

## Marineland Dolphin Lagoon Reconstruction

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Opened in 1938, Marine Studios was the world's first underwater motion picture studio and oceanarium. This visionary facility brought marine life in their natural habitat to the public for the first time. Since that time Marineland, as it was later named, with its trademark blue arches has been a successful tourist attraction and is listed on the National Register of Historic Places. The original Marineland tanks were an engineering feat for that time as no tanks of that magnitude had ever been constructed. The Round Tank measured 75 feet in diameter and 11 feet deep and the Rectangular Tank was 100 feet by 40 feet and 18 feet deep. The tanks had over 200 port-holes for viewing and filming.



Marineland's oceanfront location in Flagler County along A1A was selected for its proximity to the Matanzas Inlet. Additionally, the narrow thread of land between the estuary and the ocean at this location allowed the animals to be transported from the ocean to the river and then to the viewing tanks with minimal stress. While the location of Marineland has many benefits, particularly to the care of the animals, one of the obvious detriments is the susceptibility to hurricane strikes. In 1999, Hurricane Floyd with 140 mile-per-hour winds, extreme winds and high tides took its toll on the Marineland infrastructure. As a result of this storm and the age of the facility, planning for a new research resort facility to replace the existing infrastructure was initiated in 2001. The goal of the new Marineland habitat was to pro-

mote awareness and education of the nature of the fragile marine and coastal environments.

Applied Technology & Management, Inc. (ATM) was initially engaged by Jacoby Development to assist with development of the concept plans for replacement of the existing dolphin and aquatic life tanks. The first step in this process was to conduct an inventory of the existing infrastructure. Next an extensive master planning process was conducted with the animal caretakers, trainers, and operations staff of Marineland to develop a conceptual habitat and site layout which would protect the health and safety of the dolphins and other marine life while supporting the goals of the new facility.

The final habitat concept resulting from the planning phase was a system of five interconnected tanks containing 1.3 million gallons of seawater. As with the original tanks underwater viewing is paramount and is provided in the new habitat with extensive panoramic acrylic windows along the oceanfront side. This habitat, like the original, also depends on seawater withdrawn from the original intake galleries underneath the beach in front of the facility. After the conceptual phase, ATM continued with preparation of drawings and specifications for construction of the habitat, a new piping system

along SR A1A to deliver seawater to the new habitat from the existing



galleries, and the hydraulic system to deliver, treat, and recirculate the seawater within the new habitat. The hydraulic system consists of PVC piping ranging in size from 3- to 12-inch which wraps around the tanks and connects the drains and skimmer boxes in the habitat with the life support system.

This project provided many engineering challenges, the greatest of which was using materials and methods during construction which would not endanger the animals and which could withstand the harsh coastal environment. Construction was successfully completed and the new lagoons were placed in to service in March 2006. Today, Marineland is back in business and the dolphins are thriving in their new habitat.



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## Chairperson's Message



Engineers Make a World of Difference – what a great theme for Engineers Week 2007.

As professional engineers, we spend much of our time solving problems and changing the world around us. We design buildings to provide places of business and residence, we create systems to improve communications, and we develop better ways to do just about everything. Engineers are at the forefront of the emphasis on the conservation of natural resources – we work to make our world more energy efficient, try to find new ways to recycle used materials, as well as strive to be better stewards of the limited resources that we have available. Engineers are the key to a client's needs, an industry's success, and the world's economic future.

Engineers Week was established in 1951 by the National Society of Professional Engineers to raise public awareness of the contributions that the engineering professions make to enhance the quality of life within our communities and around the world. It is a time for engineers to celebrate our profession, to show the public what we do, and to encourage young people to consider a career in engineering.

In Jacksonville, we celebrate Engineers Week with a calendar of events that include engineering society meetings, service projects, educational programs, and social events that raise money for student scholarships. I want to thank

the following engineering societies for their interest and support in making Engineers Week a time for each of us to acknowledge the differences that engineers make in our world.

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