



**Salt Ponds
Coalition**

The

Tidal Page

News of the Rhode Island Salt Ponds

www.saltpondscoalition.org

Official Watershed Council for the Salt Ponds

Fall 2007



SPC Opposes Ex- treme Examples of Pond Development

Salt Ponds Coalition is playing an active roll in opposing a development request on a small lot on the eastern shore of Ninigret Pond. Our understanding is the applicant is seeking a change in designation to create a buildable lot where one does not currently exist. SPC opposes such action. Our water-quality testing shows that the eastern end of Ninigret Pond is already heavily contaminated with bacteria and nutrients and that the health of the pond is in jeopardy. Allowing exceptions to the regulations so an individual can build on an inappropriate lot would be a step in the wrong direction. Additionally, we are concerned that such approval would set a precedent that would allow other lots along this stretch of shoreline to follow suit.

Continued on page 3

Casino in Charles- town Gets Closer

In the spring edition of the Tidal Page, we discussed the ongoing effort of the Narragansett tribe to change the designation of their land in ways that could lead to a casino in Charlestown. Developments since then have not been good. In July, the First Circuit Court of Appeals upheld an earlier ruling that the Narragansetts could ask the Federal Government to take 30 acres of land west of Kings Factory Road into a federal Indian trust. Other tribes have used this designation to form the legal basis for the construction and operation of gambling facilities.

Since this was an appeal, the only recourse for the town and the state is before the US Supreme Court. The town of Charlestown and the state of Rhode Island have filed an application appealing the First Circuit Court decision to the U.S. Supreme Court, and an amicus

Continued on page 3

In This Issue

Message from the President

Development on the Ponds

Casino Update

Volunteer Overview

Whale!

Ecological History of the
Salt Ponds

Point Judith Kayak Trip

Creature Feature

Ponderings

Volunteer News

Volunteer With SPC

We are growing and we need your help!

This winter SPC is ramping up its volunteer program and that means many opportunities to help with the stewardship of the ponds. Do you like being on the water? We have opportunities for water sample collectors and for pond managers. Do you have a boat on one of the ponds? We need eyes and ears on the water to watch for and report issues of environmental concern and to be a first responder to size up a situation when phone reports come in.

Perhaps you have expertise in fundraising, or education, or public outreach.

These are all areas where we can use your help. We can also benefit from professionals in fields relating to development, such as land-use engineering, who can help review plans for proposed development in sensitive areas.

We may also have opportunities for students who are seeking experience in the environmental field, and who are willing to commit to a certain number of hours on set days throughout the summer. Please see the president's message inside and call 322-3068 to learn more about volunteer opportunities.

Message From Our President



A Call for Volunteers:

As most of you know, a primary mission of the Salt Ponds Coalition is water quality monitoring. Our Pond Watchers have been testing the waters of our salt ponds for over twenty years providing a barometer of conditions, which affect everyone, who lives on or enjoys the ponds.

Over the past few years the behind-the-scenes operations necessary to support this important program have been done by a couple of individuals. In order to become more effective and efficient, the Salt Ponds Coalition has developed an improved plan to support the Pond Watchers. Board member, Jack Frost will coordinate the overall program. Five volunteers will be designated as managers for each of five salt ponds regularly monitored. They will be the primary contact for the Pond Watchers for their respective pond. They will distribute supplies and will coordinate the pick-up of samples and their delivery to U.R.I. for analysis. It will be the responsibility of each manager to arrange for a substitute pond watcher, if needed, and, generally be the point person for testing in his or her assigned pond.

In order for this program to work effectively, we will need pond managers for Green Hill, Point Judith / Potter Ponds and Winnapaug Pond. We need a driver to collect water samples from drop off points and deliver to the U.R.I. Water Shed Watch laboratory. We also need additional Pond Watchers to test new stations in Point Judith Pond, or to act as substitutes for each pond.

Being a Pond Watcher is fairly simple. What is really needed is dependability and a good eye. If you can cook, you can be a Pond Watcher. Training for Pond Watchers is held at U.R.I. in April and water testing is done on alternate Wednesdays or Thursdays from Mid-May through Mid-October. Each Pond Watcher has a collection kit with all the supplies needed. Sampling and water testing takes about one hour, early in the morning. Water temperature and tidal stage are recorded and a series of sample bottles are filled for lab analysis back at U.R.I. for nutrients and bacteria. Dissolved oxygen levels are measured by a simple titration, following easy several steps. It just takes decent vision to read the fluid lines. Water collection bottles are dropped off at a centralized neighborhood location, where they are picked up and delivered to U.R.I.

We are also looking for a Town Watcher from each of the four towns to keep up with the agendas for Town Councils, Planning & Zoning boards and notify our Environment Committee of any development plans, which may impact the salt pond watershed. Our Westerly monitor is doing a great job, so we are looking for monitors from Narragansett, South Kingstown & Charlestown.

