive to active fishing methods. Today, we don't wait, we take the fishery (hunt) to them with power and motor driven vessels; this has changed the nature of fishing, often with poor results. Over fishing has become the unfortunate outcome of many species. The Atlantic Halibut, once a huge inshore fishery was over fished in the 1860's and hasn't come close to its earlier production levels. Some biologists feel the Atlantic Halibut may never recover. West Coast Halibut stocks are better managed and have recorded substantial fisheries improvement. It is recognized that Native Americans had four basic types of fisheries (excluding hand/feet, such as mussels, conch, clams and gathering seafood cast upon the beach after storms.)

Trap fisheries - weirs and traps, basket traps for eels and lobsters - all herring, especially smelt and shad, early form of fyke nets (Tom Cod frost fish)

Net fisheries - fishing nets made of natural fiber, for weakfish, striped bass, mackerel and shad, some gill nets, but mostly seine - long haul type, some resemble "tangle nets."

Spear and hook fisheries - included here are flounder, tautog, eels, striped bass, lobsters and blue crabs, turtles, salmon.

Rake and lift fisheries - oysters, bay scallops, clams (both hard and soft), scoop like devices that were hand-operated called push/'pull in Connecticut

Some reports mention a hook and line fishing for codfish, but this has not been confirmed. (Niantic Black Point Area)

## Connecticut Native American's Fish Uses

### Shellfish

Conch - a broth/stew - strong flavor - gathered after storms on beaches. Also traditional wampum - long beads from shells. Came close to the beach in the fall could have been trapped with fish as bait.

Mussels - steamed meats - some smoked mild flavor - handpicked off rocks and cooked in clay pots. A long and cold winter could make mussels scarce.

Lobsters - roasted/baked earth ovens covered with hide or seaweed trapped in open top baskets, pots, speared in creeks. Very plentiful and grew to enormous sizes.

Clams - Quahaug, Quahoug hard-shell, round clams raked in shallow bays and creeks, cooked meat - much smoking cooked over rock ovens or baked. A favorite as food and a source of commerce beads- wampum still reflected in its Latin designation Mercenaria, mercenaria (money).

Clams - soft-shell - broth/stew, mixed with corn, often vegetable, the first true "chowder." Large clay pots and boiled to create sickishuog a sweet boiled chowder and broth that became "nassaump" thickened broth in which to dip bread and also used as a salt substitute.

Oysters - raked and forked (wood), cooked meats, smoked meats, roasting on rock ovens, also bake in dirt below ground ovens - harvested from tidal reefs and offshore bars in shallow waters. Raked and forked (wood) - a staple for Connecticut tribes. Especially the Quinnipiac, Hammonasset and Niantic tribes.

Salmon- roasted (planked) slow cooking over open fire - some also smoked. Today, still possible to purchase this type of preparation - planked cedar/salmon west coast or the east coast planked shad in the Essex, Old Saybrook area. Traps, seines, spears. (Roe consumed / cooked with pieces of animal fat). (Salmon has been extinct, last natural run in 1793).

Farmed Aquaculture Salmon or fresh salmon (West Coast) is today the available species)

Shad - roasted (planked) slow cooking over open fire - a slow cooking process helps soften bones - a problem with most herring, once part of traditional fish bakes here in CT (learned from Native Americans in coastal CT), but only exists in Essex and Old Saybrook where a commercial fishery still exists, traps and seines - see publication (The First Shad Fishery); roe consumed with nuts and boiled with some acorns in clay pots.

Smelt - roasted open fire - small but delicious fish thought to be extinct in CT waters, although some reports from eastern CT late 2007 claim schools have returned to Stonington waters, most smelt were caught in fine mesh gill tangle nets and brush weirs set in tidal creels/rivers. Sometimes partially rotted smelt were boiled to produce fish oil. The heaviest and smelt runs were in Western Connecticut. The smelt fishery is now closed in CT.

Alewife herring - roasted, but mostly salted in brine and smoked; strong flavor, most often stored high flesh oil content (European was similar, dry salted or pickled). Evidence use as dog food and fertilizer, especially in the growing of maze corn. Dried and stored for winter use and some fish soup, rendered for fish oil. The Alewife Fishery is now closed in CT.

Mackerel - dry salted/smoked, although certainly consumed fresh. If bled, mild taste, if left to rigor, blood in results in a strong flavor - bluefish like, great smoking and salting fish, seines and traps, stops seines used in some coastal coves and Niantic Bay.

Tautaug, Tautaug - Blackfish uses not known, but a great firm fish, mild flavor most likely caught by hooks (wood & bone) - can be broiled, poached, and fried. This fish is mentioned as a Native American favorite and the name still continues!

