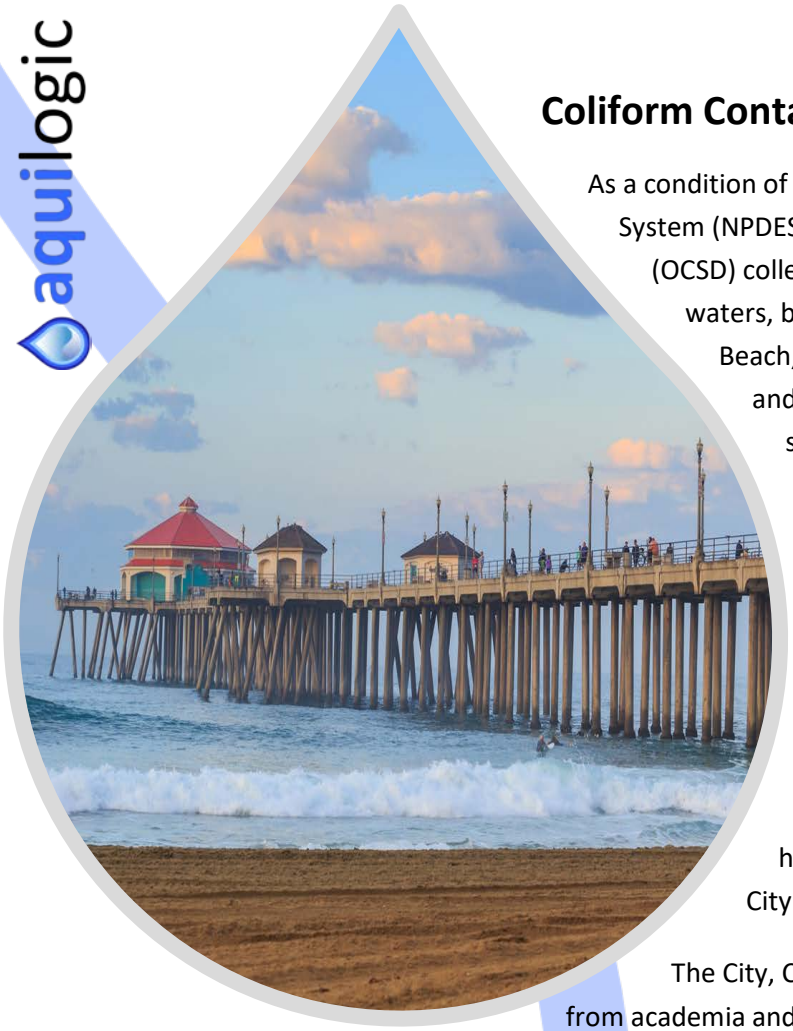

Coliform Contamination and Beach Closures

As a condition of its National Pollution Discharge Elimination System (NPDES) permit, the Orange County Sanitation District (OCSD) collects routine samples of near-shore, marine waters, between the cities of Seal Beach and Newport Beach, California. In the summer of 1999, coliform and enterococcus bacteria were detected in selected samples above State guidelines. As a precaution, extensive portions of Huntington State Beach and Huntington City Beach were closed to the public.

Huntington State Beach is the most visited state park in California. Visitors to the beaches at Huntington Beach bring tens of millions of dollars in revenue to the City every summer. Therefore, the closure of the beach had a dramatic impact on local businesses, the City economy, and the Surf City USA brand.

The City, County, and OCSD assembled a team of experts from academia and consulting to investigate the cause of the contamination. **Aquilogic** staff focused on the groundwater to ocean hydrologic pathway. The work scope included, but was not limited to, the following:

- Review of existing hydrogeologic literature and data along the ocean;
- Review of testing data for bacteriological enumerations and other water quality parameters;
- Geophysical investigations to identify preferential lithologic channels;
- Shallow groundwater sampling along the beach, near restrooms in the state park, near the OCSD outfall and subsurface sewer mains, and intake/discharge pipes for a power plant;
- Sediment core sampling within coastal estuaries and coastal surf zones for bacteriological assessment;
- Installation of piezometers to monitor groundwater levels; and
- Development of a conceptual hydrogeologic model to describe the groundwater-marine interface.

In addition, Anthony Brown appeared on local television and radio addressing questions relating to the project.