

**Diamond Terrapin Turtle Studies of the
East River and Madison Connecticut Shoreline**

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Keywords: Northern Diamond Back Terrapin (*Malaclemys terrapin*
terrapin)

egg collection, lobster and gill net bycatch, loss of
habitat, predation on paved or graded surfaces, fisheries
history, commercial fisheries and markets.

University of Connecticut Cooperative Extension Service

*Reprinted by The Sound School December 2006
Revised April 2007 - Student Project Proposal*

**Terrapins, off Madison and Guilford, 1968 to 1985,
Observations
While Commercial Fishing - Tim Visel**

For about 20 years, I observed terrapin turtle population with my brother Raymond in the East River between Guilford and Madison, Connecticut. I recollect two times that were quite successful, one late at night while gillnetting menhaden, 1a.m. to 4 a.m. in the morning and while oystering at noontime during very sunny days. During the spring months, we would also see a few terrapin in our lobster pots close to the beach.

While gill netting in the East River, we would get 10 to 15 terrapin turtles each night. They like fish, especially menhaden or bunker a nickname for this fish along coastal Connecticut. These fish stuck in the small mesh monofilament gill net proved to be irresistible to them, which always seemed to be at the shallow bank ends of the gill net nibbling at the bunkers at the float line or just below. We threw them all back although it was at times discouraging to see them turn and head again and again toward the fish flipping in the gill net meshes. In all the years we gill netted we never kept one - the snappers, however, we did keep and sell - although anything under 10 pounds wasn't worth the effort! At Hammonasset State Beach, we would also catch a few terrapin offshore while gill netting menhaden, 5 to 10 each year. They were again at the surface feasting on the dead menhaden gilled in the net.

Oystering on the East River, 1974 to 1985

Terrapin were often seen in large numbers often 20 to 40 at a time on banks, sunning themselves. If we landed, they quickly scattered, and kept quiet, or out of sight. Cloudy days yield only a few in the same spot, so we thought that the heat or sun had something to do with the larger numbers.

Lobstering off Madison and Guilford, CT, 1967-1978

For over a decade, we would lobster each summer from a small skiff for lobsters. We covered an area from Cedar Island, Clinton Harbor to Half Acre Rock, Guilford. Every spring about the second week of June, in shallow water, we would catch terrapins in the lobster traps. Once a trap

contained two terrapin, one still hanging on to the bunker we used as bait. The number was around 10 to 15 terrapin each summer, total, always in June and always in lobster pots near the beach. We never had a turtle drown (we checked daily) although a couple of times they were very slow - too slow to swim so we kept them in wet burlap until active again, which took about two hours.

Diamond Back Terrapin Traps

The turtle traps I observed were very old and consisted of two wood hoops one "funnel" on the first hoop and were about 48 inches long. The first hoop had twin ties to a common tie point with various lengths of small diameter twine. The second hoop was placed mid point with about a 2 foot end. Traps were set with stakes on the banks so that at high tide a portion of the hoops was exposed allowing breathing space for the turtles. With tides on the East River, the traps could be fished one hour before and one hour after high tide. The second way secured one end at the bank with stake and one end anchored in deeper water. A wood block was placed in the trap which kept one of the middle hoops above the surface at all times. From all accounts, the highest prices paid for the turtles and turtle meat was in large cities. Demand for turtle meat comprised of several sources, the fishing coastal communities of the Carolinas and Gulf coast and ethnic communities of the large central cities, namely Chicago, Philadelphia, Baltimore and New York. Around 1880, a new market was established at high end restaurants for a highly spiced soup. The prices paid for turtles, 30 cents to 50 cents each made it one of the most expensive appetizers. Most of the terrapins were between 1 to 2 pounds, so at the peak of demand, in the late teens, 1915-1918, this price put it in the range of lobsters today (they were always shipped alive). In March of 1915, Fulton Market, New York, sold fish at the following prices: lobsters, small, \$.28; lobsters, large, \$.32; Haddock, \$.07 - \$.08; Cod, market, \$.06-\$.08 per pound and put it in the range of lobsters. By 1925 terrapin turtles would bring as much as a dollar each.

