

## A Closer Look at Research Clusters

### INTEGRATED ENVIRONMENTAL MONITORING

<b>Overview</b>	<p>The goal of integrated environmental monitoring is to develop and use modeling and software technologies to advance the science and improve the decision making of resource and environmental issues. Integrated environmental modeling relies on advanced computational technology, dynamic data collection and analysis methods, environmental observation methodologies, and interdisciplinary efforts among ecologists, mathematicians, statisticians, and computer scientists.</p>
<b>Focus of Research at UMass Boston</b>	<ul style="list-style-type: none"><li>• Data fusion and visualization, modeling and forecasting with applications in security, wave movement, weather forecasting and temperature monitoring</li><li>• Non-linear dynamic systems and models</li><li>• Design of wireless sensor networks and in situ monitoring methods</li><li>• Theoretical and observational biology and oceanography</li><li>• Physical and chemical oceanography focusing on water exchanges between coastal and watersheds</li><li>• Coastal networks, environmental monitoring and forecasting – projects include Massachusetts Bay</li><li>• Applied urban watershed analysis</li><li>• Understanding environmental quality and resource sustainability</li></ul>
<b>UMass Boston Departments Involved</b>	<p>Departments of Biology, Computer Sciences, Physics, EEOS (College of Science and Math); College of Management; GIS Core Research Facility</p>
<b>Collaborations Established and Potential</b>	<ul style="list-style-type: none"><li>• Federal, state and local environmental agencies; New England Aquarium; Woods Hole Oceanographic Institute; City of Boston (Neponset River Watershed); International efforts including China and South Seas. Strong potential to assist government and industry as ocean and coastal observation, prediction, and management technologies develop.</li></ul>
<b>Distinctive UMass Boston Approach</b>	<ul style="list-style-type: none"><li>• Connect with BU, MIT, Northeastern, Tufts on developing coastal biology sensor networks with Boston Harbor as test bed</li><li>• Build working groups around sensor networks involving cell signaling, EEOS, computer science, etc.</li><li>• Focus on environmental and coastal monitoring, modeling, and policies</li></ul>