

WHOI NAMES SIXTH DIRECTOR

By WHOI Public Information Office

CRAIG E. Dorman, 48, a physical oceanographer with more than 20 years of administrative and field experience in the U.S. Navy, has been named the sixth Director of the Woods Hole Oceanographic Institution, succeeding Dr. John H. Steele, who has served in the position since October 1977. The Board of Trustees voted January 5, 1989 to appoint Dr. Dorman upon the recommendation of an Institution Advisory Committee and a Trustee Search Committee. Dr. Dorman, who recently retired from the U.S. Navy, assumed his new position February 1, 1989.

Dr. Dorman has served in the U.S. Navy for 26 years, most recently as a Rear Admiral and Program Director for Antisubmarine Warfare in the Space and Naval Warfare Systems Command. A 1958 graduate of Bedford High School in Bedford, MA, Craig Dorman received his bachelor's degree with highest honors in geography from Dartmouth College in 1962. He received a master's degree with distinction in oceanography from the Naval Postgraduate School in Monterey, CA, in 1969.

His affiliation with Woods Hole Oceanographic Institution began more than twenty years ago. He was one of the first students in the Massachusetts Institute of Technology/Woods Hole Oceanographic Institution Joint Graduate Education Program, and in 1972 he was awarded a Ph.D. in physical oceanography from that program. His thesis research focused on coastal processes and air-sea interaction. Since 1972 he has worked with Institution staff on several naval projects.

Dr. Dorman has had several years of operational experience in the U.S. Navy, serving with the Underwater Demolition Teams and the SEALs (Sea Air Land Teams) both in the U.S. and Vietnam. Following assignment to Washington, DC, in 1977 he became involved in the research and development aspects of antisubmarine warfare. He was promoted to Rear Admiral in September 1987. Born in Cambridge, MA, Dr. Dorman is married to the former Cynthia E. Larson of Bedford, MA. They have three sons, Clifford, Clark and Curt.

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planning team envisioned a huge tank with massive windows surrounding the viewer. Inside, a forest of giant kelp *Macrocystis pyrifera* was to be perfectly recreated, teeming with fish and carpeted with invertebrates and understory algae.

Although colleagues at other public aquariums offered copious advice on how to maintain other species, they were notably silent on the subject of kelp. No other aquarium had attempted to exhibit a live kelp forest; most had in fact devoted themselves to eradicating algae from their systems.

The handful of phycologists who had conducted research on *Macrocystis* cultivation in Southern California provided a starting point on design parameters for the tank. First and foremost was meeting the physiological requirements of the kelp plants. A rapid seawater turnover rate and surge machine provided current flow across the fronds sufficient to prevent nutrient depletion. The tank was open to the sky and oriented in the building to maximize solar irradiance.

Public viewing imposed an additional set of criteria on the tank not required when designing an experimental system strictly for research. Windows were fabricated from cast acrylic, which allowed the largest panel size, lightest weight and best clarity at the 18cm thickness required.

In order to encourage growth of filter-feeding invertebrates and settlement of naturally occurring larvae and algal spores, the 1.5-million-liter tank was supplied with unfiltered sea water at night. During the day, high-pressure sand filters maintained water clarity for optimal public viewing.

On October 20, 1984, the Monterey Bay Aquarium opened its doors to the public. Since then, more than seven million visitors have experienced an undersea tour of the bay. Their tour begins with the 8.5m deep Kelp Forest exhibit, viewed from two levels of the building. Next, the 27m long, hourglass-shaped Monterey Bay Habitats tank recreates a transect through the bay's deep reef, sandy bottom, shale outcrop and wharf habitats. Monterey Bay's Elkhorn Slough and sandy beaches are interpreted in a walk-in aviary. Visitors experience the rocky intertidal zone through a recreated outcrop of rocky tide pools complete with crashing waves, a large invertebrate touch tank, and a visitor-operated video camera providing magnified views of intertidal animals.

Four California sea otters cavort in an exhibit providing above- and below-water

viewing, and models of the bay's marine mammals are complemented by outside views of nearby wild harbor seals and California sea lions. During the winter months, California gray whales are easily viewed from the aquarium's decks.

Throughout the aquarium, interpretive graphics and videos, stations with magnifiers or microscopes, and attending interpretive guides encourage the visitor to ask questions and learn more. In-depth education is provided through on-site classroom, outreach and teacher training programs reaching more than 75,000 participants per year. Behind the scenes, research staff conduct husbandry and pathology studies on the exhibit species, are engaged in long-term field studies on California sea otter behavior, and are studying the stability of kelp forest communities and export of algal biomass to the deep sea. In all, 240 staff members and 500 volunteers are required to maintain the aquarium's exhibits and programs, contributing to a total operating cost of \$13 million in 1988.

Since opening, public response to the aquarium has far exceeded expectations. Its goal of financial self-sufficiency has been surpassed, making possible expanded education and exhibit programs. The aquarium's building design and programs have been widely acclaimed. Its exhibits have become the standard from which all new aquariums are modeled. Certainly, the Monterey Bay Aquarium has gone a long way toward achieving its original goals of public education and research in marine science.

So much more remains to be done, though: the continued development of the institution as a resource for teachers of marine science at all levels, the development of new exhibits on the bay's most challenging deep-sea and open-ocean habitats, ongoing exploration of ways to impart more information to visitors, and much more.

Public aquariums hold an awesome responsibility: to help the public become more informed about the marine environment and better able to wisely manage its resources and ensure its preservation, as well as our own. For most of the aquarium's 1.7 million annual visitors, a view of the Kelp Forest exhibit is as close as they will ever come to seeing a real kelp forest firsthand. Although each visitor has his or her own interpretation of the aquarium, all leave with a new awareness of the great diversity and wealth of life under the surface of the bay. □