

Creative Uses of TenCate Geotube® Marine Technology Continue to be Instrumental for Unique Marine Applications

Backed by proven, innovative methods, Geotube® units offer key advantages for many distinctive marine structure projects.

Thanks to Geotube® marine technology, the waterfowl of Lake Sinissippi (Wisconsin) now enjoy an improved wildlife habitat, and the residents near Lac Saint-Jean (Quebec) no longer worry about shoreline erosion issues. Geotube® marine structures were successfully installed in both of these recreational lake areas.

Geotube® marine technology has been fundamental in the creation of many unique marine projects worldwide — from sand dune cores to breakwaters to marine structures.

TenCate™, manufacturer of Geotube® materials, develops and produces materials that function to increase performance, reduce cost, and deliver measurable results by working with our customers to provide advanced solutions.

Custom Solutions for Marine Applications

Geotube® marine containment technology, first used in 1962, offers great flexibility and cost-effective methods for a variety of coastal and inland waterway applications. Often times these marine projects present a challenge in the design and construction phases. Geotube® containers have proven to be up to the test.

“TenCate™ has a strong history with marine construction projects” said Mark Gunzenhauser, Vice President Sales - Geosystems. “We have the resources and expertise to develop custom solutions that address the unique characteristics of a specific marine project.”

Lake Sinissippi: Geotube® Wetlands Creation

The Lake Sinissippi Improvement District deals with many long-term management issues: sedimentation, turbidity, shoreline stabilization, and disappearing wetlands. In past decades, the lake saw a gradual decline in water quality. The Improvement District made plans to use shoreline protection technology to enhance the shorelines in sensitive habitat areas, to deal with invasive carp, and to restore lost riparian wetlands. Geotube® marine technology was selected for a pilot project for their lake improvement efforts.



A line of Geotube® units [bottom left inset] was installed to connect two shorelines of a bay on Lake Sinissippi. The wetlands area behind the completed berm is now rehabilitated with natural plantings and flora, and it's common to see a variety of birds and wildlife enjoying their improved habitat around the Geotube® structure.

A structure of two overlapping Geotube® units (30-ft. circ., 760-ft. long) was installed in a straight line across the mouth of a 24-acre embayment. It was positioned to serve as a breakwater / erosion berm and to restore the wetlands area for native plants and waterfowl.

Almost 3,000 cubic yards of sand/silt sediment was removed from the lake to create the berm. The filled Geotube® units sit on the lake bottom. The height of the Geotube® structure measures roughly 5-ft. tall with only the top foot rising above the water's surface. After the units were filled, additional slurry mix (sand/silt) was pumped behind the Geotube® structure to create an erosion berm and establish a wildlife habitat. Once the berm was complete, submerged and emergent varieties of pond reed, white water lily, bulrush, wild rice, and pickerel weed was planted with the bay area by the Lake District.

According to Ed Trainer, TenCate™ Market Manager, the Lake District was very happy with this pilot project and the performance of the Geotube® units. In fact, the group plans to use Geotube® marine technology again, possibly for erosion control breakwater and wetlands habitat revetment projects within the Lake District.



Geotube® units remained in place despite the harsh Wisconsin winters and heaves of ice sheets.

(More)

Protective & Outdoor Fabrics Geosynthetics
 Aerospace Composites Industrial Fabrics
 Armour Composites Synthetic Grass

TENCATE™
 materials that make a difference

Lac Saint-Jean: Geotube® Shoreline Stabilization

Located in south-central Quebec, Lac Saint-Jean is a regional resort, recreational, and sport fishing area. Covering approx. 375 sq. miles, this large lake is an important source of hydro-electric power. Lac Saint-Jean is used as a water reservoir to generate power for Alcan, Inc.'s aluminum and smelter operations. Their artificial maintenance of high water levels (up to 5.5 meters) results in severe shoreline erosion caused by winds, waves, and currents.

Alcan has a long history of water resources management driven by a preventative and proactive approach. First launched in 1986, Alcan's shoreline protection program has used a variety of methods to stabilize the shoreline, fight erosion, and improve bank conditions.

One of Alcan's recent protective efforts involved the installation of three Geotube® structures to stabilize the banks of Lac Saint-Jean near Métabetchouan-Lac-à-la-Croix. This project took a creative approach as the new jetties were positioned during the winter while the lake was frozen solid. The thick ice was excavated to allow the contractor to install the Geotube® units in the dry. Workers went 300 meters offshore into the lake to drill through the ice to reach the water below the frozen lake surface. The water was pumped back to the shore where it was used to create a sand slurry mix for filling the Geotube® units.

Once the three work sites were prepared, a protective Geotube® scour apron was first deployed on the lake bed at each site, followed by anchor tubes being placed along both sides of each apron. This shoreline stabilization project utilized six Geotube® containers measuring 5.18 meters circ. and 33 meters long. The jetties stretched 200 feet into the lake. The installation was completed in less than two weeks.

Following the winter thaw, the Geotube® structures were submerged in Lac Saint-Jean with only their tops being visible above the water line. The completed series of three jetties has successfully eliminated erosion along this area of the lake shoreline.

Alcan's shoreline stabilization program is ongoing with continued plans to build new jetties, breakwaters, and shoreline reinforcement structures. The company is considering additional erosion-prevention projects that would use Geotube® marine technology in the Lac Saint-Jean area.

For More Information

A TenCate™ representative can recommend the best use of Geotube® marine technology for your situation. To learn more about Geotube® technology, call 1-888-795-0808 or visit www.geotube.com.



Thick ice was excavated from the frozen work site in advance of the shoreline project beginning.



A Geotube® unit being filled with sand slurry mix as the jetty takes shape. Anchor tubes are visible on both sides of unit.



Arrows indicate the completed installation of the three jetties at the Lac Saint-Jean shoreline.



A view of the lake shoreline from a completed jetty. Marine growth can be seen on the Geotube® unit.

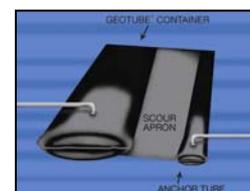
How Geotube® Marine Containment Structure Technology Works

Building a marine containment structure with Geotube® technology is a three-step process.

In the **filling** stage, the Geotube® container is filled with dredged sand or similar materials. The Geotube® containers are constructed of a unique fabric, specially engineered for a marine structure.

In the **containment** stage, the durable and high retention fabric allows the dredged materials to fall out of suspension and form a dense monolithic structure.

In the final stage, **structural**, the contained and densified material serves as a structural mass. When utilized with an accompanying Scour Apron, the Geotube® container may be utilized as a sand dune core or other shoreline re-nourishment or erosion prevention medium.



Step 1: Filling



Step 2: Containment



Step 3: Structural

Geotube® is a registered trademark of TenCate Geosynthetics North America. © 2011 TenCate Geosynthetics North America. All Rights Reserved.

Contact:

Ed Trainer

1-888-795-0808

Cell: 770-540-5217

e.trainer@tencate.com

www.geotube.com

3680 Mount Olive Road

Commerce, Georgia 30529

706-693-1897

Toll Free 888-795-0808

Fax 706-693-1896

 **TENCATE**
materials that make a difference