SEAGRASS.LI

LONG ISLAND'S SEAGRASS CONSERVATION NEWSLETTER

Volume 1, Number 1 Spring 2006

The Meadows of Fishers Island

Eelgrass Propagation Primer

The Lacuna Snail

Seagrass vs. Seaweed

THE PREMIER ISSUE

Cornell University
Cooperative Extension
of Suffolk County
Marine Program

Kim Petersen planting eelgrass at St. Thomas Point, Long Island Sound, Southold, NY. (Photo By Chris Pickerell) For more information on this project, see future issues of SEAGRASS.LI or visit our website @ WWW.SEAGRASSLI.ORG.

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SPRING

Sea•grass \'sē-,'gras\ ***n*** **:** "Rooted, submerged marine or estuarine macrophytes of several species. Habitats created by seagrass meadows are among the most diverse and productive estuarine environments." National Oceanic and Atmospheric Administration

Welcome to the first issue!

When we set out to put together this first issue we knew it would be a lot of work, but nothing prepared me for the time and effort that we had to put in. My overriding goal was to create something that was visually appealing and written in such a way that anyone with the slightest curiosity, regardless of background, would enjoy reading. Hopefully, we have achieved this.

In developing the concept, I was mindful of two very different audiences. The first and most obvious being regulators, managers and scientists; those of us in the trenches, who already understand the value of seagrasses, have an interest in protecting what remains and see seagrasses thrive and expand. However, a second, much larger and more influential group are members of the public sector and elected officials who aren't directly working with seagrasses, but who **shape public debate** through their opinions, policies and votes. Both audiences need to be embraced if we are to make headway in the public relations battle to save the seagrasses. We've already lost between 75 and 90% of our seagrass habitats; if we don't act now they may all be gone.

As we are all by nature "terrestrial", it is not unexpected that something that exists entirely underwater would simply be overlooked in today's fast-paced society. This "out of sight,out of mind" status of seagrass is really the first significant hurdle I hope to overcome. No one can blame the public for its **lack of awareness** and since it is the role of those of us in the field to educate the public, this failure clearly rests on our shoulders. In fact, rather than being considered a valuable natural resource, some people have gone as far as saying that eelgrass, in particular, is a nuisance that needs to be controlled. This is somewhat of a geographic phenomenon pitting South Shore vs. North Shore and East End vs. West End, but that is probably an oversimplification. One thing is clear, however, if we are to protect what grass we have left, we must foster a sense of stewardship in the public that is currently lacking.

Although there was no real model for me to follow when putting this together I had a fairly clear concept of what I wanted. More than anything, I would like to pass on our experiences and observations to people who will probably never don a wetsuit. The best way for us to do this is through our photographs and observations, fortunately we have plenty of both from the last decade of work. I know from experience that people are most interested in **surprising observations and project failures**. I hope we have more of the former and fewer of the latter! Regardless of our successes, I hope to keep you interested and informed.

Let me know what you think.

Chris Pickerell, Editor

E-mail questions and comments to: SEAGRASSLI@cornell.edu

PARTNERS

PEP/EPA

Funding for our projects comes from a number of grants. We would not have been able to begin our work with seagrasses without the generous support of the Peconic Estuary Program (PEP). With funding from the U.S. Environmental Protection Agency (EPA), the PEP supported CCE's first eelgrass work in 1993. With the PEP's goal of restoring eelgrass beds in mind, Suffolk County is contracting CCE to restore an eelgrass meadow in the waters east of Shelter Island this year. The PEP continues to fund periodic delineations of the Peconic's remaining eelgrass meadows as well as CCE's long-term monitoring of select Peconic eelgrass beds. The PEP is a partnership of governments, environmental groups, businesses, industries, academic institutions, and citizens committed to restoring and protecting the Peconic Estuary. See www.peconicestuary.org.

CCE of Suffolk County is a not-for-profit organization funded in part by Suffolk County through the office of Steve Levy, County Executive and the County Legislature.

Photographs By Chris Pickerell

The North Shore of Fishers Island

The most amazing meadows in New York

By Chris Pickerell

The North Hill Point meadow with clean white sandy sediment and few epiphytes.

In the summer of 2004, we were fortunate to have been able to dive the eelgrass meadows off the north shore of Fishers Island. We had arranged to take dive gear over to the Island for one of Southold Town's annual "Founders Day" events when various Town, County and State officials and staff headed over to Fishers for the day to meet with local residents. Most people arriving that day had arranged to be transported around the island in cars and trucks, however, this was not our plan; we needed a boat. Fortunately, we were able to borrow a boat from the island's resident aquaculturist, **Dr. Steve Malinowski** of Fishers Island Oyster Company, who had worked with CCE in the past on various aquaculture projects. After arriving at Steve's place and loading the boat, he motored us out into **West Harbor**, pointing out areas to search for eelgrass or avoid because of rocks and other hazards. With this information we were ready to explore.

Idling out of the Harbor I was struck by the sheer beauty of the area and how different it was from anything I had seen on Long Island. Regardless of statutory boundaries, the steep rocky shores made it clear, we were definitely in New England! We couldn't spend too much time in the Harbor, but a quick look at the eelgrass meadow along the eastern shore revealed a fairly heavy epiphyte load, giving the plants a brown, hairy look that we were all too familiar with on the mainland; nothing new here. After passing north of Hawks Nest Point we headed east to the first spot our host had suggested we visit, **Chocomount Cove**. Once there, I slipped on my gear and dropped in to explore. I was amazed to find the grass reaching almost 6 feet tall and very dense, to the point of tangling around my legs, arms and regulator. Reaching the bottom, I found the sediment to be a muddy silt with rusty brown haze that ran up onto the lower 1/3 of the plants, most likely caused by the release of iron-laden groundwater (see "Rust Never Sleeps" in this issue). Many of the leaves were tangled and attached to each other with sponges, tunicates and other growth making it kind of messy. After a little exploring and a couple of pictures, it was time to move on since we didn't have time to waste.

Once back in the boat we headed west across the mouth of West Harbor and anchored just off **North Hill Point**. Given the clarity of the water we could see the grass from the surface but couldn't really estimate the depth. This is a common "problem" in clear water, but one that I welcome. After rolling off the side I was surprised to find that the grass was just as tall as in Chocomount Cove, but very clean. The sediment consisted of fine white sand (see photo above) that reminded me of what I had seen on a previous dive, near the mouth of **Hay Harbor**, a year before. During that dive I was amazed to find scores of sand dollars coasting over the bottom, but that's another story. Since the day was quickly coming to a close and our ferry was going to leave, I snapped a few more photos and we had to head back.

The view north towards the Dumpling Islands (NY) and the CT mainland.

Since this visit, we've headed back to the Island several times during the 2004 and 2005 seasons to document the meadows and collect flowers (seeds) for restoration purposes. Some day we hope to secure funding that will enable us to establish permanent monitoring stations here so we can continue to follow the health of these amazing meadows. This year we are looking forward to exploring the meadows on the south side of the Island that look to be even more unusual. Check back for updates on this visit. *CP*

The work boat we used to get around the Island.

Photographs By Chris Pickerell/Map by Stephen Schott

Seagrass vs. Seaweed:
What's the difference?

Everything you wanted to know, but were afraid to ask!

By Stephen Schott, CCE

"...algae display an incredible variety of shapes, sizes and colors."

Kelp [seaweed] (*Laminaria sacharina*)

SEAWEED. SEAGRASS. THEY SOUND THE SAME, but they couldn't be any more different. Yes, both use sunlight to make food (photosynthesis), live their entire lives underwater, and play important parts in the health of our estuaries, but there is where the similarities stop. They are night and day when it comes to how they are put together and reproduce, but the basic roles they play in our estuaries are similar.

WHAT'S IN A NAME?

The first thing we need to get out of the way is the confusion that the names "seaweed" and "seagrass" may cause. When one hears the word "weed," one might picture a grass-like plant that is a nuisance. Seaweed, while it may be a nuisance at times to some people, definitely doesn't fit the image of the grass you have growing in your yard or that you have to pull out of your garden. Seaweeds or, more correctly, marine algae, display an incredible variety of shape, sizes and colors. Seaweeds are divided into three groups based on their colors: **green**, **red**, and **brown**. However, within each of the groups the colors can range from pale yellows to greens, reds and browns so rich that they almost appear black. Seaweed beds exhibit a tremendous array of shapes and sizes. You can encounter 10-15 foot-long kelps with their brown, wavy-edged and strap-like blade, the delicately "fuzzy" red chenille weed, the green fern-like form of *Bryopsis*, and the ubiquitous green cellophane-like sheet of sea lettuce/cabbage.

Unlike seaweeds, seagrasses are the real deal. Our two species of seagrass, eelgrass and widgeon grass, are related to and act like land grasses, except they live underwater. Swimming over many of the eelgrass meadows on Long Island, you will find, knee-high grass that is patchy and even sparse in places. But, there are a few truly magnificent beds where the eelgrass stands 4-6 feet high and is seemingly as dense as a wheat field. These are just the basic differences, there are more.

ANATOMY

A comparison of some basic anatomy also points out some differences. Seagrasses have the typical **roots, stem and leaves** that we are used to seeing in land plants. The roots in seagrasses provide the plant with anchorage and extract nutrients from the sediment, much like land plants. The stem, or rhizome, lies buried just below, or at, the sediment surface and provides storage of nutrients and a conduit between the roots and leaves. The leaves, referred to as blades like land

COMMON SPECIES

SEAGRASS
Zostera marina (Eelgrass)
Ruppia maritima (Widgeon Grass)

SEAWEED [ALGAE]
Greens
Ulva lactuca (Sea Lettuce/Cabbage)
Codium fragile (Sputnik Weed)
Ulva intestinalis (Hollow Green Weed)
Browns
Ectocarpus siliculosus (Slipgut)
Fucus sp. (Rockweed)
Sargassum filipendula (Sargassum)
Reds
Spyridia filamentosa
Gracilaria tikvahiae
Polysiphonia sp.

