# SEABREEZE WELCOME LETTER

## SHORELINE STABILIZATION & EROSION CONTROL

Seabreeze
Healthier lakes. Stronger shorelines.™
State Licensed SCC131152136

Hello,

Thank you for giving Seabreeze the opportunity to repair your shoreline! I have put together this brochure to give you the inside scoop on how the erosion repair process works and what to expect. But first, it's good to know the type of company we are and what type of clients we enjoy working with…

The clients we prefer to work with understand and connect with our company's culture. What do I mean by this?... They recognize the *value* in our erosion products and enjoy working with our world-class staff day in and day out. We listen to their needs, their wants, their feedback, and sometimes their feelings. They occasionally ask us how our families are doing. Sometimes they call just to chat or get something off their chest. That's ok! They eagerly recommend us to their friends and go out of their way to defend our company and our products. This fosters a culture where our staff members thoroughly enjoy coming into work each day and look forward to interacting with each client day-in and day-out. This results in a stronger, better client-contractor relationship so that together we can achieve our core objective: *Healthier Lakes* and *Stronger Shorelines*.

It is my hope that our professionalism and expertise have already been put on display during the initial bidding process. I hope to work with you soon.

Warm regards,

SCC

Justen Dobbs
Owner & Co-Founder
Specialty Certified Contractor for Marine

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# Prior to Construction

1) Permits

Permitting looks different depending on whether you are within city limits or live in unincorporated land. If we feel permits are needed, our in-house permitting department will obtain them and may engage our outside civil engineering firm to help. We, and our engineers, have built strong relationships with the individuals at the county and state levels who are familiar with our company and our unique, novel stabilization products. If you have any general permitting questions about, please call Nicole Baker at 239-940-0295.

2) Pre-construction Call

We will have a conference call once contracts are authorized to introduce our managers and job-site foreman and also to find out where we are able to set up a staging area for our equipment- this is where we will initially park our equipment, tools, poly mat, etc. We will notify you of a date that we plan on mobilizing equipment and all equipment will have orange cones around it for safety. If there are multiple lakes, we will determine which lake is best to start on. Lastly, the association needs to add SEABREEZE EROSION to their vendor's list or make other arrangement to get us daily access to the community.

3) Pre-construction Meeting

One of our staff members will tour the first lake to identify a staging area for equipment and also drop zones which is where our aggregates (rock, shell, organic blend) will be dropped by our dump trucks. A satellite diagram will be created and will show the staging area and each drop zone with corresponding addresses if needed. This diagram can be shared with the Board members or with residents. If there are any issues with one of our drop zones, we can address the issues and work together on a plan. We always try to utilize utility and storm water easements as much as possible. You will receive a Sod Repair brochure and a Littoral Planting Brochure from us via email which you can send out to residents if you'd like. It helps calibrate expectations which usually saves the association manager time and energy fielding calls and concerns.

4) Brochures

Within this brochure are a few helpful pages that can be shared with residents to help educate them on the process and answer any questions they may have. If there are any additional questions that come up regarding sod or littorals, please feel free to call us.

# During Construction

1) Executive Team

Mark Jones, General Manager 239-788-4130 gmanager.seabreeze@gmail.com
Nicole Baker, Administrative Manager 239-940-0295 corporate.seabreeze@gmail.com
Luke Powell, Foreman 239-789-6555 superintendent.seabreeze@gmail.com

2) Mobilization

On the first day we will mobilize some of our equipment on site in a pre-approved location. This usually includes mini skidsteers, mini excavators, side dumpers, and skidsteers. Most of these will remain on site for the duration of the project. We may also lay out some plywood for our equipment to run on. We will also have Florida NO CUTS mark out all city and county utilities. One of our Team Members may walk the access point and flag irrigation too if necessary.

3) Installation

**ALL WORK WILL BE DONE FROM LAND. NO BOATS.**
**WE USE ONLY LIGHT CONSTRUCTION EQUIPMENT.**

-With the exception of large dredging/excavating projects, we typically use light equipment that is only about 48-60” wide. This allows it to fit through tight spaces with ease and safety in mind. Our equipment has specially-designed rubber sod tracks for minimal impact on sod throughout the community.

-All of our staff members wear Seabreeze Blue company shirts with our logo and all of our vehicles are blue with a white company logo, except for our planting foreman.

