

# THE DUNE

# Breeze



*Park visitors and staff take newly constructed reefs out to be submerged.*

## Restoring the Roanoke Sound Estuary at Jockey's Ridge

By Matt Windsor

Even in a protected natural area like Jockey's Ridge, habitat loss and the subsequent loss of diversity of plant and life is still a concern. In keeping with the park's mission to preserve and protect the environment, Jockey's Ridge State Park has joined forces with The Nature Conservancy, North Carolina Division of Marine Fisheries and the North Carolina Coastal Federation to restore oyster reefs in the waters of Roanoke Sound behind the park, and ultimately to restore wetlands along the park's soundside as well. Jockey's Ridge staff, park volunteers and Nature Conservancy Northeast Regional Steward Aaron McCall teamed up to construct three oyster reefs in the sound behind the park this summer. With the help of Greg Allen of the Division of Marine Fisheries, the reefs were legally designated as Research Sanctuaries, meaning that oysters growing on the reefs, and the reefs themselves may not be disturbed or harvested.

Why are oysters so important? A market size Eastern Oyster *Crassostrea virginica*,

can filter up to 50 gallons of water a day. Oyster reefs have been declared essential fish habitats and support up to 300 species of plants and animals (paralleling coral reefs with the biodiversity they support) and in North Carolina have declined 90% from historical levels. In addition, oyster reefs alter currents and stabilize areas of marsh by reducing wave action. Oysters are hermaphroditic and prefer to establish themselves by cementing themselves to other oysters. When water temperatures reach the mid 70s in the spring and fall, oysters are stimulated to spawn and produce free-swimming larva. During this critical period the larval oysters must attach themselves to a hard surface and will spend the rest of their life cemented in one place.

An oyster reef develops as oysters begin to colonize their own shells over the years. Depending on local conditions oysters may form small patch reefs that are exposed to tidal fluctuations or larger sub-tidal reefs in areas that aren't uncovered by the tides. A



*Juvenile sheephead found on newly constructed reef.*

combination of declining water quality from over-development, run off, sedimentation and over harvesting have greatly reduced the amount of these reefs in the state. Historical accounts from the 1700s point to oyster reefs as being so numerous as to constitute a hazard to navigation and oysters were so large that they had to be cut into several pieces to be eaten.

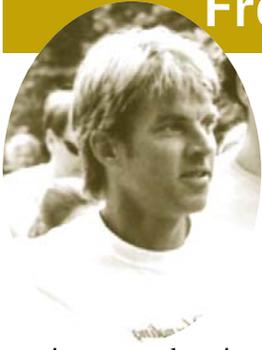
### Building a habitat

The reefs themselves were built with mesh bags of recycled oyster shells courtesy of

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## From the President's Pen



As we approach the winter season we can reflect back on all the good things that have happened at Jockey's Ridge State Park during the past year. Many people have climbed to the top of the sand dune and experienced the wonderful views, cooling breeze, warm sand and appreciate what



a unique natural environment Jockey's Ridge is. It is important to remember to continue your support of the Friends of Jockey's Ridge and the State Park by encouraging folks to join our organization and by shopping at our gift shop this holiday season. This is how we can all help to protect and preserve all of the beauty that is Jockey's Ridge for years to come.

Some of the many good things to happen this year include all the educational programs provided free of charge to park guests, thanks to the funds raised from the Nags Head Woods 5K Run. The staff does a wonderful job interpreting the natural history of the park. Grant money donated to the Friends by the Town of Nags Head was used to purchase new equipment for the ever popular kayaking program. We are especially thankful for their continued support.

We would also like to thank our new gift shop manager, Kathryn Lamb who has done such a great job with the gift shop, which has been very busy this year. Sincere thanks and good luck go out to John Fullwood and family. John has been a dedicated Ranger at Jockey's Ridge State Park for the past 15 years and has taken a position with Fort Macon State Park. He will be missed by many.

Keep an eye on the sand dune this holiday season for the Christmas tree to light up the night sky on top of Jockey's Ridge for all to enjoy.

– Billy

## Kudos To Our Kathryn!

On May 1, Kathryn Lamb took over duties as giftshop manager and has been loving her new position ever since. "I am getting back to nature working on the premises of Jockey Ridge State Park. It is hard to pinpoint one thing I enjoy the most. It is just great being here in an environment so close to heaven! The park is a wonderful preserve, the people that visit and the state park employees are so great!" she recently told the Dune Breeze. "I learn something new about nature everyday! I helped support the park back in the seventies, before it was a state park. I guess you would say, I still enjoy helping save the sand dunes."

When asked about what merchandise proved popular over the summer, Kathryn enthusiastically replied, "Of course the item of least value is the most popular merchandise in quantity and it is the post card. Sand pictures fascinate old and young alike with the assimilation of the dunes. We get many purchases of the Jockey's Ridge Patch and Friends Logo Tac Pin. Stickers and Books are huge sellers. Anything with the picture of the Dune and then the new logo of DuneHugger sell continuously!"

Swing by the park and meet Kathryn and purchase a postcard or T-shirt, all to support the Friends of Jockey's Ridge, and keep in mind, the JRSP Giftshop is a great place to get your Christmas shopping done!



## View From The Ridge by George Barnes – Park Superintendent

Once again, the summer season was extremely busy at Jockey's Ridge State Park. Our programs were well attended and highly appreciated. Our Rangers and seasonal Assistant Rangers received numerous compliments as well as letters of thanks for

providing enjoyable and educational experiences. A big thank you goes out to all of them as well as the office staff and maintenance personnel for a job well done.