Terrapins and New York City Market

Several advertisements in the 1915 Oysterman & Fisherman mention Connecticut snappers and terrapin turtles. At the turn of the century, coastal Connecticut between Old

Saybrook and Niantic Bay was the center of the turtle trade for both the smaller estuarine terrapin turtle and the larger fresh water snapper turtles. At one point about 100 to 200 snapper and terrapin turtles were being shipped live daily by railroad car from Old Saybrook to New York City. Back then a rich thick spiced tomato based turtle soup was the lobster bisque of today. Of the two species, the terrapin was sweeter and much more in demand than snappers. They were trapped in the water with circular front funnel in line fyke. Down south specially trained dogs caught them on banks during sunny days and at night, when they dug out nests to lay eggs. The intense fishing pressure upon terrapins and declining catches created the Connecticut River Snapper Turtle Fishery. By the late 1920's, the terrapin supply was exhausted and the last major Southern populations hunted to near extinction. Guilford/Madison in the East River was closed by the state after concerns were raised by the New York Zoological Society. Today, you can still find the remains of dug out rectangular turtle pens in the marshes between Niantic and Old Saybrook. They measured approximately 20 X 20 and had about three foot wood fence surrounding the enclosure. They were partially dug out so that turtles had access to water and penned until an ample supply worth shipping was collected. I have seen the remnants of two such turtle pens, one in the Oyster River marsh Old Saybrook and one in the Pattagansett River in East Lyme. Turtles were shipped alive in wet burlap, two layers thick to be butchered and cleaned on site (much like lobsters today). Much of the turtle market was New York City. A tremendous amount of skill is required to clean and prepare the meat. It was the appetizer of choice at expensive restaurants.

After the 1929 stock market crash, the remaining turtle market collapsed and as legend has it, one restaurant not wanting to disappoint good clients, took the tomato based stock prepared for the turtle meat and substituted Quahog clam meat instead. It was a big hit and Manhattan style clam chowder was born.

After the 1930's, the turtle market never really recovered. The last of the Connecticut River turtle trappers had left the business after World War II. The East River terrapins became the population that was systematically trapped to restock areas from Maine to North Carolina. The East River trapping was now done for a conservation restoration purpose rather than commercial fishing. Habitat loss and

pollution are now the biggest threats. More recently turtle egg pens have been built to help transplant the East River terrapin who it is commonly believed return to the same place to lay eggs every year.

About Terrapin Turtles - Mr. Charles Beebe

According to a longtime Madison resident, Mr. Charles Beebe, the East River terrapin turtle population was never fished out as compared to other areas in eastern and western Connecticut locally fishermen avoided trapping the turtles here as they were associated with "bad luck" according to Mr. Beebe. In fact, he knew of a turtle trapping effort in the 1940's conducted by the Connecticut Board of Fisheries & Game to replenish populations in other areas. It was thought at the time, that turtles returned to the area/beach where they hatched, so they transplanted turtles to new areas. The turtles were trapped in regular circular mesh traps and fishermen paid 10 cents/lb. for them. It was not lucrative to fish for terrapins - a two pound turtle would bring only 20 cents while a 20 pound snapper was worth \$2.00. So, most of the turtle trapping was for the larger snappers. At one time, Diamond Back Terrapins brought in more than 50 cents/lb. before the Depression (1935). By then, most of the terrapin population on the East Coast had been heavily fished out. In Connecticut, turtles were penned up until a quantity worthwhile to ship to New York City, the largest northern turtle market was reached. Diamond back terrapin soup was an expensive appetizer in upscale New York City restaurants. The market for them collapsed after the stock market decline of 1929. There were so few left that the effort to trap them with the lower price made it uneconomical to trap them. By the time World War II broke out, turtle trapping had declined to negligible levels. Trapping snapper turtles continued for another two decades, but ceased to be a commercial fishery - personal use or efforts to control trout population in ponds were the only trapping efforts Mr. Beebe knew of.

In the 1980's, the Connecticut River Museum at Steamboat dock in Essex did an educational program about Oliver LaPlace, one of the last Connecticut River turtle trappers. Mr. LaPlace trapped snapper turtles in circular metal mesh traps with net funnels similar to the earlier double hoop fykes used for the capture of diamond back terrapins. His

oral history is available from The Connecticut River Museum.

Turtle Egg Hatch Box Details - Project with The Meigs Point Nature Center

Diamond Back Terrapins would use Mr. Beebes Marina parking lot to lay their eggs - sometimes as many as 10 nests in a night. In the morning - many of the eggs were either crushed by cars or dug up (I think by skunks or raccoons). In 1985-86 I made some displays for the Meigs Point Nature Center and the subject of terrapins came up. They wanted to transplant them to the park to establish some in the tidal pond there (Chases Pond). I provided some plans for some cheap egg collection boxes - nothing that complicated - just 2' x 12" construction lumber, some brackets and nails. The work was in digging the holes and filling the boxes with clean sand. Our hope that the turtles would prefer the soft clean sand to the hard parking lot. Meigs Point Dept staff built 3 4x4 egg boxes - two as collection and one as a incubator (at the Nature Center).

Turtles like to lay their eggs in soft clean moist but not soaking sand. If the sand is wet for long periods bacteria will break down the protective shell, if too dry, moisture loss can make the shells brittle or crack. Muck or muddy areas tend to produce hydrogen sulfide which can also be detrimental to egg viability and survival. To prepare the transplant egg boxes, proper drainage therefore needs to be assured. To prevent eggs from rotting six inches of pea gravel should be placed below the foot deep box. Suitable gravel can be found at any hardware store. Sand used to fill the egg boxes should be,

- 1) Similar to areas turtles presently seek out or use - if possible
- 2) If no egg history of the location is available to compare, consider the following as experienced from the East River, Madison, CT.
 - a. Sand should be medium to course grain. This allows freshwater to quickly percolate through it.
 - b. Avoid treated fine sands or river silt. They can retain water for much longer periods and could rot the eggs.
 - c. Avoids any sands that contain clay - will tend to be muddy

- d. On full moon tides the turtles boxes may be under tidal or estuarine water for brief periods.

Terrapin turtles would lay their eggs in a gravel driveway about 20 feet from the high tide line along an old route right of way.

* Activity was greatest in recently graded/disturbed areas which were much softer than the surrounding grass or salt marsh

- Turtles tracks and dig marks showed that if the surface was hard they would move on to other areas (you could see where they tried to dig).
- Turtles utilized a pile of winter sand left from street application - multiple times on different nights to bury eggs. The sand was about 25 feet from the bank of the East River.
- Eggs were collected from driveways and replanted in other areas 4 to 8 inches deep (1973-1974).
- Evidence of predation on the eggs were visible and thought to be raccoons.
- Wood for the boxes were untreated 2 x 12 fir. They were nailed together end to end and reinforced with joist hanger brackets. These collection box materials are regular house construction supplies and were purchased locally at Tuxis Lumber Company.

Permission was obtained from a new restaurant who had recently prepared a parking lot surface. Turtles were using the stone dust material to lay eggs and restaurant customer parking was crushing many eggs. It was evident that the turtles were seeking out this new soft material as if it was a sandy beach or shore.