If you are willing to volunteer please call our office at 322-3065 or email Mark.Bullinger@saltpondscoalition.org

Art Ganz



Salt Ponds Coalition

The Salt Ponds Coalition stands up for the health and sustainable use of the southern Rhode Island salt ponds. SPC is the only organization whose sole charter is to monitor and protect these unique resources.

www.saltpondscoalition.org

Email

info@saltpondscoalition.org

Mailing address

PO Box 875
Charlestown, RI 02813

Board of Directors

Art Ganz
President

Edward Callender
Vice President &
Chair Environmental
Committee

George Hill
Treasurer

Nancy Zabel
Secretary

David Bailey
Sarah Dodd

Barbara Engel

Jack Frost

Sharon Frost

Martha Hosp

Kallie Jurgens

William Lester

Leo Mainelli

Dick Sartor

Executive Director

Mark Bullinger

**Tidal Page Editorial,
Layout and Cover Art**

Mark Bullinger

Extreme Development

Continued from first page

As you might know, DEM and others have recently invested a large amount of money and time to develop a plan to improve water quality in eastern Ninigret Pond and Green Hill Pond. Water-quality experts from around the state (including a representative from Charlestown) were an integral part of this process. The resulting Watershed Management Plan - prepared under funding from the US EPA by the Horsley Witten Group - is quite clear that effective actions are going to be expensive, and will require investment from a broad range of stakeholders including local, state and federal agencies, as well as private citizens. It would be unfortunate if expensive collective action were undermined by variances benefiting a few individuals.

Our objections to the proposal are based upon the immediate proximity to the water and the postage-stamp size of the lot. The lot is so small, in fact, that it fails to support basic infrastructure. The plan approved by RI DEM calls for composting toilets, which require regular additives and manual interaction. Grey-

water (showers, sinks, washers etc.) is to be processed through a de-nitrifying septic system located within the flood plain and just a few feet above groundwater. And the plan also calls for a fresh water holding tank because the lot is too small to meet separation requirements between a well and the septic. The lot does not appear to conform to Charlestown zoning regulations in that components of the structure are closer to the road than they should be.

Testing and analysis by the SPC show that the presence of dwellings in close proximity to the ponds raises nutrient levels. Excess nutrients in the ponds promote algae growth, which in turn depletes oxygen in the water. Chronic nutrient contamination chokes out marine life and produce water conditions that are unsightly and smelly.

Composting toilets do not provide the level of performance that many people expect. They require ongoing user interaction to work effectively and when used improperly, or above capacity, the model specified releases excess wastewater through a drain hose. Additionally, composted waste must be disposed of. The website for the model toilet

specified suggests using it as fertilizer around plants. On locations such as this, nutrient-rich fertilizers will simply wash into the ponds, or soak into the water table, which is just a few feet below the surface. What is more, if this house were to be built, a frustrated future owner could easily connect the toilets to the proposed gray-water system.

The majority of the lot, if not the entire site, is at risk of flooding in large, though not uncommon storms. Such flooding would pick up contamination from the site and its gray-water system and carry it straight into the pond.

Because the lot has been considered unbuildable and taxed accordingly, most likely dating from before the current owners purchased the property, it should not be viewed as a taking or hardship. Denying the permits for a permanent structure does not eliminate the value of the parcel. The lot entitles the owners to use town facilities and beaches and gives them a lovely, private spot to park and recreate on the pond's edge. Granting variances and allowing a precedent to be set will be bad news all around.

Casino *Continued from front page*

brief has been filed by RISC and CERA (Citizens Equal Rights Alliance) supporting the petition. But, there is no guarantee that the Court will agree to hear the appeal. Some legal experts suggest that the court is more open to this issue than it used to be, and since many other states face similar challenges they hold out hope that *Carcieri vs. Kempthorne* could be selected as a precedent-setting case. These legal analysts believe it has a better-than-average chance of being heard, but still, you can probably find better odds facing a one-armed bandit. A big-money gambler would likely place his or her bet on the court

not hearing the case.

Right now, all parties seem to have agreed that no development action will be taken until it is clear whether an appeal will be heard. That decision is expected in April of 2008. In the meantime, SPC is working with partners to develop an environmental action plan.

And there are real environmental concerns. A casino along Route 1 would be within the watershed for Ninigret Pond and would be directly across the road from land classified as "Lands of Critical Concern" in CRMC's Special Area Management Plan (SAMP). In fact, surface water from the Narragansett's land is carried via stream through this land and into Ninigret Pond.

On top of that, soils in this area are permeable and have a finite carrying capacity. This can be seen in the Charlestown Land Use Classification Map in the SAMP. The Sachem Passage neighborhood, abutting the western border of this parcel, is listed in the SAMP as Developed Beyond Carrying Capacity. This is a neighborhood of about 185 relatively modest homes on one to three acres each. Just imagine what a huge casino with tens of thousands of toilet flushes would do!

Please watch for further updates from SPC and please read the books featured in this newsletter to more fully understand the nature of the threat facing this unique ecosystem.

A Brief Ecological History of Rhode Island's Salt Ponds

Anna Pfeiffer-Herbert. URI Coastal Institute IGERT Fellow, in collaboration with The Nature Conservancy

The salt ponds of southern Rhode Island are an integral part of the rich cultural history of the region and are highly valued for recreation. The ponds are also very productive and contain a broad diversity of organisms. The salt pond ecosystems have, however, undergone dramatic changes over the past century.