-Our foreman will take before and after pictures of each section of lake that we repair.

-All vehicles and trailers parked in streets and all aggregate piles will have cones placed around them for safety. In some cases, we initially have a lot of earthwork to do. If this is the case, the rock, shell, or organic blend won’t be delivered to the jobsite for days or weeks. This is normal. We try our best to use up all aggregates each day so that we don’t leave piles in the road overnight. If we do leave some aggregate, it will be on weekdays and never over the weekend without written permission from the HOA. If we feel there is a chance of a rain event of 2” or more in a 24-hour period, we may place plastic tarps on the aggregate piles to prevent fine particulates from washing away and into the stormwater management system. If we do have particulates washing away, we can install some pine straw tubes in the gutter system to filter the rainwater. We typically spend 2-4 days in each drop zone/access point.

## Post Construction

1) Sod Repairs and Cleanup

Once we are finished with each drop zone/access point we will clean up the area as good as we can. Usually there is a little bit of dust left over which washes away after the next rain. If there is sod damage that needs to be repaired, we will get the repair scheduled and you can reach out to our General Manager to see what the expected repair dates will be. If your shoreline system contains littoral plants, they will be installed last.

2) Lake Maintenance & Follow Up

Before or during the installation process we can discuss lake maintenance with you and provide you with a quote. We currently offer aquatic maintenance (water only), shoreline maintenance, and stormwater system inspection/maintenance. We offer a FULL WARRANTY on all of our shoreline stabilization and erosion control systems as long as we are under contract for full maintenance. This includes light re-grading of shell, littoral plant replacement, and other services (some restrictions and exceptions apply). If you prefer to engage with a different maintenance company, that's fine too, we can meet with them upon project completion to go over a plan and also make periodic inspections as needed to see how they are doing. Also, our standard warranties would apply: 1-year warranty on plants and limited warranty on some of our systems. (See contract terms for details.)

# Sod Replacement & Care

## Types of sod

The three most common species of sod used in residential properties are Floratam, Bahia, and Zoysia. We will go into detail on each species so that you have a basic knowledge of its growth habit and then we will discuss how each one is repaired once we are finished running our equipment over it and damaging it.

Floratam is the most common type of sod in South Florida in residential properties. It has a wide blade and produces "runners" that branch out and creep along the ground. This means it spreads vigorously unless edged properly. Some variants of Floratam include St. Augustine and Seville. Floratam requires year-round irrigation and does not go dormant in the winter.

Bahia is basically cow pasture grass. It is named after the Bahia region of Brazil where its progenitors grow naturally. It is a popular species of sod for commercial properties, city planters and medians, farm homes, or any areas that don't have irrigation installed. Without irrigation, Bahia goes dormant in winter and then springs back to life during our rainy season. It requires very little fertilizer and pest control, but is known to look a bit untidy and unruly much of the time. It is the least expensive sod that you can buy.

Zoysia is used extensively on golf courses. It is commonly used on the greens and cut very low to accommodate putting. It is also used in more upscale, formal settings in residential landscaping due to its soft, carpet-like look and feel. It is fairly delicate, but happens to also be fairly drought-tolerant if established in good, healthy soil. Zoysia is the most expensive of the three grasses here.

## Effect of our Equipment on Sod

As a freshwater marine contractor, all of our work is on lake banks and shorelines in residential communities throughout Florida. This means we must access the lake banks with our equipment in-between residents' houses in order to do our work. We realize this is a major inconvenience and headache for the homeowners that are affected which is why we have created this article to help them know what to expect. Our equipment will generally kill very little sod and also create some light divots in the soil. Both of which we do our best to remediate with the hopes of returning the properties back to their original state. So, let's go over the process- before, during, and after.

**Before**

Once we determine the access points that we need on each lake, the Association Manager will typically contact each resident to notify them that their yard will be used by our company. Before we begin, we like to take pictures of the access area to document its condition prior to our construction activity. Irrigation heads are flagged out by our crew if we are using any medium to heavy equipment so we can avoid damage.

**During**

We typically use each access area for 1-4 days and then move on to the next one. When we mobilize (set up our equipment) at each access point we will have our rock, shell, or dirt dropped on a tarp in the street and then we haul it, bucket by bucket, between the houses and to the lakeshore. In some cases, the damage to the sod is minimal so we are able to fluff it up with a soft leaf rake and then water it in to allow it to recover fully. In other cases, the sod is completely killed by our machines. In worst cases, the sod is killed and the ground is compacted, creating divots and ruts. NOTE: Similar damage occurs when any construction or landscaping is being done and equipment is being used.

