

## Hollings Marine Laboratory Mission

*Hollings Marine Laboratory (HML), named after Senator Ernest F. Hollings, Ranking Democrat on the Senate Commerce Committee, is a recent addition to NCCOS. The laboratory is a multi institutional, multi-disciplinary institution located in Charleston, South Carolina. Partner institutions include NCCOS, South Carolina Department of Natural Resources, University of Charleston, National Institute of Standards and Technology (NIST), and the Medical University of South Carolina. HML's mission is to provide science and biotechnology applications to sustain, protect, and restore coastal ecosystems, emphasizing linkages between environmental and human health .*

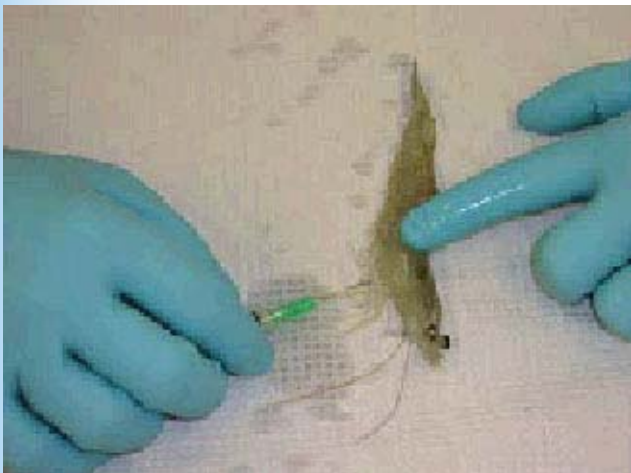


## Oceans and Human Health Program

The HML is pioneering an approach whereby basic, applied, and medical researchers work collaboratively in response to problems facing this nation's coastal waters health and the residents who live near or visit them. All five partner institutions employ the special expertise of scientists in the new laboratory, sharing in each other's intellectual capital. The HML Oceans and Health Program develops new technology relevant to estuarine and near coastal environments where human-environment interactions are the most frequent and

severe, and the potential for making advances in knowledge of these interactions is greatest. The HML established core facilities to expand NOAA's scientific capacity in: Environmental Chemistry, Ecotoxicology and Aquatic Production, Specimen Banking and Quality Assurance, Marine Microbiology, Marine Genomics, and Monitoring and Assessment. Current program emphasis is to:

- characterize the input and effects of emerging contaminants
- develop technologies to detect and identify the source of human pathogens in estuarine waters
- evaluate genomics technology as a tool for assessing the health status of key estuarine organisms and their responses to multiple stressors (natural and anthropogenic), including disease.



## HML Facility

HML consists of approximately 32,830 square feet of state-of-the-art laboratory /bench space for analytical/environmental chemistry, aquaculture, scanning and transmission electron microscopes, cryogenic sample preparation and long term storage, and two BSL3 laboratories. HML, although owned and operated by NCCOS, is governed by an Executive Board, a Science Board, and several operational committees, under the leadership of a NOAA laboratory director. It is anticipated that the staff will grow to about 20 scientists from each of the five partners, visiting scientists, and about 20-30 graduate students, all conducting collaborative research in the HML thematic areas.

## Cryogenic Storage

HML includes a cryogenic environmental specimen banking facility in a clean-room environment for the long-term archival of biological tissues and other material collected in the marine environment. This facility is operated by NIST.

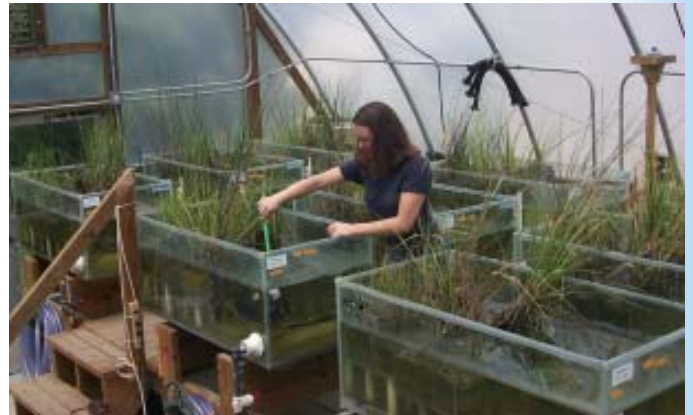


## Molecular Biology and Physiology

Equipment and facilities at HML provide for the application of biomedical technology and paradigms to evaluate the responses of marine organisms to stress and to assess their overall health. Molecular biology research themes include biomarker research, marine genomics, proteomics, microbiology, developmental biology, reproductive biology, disease research, pathology, and whole organism physiology.

## Aquatic Production

HML aquatic production facilities are designed to produce and hold organisms from plankton to fish (juvenile to adult) in the range of sizes and life stages required by the thematic research programs described above. These facilities include: raw and settled seawater systems, a wet laboratory/culture facility with holding tanks (2-12 feet in diameter), maturation facilities that control water temperature and photoperiod for bringing organisms into reproductive condition, and an exterior tank pad for holding and culturing organisms to be used by research projects.



## Environmental/Analytical Chemistry

HML provides the facilities and instrumentation required to determine the presence, amount, and structural characteristics of elements, man-made contaminants, and organic compounds, such as biotoxins, in the water, sediment, and tissues of the marine environment. Space is also available to develop quality assurance standards for chemical measurements in the marine environment in support of international, national, and regional research and monitoring programs.

## Environmental Biology/ Response Evaluation

HML facilities include challenge laboratories, for evaluating the acute and chronic responses of natural and anthropogenic stresses on marine organisms. The two BSL3 laboratories are a unique feature that exist at only a few facilities in the southeast and provide HML the capability for conducting challenge experiments on extremely toxic materials (e.g., biotoxins, pesticides, and viruses) while maintaining a safe work environment for investigators.

