

## CLEARWATER MARINE AQUARIUM



**PROJECT**  
**INDUSTRY**  
**LOCATION**  
**PRODUCTS**

Clearwater Marine Aquarium  
Education; Entertainment; Marine; Tourist Attraction  
Clearwater, FL, USA  
Penetron System

# CLEARWATER MARINE AQUARIUM

## CASE SUMMARY

The expansion of the Clearwater Marine Aquarium in Clearwater, Florida needed a reliable waterproofing solution to protect the massive concrete tank structures from the saltwater environment. Penetron crystalline technology provided the concrete durability the project required.

The Clearwater Marine Aquarium (CMA) is a non-profit organization dedicated to the rescue, rehabilitation and release of sick and injured marine animals. CMA staff also help educate the public about marine habitats and wildlife and showcase their work in animal-assisted therapy and research. The CMA first opened in 1972 in a former water treatment plant (the large pools are ideal for aquatic rehabilitation programs).

### Working marine hospital

The Clearwater Marine Aquarium is not exactly like the aquariums we are familiar with. CMA is actually a rescue and recovery facility for marine animals, such as dolphins and sea turtles. Here, injured or disabled animals are rehabilitated and prepared for release back into their natural habitats.

Due to serious injuries, many of the rescued animals cannot be released back into their previous habitats and are now permanent CMA residents. Some of the permanent tenants include North American river otters, Atlantic bottlenose dolphins, green sea turtles, Kemp's Ridley sea turtles, cownose rays, southern stingrays, nurse sharks, great white pelicans, and other fish, including gag, hogfish, and red drum.

The aquarium's most famous resident is Winter, a bottlenose dolphin who was caught in a crab trap and rescued. Her injuries caused the loss of her tail and subsequently, the aquarium designed and fitted her with a prosthetic tail. This brought worldwide attention to the CMA and Winter later starred in the 2011 film, *Dolphin Tale*, and the sequel, *Dolphin Tale 2*. Both films were shot partially on location at the aquarium.

### Expanding the CMA

The latest expansion of the CMA triples the capacity of the rescued dolphin habitat, which now consists of five connecting pools (approximately 1,500,000 US gallons/5,700,000 l of water total), a new hospital facility, expanded education areas (total space: 103,000 ft<sup>2</sup>/9,400 m<sup>2</sup>), and a new four-level parking garage with 400 parking spots.

Expanding the CMA allows the organization to enlarge their rescue and rehabilitation efforts and also create an enhanced living habitat for the resident animals and provide more space for guest patients.

### Making an ideal material better

Concrete has been successfully used around the world as the main construction material for aquariums, seawalls, breakwaters, bulkheads, and jetties – elements all constantly exposed to saltwater. However, reinforced concrete structures in marine environments risk reduced life spans due to rapid deterioration from waterborne chlorides that can quickly penetrate the concrete. This exposure leaves the embedded reinforcing steel highly susceptible to corrosion and the resulting expansive cracking, which can quickly lead to premature deterioration and eventual structural failure.

With the number of large saltwater tanks comprising the CMA expansion project, the architects at Fisher Architects made a reliable waterproofing

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solution a primary requirement. After reviewing similar aquarium projects that had applied Penetron crystalline technology, Fisher Architects specified the Penetron System for the CMA expansion project.

### Non-toxic solution

Argos USA, a ready-mix supplier in Tampa, Florida, added PENETRON ADMIX SB to the concrete during the batching phase. Over 3,500 cubic yards (2,700 m<sup>3</sup>) of treated concrete were used for all the new water tanks and water containment areas, as well as



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components of the multi-story parking garage. PENEBAR SW-55 waterstop strips were used to permanently seal the construction joints. A combination of PENETRON and PENECRETE MORTAR was used to fill the water tank tie-holes and for minor repairs to the finished concrete structures.

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**PENETRON USA, INC.**

45 Research Way, Suite 203, East Setauket, NY 11733  
(631) 941-9700 • info@penetron.com • penetron.com