

Quonny's Unspoken Treasures

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In the distance, the bobber danced with the water, precisely matching every move of the current. The bait hung sullenly in the bottomless water. Soon enough, the line pulled taut and the bobber disappeared. The slightest splash signaled its past presence. Pop immediately alerted me, putting the finishing touches of my sandcastle on hold. His voice heightened and the words were crisp and apprehensive as he passed the rod to my small fingers. As I spun the reel, my arms began to feel the strain of the outgoing tide, the vibration rattling through my body. The waves were squirting at my feet and I was careful not to soak my brand new light up sneakers. Soon enough, the bobber reappeared at the surface and I knew my catch was not too far away. My heart was jittering, the sight of the shadow under the water leaking adrenaline throughout my body. Finally, the hook bounced out of the water, displaying the catch to my entire family. My first fish was not a fish at all, but a clump of green and brown grass dripping salty water. My face dropped, and during my pity party I managed to step in quicksand, engulfing my sneakers with sand and warm water. Pop's statement was holding out to be true, "They don't call it fishing for nothing. If they called it 'catching', there would be no point!" At the end of my first day fishing, I slowly lingered back to the beach house with only a wet shoe and clump of decaying grass.

The salty water of Quonochontaug Pond ripples throughout the lagoon, consistently flowing through the breachway, connecting the pond to Block Island Sound. The breeze off of the pond invigorates the nose of my golden retriever as he sticks his head out of the car window and goes into a sneezing fest. Long phragmites extend their friendly reach to passing cars. Surrounded by vacation homes, Quonny provides an abundance of fish to locals and well worn fisherman knowing the treasures the pond and breachway have to offer. Through the summer, the same few people can be seen from the beach house casting bait into white caps on the

breachway. Further inland, the road leads to a loading dock, deserted during winter, an exceptional place to catch bait fish and scup which can be saved and used later when fishing from a boat. This is also where I had my first fishing experience. The sand is soft and disperses under each step. Closer to the water, a dark shadow can be seen ten feet out, responsible for my first catch. Little did I know, the grass I caught on my first day of fishing is actually the foundation of all living organisms in coastal ponds: eelgrass, a thriving marine plant growing in almost every salt pond in the northeast.

Silently flowing through the water, its presence is almost unnoticeable. Yet its touch is unforgettable, the coarse blades somehow plush and mushy when in water. The grass tickles my legs as I dare to stroll through it, bringing feelings of uncertainty as to what is actually in the water and could be walking with me. As I swim to depths deeper than I can stand the grass disappears and my feet are finally free from the grass's clutches. Burned and bleached grass awaits on the shoreline when I begin to swim in. This eelgrass has a much different feel than the thousand different colored green blades which blind me as I look over the side of a boat. This grass is sandpaper to the touch and sharp enough to slice my finger with one wrong move, sharper than a brand new fishing hook from 'Captain Don's Bait and Tackle.' This dead grass is simply out of place as it sits alone, collecting on the spotless beach.

Although eelgrass is an essential plant in coastal ponds around the world, the amount of eelgrass in coastal ponds is not nearly as high as it has been in the past (Hudson). Simply swaying with the constant motion of the water, eelgrass fulfills several critical responsibilities. According to Robert Hudson, an eelgrass restoration ecologist at Save the Bay, "over forty species of marine life live in the eelgrass beds and depend on them for food and protection". Eelgrass provides safety from predators and a place to live for scallops, crabs, and small fish

(Freedman). The forest of jade blades surrounds the homes of many marine species, leading predators through a never ending maze in search of food they may never find. Eelgrass also helps to prevent flash floods along the shoreline of coastal areas. The rhizomes, or roots of the eelgrass, grow deep, holding the slippery sand in place, preventing erosion (Save the Bay 4). Eelgrass can grow up to thirty feet deep in the water but is most commonly found in shallow water where the beating sun is easily accessible. Eelgrass relies on sunlight for photosynthesis but also absorbs nutrients in the water through its emerald leaves, using them as food (“RI Seagrass Habitats”).

Quonochontaug Pond, in Charlestown, is one of only nine unique coastal ponds throughout Rhode Island. Each ecosystem is different, yet eelgrass is found in almost every coastal pond in the North Atlantic, including Quonny. Eelgrass is the basis of each marine ecosystem, found around the shoreline and extending into deeper depths of water (Save the Bay 5). Eelgrass not only provides protection but is also the base of the food chain in ponds and bays around the world. During the spring, blinding green blades extend from the roots, protruding into the refreshing salt water. Each individual shoot grows in eelgrass beds resembling the extensive network of cords behind a television. Essentially there are several different shoots growing from the same root system. Eelgrass reproduces asexually through its seeds (Save The Bay 5). Eelgrass seeds are released by the blades of grass and float through the flowing water, eventually sinking to the bottom of the pond and growing in the murky sand and mud (“RI Seagrass Habitats”). Under ideal conditions of constant temperature, sparkling clear water, and firm sediment, eelgrass will grow extremely well and survive for long time periods. However, these perfect conditions are rarely found in the ever-changing climate of the northeast (Hudson).