Photographs By Kim Petersen

grasses, capture sunlight to make food through photosynthesis. Seaweeds have similar structures to seagrasses, but they tend to be less specialized than the corresponding seagrass parts. Starting at the bottom is the holdfast. The holdfast has the sole function of anchoring the seaweed to a hard surface. Absorption of nutrients is accomplished by the whole seaweed directly from the water and not from the sediment. Though some seaweeds have holdfasts that appear root-like (e.g. kelp), other species have small disc-shaped holdfasts and some have none at all. Playing the part of the stem in seaweeds is the stipe. Its function is to attach the holdfast to the upper parts of the seaweed. The stipe can be almost nonexistent to over 100 feet long! Attached to the upper end of the stipe is the main part of a seaweed, the blade. The blade is responsible for much of the photosynthesis, although the stipe and holdfast contribute as well. The blade also tends to support the reproductive structures of the seaweed (more on that later). To sum it up, seaweed anatomy is less specialized in function than that of seagrasses.

19th Century German Lithograph showing Widgeon Grass (*Ruppia maritima)* on left. 1885, Prof. Dr. Otto Wilhelm Thomé, Flora von Deutschland Österreich und der Schweiz.

On Long Island, we see seaweeds everywhere in our coastal waters. In fact, as long as there is something for them to anchor to, seaweeds will grow. Unfortunately, the same can't be said about seagrasses. Eelgrass populations around Long Island have declined over the last 100 years and areas that once supported eelgrass have not been re-colonized, even though conditions for growth appear suitable. One of the reasons for this lack of re-establishment may be due to eelgrass's reproduction.

REPRODUCTION

Eelgrass spreads in two ways, through expansion of the rhizome and via seed. Rhizome expansion is an important part of eelgrass life history, but it is responsible for maintaining and expanding only existing meadows. Establishment of new meadows requires seeds. Eelgrass seeds are produced from special flower shoots that start to develop in late winter/early spring. Pollination occurs in May and locally, seeds are ripe from late June through mid-August. The **seeds are the key** to spreading eelgrass to another area and have been found to be able to float, or raft, in a detached flower shoot and drop seeds over 50 miles from the original bed. Unfortunately, due to high seedling mortality it can take a large number of seeds to start a new bed, and possibly decades for the new bed to reach a substantial size.

Seaweeds don't have the same problem with spreading and establishing new populations like eelgrass, and in fact, they can colonize new areas from much greater distances in less time than seagrasses. Their reproduction cycle is a little more complicated than a seagrass, but it allows an individual seaweed to produce thousands of microscopic spores that are capable of being transported great distances by currents and even on the feet and feathers of seabirds. Seaweed spores are so good at traveling, that they can even hitch rides in the ballast water of ships and travel across entire oceans, and establish themselves in new areas. The success of seaweed reproduction can be seen on any shoreline. It seems like a general rule that if there is something firm to attach from the high tide line down to 30 feet, in our area, then there is going to be some type of seaweed growing on it.

So, it is easy to see now that seaweeds and seagrasses are not one and the same. They have unique life histories that set them apart, although the roles they play in our coastal waters, as food and habitat, are similar. Look to the next issue for further details on the "value" of eelgrass and what makes this species so important to local waters.
SS

Close-up of Eelgrass rhizome and roots.

"Seagrasses have the typical roots, stem and leaves...."

Eelgrass
(*Zostera marina*)

Photographs By Stephen Schott

An Eelgrass Propagation Primer

By Chris Pickerell

Before you attempt an eelgrass (*Zostera marina*) restoration project, you'd better have a good understanding of the two different ways this plant spreads or propagates. Understanding this very important aspect of the eelgrass life cycle just may make the difference between success and failure. Like any perennial in your garden, eeglrass produces new shoots by division or setting seed. In nature, division appears to be the most significant means of spread for existing meadows, while seeds are important in the recovery of meadows that have been disturbed and in establishing grass at new locations. What's the best method for your restoration project? Although there are numerous other things to consider when planning a project, we will start, in this issue, by discussing the basics of seed and shoot propagation. Future articles will describe in detail the various methods developed for seeding and transplantation methods. *CP*

Seeds

TIME OF YEAR

Seeds only come once a year so the season is limited. Flowers mature during mid to late summer depending on water temp and the seeds usually fall directly to the bottom. Seeding for restoration normally takes place in late Fall.

