



THE WAVE

Your Link to SEASL Events

MAY, 2006

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Welcome to the first edition of **The Wave**, **SEASL's monthly newsletter!**

We've developed the newsletter with our members in mind. We'll have a few staples each month, but the rest of the content is up to you!

A few ideas for member contributions include:

Show Us Your Baby! – a great way to show off a new acquisition, an old favorite, your plumbing handiwork, or before/after shots of your tank.

DIY - give us a little write up on how you made that super cool calcium reactor or fool-proof crab trap.

Product Review - did you find something great or something we shouldn't waste our money on? Let us know what it is and how it performed.

Tips & Tricks - have a helpful tip? Share it here!

Member Articles - this is a great way to showcase your favorite item, whether it's livestock or equipment. If you have insight on how to keep a particular fish or coral, submit an article for the club to share. Same goes for an unusual piece of equipment or a new approach to maintaining/propagating corals.

Have a great idea but don't have the time to write an article? Send your information to us and we'll help you put it together.

We'd love to include your pictures, articles, and miscellaneous information. Please send your contributions to Becky McAlister at becks@socket.net, or PM them to McBeck on Reef Central.

Beautiful Seagrasses

Keeping True Flowering Plants in Your Marine Aquarium

By: Anthony Calfo

For some years now, private aquarists have begun to realize success with the culture of true, vascular, marine plants. While the number of flowering species available in the hobby is rather small, their natural distribution on or near coral reefs is quite great! Some can be found approaching the deepest range of photosynthetic life in the sea, while others occur within the first few meters of the surface.

These plants live in a wide range of conditions too, from cold temperate seas through to warm tropical waters. Yet for all the geographical differences between them, they have many common traits in husbandry and handling that make their care in aquaria a very straightforward endeavor. For the purpose of this article, the focus will be on genera that we commonly call "seagrass", although other marine plants such as *Rhizophora* (Red Mangrove) and *Halophila* (Paddleweed) share similar needs, benefits and purpose in aquaria.

There are even some interesting brackish species like *Ruppia maritima* (Beaked Tasselweed) that are both interesting and hardy, ranging from fresh to full seawater. A closer look at coastal waters and salt marshes will reveal quite a number of other candidates to you for aquarium use. And with the increased application of refugiums and natural filtration strategies, (*cont'd on page 6*)

Meet The SEASL Officers

The annual officer election was held at the April meeting. The election results and appointments are in and we have a dynamite lineup for the coming year.

EXECUTIVE OFFICER, BRAD WITTE



Brad Witte will be rolling into his third year as an Executive Officer with the start of the next SEASL season. Brad's dedication to responsible reef keeping prompted him to host SEASL's annual frag propagation workshop for the past 4 years.

EXECUTIVE OFFICER, BECKY MCALISTER



Becky McAlister begins her second year as an Executive Officer. Her work with the club includes developing SEASL's monthly newsletter, which she will produce for the upcoming season.

EXECUTIVE OFFICER, TOM GIBBONS



Tom Gibbons will be signing in as our newest Executive Officer in May. Tom has done a fantastic job as SEASL's Secretary and we look forward to his involvement as an Executive Officer.

SECRETARY, DEL BRASHARES



Del Brashares has joined the officers as SEASL's new Secretary. He has some big shoes to fill, but we're confident he'll be a great addition to the team.

TREASURER, BARRY PEARLMAN



Barry Pearlman will continue into his second year as the club's Treasurer and Librarian. Barry has been an active member of SEASL since the beginning. He has previously served as the SEASL Secretary and his behind-the-scenes efforts are greatly appreciated.

MEMBERSHIP CHAIRMAN, JIM CRAIG



Jim Craig has been appointed our new Membership Chairman. Many of you may recognize Jim from his previous years as an Executive Officer for SEASL. We all knew it was just a matter of time before we'd have him back in action.

WEBMASTER, DARRIN TRAGER



Darrin Trager has agreed to continue on as our Webmaster for the second year. Darrin has developed some exciting features for the SEASL website and we're happy to have him on board.

We have assembled a great team and this is sure to be another successful year!

We also wish to extend a big THANK YOU to two officers who are rolling off the board this year:

Greg Frimel will complete his third year of service as an Executive Officer at the end of May. His efforts will help us bring Eric Borneman to speak to the club this fall. Thanks for your dedication and contributions to the club, Greg!



Gary Duke is finishing his appointment of Membership Chairman. He has fulfilled this role for the past three years and done a wonderful job. Thanks Gary!

April Meeting Recap

Kevin Carpenter's Zilla III

The SEASL club assembled for the third annual visit to Kevin and Evia Carpenter's home on April 8, 2006. Kevin's tank, named Zilla III, is a 5000 gallon mini-ocean contained in the basement of his house.

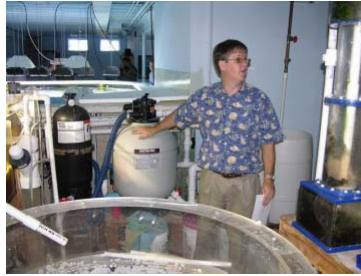
Among the many tank inhabitants, there is an impressive population of surgeonfish, including yellows, regals, a mimic and a sailfin.

Kevin's presentation included a description of the tank construction, his own personal salt formula, and his humidity and temperature controls. Detailed information about the construction and maintenance of Zilla III and Zilla II, Kevin's old tank, may be found at <http://www.seaplace.org/~kevinc/>.

The meeting included a great BBQ potluck lunch, and we enjoyed raffling off some of Jim Craig's famous frags.

This meeting has proven once again that good food, good company, and an enormous reef tank make a great way to spend a Saturday morning. It is fascinating to see the growth and changes in Kevin's tank each spring, and we welcome the opportunity to return again next year.

Kevin shows off Zilla's filter



Zilla's refugium



Lighting array over Zilla III



Welcome New Members!

We would like to welcome our newest club members:

Joe Schwappach, Highland, IL
RC Screen Name: Joebuckmaster

Patrick Neimeyer & Family, St. Louis, MO
RC Screen Name: PatNeimeyer

John and Denise Bell, O'Fallon, MO

Sean Gale, St. Louis, MO

May Meeting Preview

SEASL's next meeting will be the annual Frag Fest, held at 500 Northwest Plaza, 3rd Floor, St. Ann, MO at 10am on Saturday, May 13.

The Frag Fest has been restructured to include six different ways for members to participate. This event is the ideal way to make a little room in your tank and/or pick up some new corals for your display.

There will be pizza, the 50/50 cash game, lots of live goodies, and plenty of good conversation with your fellow reefers.

Come on out and join us!

Weathering the Storm

By Del Brashares

It was around 5 PM on Sunday, 2 April 2006. Velko Kostanjeck was on his way back to Aquatic Treasures in Fairview Heights after dropping Dave, one of his young employees, at home. The sky was extremely dark and the winds were getting fierce – tornado fierce. First one power line, then another dropped around him. Then, one side of his car was elevated off the ground. Dodging debris on the road was becoming problematic. Finally, with the skill of an off-road driver, he made it back to his store, about ¼ mile from St Clair Mall. The store was dark but apparently suffered no damage aside from the power being out.

He quickly called Theresa, his wife, at their home, about 15 miles to the east – right in the path of the storm. He warned her to get into the basement, which she did, just in time. After Velko finished surveying his store and making sure Theresa was safe, he locked up and headed home.

They weren't as fortunate with their home as they were with the store. The sight he encountered was disheartening but not devastating. A good chunk of the roof was missing and water was coming into the dining room from where the chandelier hung from the ceiling.

While Velko was making arrangements to get the home in order, his mind kept flashing back to the store. Expecting that power would remain out in much of Fairview Heights for quite a spell, he left home Monday morning prepared to spend that evening at Aquatic Treasures.

During the day, he kept a watch on the tanks. Fortunately, Dave's father brought a generator for Velko to use. As his wall aquariums are divided into 3 primary systems, he rotated power for each system and was able to maintain reasonable water quality. He would occasionally shut the generator off to allow it to cool down. (*cont'd on page 5*)

Featured Local Fish Store

Aquatic Treasures

By Del Brashares

Owners: Velko & Theresa Kostanjsek
525 Lincoln Highway, Suite 15
Fairview Heights, IL 62208
TEL: (618)632-7333
Business Hours:
Tue-Fri: noon – 8 PM
Sat: 10 AM – 6 PM • Sun: noon – 5 PM
Closed Monday



AT employee, Jacob (left) and owner, Velko.