There have been two major driving forces behind the ecosystem changes in the salt ponds. The first driver was increased residential development around the ponds. The density of houses around some of the salt ponds has increased greatly since the 1950s. A higher density of humans supplies excessive nutrients and other pollutants to the salt ponds. The second driver was the installation of permanent canals, called breachways, between the salt ponds and Block Island Sound. Breachway stabilization took place between 1910 and 1962. In a natural state, storm waves episodically break through the barrier beach that separates a pond from the ocean, and open a temporary breachway that allows the pond to be flushed with seawater from Block Island Sound. This process has been modified by human activity in some of the ponds for at least 200 years, initially by fishermen and farmers digging breachways in the spring and fall to allow fish migrations and reduce flooding in fields. With permanent stabilization, the ponds are never isolated from the salty ocean water, and therefore the salinity of the ponds remains high throughout the year. The alteration of water salinity, as well as increases in nutrient pollution, affected the life cycles of many species that live in the ponds.

Long-term residents and boaters have undoubtedly noticed changes in the amount and kinds of aquatic plants that grow in the ponds. Before the breach-

ways were stabilized, the salt ponds were characterized by abundant widgeon grass. As the ponds underwent changes in salinity and nutrient levels in the mid-20th century, the submerged aquatic vegetation communities shifted from widgeongrass to eelgrass. Nutrient loading and rising temperature in the salt ponds negatively impact eelgrass growth, so consequently, the amount of eelgrass has declined dramatically over the past few decades. In Winnapaug Pond, for example, eelgrass has virtually disappeared. Submerged aquatic vegetation supplies habitat structure and food for many species. Seagrass beds are also commonly recognized as key nursery habitats for fish and invertebrates. Changes in the aquatic vegetation have large effects on the fish, invertebrates and waterfowl that utilize the salt ponds.

Shellfishing has always been an important part of life near the salt ponds. As the environment of the ponds changed, some species of shellfish were not greatly impacted, other species decreased in abundance, and some new species arrived. Soft-shell clams were present in the ponds historically and continued to persist after breachway stabilization. In the early 20th century, the oyster fishery was the major shellfishery in several of the salt ponds. After permanent breachways were installed, and the salinity of the ponds increased, the total abundance of oysters declined as they retreated into areas of fresher water to escape saltwater predators and diseases. Bay scallops became a major fishery in Point Judith Pond after the oyster fishery collapsed. Over time, the scallop population has

had occasional good years, followed by years of low abundance. The scallop populations diminished greatly follow-



Widgeon grass (left) and Eel Grass (right)

ing a 1985 bloom of brown algae and have not recovered despite efforts to seed the ponds with juveniles from other locations. Quahogs, which tolerate poor environmental conditions better than most shellfish species, have been the largest shellfishery in the ponds since the mid 20th century.

Several fish species utilize the salt ponds for spawning and nursery grounds. Much of the information about changes in fish populations over time comes from fishing records. Prior to breachway stabilization, the major fisheries in the salt ponds were for alewives and white perch. These two species migrated to the salt ponds every year to spawn. Following breachway stabilization and subsequent increase in the salinity of the ponds, there was a decrease in the abundance of fish that spawn in fresh or brackish water. Winter flounder, which does not require fresh water for spawning, became the major finfishery. The salt ponds continue to be important fishing areas. For example, catches of winter flounder are high in Ninigret Pond compared to

similar sized coves in Narragansett Bay. The ponds are also very important nursery grounds for winter flounder, as demonstrated by a 1961 study that estimated that Green Hill and Ninigret Ponds together supply about 25% of the new juveniles to the offshore winter flounder population each year.

There are lessons to be learned from the changes experienced by the salt pond ecosystems over the past century. The effect of breachway stabilization is one example of the unforeseen consequences of human intervention in the environment. One impetus for stabilizing the breachways was to improve the environmental conditions for oyster growth. As we now know, the intervention had the opposite effect on the oyster population. In the next few decades, global climate change is expected to cause rapid changes to the environment of Rhode Island. We must consider the lessons of the past when planning how to conserve the valuable aspects of the salt ponds for the future. What do we, the residents and other interested organizations, want the ponds to look like again? This is the question that the Nature Conservancy, working in partnership with the Salt Ponds Coalition, Save the Bay, government, academia, and the public, hopes to resolve as we work together to restore the salt ponds.

Recommended Reading:

Lee, V. 1980. An Elusive Compromise: Rhode Island Coastal Ponds and Their People. Coastal Resources Center, University of Rhode Island. Marine Technical Report #73.

Editor's Note:

An Elusive Compromise is out of print and is, in fact, elusive. You can view a PDF version at <http://nsgl.gso.uri.edu/rii/riut80009.pdf>

2008 Memberships Begin in January

A new membership season begins in January. Please watch for our renewal mailing and renew quickly so you don't miss an edition of the Title Page.

Review of Green Hill & Eastern Ninigret Pond Contamination

The Salt Ponds Coalition sponsored a public review of the new watershed management plan recently developed for Green Hill Pond and eastern Ninigret Pond, on Monday August 27th. A review for town officials was held the following morning.

The watershed management plan for Green Hill and eastern Ninigret Ponds is designed to guide residents, watershed groups, and local, state and federal governments, on how to reduce both nutrient and bacteria loadings to Green Hill Pond and eastern Ninigret Pond in order to restore and maintain water quality levels suitable for fishing and swimming.

