Mason’s Inlet: Here Today, Gone Tomorrow

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Quantitative Methods in Rocks and Minerals

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July 17, 2010
Abstract

Mason’s Inlet has been moving south for thousands of years, but all the sudden its southern progression has increased dramatically. Over the past 20 years it has moved about one-half mile south towards Wrightsville Beach then has been relocated 2,500 feet back up to its original position. This relocation was manmade, so eventually history will repeat itself and the inlet will move back down the beach. Precautions have been taken to try to prevent this from happening. For example, sea oats have been planted to try to create dunes which will act as a form of beach protection, but no matter what nature wins over mankind. However, as long as man continues to inhabit coastlines they must search for ways to protect themselves and their resources.
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The ocean has been cutting away the coast of North Carolina for thousands of years. In doing so, it has given our coast a very unique shape and structure. From the barrier islands to the enormous sounds and the minuscule inlets, North Carolina’s coast is definitely one of a kind. The ever-changing coast line continues to redefine its shape and boundaries. Last year’s look will not be the look for today’s visitors. One of the most rapidly changing characteristics of the coast is its inlets. Inlets are constantly moving and their paths being redrawn. Currently, one of the most swiftly moving inlets is Mason’s Inlet. This inlet, which separates the north of Wrightsville Beach from the southern tip of Figure Eight Island (see appendix A), has moved approximately one- half mile in 15 years. So, what makes this inlet different from all the other inlets?

Mason’s Inlet has been moving approximately 110 feet per year since 1938, but it has started to progress at a much faster rate. From 1993 to 1995, the inlet moved 650 feet to the south, so its progression has become very dramatic in recent years. In the mid 1990’s the people of Wrightsville Beach decided they wanted to take action because the inlet was moving south so quickly that it was threatening to destroy the Shell Island Resort and private residences (see appendix B). They hired engineers to come up with a plan to relocate Mason’s Inlet, let the people of Wrightsville Beach voice their opinions on it, received support from the local government, and finally sent it to the state level for approval. The state denied the initial plan, but after numerous revisions, the plan to relocate the inlet was approved (Bodzin, Kube, 1998).
During the winter of 2001 and 2002, Applied Technology & Management Inc. (ATM) took over the construction stage of Mason’s Inlet Relocation Project (Jenkins). They brought in enormous amounts of sand to build up the northern tip of Wrightsville Beach and move the water flow farther north. Then they installed 35 feet long by 3 feet wide steel sheets to keep the sand in place and help to stabilize the new inlet’s location. The steel wall was left in place long enough for the engineers to make sure the inlet was secure. When the engineers believed the inlet was safe, they waited until low tide and removed the 800 foot steel seawall very carefully. The low tide restricted the waves from crashing into the inlet’s brand new mouth and allowed the high tide to naturally rise, and the inlet’s new mouth was introduced into the ocean with ease (Wrightsville Beach Chamber of Commerce).

In January 2002, Mason’s Inlet was 100 feet from the Shell Island Resort which was a great concern to the owners, but only two months later, it had been relocated 2,500 feet north and all their worries had vanished (Wrightsville Beach Chamber of Commerce). The new Mason’s Inlet was opened on March 7, 2002 and has been holding its position very well since then (see appendix C). ATM also concluded that had they not taken over this project, over a span of 30 years the inlet would have kept moving towards Wrightsville Beach and destroyed the Shell Island Resort and numerous private homes. The effect of this happening would have resulted in the loss of 237 million dollars from the loss of the resort and residences, and also the loss of hotel revenue and tax revenue. The county paid 6.5 million dollars up front for the relocation project. Then the 1,044 property owners from both Wrightsville Beach and Figure
Eight Island agreed to pay installments to help cover the money needed for the project (Jenkins).

So what exactly is an inlet? An inlet is a narrow body of water that connects the ocean to a body of freshwater such as a sound. Inlets are capable of regulating the volume of water that is being discharged from a sound and the water that is entering the inlet from the ocean. In other words, inlets create a peaceful site for the sound water to converge with the ocean water. Inlets are created by the surge of storm waves across the beach (Schoenbaum, 1982). These storm-surge waves are very prominent during hurricanes and strong storms. As a hurricane approaches, strong winds drive the storm-surge waters and waves against the beach, through the inlets, and into the sounds. As the storm passes, the wind either stops or shifts direction and starts blowing seaward allowing the storm-surge waters to return to the ocean. This in and out pattern of the water causes the inlets to be at work constantly and often results in a shifted water route (Bullock, Bush, Cowan, Neal, Pilkey, D., Pilkey, O., Riggs, Webb, 1998).