Q: What day(s) do your shipments arrive?

A: Typically on Monday and Thursday. But shipments can arrive other days too.

Q: How long have you been in the saltwater hobby?

A: Velko grew up along the coast of Croatia and remembers enjoying and being mesmerized by the saltwater world going back to when he was very young. He came to the United States in 1986 and continued his love of the hobby.

Q: How long have you been in business?

A: Aquatic Treasures will celebrate its 3rd anniversary in September 2006

Q: Why did you open a fish store?

A: With his life-long interest in the hobby, it was almost inevitable that he enter the business. In 2000, Velko and Theresa took advantage of an opportunity to buy a full-service pet store in Highland. The store had some saltwater fish, a few more freshwater fish and just about every popular pet and the associated supplies imaginable. The first thing they did was have a fire sale for all the non-fish stock and supplies. In addition, they converted the store to about 80% saltwater and 20%

freshwater. Over time, they had some beautiful display tanks and a steady stream of customers. As Aquatic Treasures became reality, they gradually closed down their store in Highland.

Q: What is your store's specialty?

A: Velko likes to obtain hard-to-find corals and fish for his clientele. Any given week, he's likely to have a variety of sharks, squids, eels, and interesting fish such as the Red Sea Bird Wrasse.

Q: What is your favorite fish, your favorite invert, and/or your favorite coral and why?

A: While Velko named some interesting fish as being among his favorites, he selected a non-fish animal, the octopus. If you look at the logo on his business card and shirt, you'll understand. He loves the Mantis Shrimp and calls it an amazing creature. He pointed with particular pride to a cynaria, a beautiful coral with a combination orange/red and green pattern. He says they're particularly hard to come across.

Q: What is the store's biggest challenge and how do you overcome it?

A: His biggest challenge is encouraging those interested in the hobby to spend the time learning as much as they can prior to setting up their system. While Velko is always willing to help those asking for advice, he knows he has to be very careful that he isn't perceived as being the stereotypical salesman when working with the customer. As Velko believes in responsible fish keeping, he may turn down a sale on occasion. For example, if a newcomer visits the store hoping to buy fish and Velko learns that the new system does not have any live rock, he will do everything possible to dissuade the buyer until the system is ready.

Q: If you could offer a single piece of advice to a marine aquarist, what would it be?

A: Be a responsible aquarist and be willing to share advice and information.

Q: Any additional comments you would like to share?

A: There are lots of contradictions in the hobby. Some easy-to-maintain corals may prove to be difficult and some hard-to-maintain corals may be problem free in your aquarium. Keep reading and studying – after all, you will be the final decision maker.

A note from the author: Velko has been a friend of SEASL since the opening of Aquatic Treasures. He's hosted an open house, the Anthony Calfo coral propagation demonstration, and donated two huge acrylic sumps for SEASL's annual auction. If you want to have an interesting conversation, stop in at Aquatic Treasures and say "Hi" to Velko. By the way, a 10% discount storewide is available to all SEASL

Show Us Your Baby!

Michael Lubiewski submitted this image of a sexy shrimp perched on a zoanthid colony:



Kirk Menard's mystery hitchhiker. Even Dr. Ron Shimek is stumped!



Lisa Brown's Berghia nudibranchs take down an aiptasia:



(Weathering the Storm cont'd)

Throughout the day, a steady stream of friends and customers stopped in to see how he and the store were doing. It didn't take long before he started to accumulate quite a bit of food (and not for the fish, either). Imagine the smile on his face when Theresa stopped in later that day with – you guessed it – more food! Still others offered their generators and other assistance.

Later that day, Velko was able to get a heater set up to help raise the temperature in the store. While the generator was outside, the kerosene heater was inside. Thus, Velko had to have the front and back doors open to ensure proper ventilation.

As night approached, the store began taking on an eerie appearance with the lack of light. As darkness set in, visitors stopped coming – or did they? All of a sudden a car pulls into the parking lot. When Velko went to the door with a flashlight, the car abruptly left. Shortly thereafter, the incident repeated itself. A bit later, a police car pulls in and the officers stepped out to ensure all was okay with Velko. From then on, another patrol car would arrive about every 10-15 minutes. These visitors were much more welcome than the first two mystery guests.