Both Green Hill Pond and eastern Ninigret Pond suffer from excessive levels of bacteria and nutrients - Green Hill Pond has been closed to shellfishing since 1994 due to high bacteria levels, and portions of eastern Ninigret Pond have registered bacteria levels

many times the safe limit for water-contact recreation. Green Hill Pond and eastern Ninigret Pond are listed on the Rhode Island 2006, 303(d) list as being impaired for pathogens and Green Hill Pond is also listed as impaired for dissolved oxygen, a consequence of excessive nitrogen loading and poor tidal flushing. Low dissolved oxygen levels impair ecosystems in a variety of ways and in severe cases can lead to fish kills.

Green Hill Pond has a surface area of approximately 380 acres and a watershed area of approximately 3,400 acres. Ninigret Pond has a surface area of approximately 1,600 acres and a watershed area of approximately 6,000 acres.

South Kingstown has hired a team of consultants to help formulate a specific plan and SPC has been sitting in on their public meetings. Those interested in reviewing the initial study can access it through our website. There is a link in the Green Hill Pond section.

Volunteer Spotlight: Ralph Minopoli

Ralph has served on the Board of Directors for over ten years, and has coordinated the Pond Watcher program all that time. The Pond Watchers have performed bacteria testing on all of the ponds since the mid 80's, and, until recently, Ralph coordinated these efforts single handedly. He arranged for training of the volunteers, distributed supplies, assisted volunteers with their analyses, and picked up and delivered the samples to U.R.I. Watershed Watch for lab analysis. Through his dedication, the thirty-plus samplers in the Pond Watcher program have helped make it the longest continuous marine water-quality monitoring group in the nation.

Along with his wife, Mary, Ralph has volunteered countless hours to the U.R.I. Master Gardener program, Cross



Ralph at Chafee award ceremony in 2002 where he and other Pond Watchers received awards

Mills Library, and Salt Ponds Coalition. "In his spare time" he also assists an old friend with the operation of a pharmacy in Connecticut.

We are sad that Ralph is retiring from the Board, but he assures us that he will be available for special projects - and have we got a list for him! We all join in thanking Ralph and Mary for their service.



Mark Bullinger, SPC executive director and a first responder for the Mystic Aquarium Marine Mammal Stranding Program, gathering observations about 1/4 mile off the Weekapaug Beach. This picture was snapped by SPC member Fred Engle, using a telephoto lens.

SPC Helps Rescue Entangled Humpback Whale

As the Providence Journal article re-printed below reports, SPC was involved in the rescue of a young Humpback whale, just prior to Thanksgiving weekend. The 30-ton animal was snagged in fishing gear off of the Inn Beach in Weekapaug. The thick yellow line and green netting, which was visible over the whale's torso, trailed behind the animal and was caught on rocks some thirty-two feet below the surface. Like a dog tied to a stake, the tethered leviathan was swimming in circles, in an area about the size of a baseball infield.

It was a moving experience to

"Under watchful eyes, 30-foot whale escapes fishing net"

By Arline A. Fleming

Providence Journal, Tuesday November 20, 2007.

Copyright © 2007 The Providence Journal. Reprinted by permission.

WESTERLY — Mark Bullinger was fishing off the coast of Westerly on Sunday afternoon when he spotted the unexpected:

A humpback whale entangled in yellow fishing line.

"It came up and surprised me," said Bullinger, who is the executive director of the Salt Ponds Coalition, and a first responder for Connecticut's Mystic Aquarium and Institute for Exploration.

"I watched it for awhile. It sort of had a rope around its shoulder."

Bullinger photographed the whale, watching as it passed directly under his boat. Then, as quickly as he could, Bullinger contacted the aquarium.

By sunup yesterday morning, employees from the state Department of Environmental Management, the Massachusetts-based Center for Coastal Studies and the aquarium were in Weekapaug working to free what they estimate was a 30-foot juvenile humpback whale.

At around 10 a.m., it was reported that the whale had freed itself from the netting, and though it appeared to be injured, was traveling east away from Weekapaug. But the ordeal may have left the whale weakened, biologists said.

"He did look sickly," said Scott Landry, of the Center for Coastal Studies, having spent a good part of the morning on

an inflatable raft, about a quarter of a mile offshore, along with fellow biologist Lisa Sette, observing the whale.

"It appeared to have been entangled for a long time," said Landry. "It's a sick little whale."

It seems the whale had been tangled up in local waters for several days, said Cindy Davis, stranding assistant at the aquarium. Reports came in on Friday and Saturday from people having spotted the whale, she said, but after the animal remained in the same place for a long period of time, "we knew something was wrong.

"We contacted Rhode Island DEM and the Center for Coastal Studies in Provincetown," she said from Weekapaug Beach, just before getting word that the whale appeared to have broken free from what appears to be fishing gear.

A small gathering of people, including volunteers such as Bullinger who have been trained by the aquarium to identify local marine mammal and sea turtle species, watched from the beach yesterday morning after word got out about the whale's predicament.

"We were concerned because the animal was expending a lot of energy trying to move free," said Davis.

And because photos provided by Bullinger, she said, "showed some lacerations" on the entangled whale.

DEM principal marine biologist April Valliere had been monitoring the situation since Sunday. When it appeared that the whale had remedied its own situation, she approached the gathering to make the announcement that the whale "had freed itself from being anchored. Our patrol boat was able to follow it and get alongside it," Valliere said.

The whale appeared to be agitated she said, "between the human involvement and the boats," giving it increased motivation to break free.

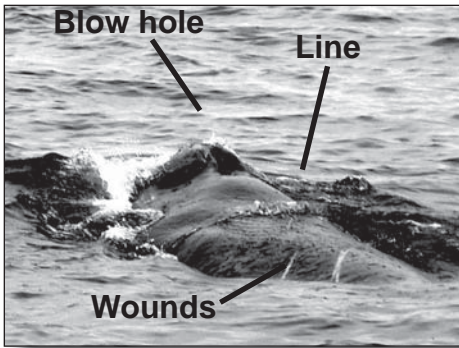
As for its future, "that's a question not anybody can answer right now," said Valliere. "Mother Nature is going to have to take its course, and the only way we are going to know is if it is sighted again."

With its distinctive markings, and photos produced by Bullinger, that's a possibility, she said. "Hopefully, the animal will be able to make it."

Davis said, despite the whale "not being in the best condition — it's not robust — it should be able to find food. There's a lot of herring in the area, and it has a better chance now than it did before. As far as the wounds are concerned, the salt water will actually help it to heal."

The last report she had, she said, around midday, was that the humpback was spotted in the Point Judith area.

Will it survive?
"I think it will."



[Left] The picture shows line wrapped across the whales back and two lesions which were probably a result of the line.

[Right] The black and white patterns on the bottom of a Humpback's fluke are as unique as a finger print. The photo at right will make it possible to identify this whale in the future.

[Below] The whale was about 1/4 mile off the beach in 32-feet of water. A large scar along the backbone is visible in the picture. Rescue professionals believe the scar is from a power boat. Photos left, right and below, Mark Bullinger



work with our friends at the Mystic Aquarium and experts from the Institute for Coastal Studies, and to see the whale break its bonds and swim away east down the coast, rounding Quonnie point with one last blow.

We wish the little whale well and hope that it finds plenty of food with its new-found mobility.



U.R.I Salutes Virginia Lee

Virginia Lee, a long time friend of the Salt Ponds Coalition, was honored last month as the first recipient of the University of Rhode Island's Sea Grant Lifetime Achievement award for her thirty years of service. Virginia has spent her career bringing science, environmental protection and coastal zone management to the community. She has been a link between the science at the university and the application of good environmental practices to communities statewide. In 1980 she published *An Elusive Compromise*, which is referenced on page five of this newsletter and continues to be one of the most informative documents concerning the Rhode Island salt pond system.

One of her first large projects was to direct a cooperative study of the coastal salt ponds. Scientists, including myself, conducted baseline research on all aspects of the salt ponds. The information on the geology, currents, botany, fisheries and nutrient transport were all gath-



ered. From this information, the Salt Pond Special Area Management Plan (SAMP) was formulated, and implemented by the Coastal Resources Management Council. Local communities embraced the findings of the SAMP and implemented zoning and waste water management strategies aimed at preservation of the salt pond watershed.

In the mid 80's she created the first citizen water-quality monitoring program – our Pond Watchers, which is

now the oldest continuously operating saltwater volunteer monitoring program in the nation.

Since the success of the salt pond SAMP, many other watershed areas have undertaken this approach for protection of Narrow River, Greenwich Bay and most recently the Providence River.

Virginia is also one of the founders of the South County Regional Planning Council, which brings together representatives from multiple municipalities to work on common issues.

She remains a valued friend of SPC. She helps inform our understanding of complex issues, introduces us to important contacts, and points us towards potential sources of funding.

We join with others in congratulating Virginia and express thanks for her continuing good works and longtime friendship.

Art Ganz, President

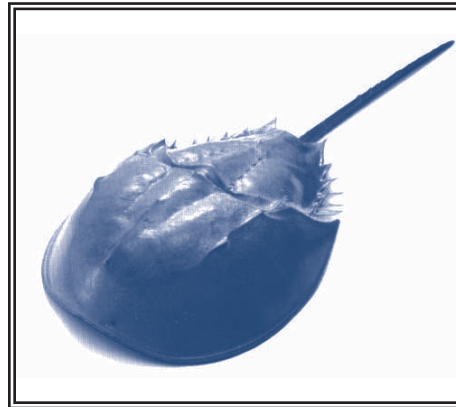
Creature Feature

Our Living Dinosaur, The Horseshoe Crab
By Art Ganz

Perhaps you know a blue-blood family that dates back to the Mayflower. Well that's nothing! This resident of our coastal ponds has blue blood and dates back to the dinosaurs! Actually, it was around for 100 million years before T Rex.

The horseshoe crab is a common visitor to our coastal salt ponds as well as most estuaries of the northeast. *Limulus polyphemus*, is an arthropod, which has jointed legs and an exoskeleton, but is more closely related to spiders than to common crab species. Horseshoe crabs are a close cousin to trilobites, which are one of the oldest fossilized species known. These slow moving creatures have been roaming our coastal waters since long before the continents took on their present form.

The horseshoe crab has a large body, called the cephalothorax and a pointed tail called the telson. Contrary to popular belief the long sharp tail is not poisonous, but rather is a tool to right the animal if it is turned over by waves or current. Beachgoers should never pick a horseshoe crab up by its tail—it might break and then it would not be able to right itself. *Limulus* has a very primitive gill arrangement called book gills, which are on their underside and look like pages of a book. The book gills primary job is to extract oxygen from the water while preventing liquid incursion, but when the crabs are molting, they can also allow a regulated amount of water to enter the blood stream to expand the shell. The book gills are also used to assist in propulsion when the animal is swimming. The horseshoe crab has relatively developed compound eyes and a variety of light sensors that help regulate life cycles and activity. These light-sensitive organs are on the shell, under the shell, and even on the tail. Because of the simple and relatively accessible ner-



vous system, scientists have utilized this ancient species in studying the physiology of vision.

Each spring the horseshoe crab mating ritual takes place and can be one of the most amazing sights that the ponds have to offer. Triggered by water temperature, an army of horseshoe crabs migrates into the salt ponds and back coves, mostly during the new and full moons of May and June. The larger females lumber along with one or many smaller males clinging to her. Mating takes place in shallow water along sandy beaches or on flooded salt marshes. In some cases literally thousands of crabs will mate and males can fertilize the eggs from many females. In 2003, while doing the spring survey, we witnessed thousands of crabs mating in a tiny cove in Quonochontaug Pond. The fertilized eggs are buried beneath the sand, but like so many species in the sea, only a small percentage of the eggs will make it to adulthood.

Large numbers of eggs become prey to migrating shore birds, which rely on the timely availability of this nutritious food during their transit. Those that survive will follow the early developmental stages of other crabs and invertebrates and become part of the zooplankton biomass, susceptible to plankton feeders such as Menhaden, clams and oysters.

Like other crabs and crustaceans, their growth is achieved by molting. A larger soft shell grows under the old shell, which will eventually be cast off. Many of the “dead crabs” found along the shore are really cast-off old shells.

Horseshoe crabs are an incredibly interesting and valued resource, although many shellfishermen dislike them, since they eat clams. For years, horseshoe crabs were slaughtered and used for eel bait, conch bait and pet foods, but today they are much more valuable for medical research. Horseshoe crabs are harvested and taken to medical labs where a portion of their blood is removed utilizing a hypodermic in a process which purportedly causes no harm to the crab. Once bled, the horseshoe crabs are returned to their environment, where they will continue to thrive.

The blue blood of the horseshoe crab is based on copper (not iron like ours) and has some very unique properties. Because *Limulus* is such a primitive creature, it does not have an immune system that manufactures antibodies. Instead, it relies on an agent in its blood called LAL, which is highly sensitive to a very common form of bacteria known as endotoxin. When endotoxin comes in contact with the animal's bloodstream, the LAL quickly clots, and binds to and isolates the contamination. Pharmaceutical manufacturers have learned to utilize this unique component of horseshoe crab blood to detect bacterial contamination in intravenous products, which must not only be free of living bacteria, but also toxins that can be produced when bacteria are killed via a sterilization process. An LAL solution, derived from the blue blood of our prehistoric friends, is placed in a test tube and a sample from a batch of pharmaceuticals is injected into the solution. If there are bacterial impurities in the drug,

Kayak Trip on Point Judith Pond

SPC hosted a guided kayak trip on Point Judith Pond on September 29th. It was an amazing outing.

Our fall kayak trip was just one of those spectacular days. Forty-two people showed up at the launch ramp of Marina Park in the north end of the pond. SPC President, Art Ganz, and Executive Director, Mark Bullinger, gave an overall introduction to the Point Judith Pond and Saugatucket River Estuary. The wind was blowing northerly at a solid 15 knots, so we kept tight in the lee of land as we slipped downwind, out of the marina area and through The Narrows. We paddled by Billington Cove and made our first stop at Cummocks Island, where we rendezvoused with guest speaker Prentice Stout, retired director of marine education at URI, old-timer on the pond, and author of a recent book about the pond (*A Place of Quiet Waters*). Prentice was so moved by the event he sent the following message.

"That was the most remarkable event I have ever taken part in! An armada of paddling, caring persons, in boats of many colors, and all so interested in Point Judith Pond and its environment. As you and the others guessed I was totally overcome, speechless, and so deeply moved. I hope I was able to pull it all together to help you out. I love that Pond and all it stands for. I watched all of you, going up into the Pots -- oh my goodness -- so many visual images -- dancing waters, crystal air and people who care."

Well, judging from the praise our participants had for Prentice, he did pull



Paddlers (above) coming out of the area known as "the pots." Local historian and author Prentice Stout (below) engaged the group with stories and insight regarding the natural and human history of the pond.



it together and then some. Prentice was one of our guest presenters and charmed his audience with wit and insight.

Prentice accompanied the group to several interesting spots, sharing his wealth of knowledge and enthusiasm.

the solution in the tube quickly gels and the batch is rejected. LAL has also been used in the development of bandages and sutures and a variety of other medical advancements.

A bait fishery still exists, but is strictly regulated by the states, under the authority of the Atlantic States Marine Fisheries Commission. Our state, along with other Atlantic states, conducts an annual population survey each mating season. Approximately thirty Rhode

Island volunteers participate in counting horseshoe crabs as they mate. To volunteer for the survey, contact D.E.M. Marine Fisheries in Jamestown.