Only one percent of North Carolina’s shoreline is made up of inlets, but that one percent has influenced 65 percent of the barrier shorelines that make up Onslow Bay. Onslow Bay stretches from Cape Lookout to Cape Fear and is made up of 13 inlets. Of these 13 inlets, four are regressive and nine are transgressive. Stable inlets are typical along regressive barriers, and unstable inlets are more common along transgressive barriers. The regressive barrier is made up of the four northern most inlets of Onslow Bay, and the transgressive barrier is made up of the nine southern most inlets. Mason’s Inlet falls in the transgressive barrier category; therefore, it is considered unstable (Cleary, 1996).
Before the relocation of Mason’s Inlet in 2002, Wrightsville Beach had no protection from hurricanes or even storms. Therefore, Mason’s Inlet had an easy job when it came to overtaking the northern tip of the beach. Beach erosion is constantly at work no matter what, but there are ways to slow it down. The most common approach in preventing beach erosion is creating dunes. Unfortunately, Wrightsville Beach had many failed attempts at reducing erosion by building man made dunes, as soon as a storm rolled through, the dunes were either greatly reduced in size or destroyed altogether. The people of Wrightsville Beach knew that if they did not find another way to stop the rapid erosion, then sooner or later the Shell Island Resort and the private homes on the island would be destroyed.

David Nash, a specialized agent in coastal management, along with Dr. Paul Murphy from North Carolina State University led a stabilization effort to correct the erosion process and help keep history from repeating itself. They both knew that if no action was taken, Mason’s Inlet would begin to move south quickly and it would appear as though there was no relocation project at all. They devised a plan to build up the sand dunes in a way that they would not be ruined by one storm (Powers, 2005).

David Nash had experience working with places like Wrightsville Beach, where erosion had the upper hand. He knew that plants such as sea oats had a way of making dunes resistant to most any weather and that they are capable of protecting beaches. His method of correction sounds so simple, but it is more than just going out and planting sea oats. Sea oats are not the type of plant that a person can simply go out, buy, and plant on the beach. They will only grow successfully if their seeds are from the beach where they are to be planted (North Carolina
State University). Using this principle, Bill Nash helped revitalize Wrightsville Beach using sea oats, gathered from plants native to Wrightsville Beach. Nash, along with Murphy and 100 volunteers, planted 18,000 sea oats on Wrightsville Beach to help prevent Mason’s Inlet from invading the land again. They planted the sea oats as far away from the ocean as they possibly could because sea oats prefer dry, blowing sand which helps to speed up their growth. The sea oats then grow quickly and sand is built up faster creating sand dunes quite rapidly. The dunes are very resistant because the sea oats are so entangled with the sand that the dunes are not easily destroyed by a single hurricane like they would be if they were made of sand alone (Powers, 2005).

Two years after David Nash and his helpers planted the sea oats; the dunes that were created as a result had already grown five feet (Powers, 2005). The sea oat principle has allowed Mason’s Inlet to remain fairly stable in the eight years since its relocation. Before 2002, there was nothing on Wrightsville Beach that stopped the inlet from migrating south and taking over the northern tip of the island. This does not mean that Mason’s Inlet stopped moving altogether, its southern progression has just slowed because of the dunes and sea oats that are now present on Wrightsville Beach.

Mason’s Inlet was once migrating south so quickly that relocation seemed nearly unthinkable, but once again, humans did the unthinkable and were able to relocate it farther north. Whether it will begin to progress as quickly as it did is hard to predict, but time will tell. If it does continue to shift, I believe that the people of Wrightsville Beach will continue to seek out solutions. Mason’s Inlet is one of those mysteries where every day holds something new.
and anticipation levels run high. No matter how hard humans try to stabilize this inlet, it will constantly be moving and fighting against the beaches. It is a lot like the quote, “Over the long run, it is no more possible to fight the ocean and win than it is to build a sandcastle that can withstand the incoming tide” (Stewart, Roberson, 2007, p. 42). Nature will always win over mankind. However, as long as man continues to inhabit coastlines and enjoy the beauty of this aspect of the earth, they must search for solutions to protect themselves, their resources, and their livelihood.
References


<http://www.ncsu.edu/coast/shell/history.html>.


<http://www.cals.ncsu.edu/achievement/seaoats.htm>


Appendix

A:

B:
C: