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Caswell Beach

Sandpiper

July 2003

50 Year Beach Nourishment Progress

Progress on the 50 year beach nourishment project for Caswell Beach and Oak Island is moving forward, albeit slower than we would like. The US Army Corps of Engineers currently has a contract in place to prepare a proposed layout of seismic investigations to locate potential offshore borrow sites in the 3-mile to 5.5 mile offshore areas. This will result in a contract to do the actual seismic investigations (side scan sonar) that should begin in June. With the preliminary results of this effort, we hope to locate potential borrow sites that we can further investigate and confirm with vibrocore drilling operations that could begin in late August.

The Corps is also putting together a schedule and cost to do the comprehensive inlet management plan for Wilmington Harbor / Lockwoods Folly Inlet / Shallotte Inlet / and possibly Tubbs Inlet (as was requested by Brunswick Beaches Consortium) so that we can better determine all the impacts of using these inlets.

We have gone about as far as we can go on most of the study activities until we tie down the borrow source issue. Sources of sand for all 50 years must be located before the project starts. We are still on track for the project to be built in 2006-2007 timeframe.

Caswell Beach is Aware and Prepared

June 1st kicks off the 2003 Hurricane Season and the Town of Caswell Beach must plan for the possibility of severe storm damage to our beach and dunes. In 1999, Hurricane Floyd caused severe damage to our beach and dune structures. Our beach all but disappeared and the dunes were at road level with SR 1100 undermined at Oceangreens Lane. Caswell Beach lucked out with the arrival of the 505th Combat Engineer Battalion of the North Carolina National Guard. The Engineers had our dunes rebuilt and recovered about 50 feet of beach within 5 days. The budget for the Town did not contain any funds for emergency efforts and our Town was not at all prepared for this major beach and dune destruction.

With the sand from the Wilmington Harbor Project, our beach has been renourished and is in excellent condition. This year, through the efforts of the Town Commissioners, Caswell Beach is better prepared for any storm damage to our beach with a emergency fund and plans for in-place contracts for beach bulldozing and dune replacement. If any hurricane is declared a National Emergency, then the Town funds will be reimbursed by FEMA. However, if there is no declared national emergency the budgeted funds will be used. The establishment of this year's emergency fund is a definite step forward in emergency preparedness and hazard mitigation. Always remember that it was not raining when Noah built the Ark.

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Planting the dunes with Bitter Panicum

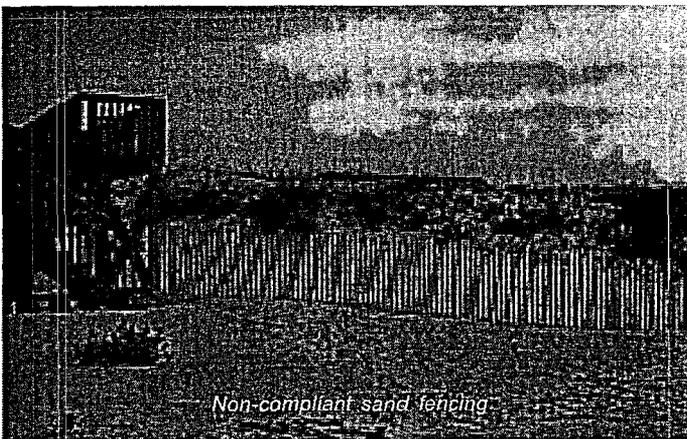
Help Wanted

A volunteer is needed to oversee the Town's dune vegetation program. The job involves interface with county agricultural extension and local growers with a view towards becoming the resident expert on american beach grass, sea oats, bitter panicum and similar beach friendly plants. If you are interested, contact the Beach Commissioner at 278-5471 for more details.

Sand Fence Installation

Sand fences and beach vegetation placed on the frontal dune prevent blowing sand from migrating inland and buildup dunes which act as flexible barriers to storm tides and waves, and serve as natural sand reservoirs for beach nourishment. Sand fence is also being used to establish a frontal dune immediately in front of the vehicular entrance and to direct pedestrian access onto the beach rather than allow sideways movement across the dune.

Last year the state established new rules for installing sand fence on the frontal dune which requires individual sections no longer than 10 feet separated by at least 7 feet and canted no less than 45° from the beach details can be found at <http://dcm2.enr.state.nc.us/Facts/fencefacts.htm>. The photo below shows the new, compliant way to install fencing and the old, non-compliant way. These new rules will make installation more difficult and expensive but far more turtle friendly. It should be recognized, however, that any sand fencing seaward of the frontal dune is by its very nature not turtle friendly, so sand fencing should be used only as a last resort.