Although eelgrass is such an important aspect to coastal regions and marine habitats, the amount of eelgrass is depleting rapidly. According to Hudson, eelgrass used to completely cover the bottoms of coastal ponds and bays. However, during the early 1930s, keen observations from residents around coastal ponds and vacation hot spots determined that eelgrass was dying off, littering shorelines with brown and yellow clumps of grass (“The Wasting Disease”). This dirtied cluster of decaying grass, which I had originally thought was seaweed, was in fact a vital marine plant. The bottom of the sandy pond which cushions my feet in the summer should actually be filled with mature blades of eelgrass dispersing throughout acres of water.

By 1933, ninety percent of eelgrass within the North Atlantic had died off, leaving ponds and coastal bays with solely sandy bottoms which my feet submerge into during summer months (“The Wasting Disease”). This rapid decline in the amount of eelgrass is known as The Wasting Disease. The exact reason for the sudden death of eelgrass is still unknown, but the most common theory is water temperature. “Eelgrass is greatly affected by a change in temperature even if it is only a few degrees in a short time period”, explains Hudson. Similar to land plants, if there is a sudden frost overnight, the chances of a plant surviving the night are slim. In large bodies of water, temperature does not change as drastically. However, if the thermometer does rise or fall only a few degrees in a short time period, this can affect the life of aquatic vegetation. Although some of the eelgrass has managed to grow back, most coastal regions throughout the North Atlantic are still feeling the effects from the Wasting Disease (Hudson).

Aside from the Wasting Disease, unsafe water quality is one of the major contributors to the destruction of eelgrass (Freedman). Contamination from waste water treatment plants kills marine life simply because of its toxins and chemicals (Hudson). Some ponds are essentially filled with litter and muck from industries that resort to dumping, resulting in horrendous water

quality. Furthermore, humans contribute to water pollution if we simply throw a water bottle into the pond. Although one water bottle will not do a lot of damage, many can collect in currents, blocking sunlight, and dispensing plastic chemicals into the water (Hudson). Boats and jet skis also pose threats to eelgrass and marine life because of their oil guzzling engines. It is not uncommon for a boat's propeller to get caught in eelgrass, either ripping the beds up completely or cutting off the tops of the grass, known as propeller scarring ("RI Seagrass Habitats"). Some pollution may block sunlight from reaching the eelgrass, which it desperately needs in order to photosynthesize.

Excess nutrients in the water from storm runoff and fertilizers can cause an algae bloom, which can be catastrophic in coastal ecosystems. Algae blooms occur when there are too many nutrients, particularly nitrogen, in the water that bacteria love to feed on (Freedman). When an algae bloom occurs, the water is covered with a lime green film collecting on anything it can, including eelgrass. The film sticks to the marine life like a caramel apple glued to the hair of a child. When sunlight beats down into the water, algae uses it all up, blocking it from reaching the eelgrass (Freedman). Furthermore, algae uses up large amounts of the water's oxygen, which can result in the death of fish, crabs, and clams which all have relationships with the eelgrass (Save the Bay). If eelgrass dies away, marine life will not have a place to live, disrupting the animal hierarchy. A chain reaction will further occur, killing microorganisms, resulting in excess nutrients brought back into the water ("RI Seagrass"). Although water quality may not be a major issue in Quonochontaug Pond, it still poses a major threat which could arise in the future and needs to be avoided.

The scallop industry was thriving during the 1970s, and an abundance of scallops were dredged all over the state within coastal ponds and bays. However, scallops are mostly found

within eelgrass beds because of the protection eelgrass provides. Many of the eelgrass beds, which had grown back since the Wasting Disease, were torn up from the bottom of bays and ponds and destroyed during dredging. Nevertheless, the eelgrass bounced back quickly, and scallop dredging was not as large of a setback in eelgrass restoration as water quality (Hudson).

Another problem occurs mostly in coastal ponds which have attached breachways. Quonochontaug has a manmade breachway which connects the pond and the ocean by a salt water canal. Massive stones on either side of the passage ensure the water's path goes only in one direction. This is a very common fishing spot where blue fish and stripers swim in and out of the pond chasing the baitfish, churning the water as if in a blender. From the breachway's height it is easy to see the bluefish glide effortlessly under the water, swiftly picking up speed when food is in sight. As high tide pounds waves into the breachway's corridor, sand also storms the channel. Sand is pushed through the passageway, forming a sand delta, its fingers extending greedily into the pond (Freedman). Over time, this delta expands and can encapsulate a large area of the pond, covering eelgrass beds, depriving them of much needed sunlight. The eelgrass never reappears because the sand simply continues to spread, destroying the eelgrass habitat (Freedman). Although each of these issues may not be major, each has played a small role in the depletion of eelgrass within Quonny Pond.