METHODS

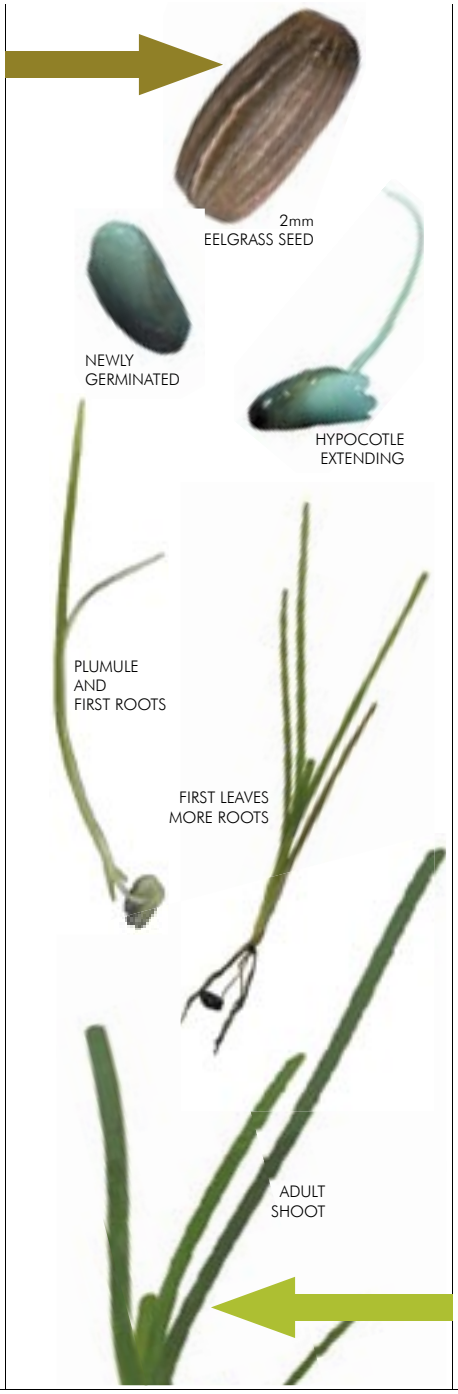
Several different seeding methods have been devised, requiring various degrees of training, equipment and facilities. Seeds are gathered by collecting mature flowers during the second week of seed release and holding them in flowing seawater tanks until the seeds drop out. Broadcasting is the simplest seeding method, involving spreading the seeds from a boat over the restoration site. Other methods include use of a specially built Seeding Sled and Buoy-Deployed Seeding, which eliminates the need to hold the flowers.

ADVANTAGES

Using seeds can reduce labor costs and can help to increase genetic diversity at the restoration site.

DISADVANTAGES

Seedlings are susceptible to predation and even under the best conditions seedling recruitment usually does not exceed 10-15%. The seasonal limitations of seeding can also be a disadvantage to using seeds.



Shoots

TIME OF YEAR

Adult shoots can be planted almost any time of year except during peak summer water temps. We have found that planting in temps lower than 60F is beneficial. Typical planting windows include March-May and October-December

METHODS

Nearly any method that holds the shoot on the bottom long enough for a new set of roots to emerge will work. During the late spring and early fall this period is about 2-3 weeks. Not all plantings have to be anchored if the site is well protected and predators are not a concern.

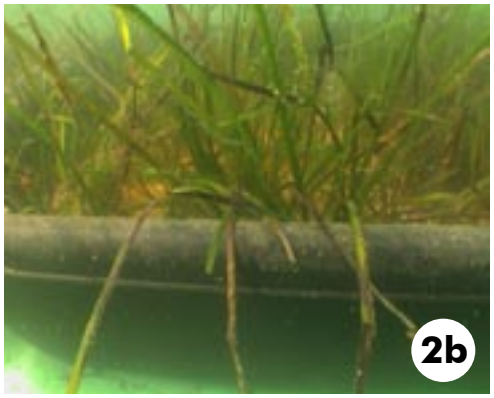
ADVANTAGES

The flexibility in timing and methods makes adult shoot transplantation the most popular eelgrass restoration method to date. The ability to easily monitor results also makes transplantation popular.

DISADVANTAGES

Eelgrass transplantation is typically more labor intensive than seeding, but volunteers can often be used. Unless properly done, collection of adult shoots can have a negative impact on the donor meadow. Given the limited number of shoots that can be collected and the fact that many donor meadows propagate clonally, genetic diversity is usually low at transplant sites.

Photographs By Kim Petersen and Sophie Pickerell



Shoots 101
STEP BY STEP

1. COLLECT
Although we do not like to collect shoots from existing meadows, we have found that it is possible to gather large numbers of live shoots from the edges of eroded meadows at certain sites. All collection is conducted by SCUBA divers.

2. PROCESS/HOLD
After collection, the shoots can be planted out immediately or transported to the nursery for processing. In the greenhouse, clumps are separated into individual shoots (2a) and held in seawater tanks until planting. Shoots are "planted" in sand trays (2b) if held for more than a couple of weeks.

3. PLANT
There are numerous ways to plant adult shoots all involving some way of anchoring the rhizomes to the bottom until rooted (approximately 2-4 weeks depending on water temperature).

Seeds 101
STEP BY STEP

1. COLLECT
Collect ripe reproductive shoots using SCUBA gear during the second week of seed release. Close monitoring of flower development is critical to timing of collection. This is the only step that requires the use of SCUBA gear unless a very shallow donor meadow can be located.

2. PROCESS/HOLD
Reproductive shoots have to be held for up to 1 month in flowing seawater tanks (2a) or until the seeds have been released (2b). Once released, the seeds can be separated from the flowers and other decayed material. Hold seeds in flowing seawater until planting.

3. PLANT
Seed planting usually takes place in late fall to early winter. Planting usually includes "broadcasting" which involves throwing the seeds from a boat travelling over the restoration site.

Photographs By Chris Pickerell

Spotlight On

The Banded Chink Snail (*Lacuna vincta*)

Keeping the Eelgrass Clean

By Kim Petersen, CCE

LIFE HISTORY

IF YOU LOOK CLOSELY at the picture above, you may be able to make out some tiny critters strolling along on the eelgrass blades. Well, these are *Lacuna* snails (*Lacuna vincta*), and they are busy grazing on the epiphytes that grow on the eelgrass. Averaging around **3-6 mm** in size (see photo at right), these little herbivores live on what they eat, which includes kelp, sea lettuce, Irish moss, and other algae found along shallow rocky shores. Densities can reach into the thousands per square meter within eelgrass meadows and kelp beds.

HERE ON LONG ISLAND

These snails prefer the cool coastal waters of Canada and New England, so Long Island is considered the southern extent of their range. Banded chink snails can be found along the eastern end of Long Island where they are exposed to the cool waters of the Atlantic and have plenty of algae to eat. You may spot them in the waters of eastern **Long Island Sound, Orient Point, Gardiner's Island,** and eastern **Shelter Island**. Our eelgrass restoration team has become well acquainted with these tiny snails because they happen to be very close in size and density to eelgrass seeds, and become mixed in with the seeds we collect to the point that it is impossible to separate them!

REPRODUCTION

When it comes time to multiply, *Lacuna* snails lay yellowish, doughnut-shaped egg cases on eelgrass or algae surfaces. These jelly-filled masses expand as the larvae develop inside, and after 2-3 weeks, the larvae are released and become plankton in the water column. They remain in planktonic form for up to 9 weeks before they finally settle down into their adult form. Each egg case is filled with up to 1500 larvae, and each female can lay numerous egg masses per season, so researchers estimate that each female can produce between **10,000 and 100,000 offspring!** Why so many? Well, because it is estimated that only 2-3% will reach maturity. They only live to be a year old, and that's if they can avoid being eaten. Small fish in the blackfish family called cunner rely on *Lacuna* as a main food source, and tend to pick out the largest snails possible (up to 12 mm). A really interesting fact about *Lacuna* snails is that if they decide they want to relocate to a new area, they can secrete a long, sticky mucus thread, which allows them to drift with the current until they find a suitable place to call home!

IMPORTANCE TO EELGRASS

The importance of *Lacuna vincta* to the overall health of an eelgrass meadow has yet to be studied in detail, but from our experience, the "proof is in the pudding": our healthiest eelgrass meadows tend to be jam-packed with these snails. Although we have witnessed that *Lacuna* snails can eat the actual eelgrass, they seem to prefer the slimy coating of microalgae that builds up on the eelgrass blades instead, which is much softer and easier for them to consume. This relationship between eelgrass and *Lacuna* snails is a classic example of **mutualistic symbiosis**, meaning that both species benefit from each other. The snails enable the eelgrass to be as productive as

possible by eating bothersome epiphytes, which allow the greatest possible amount of sunlight and nutrients to reach the eelgrass blades, therefore maximizing photosynthesis. Meanwhile, the snails are not only provided with an abundance of food, but within an eelgrass meadow, they are hidden from predators and are buffered from strong currents that could whisk them away. By keeping the eelgrass meadows **"clean"**, *Lacuna* snails help to provide a healthy habitat for many species of plants and animals, increasing biodiversity while keeping the ecosystem balanced. *KP*

What is it.....?

See answer on page 11

Photographs By Kim Petersen

HOW MANY.....

Sure, it would be nice to plant an entire eelgrass meadow in a couple of dives, but that would be physically impossible even with 10 divers. At its essence, the process of restoring a seagrass meadow boils down to one basic goal; establishing a **self-sustaining meadow** with minimal effort, as cheaply as possible. Harsh, but true. In practice, one of the first questions facing planners is what are the fewest number of plants or seeds necessary to be successful and how should the plants be arranged: concentrated in dense patches, planted out in long and narrow bands, set in rows like corn or spread widely? Unfortunately there are no simple answers. The scheme chosen will vary depending on the level of funding, availability and type of labor, the presence of predators (see "Loved to Death"), wave energy, bottom type and, most importantly, planting method. Among all these questions however, one thing is clear, it is just **not economically or logistically possible** to plant grass at the density at which it typically grows in the wild (i.e., 500-1000 shoots/m^2). We have to start at some reasonable level below this and hope that the plants will spread into the open areas, eventually approaching natural densities. In theory, this should work and in practice, it works if the appropriate site has been selected. In our work, we usually target the range of 100 to 200 plants/m^2, but even this is very dense when you have to plant each by hand! In preparing for the upcoming Peconic Estuary Program eelgrass restoration project east of Shelter Island, we tested a couple of different densities and found that 200 and 400 plants/m^2 survived equally well. So, as you might imagine, we will be using the **lower density** when we begin work on the project this Spring! CP

RUST NEVER SLEEPS

When you think of eelgrass you usually don't think of rust, but occasionally that is just what you find if you look in the right place. Long Island is known for **iron-laden groundwater** and when you combine the artisian affect of nearshore hills with a fringe of eelgrass, you just might get this unique phenomenon. The amount and rate of groundwater flow into our bays is directly related to the elevation of the land and where there are hills, there is usually considerable groundwater inflow. We have observed iron deposits in the meadows along the north shore of Shinnecock Bay and at Chocomount Cove on Fishers Island. Groundwater stays at a fairly constant 55°F and when it seeps from the bottom into the calm of an eelgrass canopy during summer, it tends to stay put amongst the leaves until it diffuses into warmer estuarine waters surrounding the meadow. When this happens, the iron that is blue/black color in its reduced state in the sediment turns a rust brown color when it comes in contact with oxidized baywater. In the shelter of an eelgrass canopy, the iron can come out of solution (precipitate) and cling to the slimy surface of leaves. If you happen upon one of these areas you may observe a **rust-brown fuzz** covering the sediment and lower portion of the leaves. Depending on the time of year you also might feel a quite a chill! So, you think groundwater quality has nothing to do with the health of our bays? Think again! CP