Next time you come across a horseshoe crab, take a good look at this fascinating creature. If you want to see its underside, pick it up by its shell (it won't bite) and flip it over. If it has trouble righting itself, just remember to respect your elders and flip it back over so it can be on its way. For additional

Mark and John Torgan from Save The Bay had collected some live specimens along the way, to be discussed and we all enjoyed getting up close and personal with baby fluke, a sculpin, silver-sides and mummichugs, and several crabs. Steve Endres, a Pond Watcher, illustrated how our bi-weekly water sampling

was conducted.

Everyone had a great day outdoors, sharing Prentice's enthusiasm and appreciation for the beauty of fall on the salt pond. Pictures are posted on our website www.saltpondscoalition.org.

information, please visit our website, www.saltpondscoalition.org.



Horseshoe Crabs are relatives of the ancient Trilobite.

The Blitz of '07

By Mark Bullinger

Some people who were there call it the blitz of a lifetime. I hope that's not the case, because it was so exciting I want to experience it again. That being said, in more than 35-years fishing the Rhode Island shore, I have never seen anything quite like it. Call me Mr. Hyperbole, but on October 27th, 2007, the fish were "littoral" piling up on the beach. Some were stockpiled by slightly dazed fishermen who couldn't quite believe their good fortune - and on a Saturday no less. Others were stranding on the tide line as waves washed in and out. Regardless of how the day rated on the fish-o-meter, what we can say for sure is that it was a very bad day to be a young menhaden along the Weekapaug shoreline. Thousands of the small oily fish (see the banner graphic on the front page of this issue for a roughly 50% scale representation) stranded along the high-tide line in a frantic attempt to find refuge from marauding bass and blues that were slashing within feet of the water's edge.

It all started on Friday, when the wind shifted to the east and started to blow.

Things got crazy, however, on Saturday, as heavy weather really set in. Some may think that a smoky fall day with rain and waves, and salt spray is a good time to lay low, but not our migrating piscatorial predators. (Nor, for that matter, the fanatics who pursue them.) I made for the shore about 10:00am, after getting the kids through the morning routine, and, having had good luck at Weekapaug the day before, made my destination the rocks just east of the breachway.

Judging by the cars parked wherever they could pull over, I knew the fish were in, even before I saw the water. I parked up the road a stretch, slid on the hipers, packed a few extra plugs, and hoofed it down to the rocks. I suspect the fish had been feeding since sunrise or earlier, but it hadn't taken the edge off their hunger. The tide was very high and dark-backed baitfish were packed in along the tide line so tightly, the water was black. Standing in shin-deep water, I was surrounded by manic fish. An old-timer once told me that you know it's going to crank when the bait is packing in tight behind you, and, indeed, the bunker and sardines were packed behind me like, well, sardines. If

I had but a net with a four-foot handle, I could have "fished-out" keeper-size bass and big blues all morning long. Instead, I found a nice rock to stand on and started working my plug twenty to thirty yards out in the suds. One of the remarkable things was how many big bass were in close. I've seen many a school bass working right in the wash over the years, but here a large percentage of bass were in the 30-inch plus range. The catching was constant, and after releasing a fish I often took a break to just look around at the intense commotion going on. Perched on my rock, I could watch big fish tuck into their prey from just feet away.

Both bass and blues are well camouflaged with dark backs that blend into the rocks and weed when viewed from above, and silvery bellies that present less of a silhouette against the backlit surface when viewed from below, by, say, a hungry tuna. Even from feet away it was hard to spot the fish until they rolled sideways and exposed a flank or a tail.

Stripers, in particular, like to tail-slap prey and then circle around to eat the stunned creature, and in the midst of the action, the bunker were flying. If people

Salt Pond Outings

Napatree Point, Watch Hill, RI

Napatree Point, and little Narragansett Bay which the sandy spit helps define, aren't technically part of a salt pond system. As the name implies, the water body is more of a bay and it is also the delta area of the Pawcatuck River. That said, it is very similar to the large salt ponds and has easy access to miles of shoreline, both along the beach and along the quiet, pond-like shore. Time your walk for low tide and you'll be rewarded with a wide, hard beach that is easy to walk on. The sun hits "Naps" all day, so if the wind is not bad, it's a great place to walk in the winter. Do a web search before you go and read a bit of the history, which includes residential devastation in the '38 hurricane, and an old fort from the Spanish American War. Off season,



Time your walk for low tide and you'll be rewarded with a wide, hard beach that is easy to walk on. The sun hits "Naps" all day, so if the wind is not bad, it's a great place to walk in the winter. Do a web search before you go and read a bit of the history, which includes residential devastation in the '38 hurricane, and an old fort from the Spanish American War. Off season,

Click This

www.maineharbors.com/ri/tideri.htm

So when is low tide at Napatree? This is a useful site to calculate high and low tides in RI and how high or low they should be. Sun rise/set and moon phase, too.

enter the harbor-side parking area and go as far as you can around the left side of the harbor. The walk-in entrance is to the right around the chain-link gate. Go up the dunes to access the beach, or stay to the right and walk along the bay.

were initiating such abuse, we'd be appalled; but when nature is at work, it's pretty amazing to watch. The blitz went on all afternoon, although it moved a little further offshore as the tide dropped to well below average, leaving many rocky areas high and dry where just hours before 20-pound bass had rolled.

