



Media Release
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Environment Resilient in the Face of Hurricanes, but Questions Remain

The international Estuarine Research Federation (ERF) announces the publication of a special issue of its scientific journal, *Estuaries and Coasts*. This issue, focused on environmental impacts of hurricanes in coastal areas, is publicly available on ERF's web site, www.erf.org.

Estuaries and Coasts is a bimonthly scientific journal that reports research about ecosystems at the land-sea interface. The hurricane special edition was published as the journal's December 2006 issue.

The impetus for this special issue was the intense 2004 hurricane season, in which four major hurricanes made landfall in Florida within a three-month period. Holly Greening of the Tampa Bay Estuary Program is one of the guest editors for the special issue. "One surprising conclusion that can be drawn from this collection of research is that natural systems are actually quite resilient in the face of these storms. While hurricanes often wreak havoc with human systems and infrastructure, many of the

habitats and organisms we studied rebounded quite well in the weeks and months following the 2004 storms,” said Greening.

“This special issue compiles research findings and results of long-term monitoring to give us a chance to look at these large, anomalous storms in the context of long-term trends,” she added. The authors of these papers explore both the individual and cumulative effects of storms on coastal environments, animals, and plants, and examine the effect of these storms on coastal management. The severe hurricanes in 2005 make such findings of great interest to scientists, the public and coastal resource managers.

For example, water quality and phytoplankton productivity – a measure of the health of the base of the food web – were impacted by winds and heavy rainfall, but returned to normal within months. One study found that manatees’ storm-induced movements away from their home ranges were much smaller than expected. Aquatic plants, referred to as submerged aquatic vegetation or SAV, had a more variable response to hurricane-induced stress, sometimes rebounding and sometimes exhibiting long-term damage.

Damage to shoreline ecosystems varied as well. Dune erosion due to hurricanes was severe in some places but not others. In some parts of coastal Louisiana, large sections of wetlands were lost in extreme storm events.

“A major research goal is to use these unique data sets to develop and test a new hurricane scale for predicting the coastal impacts of extreme storms,” noted issue contributor Abby Sallenger of the St. Petersburg, FL, office of the U.S. Geological Survey.

These varying impacts seemed to depend, at least in part, on the characteristics of the storms themselves: direction and speed of approach, point of landfall, and intensity all made a difference in the extent of environmental damage. Storms that carried more rainfall seemed to do more long-term damage than “hit-and-run” storms with higher winds.

“The research compiled in this issue of *Estuaries and Coasts* is an excellent start in understanding the environmental impacts of these storms,” said Greening, “but many questions still need to be answered. We still need to know how storm frequency and intensity, both predicted to increase in the coming years, interact to impact coastal environments and communities. Another outstanding question is the extent to which human alteration of the shoreline determines the coast’s resiliency to storms.”

Scientists and managers contributing to the special issue represent more than 25 institutions, including the University of Florida, the University of North Carolina, the US Geological Survey, Alabama’s Dauphin Island Sea Lab, and a host of local governments.