Research Foci

Bioinformatics/modeling. Use of modern computational techniques to interpret the data from genomics, proteomics and to develop predictive models. [Chapman, Strand].

Coral Health and Disease. Exploring the molecular basis of the world wide coral degradation (bleaching) including identification of molecular biomarkers and the role of microbes in this complex process. (Smith, Woodley)

Eco-toxicology. Use of chemistry and molecular biology to explore the basis for environmental/marine contaminants (e.g. trichlorethylene, lead, uranium, etc.) to exert their toxic effects on organisms including marine mammals and humans including the molecular basis of environmentally induced pathologies. (K. Burnett, L. Burnett, Greenfield, Guillette, Kucklick, Kohno, Scott, Rice Christopher, Bain, Bearden, Becker, Fulton, May, Newman, Ramsdell, Wargovich)

Epidemiology. The incidence, distribution, and control of disease in a marine population and the transmission of diseases between human and marine populations. (Hulsey, Schwacke)

Marine Biotoxins. Focus is on harmful algal blooms; their molecular dynamics including triggers for toxin production, interrelationships of commensalate microbes, and effects on marine mammals and humans. (Baatz, Van Dolah, Moeller, Kindy, Ramsdell, Schwacke)


Marine Immunology. The cellular and molecular basis which organisms use to defend themselves against invading micro-organisms - bacteria, viruses, fungi and parasites. (Bossart, K. Burnett, L. Burnett, Leong, Rice, Kindy, Mount)

Marine Mammal Health. Using marine mammals as sentinels for human health by comparing molecular biology of these animals' defense systems In pristine and compromised environments. (Baatz, Bossart, Kindy, Rice, Kucklick, Mancia, Christopher).

Marine Microbiology. The study of microbes and their relationship to environmental contaminants and as vectors of disease. (Fulton, May, Ditullio, Leong)

Marine Molecular Processes. Using Molecular techniques to study cellular process unique to marine eukaryotes. (Fitzgibbon, Guillette, Kohno, Ramsdell, Burnett K., Mount, Ploth).

Marine Natural Products. "Drugs from the Sea" research focuses on isolation, characterization and functionality of molecules isolated from marine organisms. (Moeller, Wright, Bearden)

Proteomics. Identification of proteins (peptides etc.) which have biological activities. This group works closely with functional genomics, structural biology and bioinformatics. (Baatz, Moeller Bearden, Bullesbach)

Structural Biology. Use of nuclear magnetic resonance, MALDI-TOF (time of flight) and other technologies to identify marine contaminants, and molecules produced by marine organisms. (Bearden, Bullesbach, Baatz, Christopher, Kucklick, Moeller, Wright)

Note: Not all MBES faculty fall into one of the research foci described above. Potential students should view the list of full members of the MBES graduate faculty to gain an appreciation of the full range of research within MBES and potential mentors.