

SHORELINES – June 2002 **As presented to the Island Review Magazine.**

While you are enjoying a nice day on the beach this month, you may notice a group of individuals with odd looking equipment, an all-terrain vehicle (ATV), and a jet-propelled rubber boat traversing the beach and nearshore waters. This group is from the University of North Carolina Institute of Marine Sciences and will be in the process of obtaining beach monitoring data using a real-time kinematic global positioning system, or RTK-GPS. You're probably thinking real-time kinematic global positioning system? Sounds like an incurable disease and what are you doing spreading this disease along our beach? Actually, incorporating RTK-GPS technology into a monitoring program represents the most state-of-the-art beach surveying method available. In fact, Bogue Banks is the only stretch of beach in the State that now has a regular (four times a year) monitoring program that uses this new technology.

Why is this beach monitoring system so progressive and how does it differ from conventional methods? The older surveying method that uses level and rod methodology has essentially remained unchanged for the past century and only registers beach elevations along a shore perpendicular line running from the dune out to wading depth. Normally one person operates the level, the other person the rod. Thus, the amount of data points collected is a function of how many times the surveyors wish to stop and move the rod. Conversely, the new mapping technology uses a base station that emits a signal that is received by the ATV on the beach, or boat in the water. So while the ATV and boat are traversing the beach and water at 3-5 miles per hour, they are constantly receiving a signal that is translated into an elevation above or below mean sea level once every second. These vehicles also have special equipment that compensate for heave, pitch, and roll – a fancy way of saying that the equipment takes the “bumps” out of the data.

To put these two survey methods in perspective, imagine a group walking the entire 25-mile stretch of Bogue Banks, stopping every couple of feet or so to take a data point compared to the same group of persons riding vehicles and constantly taking data with minimal stoppages. It would take the first group months to complete a single survey event. Actually, by the time this first group finished the survey, the beach would have changed so much from the time that they started that the data would be meaningless. The second group can be on and off the beach in a few days.

The conventional survey method basically provides a snap shot of a single 2-dimensional cross-section that is compared to subsequent surveys along the same line running from the dune to wading depth. Because the RTK-GPS technology covers more ground and water and at such a precise scale, the data obtained using this method can also be used to provide 3-dimensional maps of the beach/nearshore, identify erosion and accretional “hot-spots” along the beach, and can be used to make a time-lapse style movie based on multiple survey events. All of these beach management tools can only be obtained using RTK-GPS technology.

So while you may be thinking that this group of scientists is enjoying a nice day working on the beach, they are actually hard at work obtaining data as part of a cutting edge, comprehensive beach monitoring program. Their operations should not disrupt your beach experience and will provide for an invaluable resource in our shore protection efforts.

Beach Commission Update

Sand management strategies pertaining to the Morehead City Harbor Navigation Project was the hot topic at the April 2002 Beach Commission meeting. N.C. Senatorial staff is currently considering Water Resource Development Act (WRDA) 2002 language that has been proposed by the Shore Protection

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Office. This language would permit the U.S. Army Corps of Engineers (USACE) to develop a sand management plan for the harbor that places dredged material on beaches rather than in offshore disposal sites. Congressman Walter B. Jones is also considering a separate WRDA 2002 provision that would enable the USACE to pursue dredge disposal alternatives that are not necessarily the least-cost option. Again, this may predicate the placement of dredged sand on beaches rather than the current practice that entails annual dumping of this finite resource in offshore disposal sites.