What set them off? Some old timers claim that a blow from the east in October is the catalyst. Temperature changes could have played a role, or perhaps it was because the moon and the planets were literally aligned - the tides were astronomically high with a full moon.

But what does all of this have to do with the salt ponds? Well, the great clouds of bait that were the subject of such attention spend a good part of their youth in the pond environments. Menhaden spawn at sea, but soon make their way to the salt ponds and estuaries where they thrive in the relatively safe and nurturing summertime waters, until the cool nights of fall send the water temperature down to uncomfortable levels.

With nature calling, the baitfish drop out of the ponds and make a break for warmer climates. Without the salt ponds

and estuaries, the strippers and blues would be out of business. Without the fish runs, Rhode Island residents would lose a seasonal food source and beloved recreation, and the out-of-state anglers who ply the coast this time of year with plates from Pennsylvania, New Jersey, Connecticut, New York and Maryland, Vermont, Massachusetts, New Hampshire and further a field, would spend their money elsewhere.

The fall blitz of '07 will be talked about for a generation. But with good fisheries regulations and proper stewardship of the ponds, I hope it will be matched by many a blitz yet to come.

Life on the Pond in a Snowstorm

By Kallie Jurgens

I will never forget my first snowstorm on Quonochontaug Pond. We had just moved into our house in January in 2001 and I was busy putting away boxes. Snow began falling around 3 p.m. and before I knew it, I looked up and there was a pretty decent amount on the deck. When I looked at the pond, it was the most amazing sight. It was still, and the ice on the pond was covered in snow--

a rich blanket of white, puffiness that extended to its shores. Bands of snow danced on the rocks, the docks and jetty.

I remember distinctly my mother was alive then and helping me unpack. She looked up in wonderment as well and was amazed at how the snow accumulated everywhere on the pond. As the day wore on and the daylight disappeared, it was even more calming. We put a fire on and the smell emanated outside. Once the snowfall dissipated, we took a walk down to the pond to see it up close. With the calming fire's aromas meeting the crisp, clean air surrounding the pond, it was like a photo from Currier and Ives. The pond was absolutely silent.

While we all thought this picture couldn't improve, we woke up the next day to an absolutely glorious site. The pond was so white it was almost magic. The brightness from the snow and the clarity of the blue sky was a contrast I will never forget. I realize every day that I am fortunate to live on the pond--it provides the most amazing disparity in texture, light and temperament and grounds me into understanding that nothing is greater than nature itself.

Interesting Reading

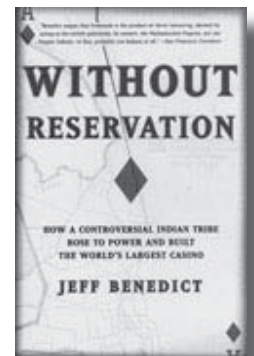
Salt Ponds Coalition is very concerned about the environmental consequences a casino in Charlestown could have. Don't think it could happen here? You might want to read these two books, along with the article on the front page.

Without Reservation, How a Controversial Indian Tribe Rose to Power and Built the World's Largest Casino. Jeff Benedict, HarperCollins, 2000

This is a really interesting book about how the Mashentucket Pequots became a recognized tribe and how land that once belonged to farmers and homeowners was swallowed up when the prospect of big money came into play. You will get a really good understanding of the topic and it's fun to read, too. *Without Reservation* is available in local libraries, or from book sellers.

Going to Pieces, The Dismantling of the United States of America. Elaine Willman.

This book is quite political and has a very strong editorial opinion. However, regardless of whether you agree with every position, it contains a lot of information about the growing tribal sovereignty movement and offers further insight into what is happening here in our backyard. *Going to Pieces* is self published and is available at the website, www.citizensalliance.org or from Rhode Island Statewide Coalition (RISC).





Salt Ponds Coalition
PO Box 875
Charlestown, RI 02813

Please Help Us Help the Ponds

SPC is supported by members. Please consider the following.

- ▶ An SPC membership for the 2008 season makes a great holiday gift for friends or family.
- ▶ Donations are tax deductible and can help reduce the tax you owe.

Please make checks payable to Salt Ponds Coalition. Memberships run from January through December

Please enroll the individual/family at right at the following membership level

- \$40+ Standard 2008 Membership**
- \$75+ Select Level**
(Includes SPC hat)
- \$250+ Steward Level**
(Includes SPC hat and two tickets to the renowned SPC summer fund raiser)
- \$1,000+ Lifetime Membership**
(Includes all of the above plus our eternal gratitude)

Name: _____

Permanent Address _____

Town _____ State _____ Zip _____

Summer Address _____

Town _____ State _____ Zip _____

Email _____

Phone _____



Salt Ponds Coalition

P.O. Box 875
 Charlestown, RI
 02813

We appreciate your continued generous support!

Please consider a gift to the SPC. Your donations to our 501(c)(3) organization are tax deductible.

- Please find enclosed my gift of \$ _____
- I would like to sponsor a testing station for \$600