

## Appendix C

# *Beach-related References*

### **1. National Beach Conference Proceedings (October 2004)**

The first national conference for EPA's National Beach Program, since passage of the BEACH Act, was held October 13–15, 2004, in San Diego, California. The conference was designed to help state and local beach managers and public health officials from across the country share information on implementing a successful recreational beach program. Representatives attended from all but 3 of the 36 Beach Act states and territories, at least 2 inland states, Canada, Mexico, and the United Kingdom. Attendees recognized the progress made in developing state beach programs four years after passage of the BEACH Act in 2000. They also recognized the significant technological advances in developing rapid methods for microbial analysis and microbial source tracking techniques. Several examples presented at the conference confirmed innovative program development in states where beach programs had not existed before Congress passed the BEACH Act.

A panel discussion on the second day of the conference was designed to promote frank and open discussion of beach monitoring and beach program issues. Panel members with different areas of expertise and experience related to federal and state environmental policy, beach water quality, health, and monitoring each addressed two main questions. After the panel members addressed the questions, the questions were then put out to conference attendees for discussion and questions.

The proceedings of the National Beaches Conference are available at this Web address: [www.epa.gov/waterscience/beaches/meetings/2004/index.htm](http://www.epa.gov/waterscience/beaches/meetings/2004/index.htm).

### **2. Tropical Indicators Workshop (March 2001)**

A 2-day workshop titled “Tropical Water Quality Indicator Workshop” was held at the Waikiki Beach Marriott Resort in Honolulu on March 1–2, 2001. The primary funding agency for this workshop was the EPA's Office of Water, with matching funds provided by the Department of Health, State of Hawaii, and by the Water Resources Research Center, University of Hawaii. Mr. Rick Hoffmann of EPA was the project officer, and Dr. Roger Fujioka of the Water Resources Research Center served as the workshop coordinator. The overall goal of this workshop was to address issues identified under the “Tropical Indicators” section of the *EPA Action Plan for Beaches and Recreational Waters* (EPA/600/R-98/079), which is restated below:

#### *Tropical indicators*

Currently recommended fecal indicators may not be suitable for assessing human health risks in the tropics. Studies have suggested that at tropical locales such as Puerto Rico, Hawaii, and Guam, *E. coli* and enterococci can be detected in waters where there is no apparent warm-blooded animal source of contamination. Whether or not current indicator bacteria proliferate naturally in soil and water under tropical conditions must be determined. If so, the range of conditions (such as nutrients, temperature, pH and salinity) under which the bacteria proliferate will be characterized and their geographical boundaries defined. If the phenomenon is widespread under tropical conditions, additional research will be conducted to modify approaches for monitoring, or to develop new tropics-specific indicators. Further evaluation of *Clostridium perfringens* and other microbial indicators (including

coliphages) that do not flourish naturally in the tropics will be conducted to determine their usefulness as alternative indicators.

To address the above problem, 18 national and international experts, as well as other “observers” defined as those with relevant experience from a regulatory or environmental perspective, were selected to participate in the workshop. Selection of the experts was based on their established professional reputation and expertise in water quality microbiology and some applicable working knowledge of water quality problems in tropical areas.

The full report from this workshop is available at this Web address:  
[www.wrrc.hawaii.edu/tropindworkshop.html](http://www.wrrc.hawaii.edu/tropindworkshop.html).