Dune Protection Ordinance

Although dune vegetation tolerates harsh beach conditions, it cannot withstand foot and vehicular traffic which crush plant shoots and roots. An existing town ordinance makes it unlawful for any person "not on his own property" to traverse or walk upon over or across or damage in any manner whatsoever the primary or frontal dune. A revision to this ordinance has been proposed to further protect the dunes which affects private property owners and reads as follows: It is unlawful for any person to walk upon, over or

across, so as to damage in any manner whatsoever, vegetation that is growing on the front slope of the ocean front (primary or frontal) dune.

While this proposal will not prohibit private property owners from walking on or over their own frontal dune, it would prohibit them from damaging beach vegetation. For example, a beach front resident would not be allowed to pull up a hobie cat onto the dune in front of their house if such action adversely affected the vegetation. As might be expected, this proposal has met with opposition to the extent that your views on the matter are being sought via the Summer 2003 questionnaire included with this newsletter. If there is positive, unambiguous support, the Town will consider enacting this revised ordinance and enforcing it through the use of citizen alerts and fines for violations.

Sand Dollars

The key to the Town paying for the 50 year beach nourishment project (see separate story) is the continuation by the Federal government of cost sharing such projects. The current ratio is 65% Federal and 35% State and local monies. Historically, the State has paid 75% of the non-Federal share, with the local contribution 25%. Some North Carolina counties such as New Hanover absorb roughly 50% of this local share but based on the recent Ocean Isle experience however, Brunswick County will probably not help in this way. While Brunswick County now shares the cost of the Brunswick Beaches Consortium lobbyist, it has shown no inclination to contribute to the beach nourishment effort itself. This is unfortunate since as was recently pointed out by Jim Lowell, Mayor of Holden Beach, the tax base of the beach communities equals 67% of Brunswick County's total tax base and they produce \$28.3 million in tax revenues.

The Caswell Beach Preservation Trust Fund, which will pay for the sand, currently has about \$550,000 (cash in hand and pledged donations) and is expected to reach \$750,000 by 2007. The Trust Fund, as well as other beach expenditures, are funded via the accommodations tax, a 6% levy applied to short term rentals. One (1) percent (roughly \$25,000) is given to the county for the Tourism Development Authority, two (2) percent (roughly \$50,000) is deposited in the Beach Preservation Trust Fund while the remaining three (3) percent (roughly \$75,000) is used for various tourist related Town programs such as police salaries, garbage pickup, and dune protection projects.

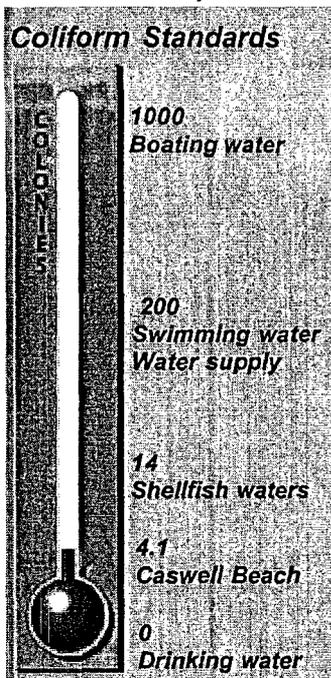
The 2007 Trust Fund projection of \$750,000 mentioned above assumes the continuing deposit of the 2% levy into the Trust Fund as well as some part of the 3% block. Regarding the latter, last year slightly more than \$10,000 was moved from the end of year fund balance into the Trust Fund. The Town will need to continue growing the Trust Fund over the next four years and also identify a sustainable form of funding to pay for the smaller, recurring renourishment projects that will occur every 3-5 years and extend 50 years in the future. Alternatives exist to do this, and are addressed in the questionnaire enclosed with this newsletter. Please take the time and fill out this one page survey and return it to the Town. It is important!

Uncle Sam and Beach \$

Federal funding for all beach projects amounts to only \$110 million out of the \$758.5 billion discretionary budget and just 400th of one percent of the \$2.5 trillion total budget. With so little to work with, state and local funding is vital if we hope to continue the constant job of beach nourishment.

Monitoring Coastal Waters

In June of 1997, North Carolina initiated a recreational water quality monitoring program in the coastal waters of the state. The primary purpose of the program is to protect the public health by testing recreational waters and notifying the public when standards for safe bodily contact are exceeded. Testing is done in the



ocean at the public parking lot weekly April to October, and monthly November thru April. Up to now, no North Carolina ocean beaches exceeded the swimming standard for fecal coliform which are non-pathogenic bacteria found in the waste of warm-blooded animals and used as an indicator of the possibility of pathogenic viruses, bacteria, and protozoans in the water. The attached chart shows, for the year 2002, the fecal coliform standards for three salt water categories on a log scale thermometer. The red thermometer bulb indicates the average coliform reading of 4.1 at the Caswell Beach monitoring site for the same period.

This year, EPA has mandated that testing be done for an actual bacteria, enterococcus, and set standards for average and single readings. If a single sample of enterococcus exceeds a level of 104 organisms per 100 ml, a press release is sent out to inform the public and warning signs posted at the swimming site and in certain instances, the waters retested on a daily basis. Testing results at Caswell Beach for enterococci up through June 2003 range from 9 to 32 organisms per 100 ml.

Operation Clean Sweep

In December of last year, the Corps of Engineers informed Mayor Harry Simmons that additional sand from the Wilmington Harbor Channel Project would be placed upon our beach at no cost to the Town beginning in mid-November 2003, after the next turtle nesting season is over. The letter indicated that approximately 400,000 to 800,000 cubic yards of beach quality material will be removed from the Channel as part of a \$10 million contract known as "Clean Sweep", the final step in getting the channel to its authorized depth. The sand was to be placed on Caswell Beach/East Oak Island as one of the least-cost disposal alternative sites with the exact details of placement worked out in early 2003. The letter also characterized the support of Mayor Simmons and the Brunswick Beaches Consortium in optimizing the beneficial uses of dredge materials as wise, energetic and timely.

This April however, based on a more careful reading of the agreements entered into by the concerned parties, the Corps decided to place the sand on Bald Head Island rather than Caswell Beach/East Oak Island. The rationale for this decision was that this sand is actually the first part of an agreed upon, follow-on sequence of channel maintenance operation rather than the conclusion of the original project. This sequence, as set forth in a document called the "Sand Management Plan", calls for Bald Head Island to receive sand dredged from the first two channel

maintenance operations (estimated to be 2003 and 2005). Caswell Beach would then get sand from the projected third operation in 2007.

In a May 12 letter on this matter to the Corps District Engineer, Mayor Simmons on behalf of the Brunswick Beaches Consortium wrote "It is our understanding...that your decision was urged upon you by the attorneys, not your engineers". He went on to say "It is our hope that the Corps will continue to honor its agreement with the Consortium and to recognize the Consortium as the primary group to address the needs for beach communities in Brunswick County."



Erosion Research Update

A 1999 report by the Brunswick Beaches Consortium identified five chronic erosion hot spots on Caswell Beach. This report, together with unexplained phenomena in other beach locations, raised interest in having available a more comprehensive and scientific grasp of our beach erosion dynamics. In response to this interest, last year the Town hired Coastal Planning and Engineering of NC to conduct such an investigation. Mr. Tom Jarrett, the engineer who did the work provided his preliminary report to the Town Council in April which is summarized below.

To evaluate the erosion dynamics, various materials were used to include published and unpublished data from the Corps of Engineers, topographic maps, aerial photographs, beach profile surveys and wave transformation/sediment transport analyses. Concern that the CP&L (now Progress Energy) pumping station pipeline and outfall may unduly influence the beach was a prime focus of the investigation. After studying the data, Mr. Jarrett reported that although an obvious erosion hot spot exists in the area extending from just east of the pumping station, this area experienced significant rates of erosion even before the pumping station was built. In fact, erosion rates in this area were considerably greater "before construction" compared to "after construction". Regarding the affect of the Wilmington Harbor Channel, data shows a change in the sediment transport patterns associated with the shape of the ebb tide delta at the channel entrance, but Mr. Jarrett could not conclude that there was a causative relation between changes in the delta and any shore line changes along Caswell Beach. A final version of this report in its entirety is available at Town Hall.

Inserted in this newsletter is a questionnaire. The town needs to know your views on beach issues. Please fill out the questionnaire and return it to Town Hall. Your input will make the difference in determining town policy.

Town of Caswell Beach
P.O.Box 460
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Caswell Beach Turtle Program

May is the beginning of our sea turtle nesting season. As the organizers and coordinators of the turtle program Milt and Jane Reece and Tom Adams watch for "turtle crawls" on the beach, When a crawl is reported one of the program volunteers will investigate the crawl to determine if the turtle nested and laid her eggs. The nest will then be marked and dated. Please call Milt and Jane Reece 278-4507 or Tom Adams 278-6407 to report a turtle crawl or for more information on the Caswell Beach Turtle program.

E-Mail Registration

If you would like to receive the newsletter by e-mail please send your e-mail address to: Caswell Beach Town Hall P.O.Box 460, Caswell Beach, NC 28465, or e-mail your address to Beach Advisory Board member, Kathleen Kitchings (kitch@bcinet.net).

Sandpiper Contributors

50 Year Beach Nourishment Progress - Mayor Harry Simmons
Caswell Beach is Aware and Prepared - Tom Hess
Erosion Research Update - Deborah Ahlers
Remaining articles and questionnaire - Frank Bausch

Beach Clean Up

Year-round (usually on Friday), driftwood, construction materials, and automobile tires are removed from the nearshore to decrease the likelihood of injury to those swimming or surf fishing. Large timbers and tree trunks that need brute force means for removal, are towed out of the surf zone and cut up prior to removal from the beach. Shown below is a picture of the Town's 2 1/2 ton truck parked at the vehicle entrance with the results of last months towing efforts. If when walking the beach you see some material that poses an immediate hazard to swimmers or anglers, please leave a message for the Beach Commissioner at Town Hall (278-5471) and the matter will be taken care of as soon as possible.



Erosion not fault of outfall

By Terry Calhoun
Staff Writer

"Where does the sand go?" a Caswell Beach resident asked an erosion specialist studying the town's beach.

The former U. S. Army Corps of Engineers scientist said existing data could not be used to answer that question.

The consultant studying erosion patterns at Caswell Beach added that thus far he had "failed miserably" to find a probable cause for the loss of sand from the town's beachfront, but he had learned that the fault could not be placed on the CP&L outfall.

He couldn't categorically eliminate as a cause a 1999 harbor channel reconfiguration, however.

Tom Jarrett, a consultant for Coastal Planning and Engineering of North Carolina, was engaged by the town to study existing data to evaluate the cause of persistent erosion "hot spots," including the area in the vicinity of the CP&L (now Progress Energy) pumping station.

Jarrett reported on completion of the first of two phases that make up his study at the regular monthly meeting of Caswell Beach commissioners Thursday. The second phase will seek to determine the best approaches to manage those "hot spots."

Jarrett said he studied published and unpublished data from the U. S. Army Corps of Engineers' Wilmington district office, including topographic maps, aerial photographs, beach profile surveys and wave transformation — sediment transport analyses associated with realignment of the Wilmington Harbor entrance channel in 1999.

"There is nothing in the history of shoreline changes that would indicate that the pumping station has had any impact on shoreline changes along Caswell Beach and the east end of Oak Island," Jarrett told town commissioners.

Jarrett found that there had been changes in sediment transport patterns in the area associated with the shape of the ebb tide delta at the channel entrance, but he would not conclude that there was a causative relationship between changes in the delta and in shoreline changes.

The town's 2002 five-year Beach Preservation Plan called for the research and identified the area around the pumping station that cycles water used to cool the Brunswick Nuclear Plant into the Atlantic Ocean.

There had been speculation, Jarrett said, that the pumping station and its ocean pipeline and outfall may have some influence on the behavior of the beach in the area.

The offshore pipeline which extends some 2,000 feet offshore was constructed in 1972. Discharge of cooling water began in 1975 when Unit 1 came online. Unit 2 began operation two years later. Cooling water is drawn from an intake on the Cape Fear River and is transported to the ocean through the 5.5-mile discharge canal that skirts Southport on its way to Caswell Beach.

"When both units are in operation, the volume of cooling water discharged into the ocean is approximately two million gallons per hour," Jarrett said. The outfall creates turbulence visible from shore and discernible in aerial photographs of the area.

The consultant used data from the Division of Coastal Management dating to 1938 and seven sets of aerial photographs taken by the U. S. Army Corps of Engineers between 1971 and May 2002. Water depth measurements were analyzed based upon data collection that began in 1872.

"An obvious erosion 'hot spot' exists in the area extending from just east of the pumping station to the west town limits of Caswell Beach," Jarrett said. "However, this area was experiencing significant rates of erosion during the period prior to the construction of the pumping station," he concluded.

Surprisingly, in fact, "The rates of erosion from the pumping station west to the old west town limits of Yaupon Beach were considerably greater" before the pumping station compared with after construction.

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