LOVED TO DEATH

Valuable lessons can be learned from even the most **dismal failures**. This is the way of science and translates all too well into the field of seagrass restoration. Fortunately, we can learn much from these failed projects and use this newfound knowledge to improve future efforts. One lesson we learned early on was just how **destructive crabs** could be to new plantings. Most of our planting sites are barren areas with little or no structure on the bottom. Therefore, when we create a small meadow it seems to attract every crab within a half-mile radius. The first cue to the crabs that something interesting is happening is the release of "good smelling" subsurface sediments in the water column as we push the plants in the bottom. Once visitors begin arriving, there is little for them to do or eat, unless we have unearthed a few worms, so they invariably decide to spend time in this new playground **searching for food**. In the end, preferring this new area over where they previously resided, they usually decide to seek shelter among the shoots awaiting their next meal. I can't tell you how many times we have returned to a planting site to find most of the plants ripped out and several crabs digging under what is left. In some cases, the crabs will simply cut the shoots off just above the bottom, leaving behind a telltale diagonal cut. We really can't blame them as the crabs are just doing what comes naturally. In response to this problem and other threats, most of our transplant work focuses on late fall and early winter when the crabs slow down and aren't an issue. CP

DIVE IT

Orient Point, Southold

One of the best places to observe healthy eelgrass on the East End is along the south side of Orient Point, Southold, Town. The site is best accessed by boat anchored off shore, but it is possible to drive to the point if you have the appropriate access permit from Suffolk County Parks. The meadow runs from the Cross Sound Ferry terminal in the west almost to the Orient Point Light House to the east. Depths range from 4ft., near shore to over 15ft. at the deepwater edge. Watch out for strong longshore currents running from east to west! Avoid anchoring in the grass!

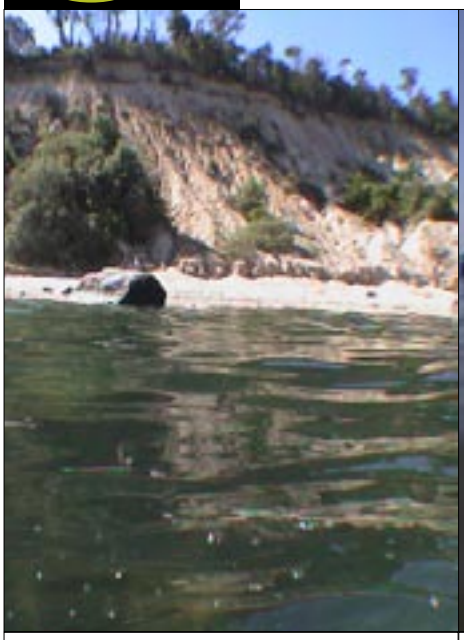
Photographs By Chris Pickerell/Aerial provided by NYSGIS Clearinghouse

3 Estuaries

Three Projects

By Chris Pickerell

Our current projects range from a pilot-scale eelgrass restoration initiative in Hempstead to long-term monitoring projects of existing eelgrass meadows in the Peconic Estuary and eastern Long Island Sound. Here is the latest from three ongoing projects.



LONG ISLAND SOUND

ST. THOMAS POINT, SOUTHOLD

THE PROJECT

The goal of the Long Island Sound (LIS) Eeglrass restoration project is to create a 2-acre meadow at St. Thomas Pt. and small test plots at Terry Pt. and Mattituck Inlet. To date 1.5 acres have been planted at St. Thomas Pt. and the test plantings at Terry Pt. have been successful. Test transplants began at St. Thomas Pt. in the fall of 2004 and resulted in an approximately 5-fold increase in shoot density and flowering during the first summer. Incorporating transplants from several LIS locations will help to ensure genetic diversity of this new meadow. A new method of planting eelgrass in the high-energy environment of the LIS has been developed.

PARTNERS & FUNDING

This project was made possible through grants from the Long Island Sound Study Futures Fund administered by National Fish and Wildlife Foundation, NOAA Restoration Center Community-based Restoration partnership with Restore America's Estuaries and Save the Sound.

WHERE?

St. Thomas Pt.
Southold
NY

PECONIC ESTUARY

CORNELIUS POINT, SHELTER ISLAND

THE PROJECT

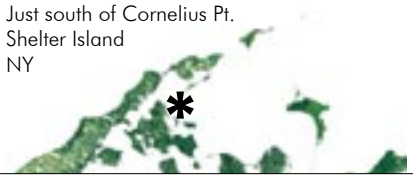
This year, the Peconic Estuary Program (PEP) has decided to fund an eelgrass restoration project off the eastern shore of Shelter Island. This site was selected based on the results of a previous GIS-based restoration site selection model project. That project identified the most favorable sites for planting eelgrass in the Peconics, based on existing and historic eelgrass coverage combined with existing environmental conditions. The goal of this project is to establish a 1-acre eelgrass meadow using transplants from nearby beds. Test plantings during 2004 and 2005 have confirmed that the site is suitable for planting and helped to refine planting methods.