**After**

Once we are finished with each access point we will schedule repair of any sod damage we caused in the homeowner's yard.  NOTE: We document and repair damage cause by our company and/or subcontractors only- we do not repair any pre-existing damage that was there before our project began.

Our sod repair methodology is as follows:

1) Paint out the areas to be repaired and have the homeowner and HOA manager confirm
2) Dig up the damaged sod by hand or with a sod cutter
3) Install and compact planting soil in any low divots or ruts caused by our machine
4) Put down an organic mycorrhizae fertilizer blend on top of the soil
5) Install the sod and water it in
6) Follow up a week later to make sure it is rooting well and notify the HOA or the homeowner of any visible issues or concerns

What we ask of the homeowner/HOA:

1) Allow the new sod to grow for at least 3 weeks (or until it is twice the height of surrounding sod) without being mowed or string-trimmed.  This allows it to push new growth, increasing photosynthesis, to support fast root development.  After this time the grass can be mowed on a regular basis.
2) Water the new sod
    a) In Oct-May we typically have our dry season and the new sod will need irrigation daily for the first 30 days.  It is the homeowner or HOA's responsibility to assure the sod is getting proper irrigation during this time.  If the grass dies from lack of water, one of our horticulturalists will document it's cause of death and we can replace it for a fee or the homeowner/HOA can have their lawn care company replace it.

b) In June-Sept we get into our wet season so any new sod should not need any irrigation, but we must keep an eye out for fungus. Here in Florida, fungus grows rapidly in hot, humid, wet conditions and likes to attack new sod and unhealthy existing sod. We highly recommend that all residents who have nice lush sod, and want to keep it that way, hire a reputable pest control company to apply pesticides, herbicides, and fertilizer as needed. This is the best defense against fungal and insect attacks.

3) Remediate any drainage issues in the yard. If there are any areas that receive a massive concentration of water flow, flooding, or erosion, you may need to have underground drain pipes installed and tapped into your rain gutter down spouts or have a French Drain installed to catch the water and carry it underground in the lake. We can offer a quote on these if needed. NOTE: If any of our replacement sod or fill dirt drowns or washes away from heavy water flow or erosion in the yard in an area or areas that we previously brought to the attention of the homeowner or HOA, and nothing was done to remediate it, we will not be responsible for replacing the dead or damaged sod.

4) If the sod is properly mowed, irrigated, and the lawn treated/fertilized by a professional company and the sod still does not establish or completely dies, we will send out a horticulturist to confirm that the homeowner has followed the above protocol and at that point we will schedule to have it replaced again free of charge.

**What can cause unhealthy sod?**

Below are some culprits specific to Florida that can lead to unhealthy or dead sod. More information on each one can be found on Google. You may want to have a conversation with your lawn care company and/or pest control company to make sure that they are well-versed in all of these and have a basic knowledge of how to avoid them.

1) Chinch bug
2) Grub worm
3) Fungus
4) Flooding/standing water
5) Erosion
6) Chemical spills (from painters, driveway sealers, etc.)
7) Heavy shade
8) Lack of irrigation (in dry season)
9) Heavy frost
10) Scalping and improper mowing


LAWN
SCALPING


FUNGAL
INFECTION IN
FLORATAM


LACK OF
WATER


WEB WORM
INFESTATION

# Littoral Plant Overview

### What is a littoral shelf?

Littorals are Florida-native, freshwater, seasonally-flooded plants that specialize in growing along the shoreline of a lake, pond, river, or canal. They should not be confused with “beach plantings” that are utilized on salt-water zones in order to help prevent sand dune and beach erosion. When planted in large numbers along a shoreline, the littorals create a mass or “shelf” that is meant to completely cover and stabilize the shoreline dirt and sand.

### Where do they grow?

Littorals grow naturally in any wetland location in the state of Florida- from gullies and ditches, to huge lakes and rivers. Any area that is flooded 1-10 months of the year provides an opportunity for littoral species to grow naturally or be planted by people and allowed to colonize on their own.

**Why are littoral plants needed?**

A healthy littoral shelf established along a shoreline will:

-help prevent erosion by stabilizing the dirt and sand that makes up the shoreline

-provide a habitat for native birds, reptiles, and fish

-help absorb damaging wave-action caused by wind on large bodies of water

-assist in filtering and aerating the water which may help prevent red tide and blue-green algae blooms

-provide food for some fish and wildlife

-improve the aesthetics of a community's lakes

-bring communities into compliance with local and state municipal laws

-bring a community's lakes back up to compliance with their original Development Order

**When is the best time and time of year to plant them?**

The best time to install littoral plants is before your shorelines become too eroded as they will colonize and help prevent erosion before it happens. The best time of year to plant littorals is May, June, or July right before the summer rainy season. They can also be planted in Fall or Winter, but must receive additional irrigation until rainy season. They cannot be planted totally submerged (in rainy season).

**How do we keep them watered?**

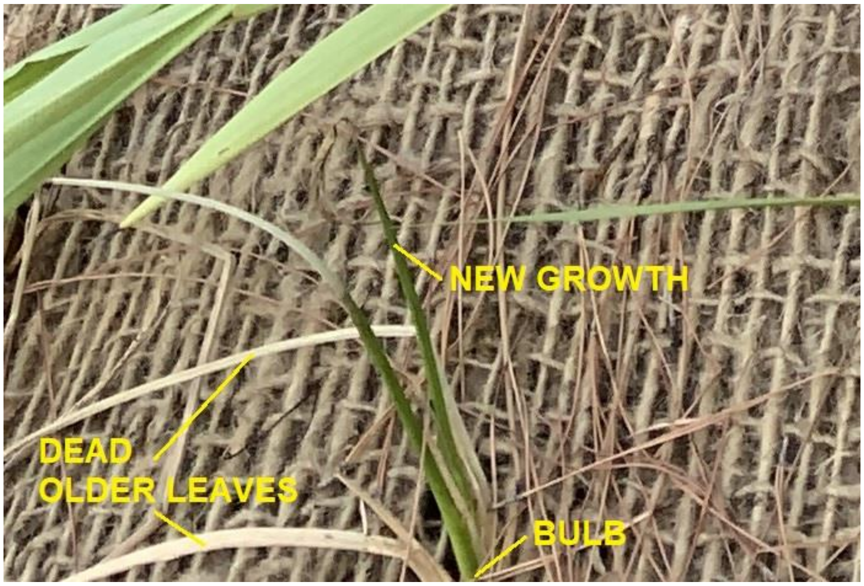
If planted in May-Aug they will live off of rain until established. We do not plant in Sep-Oct. If planted in Nov-April, our planting crew will hand-water them a few times until they push new root. Then, we will work with the community's irrigation company (or we can recommend one) to convert the 180deg sprinkler heads around the lake bank easement to 360deg heads in order to cover the shoreline. If there is no perimeter zone, one can be installed and tied into the community's well if they have one. It is typically not that expensive and is a good upgrade to keep the sod perimeter around your lake healthy long-term.

## Littoral Plant Installation- Before, During, & After

**Installation**

<u>Before</u> littorals are installed on one of our shorelines, we typically install shell or an organic blend on the shoreline, grade it, and compact it. The plants are harvested, BARE-ROOT in most cases, from their natural habitats throughout Florida, bagged, and transported to our jobsite.

<u>During</u> installation, we treat the littoral root balls with an organic fertilizer blend which helps them root in faster and develop immediate drought-tolerance. We dig a small hole and plant the littorals directly into the ground. We then water them in while raking and leveling the disturbed ground around them. We usually cannot plant all of the plants in one day, so we may leave some overnight down in the lake so that their roots continue to receive water.




<u>After</u> planting:

<u>1-5 days:</u> littorals go through shock from being transplanted which means their largest leaves often turn brown and/or die off. **This is perfectly normal.**

**IMPORTANT: PLEASE COMMUNICATE THIS WITH ALL RESIDENTS!!!**

<u>1 month:</u> new growth should be emerging from the "bulb" or root mass on each littoral. Any littorals that did not transplant successfully will likely be mostly brown at this point and beginning to look sick. But there is still hope for new growth to emerge.

<u>3 months:</u> all littorals should have two to three new leaves and any leaves that died immediately after transplanting will be dead and beginning to rot.

<u>6 months:</u> many of the plants should have begun to colonize by now, pushed out some blooms, or beginning to enter their blooming cycle.

<u>12 months:</u> the plants should appear to be taking over (colonizing) some of the shoreline and the shell/dirt underneath them is beginning to get covered up and harder to see

<u>22-24 months:</u> the plants should all be 3-4 feet tall by now, have bloomed once or twice, and completely green with no dead or dying leaves (except for frosts during winter which can burn the leaves- this usually doesn't kill the plant). The plants' root balls are now expanding and should be providing better shoreline stabilization and erosion control.

# Lake Maintenance

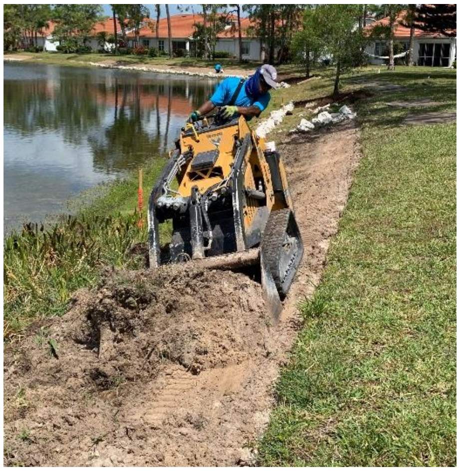
Is your current lake maintenance company doing a good job?  Are you happy with the water quality of all your lakes?  Do they inspect your stormwater management system as well?

The best way to protect your new shoreline stabilization system is to have a good maintenance plan in place post-construction.  All too often, we leave a client with a beautiful shoreline with healthy new littoral plants only to return months later to find out the "spray and go" lake maintenance company they've been using has murdered all of their new plants through negligence [or maliciousness].  We offer lake and pond maintenance services that INCLUDE the shoreline and also preserves if necessary.  We offer a LIFETIME REPLACEMENT WARRANTY[1] on all of our shoreline stabilization and erosion control systems as long as we are under contract for full maintenance. If you prefer to engage with a different maintenance company, that's fine too, we can meet with them upon project completion to go over a plan and also make periodic inspections as needed to see how they are doing.  Also, our standard warranties would apply: 60-day warranty on plants and limited warranty on some of our systems.  (See contract terms for details.)

1 Some exceptions apply based on cause of death. Contact us for additional details.

## Collaboration Between Vendors

Each aspect of a planned community is often maintained or managed by a different vendor. Below is a description of each of the roles involved in maintaining or managing your lakes, shorelines, landscaping, and stormwater systems.



**Marine Contractor**
Responsible for repairing, correcting, or re-building a shoreline, dock, or boatlift so that they meet the engineer, county, or state's specifications or regulations.  It is important to make sure other vendors or contractors are not spraying, adjusting, changing, or harming any aspects of the shoreline that have been repaired or remediated by the marine contractor.

**Lake Maintenance Company**
Responsible for all maintenance that pertains to the body of water itself and also proper maintenance of the shoreline as it relates to strategically spraying/removing exotic or unwanted species. Some maintenance companies are known to simply spray and kill everything on the shoreline in order to placate Board Members who presume only noxious weeds grow there.  This is a terrible practice that will not happen if you use us to manage your lakes or ponds.

**Lawn Care Company**
Responsible for proper maintenance of sod in the lake maintenance easement adjacent to the shoreline.  This includes mowing right up to the shoreline, but not over-trimming or spraying the edge of the shoreline, but instead allowing the sod to grow slightly into the rock or shell, thus helping to "blend" the two systems together.