Eels - uses not known, many feel smoked although frequently mentioned as cooked fresh (oil content is high in adults), smoked eel is considered a delicacy in Europe - Wood spears - try holding on to one of these; some small basket fykes in the Niantic Bay area.

Flounder - dried and salted, good fish to dry, evidence that dried fish was ground to a paste and mixed with vegetables to form a cake that was cooked on boiling rocks. Fish is thin, high surface contact area made it the fish of

choice to brine "salt and dry" limited gut cavity reduced chance of spoilage; compare with dried salted cod, still available today when boiled makes a great fish stock/soup. Caught primarily with spears, but perhaps hooks also. Colonial fisheries mention hand lining for flounder, in many areas of CT coastline. Some reports also mention the use of tangle nets in shallow coves and bays.

Striped bass - Most likely, steamed or baked, it is a relatively large fish to roast, but it's possible. A firm white flaky texture, its great flavor and schooling ability made it a targeted seine fishery here and in Massachusetts. Some reports include of dry salting to be preserved for winter consumption. Seine nets, possibly arrows and tangle nets were also used. Many reports of Massachusetts seine fisheries for bass can be found in the Colonial literature. They most likely resemble the "long haul seines" in the 18<sup>th</sup> and 19<sup>th</sup> centuries here in the Connecticut Shad Fishery.

Weakfish / Squetteague Sea Trout - a beautiful fish, a seasonal favorite for taste, a late summer visitor to CT, flaky white fish flesh, softer than bass, steamed, baked perhaps roasted. Its fish flesh did not lend into itself to smoky or drying. Traps, fykes, hook and line and tangle nets were most likely used (similar to striped bass).

Bay Scallops - steamed, baked, or roasted on rocks, Bay scallops have a firm sweet muscle that pops out of the shell when cooked; could be raked or scooped with pole like "grabs." Niantic Bay has evidence of huge number of bay scallop shells in middens. Periodic abundance recorded in all coastal bays and coves. Limited populations are still found in Niantic Bay, but catch is off 95% of historic levels. Only a few native CT bay scallops still exist.

Turtles / Snapper & Terrapins - Shells can be found in every historic Native American camp and village. Used for food and implements, sometimes referred as "nature's bowl" in Connecticut. The Terrapin (marine inhabitant) held a special if not religious/ceremonial use. Turtles were much valued and prized for the delicious meat and conflict over catches was common. That occurred at the East River in Guilford between the Hammonasset and Quinnipiac. Terrapin fishing is prohibited today.

Later, New Haven would become a major collection and shipping point for Marine Terrapins and Snapping turtles

from fresh water. In fact, advertisements for New Haven oyster growers would often place Terrapins above oysters in the newspapers. Both turtles were sold to city markets, especially New York City that sold braised turtle strips sautéed in red wine or placed meat into a highly spiced tomato based stew. Terrapin turtle soup became so prized that much of the terrapin's former range was eliminated almost to the point of extinction. Here in Connecticut they were caught in basket traps very similar to the Native American ones from tidal creeks and rivers. By the early 1920's, terrapins became so scarce that they soon became the highest priced menu item. One interesting story relates how Manhattan clam chowder came into being. A famous New York City restaurant, not wishing to take the turtle item off the menu and disappoint patrons, as shortages were common substituted, chopped quahog clams into the prepared spiced sherry tomato base. The patrons loved it and as the story goes, a tomato clam chowder was born and is still called "Manhattan" clam chowder today. Its popularity, however, never really spread much beyond the metropolitan area.

Blue crabs - steamed, or baked. A seasonal visitor to CT shores and a favorite for the "Indian Summer" ceremonial bakes along the shore - Caught by spears and basket traps set in tidal creeks. Remains of the shells/claws are common in uncovered shell heaps called middens.

Scup (Scuppan) - a small but tasty fish that likes reefs and rocks (pan fish). A strong bony fish of near coastal areas would be primarily a hook and line fishery. They love clams and gathering bait wasn't a concern back then. Because of the bones, it was most likely cooked whole and eaten "off the bone." They can be very abundant so it's possible to catch quite a few in a relatively short period of time, in 10-20 feet of water. Hook and line only, but during migrations, some most likely ended up in brush weirs set along the coast, like those described in Old Saybrook. Some reports include a roasting process on thin sticks held over open fires.

**Heritage Day - Quinnipiac Tribe -  
Student Demonstration Activities  
Seafood and Fisheries - Cooking in Stove/Dirt Ovens**

The Quinnipiac were one of a host of coastal tribes like the Hammonasset, Niantic and Narragansett that depended on local fresh seafood.

The question about dirt ovens (and some evidence exists that they were lined in stone), are the reverse of the "bakes" for seafood as a fire was built, lined with seaweed and food placed on top to "steam" the food. Dirt (stone) ovens had the fire on top that burned down to cook the food by conduction.