It was thought that if Terrapin turtles were provided about 12 inches, a clean soft sand alternative, they would seek it out. Project volunteers planted the egg boxes after digging out two rectangular holes - regraded the ground around the boxes and took away the excess soil (we dumped it on property owned by Beebe Marine). Gravel was dumped

in the hole and the box placed so that it was level to the surrounding surfaces and filled with "all purpose sand." The top was tamped down and surface brushed so that we could see tracks/marks easily. The very next night we saw evidence that at least one turtle had used the box. It was decided to leave the eggs in the box, however, the next day an animal, we think a skunk or raccoon, had dug the eggs out and consumed them. It was then decided to collect the eggs daily and plant them in a similar type box at small creek at the Meigs Point Nature Program (at the CT Hammonasset State Park).

The egg box at Meigs Point was to have a hinged lid with garden wire (a 1.5 X 3 inch metal mesh opening). In this way, young turtles could climb out, but would prevent larger predators from digging down into the box. As for as the project success there was no follow up or reports.

The boxes were placed along the old Route 1 right of way adjacent to Friends and Company Restaurant. The owners gave the Meigs Point Nature Program permission to access their lot and place two boxes by the East River. Unfortunately about 20 eggs were dug up (I was told) and eaten. I think raccoons or skunks did it. I also saw nests or nest attempts in the Friends and Company parking lot after that.

I walked the site last fall (November 2006) and did find the remains of one of the boxes, an outline of the wood was still visible and sunk below the surrounding grass. The entire area had been regraded and fill placed over the road but the guard posts and cable still remains (20 years). It still might be a site that could still support Diamond Back Turtle Research, but uncertain if turtles still seek out this area?

Diamond Back Turtle Hatching Project - The Sound School Regional Vocational Aquaculture Center Independent Study and Seminar Program (ISSP)

Special Project Proposal - (Possibly a Madison student) with the construction of egg boxes (no collection from natural nests) students attempt to collect Diamond Back Terrapin Eggs and see if turtles could develop normally in a simulated incubation experiment. A review of the literature find few references other than a 70 to 80 day incubation period and diet suggestions. "Little is known

about behavior of terrapins that do manage to hatch, but their survivorship is likely to be very low." (Jamica Bay wildlife refuge fact sheet) and "with the exception of major oil spills, there has been very little information on the sensitive of terrapins to contaminants" (US Dept of Interior US Geological Survey - Patuxent Wildlife Research Center 2003).

Special Conditions - No doubt if eggs are moved to the school for possible hatching a modified collectors permit would be needed - current CT terrapin laws regulations?

Student Responsibilities -

Submit Written Proposal for ISSP
Review project Design with Supervising Aquaculture Teacher/Mentor
Review and Document a Closed Life Cycle for Diamond Back Terrapins
Submit Research Findings (Paper) to Potential Sponsoring Agency or Civic Association (Public Speaking FFA)
Prepare a Journal Article or Press Release for News Media about the Project and Power Point Presentation.

**The Sound School Regional Vocational Aquaculture
Center
Terrapin Turtle Extinction Project
Short Project Description**

Purpose

Terrapin turtles have been subjected to population stresses in the 19th and 20th centuries. Native Americans first harvested the turtles from natural habitats as a source of food. Later the demand for turtle soup in the early 1900's brought the species to the brink of extinction in much of it's former range. In the mid 1980's concerns were raised about terrapin turtle populations in many coastal states including Connecticut. Within the last few years sharp declines in terrapin turtles populations have been reported on Cape Cod and in New Jersey. The East River population maybe the only substantial population that remains in Connecticut at this time.

Research Questions

This project proposes to establish some baseline data about terrapin populations in the East River between Madison and Guilford, CT. The project consists of three parts,

- 1) Observe and record the extent of natural populations wherever possible with special attention to mature adults and the egg laying season (May full moon high tide, June full moon high tide, July full moon high tide).
- 2) Trap and collect blood samples to be analyzed for mercury, lead, PCB and possible pesticides. Samples would be taken by a veterinarian and tested for contaminants. Sampled turtles would be returned to the place(s) taken with minimum discomfort/injury. (Possible agency that could help with tests is the New Haven Agricultural Experiment Station (David Stillwell)).
- 3) Create artificial turtle egg nests (3) and place them in known areas of egg laying or egg laying attempts. Temperatures of the artificial egg nests would be taken as to compile a record of acceptable ranges. A small number of eggs if possible would be incubated in a Sound School or off site laboratory setting - if successful hatchlings would be presented food consisting of crusteans, mollusks, and selected fishes so as to learn more about the diets of juveniles and to some extent develop a local food web matrix.