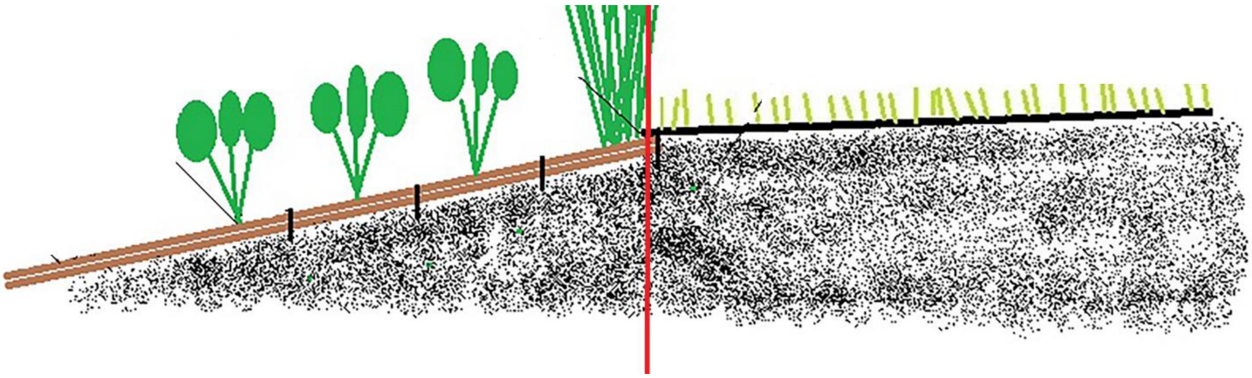
**Irrigation Company**

They are responsible for re-routing irrigation heads and adjusting them, if needed, to cover littoral plants during dry season. We will work with them on this if they need guidance. Some heads may need to be added and some simply changed from a 180 to a 360 pattern in order to fully cover existing sod and also cover littoral plants if necessary. The irrigation company can perform these changes before, during, or after the shoreline has been remediated by the marine contractor. The irrigation company foreman may want to meet with a foreman from the marine construction company in order to come up with a comprehensive plan.

**Wetland Signs**

Residents may need a friendly reminder that their new lakeshore contains native plants that are beneficial and are protected under County or State law. If you would like to order some small signs to place every 150-200 feet along your shoreline, please contact our office and we can discuss sign options and prices.

## Resident Involvement



LAKE MAINTENANCE COMPANY RESIDENT/HOA LAWN CARE COMPANY

**SOME TIPS FOR RESIDENTS**

**(IF THEY USE THEIR OWN LAWN CARE COMPANY)**

# DO:

- ✓ ASSURE YOUR LAWN-CARE COMPANY AVOIDS THE LITTORALS
- ✓ ALLOW YOUR IRRIGATION TO COVER THE NEW PLANTS
- ✓ ALLOW YOUR GRASS TO GROW SLIGHTLY INTO THE SHORE
- ✓ CONTINUE TO FISH (IF ALLOWED) BY CASTING OVER THE NEW PLANTS
- ✓ DIRECT ANY QUESTIONS OR CONCERNS TO A COMMUNITY BOARD MEMBER, NOT THE CONTRACTOR DIRECTLY

# DON'T:

- ✗ USE ROUND-UP ON OR AROUND THE NEW PLANTS
- ✗ WALK THROUGH OR TRIM THE NEW PLANTS
- ✗ WORRY IF THE NEW PLANTS GET FLOODED IN SUMMER
- ✗ WORRY IF THE NEW PLANTS GET SOME DEAD LEAVES IMMEDIATELY AFTER INSTALLATION OR YELLOWISH LEAVES IN WINTER AS THIS IS NORMAL
- ✗ TRY TO REMOVE OR TRANSPLANT THE NEW PLANTS

## Questions and Answers

Below is a list of common questions and answers that come up after our clients receive our proposal.

1) How many feet into the lake are you going?

Most of the time our shoreline systems go about 6 to 10 feet into the lake. It depends on the amount of escarpment.

2) Are you doing all the lakes?

Yes, we prefer a Master Contract for all lakes so that compliance issues don't come up later on.

3) I've seen large rocks/boulders Riprap, can you do that?

In some counties we do not go with that option because of all the permitting that is involved and additionally the water management district does not allow more than 40% of your shoreline to be riprap. We will have some sections (small sections) but the majority of the lakes will be the Hybrid Shell System. Yes, rip rap is used in other communities in certain situations but generally doesn't exceed 40%.

4) Can SFWMD come after us to fix our lakes?

YES, the water management district can issue you a letter of non-compliance which gives you a certain timeframe and asks you to outline a plan in which your drop offs and slope must be addressed and repaired. If you don't inhere to their plan or don't get back to them in time they can send you to the enforcement division. The enforcement division has an attorney then you have to get your own attorney to represent your community and work with their attorney. If it goes beyond that a judge can actually hire a company for you to fix it for you.

5) Does the county require a certain number of Littoral plants?

Yes, the county does require on average about 2.5 littoral plants per linear foot of lake bank.

6) Is this work just maintenance or does it need a permit?