To construct one, which I have done, a small rectangular pit is dug 30 inches deep by 40 inches long, and 30 inches wide; it is lined with a flat stones, seafood placed on top of the rocks, and covered with flat stones. Seafood is cooked by lighting a fire on top of the stones and letting it die out. The ashes are then raked out, and top stones removed with care, as they are still very hot: the stones carry the heat to the bottom of this "dirt oven" and cook the food. It's a little by chance and you can overdo it as I found out once with "toasted corn." It's a great way to cook fish, but I cheat a little and wrap it in tin foil (helps keep the sand and dirt out). I also have cooked a mean succotash with maple sugar (also a Native American favorite) consisting of lima beans, corn, and green shucked beans with bacon covered with clam broth. To do that, you need a thick "stoneware" crock and lid. I think I gave you already the information on the shad bake roasting process. This way corn soaked in water (leave husk leaves) and shad wrapped in tin foil can be cooked below the flames while students can use the fire itself to flame / broil cakes. See conch potato cakes below as an alternative activity.

**The Sound School Heritage Day  
Cooking Demonstration -  
Students Capture (Conch Traps) and Prepare Conch Chowder  
  
Conch Chowder - Or Ground Conch in Pancakes - Hearth Oven  
Demonstration**

Introduction:

Most people have never tried conch - often called the forgotten shellfish - but if they did it was most likely a soup or chowder. Several variations exist: a red tomato base salad or a highly spiced tomato soup. Several distinct dishes can be found in Florida. Here in Connecticut and other New England areas it is commonly found as chowder. Conch is a large marine snail that feeds on other shellfish such as clams and mussels or fish and even crabs when they can catch them. Native Americans consumed them in large quantities and found, no doubt, captured them near over soft shell clam beds in shallow tidal salt ponds or coves. To many it tastes like sweet corn.

Today conch inhabit deeper waters and must be trapped although after very severe storms they can be washed up on the shore, sometimes in great quantities. Conch is sold and cooked alive similar to other "shellfish". A fleshy "foot" extends beyond the shell and in times of stress is drawn up into the protective shell cavity itself covered with a hard plastic "pad" or natural "shield." Black fish or tautog is a common predator of the conch although edible opportunities out of the shell are rare. (It does make a great long line bait for tautog) Many people remember finding the necklace of egg cases, the very distinctive plastic like string of eggs each case with perfectly formed conch inside. They sometimes wash up on the beach after a winter storm. Conch can be purchased at large seafood markets as it has become somewhat of a specialty item in recent years. Conch should move slightly when tapped, a sign that it is still alive - if the meat falls from the shell before cooking - discard it. It has a long shelf life and when chilled sometimes withdraws into the shell. When warmed conch resume movement and even crawl - "the shellfish that moves".

It is usually ground or sliced thin. Conch is a tough meat so ground or finely chopped meat is the way to go. A snail salad is made from thin slices marinated to soften the texture - an Italian/Greek favorite.

## Conch or Whelk Chowder - The Almost Forgotten Shellfish

A Native American favorite, not only for the meats, a tougher but sweeter version of the quahog hard shell clam, but as a cup or "nature's ladle." Some recipes call for beating the meats in a cloth bag but my father's universal meat grinder made short work of these tasty marine snails. The conch shell is quite distinctive, a geometric centric expanding cone spiraling to open "foot". This is the smaller version of the true Conks, a more southern species, but you can still "hear" the ocean if you hold an empty clean shell up to your ear. This was a favorite summertime activity growing up in Madison, Connecticut.

Conch is native to New England with two major species: the channel whelk or knobbed whelk (they taste the same). Most of the Conch in New England seafood markets is caught in low profile rectangular pots - baited and hauled after a few days. I used to catch them in lobster pots also. Most people threw them away but it is a tasty seafood with a distinctive flavor that is strong but sweet, depending upon cooking. In Connecticut you need a license to catch and sell them and they must be 5 inches long point to point of the shell. You can capture up to a half bushel for personal use - check with local shellfish commissioners for licensing requirements. Channel Whelk are the most common ones available in seafood stores sold under conks, conch or sometimes whelk. People of Italian American heritage call them scungille and make a delicious marinated cold snail salad from them.

The conch chowder we prepared came in two variations with a blended chicken bullion base or a celery base. (an unblended 3<sup>rd</sup> version resembles a very strong clam chowder is an option also). We would start it as an old fashioned clam chowder but learned that its like flavor was a bit strong (chowder always gets stronger after a couple of days in the refrigerator) and learned that most of this flavor comes from the broth not the meats. The meat is actually sweet so we would discard most of the broth as we prepared the chowder. We have served the chowder "straight" and people liked it, but after a few days the flavor got stronger. So we tried a couple of different versions with great success. One had a chicken stock base, and the other a can of condensed cream of celery soup. Either one can provide a delicious chowder - New England style.