PARTNERS & FUNDING

This project is funded through Suffolk County's Capital Program. Suffolk County, EPA, and the NYS Department of Environmental Conservation co-sponsor the Peconic Estuary Program.

WHERE?

Just south of Cornelius Pt.
Shelter Island
NY



SOUTH SHORE ESTUARY

SSER, SOUTHAMPTON

THE PROJECT

The Southampton Town eelgrass and bay scallop restoration planning project will result in the creation of a comprehensive plan for restoration of both species in the Town's South Shore bays. The project involves a mix of field and computer work to create a GIS-based plan that will have relevance to the entire SSER. Work includes mapping existing eelgrass meadows and determining bay scallop distribution along with test plantings and monitoring of both species.

PARTNERS & FUNDING

This planning effort is being funded by a NYS Department of State Environmental Protection Fund grant awarded to Southampton Town. CCE and the Southampton Town Trustees are working together on this project.

WHERE?

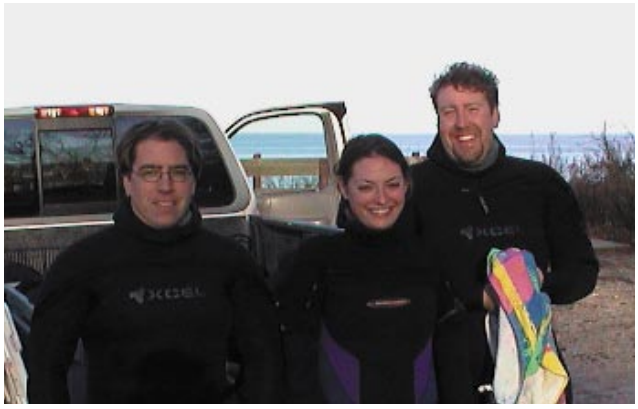
Shinnecock to Moriches Bay
Southampton
NY

Photographs By Chris Pickerell and Stephen Schott

LEARN MORE...

Who? You!
What? If you want to learn more about our work, take a tour of our greenhouse or help out in some way, e-mail us at: SEAGRASSLI@cornell.edu or call us at (631) 852-8660.
When? We work year-round and are normally on the water during the spring, summer and fall. If you want to stop by, make sure you contact us prior to your visit.
Where? Although we work throughout Long Island, our base of operations is located at the Suffolk County Marine Environmental Learning Center located at 3690 Cedar Beach Road, Southold, NY. In addition to the eelgrass greenhouse there are many other things to see at SCMELC.

THE GREENHOUSE



Meet the Team: Chris Pickerell, Kim Petersen and Stephen Schott (L-R) after a December 1, 2005 dive in Long Island Sound off Caumsett State Park, Huntington N.Y. We had just completed an eelgrass test planting in preparation for what we hope will be a larger project in 2006.

FAQ's

Q: Why restore eelgrass?
A: This is a question we get a lot. First, eelgrass provides many ecological services including habitat support for the fish and shellfish that we all depend on for recreation, and consumption. Second, despite improvements in water quality, it is not likely to re-establish itself any time soon in local waters without some help. In order for a meadow to regenerate there needs to be a source of seeds or shoots nearby. If there is no eelgrass in the area, we need to jump start the process with pro-active plantings and then let nature take its course.

PAGE 8 ANSWER: *Lacuna* eggs

WEAR IT

Name:_____

Address:_____

_____

Size: ____ S ____ M ____ L ____ XL ____ XXL

Amount Enclosed:_____

Show your support for Long Island's Seagrass by purchasing a SEAGRASS.LI T-shirt. Send a $15 check or money order payable to "Cornell Cooperative Extension" at SEAGRASS.LI, 3690 Cedar Beach Road, Southold, NY 11971.

CALENDAR SPRING

MARCH

Brrrr....time to put the dry suits on and get back in the water (Median water temp., MWT 44°F). All temperature loggers need to be deployed to catch spring rise in water temp. through 50°F. Monitoring begins on last year's plantings and seedlings.

APRIL

Field work begins in earnest. Boats in the water (MWT 49°F). Eelgrass transplants can begin using plants propagated overwinter in the greenhouse. Greenhouse seedlings not yet big enough to plant out in the field.

MAY

Large-scale transplants are in full swing. Water temp warming considerably (MWT 58°F). This it the best time to observe seedlings before they reach the size of adult shoots and are indistinguishable. Start scouting for flowers at donor meadows.

JUNE

All tranplants halted until fall to avoid temperature stress of mid summer (MWT 69°F). Focus on monitoring for flower development. Some flowers may be ready for harvest at the end of the month in our warmest harbors and creeks.