Our Hybrid Shell SystemTM,PatPend is considered by some government agencies to be just lake maintenance and other government agencies do require a limited development order (LDO) to do it such as unincorporated Lee County. We never had to pull a permit to install our Hybrid Shell system in Collier County.

7) How thick will the Shell system be?

The thickness of the Shell varies depending on the slope, the grade and the control elevation of that lake. But the shell is always thick enough to reinforce the dirt underneath but not so thick that it chokes out our littoral plants.

8) How long do the Littorals take to fully grow?

Some of the littorals will reach full size in as little as 3-6 months, the other littorals will reach full mature height in 12-24 months. And once they reach full height they colonize and cluster and grow into plumps.

9) Will the price go down on Lake Maintenance if we do Shell on the shoreline?

Sometimes it does and sometimes it doesn't. There are other factors involved in our pricing. That is something our office can speak with the board more on, however we've been asked to lock in our maintenance price for three years and we have sent a contract addendum to do that.

10) How long will it take to repair all the lakes?

If we do start to finish it would be about 2-3 months on smaller projects and as much as 4-6 months on larger projects. However, some Boards chose to do it in phases over 2-4 years.

11) Do they have enough area for us to stage our materials?

Yes, we stage our materials at each drop zone or staging point on individual neighborhoods. Common areas, utility and lake maintenance easements, cul de sacs etc. So, our aggregate, our shell and plants are staged based on a map that we provide and get permission from the community to stage them on. Our equipment will be staged at the clubhouse.

12) Do the Littorals need watered after installation?

Yes, the littorals will need watered if installed at any point in dry season. However, the community already has a perimeter irrigation zone that covers all of the shoreline so all of the new plants will get water from the irrigation from day 1.

1) What does a healthy lake look like?

A healthy lake essentially has:

a) clean water with a well-balanced pH,
b) a flora and fauna population that is entirely or mostly native,
c) shorelines with thick, healthy littoral shelves and no erosion present, and
d) a frequently maintained storm-water management system that ensures proper handling and discharge of rainwater.

2) Why are some lakes healthy & some not can we duplicate from good lake to bad lake - are good lakes good by accident or is it something that's being done?

Good question. Yes, some lakes are naturally healthy for many reasons, some include: having natural underground springs which improve water quality, having native soil that contains a higher clay/organic matter component (as opposed to high silica content), and having littoral colonies with the right species and number of plants. We do not run into some naturally healthy lakes but they are rare. Eagle Ridge Lakes in Fort Myers is one of them.

3) What happens when water level drops for each recommended methods for erosion repair?

Dry-season water level will be right at the bottom of our system, or below it during exceptionally dry years (El Nino). Wet-season water level will be approx. one foot below the top of our system, except for exceptionally wet years (back-to-back tropical depressions).

4) What are the Pros & Cons of unmoved grass around shoreline (leaving a buffer & what do you recommend & WHY (someone in meeting stated buffer edging can turn to seeds then goes into water & bad for Lake, your thoughts?

PROS of having a buffer:

a) 1.Leaving a buffer around the pond helps secure just edge of the shoreline which does provide some erosion control
b) 2.A buffer is more natural-looking than wood bulkhead, sheet pile, geotubes, or dredgesox.
c) 3.Having a buffer creates a well-defined separation between home-owner back yard and community-maintained shoreline.

CONS of having a buffer:

a) 1.Only works if maintained properly- just one herbicidal spray could kill the grass there and compromise the buffer.
b) If the dirt underneath the buffer grass erodes, it will cause what we call "sponge sod" which is EXTREMELY dangerous to people, pets, and lawncare personnel because it looks safe, but isn't, and can lead to broken ankles, legs, or worse.
c) 3. If there are invasive grass species or exotic weeds growing within the buffer they can spread seed land-ward and into your landscaping which is not good. Note: seed spread into the water will typically drown and die.

5) Are there low cost quick fix recommendations you can make if unable to repair erosion on all the our lakes identified just so we can stop the bleeding?

We could install some French drain boxes in trouble-spots to help with rill erosion, but it will not bring you up into compliance with Lee and SFWMD.

6) What happens Geotubes and Sox when water level drops?

It eventually becomes exposed and unsightly, then residents complain, then you become out of compliance again, then you have to hire Seabreeze to come in and rip out the socks and stabilize the shoreline properly for the long-term.

7) Do you do lake water management?