Procedures/Authorizations

Several notifications authorizations are required before beginning such a project, these are;

- 1) Notification letter to the DEP Marine Fisheries Office, Tel 860-434-6043, DEP Marine Fisheries Division, P. O. Box 719, Old Lyme, CT 06371 and possible changes to The Sound School's Scientific Collector Permit.
- 2) Endorsement by a civic group or municipal agency - Town of Madison (letter).
- 3) Permission to access property - old Green Hill Rd extension adjacent to Friends and Company Restaurant (Madison Land Trust)

- 4) Completion of the ISSP course contract and submit to Barbara Mente ISSP Coordinator for The Sound School for approval.

Work Products

A written report(s) of observations would be required as well as power point presentation about the life cycle of Terrapin Turtles in the East River. Presentations would be made to the appropriate agencies/commissions that provided endorsements and approvals.

Research Findings and Distributions

Results of project would be made available to:
The DEP Office of Marine Fisheries - Old Lyme, CT
The Madison Conservation Commission
The Madison Land Trust
The Guilford Conservation Commission
New Haven Agricultural Experiment Station
The National Marine Fisheries Service - Milford, CT
The US Army Corps of Engineers - Massachusetts

Abstracts and Keywords

A one-page press release for local news media would be developed about the project. Local newspapers could use it or develop a more in depth feature.

Brief Project Description - East River Site - Madison, CT
Timothy C. Visel
Friends and Company - 11 Boston Post Rd, Madison, CT

Site of Study

We really don't know why turtles seek out the edge of your present parking lot and areas located at Beebe Marine. We do know that 30 years ago the town used to dump street sweeping sand along the Old Green Hill Road and these turtles can live 30 to 50 years. They return to the site of their hatching to lay the next generation of eggs. It could be residual offspring that are returning, we just don't know for certain. What occurred last time was we were able to access the site, by parking in the Friends and Company parking lot by the river, Hammonasset State Park staff buried two 30 x 40 x12 inch deep sand boxes (they

look like horseshoe sand boxes) level to the ground adjacent to the salt marsh. Filled with sand it was our hope to have females turtles use them instead of the road dirt or driveway stone dust. It's a low impact - not really noticeable project. Juliana would stop in and take the temperature of the sand and see if any turtles used the boxes to lay their eggs.

More recently information has come to our attention at The Sound School that Diamond Back Terrapins have again suffered huge population declines on Cape Cod and south of New Jersey. Researchers have formed a terrapin working group to seek more information about them. Not much is known about the Diamond Back Terrapin Turtle and Julian's research would be an attempt to gather some eggs and learn more about their life history. We would try to hatch some out if we could obtain some eggs.

Past Conditions

When I was lobstering in Madison and working part time at Beebe Marine I saw the turtles trying to lay eggs in the parking lot and along Old Green Hill Road. Most if not all of the eggs were crushed by cars or eaten by predators. During the last 20 years much of the Old Green Hill Road has been covered and the first series of eggs boxes were on the shore side of the old road. Turtles lay their eggs on the hard soil there and predators such as skunks and raccoons then quickly ate their eggs. The concept is to provide small boxes filled with beach sand so they can bury them deeper and have greater chances for survival. We would then collect some of the eggs for possible incubation at another site.

School Project

The proposed research is a Sound School ISSP project authorizations, costs and any necessary collector's permits are the responsibility of the school or student. Mr. George Baldwin has agreed to be the supervisor aquaculture teacher for Juliana's research.