Sometime later that evening, Velko received an unexpected surprise when the power came back on. He set about conducting another site survey and after determining that the systems appeared to be stabilizing, he decided to call it a night and head back home.



Velko Kostanjeck, owner of Aquatic Treasures, recounts his near miss with the April 2 tornados

What a drenching ordeal from start to finish. As far as Velko could tell, he lost two fish but everything else pulled through. He and Theresa wish to thank everyone who stopped by and offered their assistance. It's great to know that we have a lot of fine folks in the community who are ready to help in times of need.

Parting advice? Velko says it is critical for an LFS to have their aquariums divided into a number of systems, a concept similar to that of insurance. Maintaining consistent, high quality water standards is another must. While one may not know when the next critical situation may hit, stable water systems and a well-thought-out recovery plan are essential. Next time the big storm hits, perhaps more of us will be able to assist our neighbors.

Tips & Tricks

An easy way to add diversity to your feeding regime is to mix several varieties of flake into one container. If you have nearby hobbyists, you can each purchase one jar, mix them all together, and each take home one variety packed can!

- submitted by Becky McAlister

Congratulations to Lisa Brown! She submitted the winning entry for the newsletter name, The Wave!

Calling All Graphic Artists and Design Talents!

Now that SEASL has named and published its first newsletter, we need help developing a graphic for the title. The Wave can inspire so many images. Help us create the right one for our newsletter!

We'd also love to have volunteers help us with the layout of future editions.

If you are interested in publishing, design, graphics, or just getting involved in the club's current events, drop a line to Becky McAlister at becks@socket.net or PM her Reef Central account, McBeck.

(Beautiful Seagrasses cont'd)

our appreciation of marine plants will grow stronger in time!

Best Bets:

For American aquarists, the most familiar seagrass is *Thalassia testudinum*, collected from Atlantic waters, although imports (seeds) from islands in the Tropical Pacific (such as Fiji) do make seasonal appearances. This species, *Thalassia hemprichii*, is widely distributed - including the Philippines. Either species is suitable for aquarium use, largely do to the sturdy form (reasonably hardy to handle and prune) as well as modest maximum size; they can be cropped nicely at 12"/30 cm. Blades are flat and wide (1/2"/12 mm.) and can reach one meter in height, although less than half of that is more common. *Thalassia* produces the largest flowers (pale white/pink) and seeds of all the currently kept seagrasses.

"Manatee grass", *Syringodium filiforme*, can be found in many of the same regions of the Atlantic/Caribbean as *Thalassia*. They also make their way into the US hobby. A Pacific species, *S. isoetifolium*, occurs in Australia and New Zealand waters. Although hardy enough to establish and culture, this genus is slightly more challenging to keep by private aquarists if only for their need for very large, tall tanks (towards 1 m in height) and the significant hardware (large, expensive pumps) needed to produce adequate water flow in such vessels. Like Turtle grass, Manatee grass requires regular cropping of the blade tops to prevent overgrowth, disease or infection. "Blades" of manatee grass are tubular or cylindrical in nature. The flowers are very small, inconspicuous and slow to appear in home grown colonies.

Zostera marina, "Eelgrass", looks very similar to *Syringodium*, but is impractical for casual reef aquarists due to its cool water needs. In point of fact, however, it is a good candidate for cultivation in temperate displays for dedicated hobbyists keeping biotopes, for example. Some public aquariums have used this relatively hardy species for unique Eastern Pacific exhibits. This seagrass naturally occurs in

deeper, calmer waters, which translates well in typical home aquaria that commonly lack adequate light or water movement. *Zostera* is usually found just below the intertidal zone. Sexual reproduction (and flowering) in this plant seems to be influenced by warmer water temperatures and, as such, may limit propagation strategies and dispersal in cooler climates. As an interesting aside, this plant is quite edible and was consumed by Native American (Indian) coastal peoples.

Although hardly seen in the hobby, Shoal (Sea)grass, *Halodule*, is a very appealing genus for aquarium use. Its benefits include small size (more narrow blades than *Thalassia* and most are short at 4"/10 cm tall or less), and rather weak root system. What this means for aquarists is that large, deep sand beds (> 6"/15 cm.) are not so critical for success as it is with the other seagrasses.