Yes, we can provide you a quote for lake maintenance. We are in the process of expanding our current fleet so that we can take on more clients.

## Index of FL Native Littorals-

Below are the varieties of littoral (seasonally-flooded) plants that we have found to thrive the best in freshwater lakes in South Florida. On the next page you will find some alternatives as well.

**Sand Cordgrass *(Spartina bakeri)*- Transitional Zone**

This is a soft-looking native grass that is also used in landscape applications. It produces a white, wispy bloom. These typically grow to about 3-4 feet tall. They can be left alone to shed old leaves and produce new ones, or they can be trimmed in order to foster more new foliage. The benefit of this species is its large, aggressive root system which helps stabilize your shoreline. These prefer only 1-2 months under water so they are beneficial when planted at the top of your shoreline to help prevent drop-offs (escarpments) from erosion.

**Golden Canna Lily *(Canna flacida)*- Shallow Zone**

Canna are known for their bright yellow 3" blooms. Many varieties are planted in landscapes and feature red and orange flowers. Our native Canna has a white flower and broad green leaves. These grow to about 3 feet tall and form dense colonies. The bloom turns into a brown seed pod that drops black seeds. These can handle 2-6 months of flooding and seem well-adapted to our dry conditions from January to May when we receive very little rain. Ducks and other birds like to nest in them too!

**Bulltongue Arrowhead *(Sagittaria lancifolia)*- Shallow Zone**

Bulltongue is another broad-leafed plant that only grows to about 2-3 feet tall. It has a nice white bloom that gets to about 1.5" in diameter. This species is very resilient and grows in the toughest conditions. It also forms dense colonies once established. It prefers about 2-4 months underwater but shows very good drought-tolerance in dry season as well. Fish and wildlife nest amongst the leaves and very few pests and fungus species attack it.

**Pickerelweed *(Pontederia cordata)*- Mid Zone**

For the lower section of your lake bank Pickerelweed is a good option because it prefers to be flooded 3-6 months a year. It forms thick colonies and develops a showy purple bloom. The blooms often attract native butterflies. This variety often grows alongside Spikerush but is much more attractive than Spikerush. Natives growing at the bottom of your shoreline help stabilize the soil plus they help break up wave action that can beat up and erode your shoreline.

## Index of FL Native Littorals- Alternatives

These alternatives are sometimes requested by customers but we do not feel they are as strong and vigorous growers as the varieties on the previous page. These may work well if you already have some growing on your lake or on a neighbor's lake which indicates they are good candidates for your lake too.

### Muhly Grass *(Muhlenbergia capillaris)*- Transitional Zone

This is an alternative to Sandcord Grass. It doesn't grow as tall- topping out at about 3 feet in most cases- but does develop beautiful pink blooms instead of white blooms on the standard Sand Cordgrass. The pink blooms last 4-8 weeks and usually develop around August through September. This grass is a little slower growing than Sandcord Grass and not quite as robust. They prefer about 1-2 months of flooding each year.

### Blueflag Iris *(Iris versicolor)*- Mid Zone

Blueflag prefers about 3-6 months of flooding each year. It can be difficult to transplant and establish on lake banks just because it is not as tough as other blooming varieites. But if you can get it to root well and colonize the orchid-like blooms are out of this world! The plant blooms between April and June. This is one you can always try out in a small section to see if it does well, then you can plant more around your lake.

### Saltmarsh grass *(Juncus sp.)*- Mid Zone

These are the true rushes with more than 20 wetland species in Florida. They first may be noticed as clumps of stems growing in crowded stands, 2-5 ft. tall. They grow in saline and freshwater wetlands throughout Florida. Some species have no leaf blades, others have narrow blades. Some have large spherical heads, others have clusters of spiky brown flowers. They prefer 3-6 months of flooding each year and aren't as vigorous as Sand Cordgrass and Muhly Grass.

### Spikerush *(Eleocharis sp.)*- Mid Zone

People usually have a love-it or hate-it attitude towards Spikerush. It doesn't have actual leaf blades or a showy bloom. Instead, they look like tall, slender green pencils. This variety does a great job at growing underwater at the foot of the lake bank and forming colonies en masse. This growth habit creates a veritable wall that breaks up waves on larger lakes thus helping to prevent them from reaching the shoreline and causing erosion. They can grow in sections that receive 4-8 months of flooding per year.