These materials/ingredients weren't available to Native Americans so we need to subtract today's cooking conveniences. The very hard meats were excellent for stripping and smoking to dry - a jerky that could be held for several months. Its tough meats could be easily stripped and boiled in clay pots on an open fire or steamed as part of a bake.

**Conch Chowder - Version 1 Chicken Stock - Version 2 Celery  
Base  
15-20 servings for each (Northern Species)**

Conch chowder is a sweet tasting chowder - A favorite distinct flavor in southern states, especially Florida.

You will need 18 conch or 6-8 cups of ground conch - mince or chop - mix with 6 to 8 cups water and 2 cups of steamed broth and bring to a boil.

6-10 potatoes - thin peel - chop into cubes, set aside.  
Dice 3-4 medium sized onions (Also if celery style 3-4 stalks of celery and 1 tablespoon of celery salt or one can of cream of celery soup) and if chicken style two chicken stock bullion cubes, 1 teaspoon old bay seasoning

**How to cook conch:** scrub outside of shell to remove mud or excess sand - clean with vegetable brush, place 12-16 conchs in two inches of water in a large saucepan. Boil to steam 8-10 minutes. Broth will appear gray - similar to clam broth. Let cool - with a metal fork pull out the meat, it should come out of the shell and be attached to internal organs, which should be discarded. (The shell is empty when you can hear the ocean when holding it to your ear.) The footpad should have come off in the cooking process.

If you hold it up to the light you should be able to see rings like those for tree growth. The flesh next to the foot is especially tough and is not generally used, slice off the end to eliminate this tough portion. Cut off digestive organs and place cooked meat in a bowl, (use universal hand grinder or chop meats into small pieces for chowder base.) Save 2 cups of the steamed broth. What is the usable portion is a slight orange to cream color firm meat.

Place a ¼ pound of bacon, two 3"x 2" slices of salt pork (about) into medium sized skillet. Fry bacon and salt pork

- add onions - cook and add 1 cup of water and boil up until onions caramelize but do not burn. Drain off excess fat and add mixture to conch and water - Do not clean skillet. Add 1 cup of water and return to heat - let simmer in skillet. With a wooden spoon cook off the bacon/onion flavor - it will appear as brown broth - add back to chowder base. (Set chowder base to boil - either chicken or celery versions.)

Set Chowder base to boil - (add chopped celery), two chicken stock bullion cubes or (1 can cream of celery soup and 1 teaspoon celery salt) Some people may add green beans or carrots.

Add diced potatoes to chowder - and cook until potatoes are tender - at this point add 4 cups of milk and a pat of butter (butter is optional)

Serve hot - with fresh ground black pepper on top.

Add salt to taste

Note as with all chowders the broth becomes stronger after a few days - add additional milk to taste.

Enjoy!

Cooking information - it is not necessary to cover the conch with boiling water - an inch or 2 in the bottom of a large pot can steam them open. (do not let dry however!)

- The organs will be darker and naturally pull away from the yellow orange meat.
- eight 5 to 6 inch conch will yield 2 cups of ground meats, (4 conch to the cup)it is surprising to see how much of the conch is edible - much more on a volume basis than clams)
- 2 cups of solid chunk meats will expand to 3 or more cups after grinding.

Conch will coil into the shell when cold; when brought to room temperature they will squirt and make sounds - that is natural.

\* Use a fork to pull the meats from the shell after cooking. By pulling and twisting, the entire conch should come out.

## **Alternate Activity - Hardwood Fire Dirt/Stone Oven - Open Hearth**

### **Conch/Potato Pancakes**

1 cup ground conch  
2 cups mashed potatoes  
1 egg or 2 eggs ½ cup milk  
1/2 cup ground corn meal - about more or less if baked or  
1/2cup Bisquick if skillet fried  
1/4 cup Parsley  
1/2 cup green or red pepper - crushed fine or chopped  
red pepper flakes to taste - (a little goes a long way)  
salt/pepper optional

Combine in large bowl potatoes conch, chopped pepper and two eggs - add cornmeal forming into a ball - mix in the milk, parsley and a teaspoon of red pepper flakes; add additional corn meal or Bisquick to build an easily formed flat cake - add to skillet with olive oil or bacon fat. Cook each side until brown. Serve hot. Makes 6 to 8 four inch diameter cakes. If baked in a hot fire, wrap cake in tin foil or press between two large clam shells then wrap with foil.

\* Make certain the hardwood fire (oak) has a chance to burn down. Oak has a very strong smoke. Some people like it while others feel the smoke smell covers natural flavorings.