Halodule has much appeal for smaller refugiums and home-sized lagoonal displays. Specimens collected in the Atlantic (*H. beaudettei*) occur in very shallow water and tolerate a wide range of salinity. I do hope we see more of this and like species in the hobby soon.

For aquarists searching for these plants and other uncommon creatures, it has

been a bit of a challenge to date. As the popularity of keeping such organisms grows, so too will support from merchants. For some of these and more, there's a good chap at www.billsreef.com who can help you with his experience as a lifetime marine biologist as well as dedicated hobby mentor and volunteer.

Handling:

One of the biggest challenges to keeping seagrasses is getting healthy starters! The rhizomes/"roots" of these plants are somewhat to very sensitive to being disturbed. The very best way to transplant seagrass is to dig deep and around a patch, to be taken whole as a "plug" with undisturbed roots and substrate together. For shipping, however, this is too difficult and too expensive (the heavy weight of muddy substrates and the postage to deliver it). It is inevitable that we must accept starters as "bare root" specimens in most cases. If shopping on sight, select pieces with the longest, unbroken rhizomes.

At all stages of transit, be very gentle with the runners/roots. You will notice that the roots may have an offensive (sulfur) odor from the muddy, anoxic substrates they are harvested from. This



Many, many years ago... one of the author's 240 gallon seagrass refugiums with free-living, reproducing *Goniopora stokesi* in residence. Picture by Bob Fenner, Caption by Anthony Calfo

is no cause for concern. But it should remind you about the need for like (mature, nutrient rich) substrates in aquaria. More about this below.

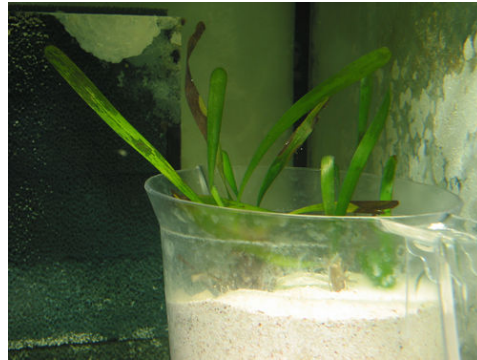
Planting seagrass is a sensitive matter just the same. They generally must be rooted at great depth. Arguably, anything less than 6"/15 cm. of substrate is not enough for long term success. By comparison, consider the potting needs of a 1-3 feet tall houseplant! Yes... seagrasses need tall tanks and deep fine substrates. Oolitic sand can be used alone if it is very mature (over one year established). But a mix of mud and fine sand (sugar-fine aragonite) may be best overall. I recommend a bed depth of at least 6"/15 cm., and preferably substrates approaching 12"/30 cm. for long term success.

The depth of the aquarium is somewhat more flexible, but a water depth of 24"/50 cm. above the sand is a fair minimum. Note: *Halophila*, *Ruppia* and *Halodule* are exceptions among marine plants; they tolerate shallower substrates and less deep water.



Deep, fine, soft substrates are best for seagrasses. Six inches (15 cm.) is the minimum recommended depth. Add mud for better results. Picture and Caption by Anthony Calfo

Never push a seagrass pod or cluster directly into the sand; driving it forcibly into the substrate can damage the crown or roots, which may be fatal for the specimen! Instead, always dig a pit and then gently lay the pod or cluster down inside before covering the roots gently. It is important to note that most seagrasses need to be planted rather deep into the new substrate. About 3"/7.5 cm. minimum below the surface of the substrate is recommended. Anything less reduces the likelihood of a successful transplant.



The root systems of seagrasses are very delicate! Never push specimens into the sand to plant, but dig a hole and bury them gently. Picture and Caption by Anthony Calfo

Seagrasses transplanted from the wild will generally lose their original (shipped) leaves in the ensuing weeks and months. This is very normal and is commonly observed in other aquatic plants after a change in light or water depth. In some cases, the plant appears to die back completely with no sign of life for many months. But after five months or even longer, the roots may sprout anew! Leave the rhizomes buried even after the blades have died back with hope for such recovery.

Husbandry:

As mentioned above, a nutrient rich substrate is necessary for best success with seagrasses. If you ever get the chance to dig around in the substrates of a seagrass meadow, you will appreciate this intimately. A bit too intimately... bring nose plugs! Using mud in a fine sand mix is helpful, but patience and time is the best recipe for success here. Plumb the seagrass aquarium inline with the rest of the aquarium system and allow the substrate to mature for at least six months. Twelve months or more is better. Fertilization of the roots may be helpful, but must be done carefully (small, weak doses). Aquatic plants and algae are unique in that they do not depend on substrates like terrestrial plants do for their principal nutrient base. Aquatics can draw such elements through their stems and leaves too.

Be sure to provide very strong water flow. If possible, generate surge-style flow to help thrash and wash sediments and

epiphytic matter off the seagrasses (this wash is very good matter for filter feeders!). You will likely need to employ some gastropods or fishes to rasp the leaves of seagrass for improved health and vigor. Trim dead or dying tips off actively. One of the theories revolving around seagrass diseases in places around the world is that larger grazing animals such as turtles and manatees have been overfished. Some such large herbivores are active grazers on seagrass, but dwindling numbers of these creatures in recent centuries has led to overgrowth of the plants. Overgrowth stifles vigor and water flow and increases the risk of disease. Prune your seagrasses actively (monthly). This is not only a means of nutrient export, but it stimulates health and vigor exactly as it does in terrestrial plants!

Lighting varies by species, but generally speaking... bright warm daylight is best for seagrass species. A minimum of 5 watts per gallon of 4000-7000K lamp color over aquaria less than 30"/75 cm in height is a good starting point. Excessively blue spectrums will handicap the growth of most common seagrass species. Look for lamps that have a high CRI rating as well (over 90 ideally). You can find inexpensive and useful plant-suitable lamps and fixtures at the local DIY home store (lumber and hardware store). A search of reef hobby message boards will often lead to specific brand and model recommendations for stores in your area. Aquarium-specific lighting, although more expensive, is generally best of all though. Daylight temperature metal halides will generally support the fastest growth of shallow water species.

If the seagrass display is to keep cnidarian animals, lamp temperatures closer to 10,000K are acceptable and perhaps preferable, depending on the needs of the species kept. Seagrasses will still grow very well under such "10k" light. If nothing else, the bluer light is aesthetically more attractive to most people.

Why Keep Seagrasses:

There are many reasons for keeping seagrass displays and refugiums. Studying these unique plants helps us see the much broader picture of how expansive reef communities really are. Specific biotopes like seagrass meadows and mangrove swamps play crucial roles in the overall support and survival of coastal and reef ecosystems. They bring many of these benefits to aquarium culture as well. Just like desirable algae species, seagrasses trap and utilize nutrients like phosphate and nitrate. In fixing these compounds, they improve water quality and serve as a vehicle for nutrient recycling when eaten by creatures, or nutrient export when harvested out of the sea or aquarium. The very surface of grass blades is a living substrate for the cultivation of epiphytic matter that gets liberated with surging water flow and rasping herbivores. Some species of cnidarians, like free-living *Goniopora*, have been linked to seagrass meadows with an implicated need for the relationship and proximity of the plants for health/survival. Of perhaps worthy anecdotal mention: the author's own best success, like that of some other aquarists, with *Goniopora stokesi* living for many years and reproducing by numerous daughter satellites have all been in the company of seagrasses.



Sought after by aquarists around the world, the Hawaiian bristle-tooth, *Ctenochaetus hawaiiensis*, is a member of the best Tang genus for algae control on soft substrates like in seagrass displays.
Picture and Caption by Anthony Calfo

Seagrass exhibits also afford more natural and successful displays of lagoonal species of fishes and other reef creatures. Syngnathids (pipefish and seahorses) do remarkably well in seagrass systems for having behavioral enrichment as well as matrices and substrates for cultivating more natural prey such as copepods. Some anemones, jellyfishes and Fungiid corals, for example, are displayed more naturally in lagoonal displays.

Seagrass habitats in the wild are largely in need of protection. To do this successfully, we must study and understand the organisms. Aquarists can contribute to this understanding and conservation by learning to successfully culture seagrasses and the natural species they support, and sharing results with the aquatic science community of hobbyists and academics at large.

**With kindest regards,
Anthony Calfo**

Bibliography and Recommended Reading:

Littlers, Diane and Mark, 1989 Smithsonian Institution Press.

http://www.sheddaquarium.org/sea/fact_sheets.cfm?id=112

http://www.ukmarinesac.org.uk/communities/zostera/z3_1.htm

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