

New Storm Chambers To Reduce Storm Water Discharge Into Ocean



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(Pictured Above:) Michael R. Burchell (At Right) of the NC State University looks on as town workers install a new infiltration system as part of a pilot program to mitigate storm water runoff through old ocean outfall pipes.

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KURE BEACH - The Town of Kure Beach has long desired a way to eliminate 18 ocean outfall pipes that drain storm water runoff onto the beach and into the ocean. Over the next few weeks the Town's Public Works Department will be installing an alternative to the old outfall pipes near L. and M. Avenues along the oceanfront. The new system was designed by the NC State University Department of Biological and Agricultural Engineering and paid for by the North Carolina Department of Transportation(NCDOT).

The new design is part of a pilot program to help mitigate or eliminate the discharge of storm water across the beachfront and into the ocean.

According to Chris May - Executive Director of the Cape Fear Council of Governments - with every measurable rainfall, the state issues advisories to swimmers to stay 200 feet from all ocean outfalls due to the potential for non-point source pollution such as runoff from streets and other impervious surfaces. The outfall pipes in Kure Beach carry runoff from all impervious surfaces including U.S. Highway 421 and other roads, parking lots, driveways, yards and rooftops. Last year the Town considered diverting runoff from the pipes to a wetlands area on land owned by the U.S. Army as a buffer zone between the population and the neighboring Military Ocean Terminal at Sunny Point across the Cape Fear River. Estimates for that plan proved too costly.

According to Chris May, officials from the NCDOT Environmental Branch contacted Dr. Bill Hunt at NC State University - Department of Biological and Agricultural Engineering to see if his expertise and the resources of the School of Engineering could be utilized to come up with a less costly alternative. The plan is to catch the storm water runoff that traditionally flows through the existing outfall pipes and route the water into large infiltration tanks where it will be slowly absorbed into the sand. Michael R. Burchell, Ph.D. - Extension Assistant Professor/Water Quality at the NC State University's Department of Biological and Agricultural Engineering - explained, "The system is designed to catch only the first half inch of rain fall," during any event.

Burchell explained that once the underground infiltration pipes fill up, excess water would overflow into the old outfall pipe. Burchell pointed out that most rainfall in the area is below half an inch with the exception of some summer storms. Crews from the Town of Kure Beach will be overseeing the installation to ensure precautions are taken to protect the fragile dunes in the area. Dr. Bill Hunt and others from the University will be making frequent visits to monitor the effectiveness of the new

system throughout the year. Scientific documentation and recommendations will follow.

Chris May explained, "If the model works it will become the recommended best management practice used in all coastal communities... and Kure Beach will be were it all began."

At the Town Council's January 17th meeting, Councilman Mac Montgomery explained, "It's a research project and we are the first ones in this state to be involved in this.... It has great potential for the future." The underground system will tap into the existing pipe and route water into Storm Chambers. Samples of ground water will be taken beneath the new system to test its effectiveness.

The Storm Chambers are manufactured by HydroLogic Solutions, Inc. of Occoquan, Virginia. According to their web site, (www.hydrologicsolutions.com) "The StormChamber™ system improves water quality through the same process as a septic drain field. A biomat of micro-organisms forms on the soil and stone underlying the chambers, which metabolizes pollutants and converts nutrients to non-contaminating byproducts."

The StormChamber™ product was designed to allow municipalities to comply with the EPA Phase II storm water and Total Maximum Daily Load (TMDL) regulations. HydroLogic Solutions developed the StormChamber™ as a management tool for the control of storm water runoff, sediment control, and nutrient removal, designed to overcome the deficiencies of older technologies.

The chambers maximize the benefits of storm water quality, storm water storage, and providing for recharge of groundwater supplies through infiltration.



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(Pictured Above:) A sign on the beachfront at L. Ave. marking the location of one of the 18 ocean outfall pipes in Kure Beach.