Eelgrass is the building block of marine ecosystems in coastal ponds and bodies of water. It provides homes for over forty species of marine life and filters excess nutrients out of the water. It is essential for the health of marine ecosystems and needs to be restored within the coastal waters. According to Hudson, "eelgrass trumps all other marine issues within Rhode Island and therefore gets the most money from the government." Thankfully, eelgrass restoration projects have already begun around Rhode Island in order to return the habitats to

their original state. Save the Bay has conducted several restoration projects within Narragansett Bay and other bays and ponds around RI including Prudence Island, Coggeshall Point, Narragansett Bay and Sauga Point (Hudson). Coastal Resources Management Council (CRMC) has also conducted several recent dredging projects within Ninigret Pond, located next to Quonny (Freedman). CRMC first dredged the mouth of the pond and proceeded to spread eelgrass seeds throughout the area and had great success. Quonochontaug has a similar problem; the amount of sand at the mouth of the breachway is consistently growing each year (Freedman). Yet there is not enough money to fund another dredging project in Quonny. Resident funding is increasing and the hope to dredge the excessive sand and replant eelgrass in Quonochontaug is pressing (Freedman). In order to save ponds from complete ecosystem destruction, eelgrass must be restored.

Several methods of restoration are used throughout the world, each working well in its own exclusive way. One of these techniques is natural recolonization, which provides eelgrass with ideal habitat and water quality, allowing it to naturally reproduce and survive (“Project Planning – Eelgrass”). Elevating water quality can take a long period of time, but this technique can also be extremely effective. If excess nutrients and sewage do not reenter the water, eelgrass will thrive exceptionally well (“Project Planning – Eelgrass”). The second major restoration technique is transplanting, commonly known as TERF (Transplanting Eelgrass Remotely with Frames), developed by Dr. Fred Short at University of New Hampshire. This system has also had great success and has worked well in Narragansett Bay during Save the Bay’s projects (“Project Planning Eelgrass”). Freedman happily informed me that “Short is an eelgrass god and has had great success with restoration projects”. The TERF method transplants eelgrass using metal frames, holding entire eelgrass beds and root systems resembling potted plants (“Project

Planning – Eelgrass”). The metal frames could be confused with a jumbled contraption found in a junk yard. Appearing to strangle the eelgrass, the frames are placed distinctly in the water in hope that the eelgrass will naturally recolonize itself, only to be removed once the eelgrass has spread (Hudson).

The last major eelgrass restoration procedure is known as seeding. Here, the main goal is to spread eelgrass seeds throughout a pond allowing the eelgrass to grow naturally without transplanting. One simple seeding method throws eelgrass seeds off of the side of a boat, letting them float around, eventually sinking to the bottom of the water (“Project Planning – Eelgrass”). One man threw the seeds off of the boat in the letter B in honor of his name, Bob. Sure enough the next year the eelgrass had grown in the shape of a B (Freedman). This proves that the seeding method should not be overlooked as too easy or ineffective. Another seeding method involves displacing the seeds into a gelatin substance known as the Knox Gelatin Matrix (“Project Planning – Eelgrass”). This substance is pumped out through hoses and spread across the floor of a body of water by divers. This procedure is also highly effective as it ensures the seeds will not be carried away with the current or eaten by other marine life. Yet, this method is also very costly and required much of CRMC’s funds during the project in Ninigret (Freedman). Regardless, any restoration which works needs to be completed in order to save the marine habitats throughout Rhode Island.

Walking back from the pond, over ten years ago, I could not get the notion out of my head about how no one should ever have to catch dead grass when fishing. A pile of yellow weeds can ruin your day if you intended on catching a fish in its place. Swaying strands of eelgrass are much more appealing than tufts of crusty blades upon the shoreline or in the hooks of fishing rods. As time has gone on, the amount of grass upon the shore has increased and the

sand in the bottom of the pond is spreading. Minnows swim out in the open and the crabs can clearly be seen in the sediment on the bottom of the pond. Quonny is slowly but surely losing it's outer protecting shell and from above, the pond is becoming bare and desolate, resembling the deserts in the Middle East. It is only a matter of time before the bottom of the pond is deserted with no marine life at all. Yet, plans of restoration are promising as several projects throughout Rhode Island have been conducted already with great success. Hopefully, soon enough Quonny's underwater forest will be flourishing and marine habitats will be prospering once again.