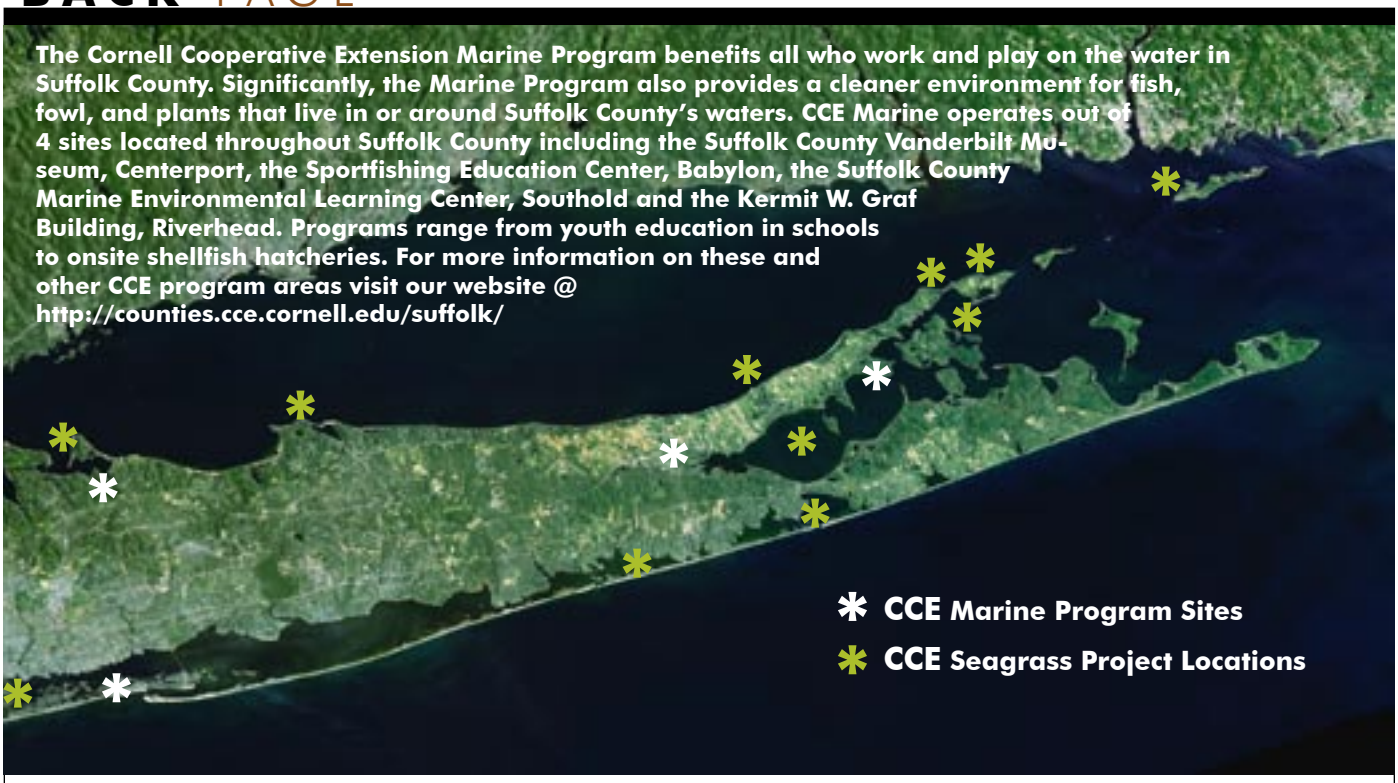
JULY

NEXT ISSUE!

Photographs By Chris Pickerell and Mathew Sclafani

BACK PAGE

The Cornell Cooperative Extension Marine Program benefits all who work and play on the water in Suffolk County. Significantly, the Marine Program also provides a cleaner environment for fish, fowl, and plants that live in or around Suffolk County's waters. CCE Marine operates out of 4 sites located throughout Suffolk County including the Suffolk County Vanderbilt Museum, Centerport, the Sportfishing Education Center, Babylon, the Suffolk County Marine Environmental Learning Center, Southold and the Kermit W. Graf Building, Riverhead. Programs range from youth education in schools to onsite shellfish hatcheries. For more information on these and other CCE program areas visit our website @ http://counties.cce.cornell.edu/suffolk/



THE NEXT ISSUE OF SEAGRASS.LI

Feature: Global Warming and Seagrasses

Spotlight On: The "Value" of Eelgrass

How-To: Buoy-Deployed Seeding

Feature Meadow: Bullhead Bay, Southampton

Field Notes: "Crop Circles", etc.

Cornell Cooperative Extension of Suffolk County, New York is a non-profit educational agency dedicated to enhancing and protecting the environment, strengthening families and communities, and fostering countywide economic development. Affiliated with Cornell University, Cornell Cooperative Extension of Suffolk County is part of the state and national extension system that includes the land-grant universities and the U.S. Department of Agriculture. CCE's program areas include Marine, Agriculture, 4-H Youth Development, and Family and Consumer Sciences. CCE is funded in part through the office of **Steve Levy**, County Executive and **the Suffolk County Legislature**. We thank the County for its continued support.

SEAGRASS.LI
Cornell Marine Lab
3690 Cedar Beach Rd.
Southold, NY 11971

Visit our website at WWW.SEAGRASSLI.ORG