I would like to note that all staff, especially Rangers, are constantly multi-tasking, which is also why they are trained in many areas of visitor safety and satisfaction. During the overly hot days this summer, staff responded numerous times to heat related incidents, sometimes 3 – 4 times a day. There was also an abundance of lost visitors who needed to be found. I'm happy and proud of how well our staff responded to all the emergencies, resulting in no serious injuries and all lost visitors were found.

We also have several notes of interest upcoming at Jockey's Ridge State Park The Outer Banks Marathon will be held on November 12. The starting point is in Kitty Hawk and the event ends in Manteo. The route will pass the boundaries of Jockey's Ridge State Park. The event also has a half-marathon that starts at the park. Staff will be assisting with this event. This is very exciting for the Outer Banks and we wish the participants and planners great success.

We are also moving closer to construction of an addition to our maintenance area— a 7 bay garage to store and work on equipment. As part of this project we hope to install 2 wind turbines to generate electricity to help power the new building and our public restrooms. We plan to have an exhibit in the museum showing the energy savings from the turbines and other sources of renewable and alternative energy. We appreciate the support for this project, especially from the Jockey's Ridge State Park Advisory Committee, Friends of Jockey's Ridge and the Town of Nags Head.



## To Join The Friends of Jockey's Ridge Visit:

## Restoring the Roanoke Sound Estuary *Continued from Page 1*

the Nature Conservancy (all recycled from local restaurants) and funded by the National Oceanic and Atmospheric Administration's Community Based Restoration Program. This brings up a critical point in maintaining oyster populations. One of the most important things that everyone can do to ensure that they can continue to enjoy oysters is to recycle the empty shells at a local oyster shell recycling center.

Jockey's Ridge State Park is now a recycling center for oyster shells (look for the bright yellow bins next to the park recycling cans) so bring your shells from your oyster roasts to Jockey's Ridge instead of sending them to the landfill. Juvenile oysters prefer to settle on other oyster shells more than any other surface, so putting shells back in the estuary helps create new reefs. The old shells from oysters you eat can then directly benefit the biodiversity and water quality of Roanoke Sound and Jockey's Ridge State Park.

Once the reef is in place, juvenile fish and invertebrates begin using it as shelter, and invertebrates that need a hard surface to settle on such as bryozoans, hydroids, barnacles, and juvenile oysters settle out of the plankton and colonize the dead oyster shell. Participants in the park program "Restoring the Oyster" assist in sampling some of the diversity of the reef and watch as one of the oyster shell bags literally drips with life as juvenile blue crabs, grass shrimp, gobies, blennies and skillettfish wriggle free from the shelter of one of the shell bags. On days when the water is clear, program participants have watched schools of juvenile sheepshead, pigfish, and pinfish dart around and graze the surface of the reef. I have been documenting the fish and invertebrate species, as well as water quality around the new reefs on the park system's Natural Resource Inventory Database, and have watched the list of fish and invertebrate species continue to grow as new life has found the reefs.

We simply did not have the needed habitat for many of these fish and invertebrates that depend on hard bottom habitat like oysters.

Many of the reef complex species such as sheepshead, pigfish and gray snapper started showing up in large numbers in our seining programs once the reefs were established. Other fish such as naked gobies depend on empty oyster shells to provide shelter for their eggs and are now abundant in the area of the reef. In addition the reefs buffer beds of submerged aquatic vegetation, and the rest of the shoreline from erosion. The local erosion rate for some areas along our soundfront is as much as 5 feet per year, so oysters as well as improving habitat may provide a more natural and beneficial way to combat erosion as an alternative to methods of stabilization that aren't compatible with a protected natural area. We've been very interested with the results so far and will continue to document species diversity, oyster survival and recruitment as well as water quality parameters on these reefs as they continue to develop.

With the early results of the new oyster reefs encouraging, I met with the North Carolina Coastal Federation to seek advice on how to expand the project and include wetland restoration for the last remaining areas of Brackish and Salt Marsh along Jockey's Ridge State Parks rapidly eroding shoreline. Jockey's Ridge State Park is now slated to be one of several sites to receive funding from the National Oceanic and Atmospheric Administration's Community Based Restoration Program pending successful approval of the grant application in the spring of 2007, thanks to the help of partners such as the NC Coastal Federation, the Nature Conservancy, and the Division of Marine Fisheries. The project will consist of expansion of the current restored oyster reefs, and low breakwaters to allow re-colonization of eroded areas with submerged aquatic vegetation, and planting of wetland vegetation on restored areas of marsh. Come out to one of the park's many programs on the soundside to learn more about the estuary and what lives in it, and to see some of these areas for yourself. And the next time you enjoy an oyster with hot sauce, remember all the work it did before it got to your table and recycle those shells.



## CRAZIEST Things Heard This Summer...

*Once again compiled by the JRSP staff*

### The park in general:

*"Is there a moon walk this week?"*

*"Is there a cafeteria here?"*

*"Can you tell us about your skate park."*

*"What time is the ghost walk?"*

*"Where do you rent motorcycles to ride on the dune?"*

### Up on the dune crazy

*"Are we above sea level?"*

*"Where is the singing and dancing at sunset?"*

*"What's everybody looking at?"*

### Random craziness

*"Will you get my shoes?"*

*"Rats have toxic pee."*

*"Can I cut off and keep the tail of a roadkill fox?"*

*"Are you on Eastern Standard Time?"*

### And the 2006 winner, the craziest quote

*A visitor, after viewing the hang gliders out front, "Are those mortars for the fireworks?"*

# JOIN THE FRIENDS OF JOCKEY'S RIDGE!



Just fill out the form, clip and mail along with your check to:

Friends of Jockey's Ridge,  
PO Box 358, Nags Head, NC 27959

## Class of Membership:

- Single \$25.00       Sponsor \$100.00       Benefactor \$500.00  
 Family \$45.00       Patron \$250.00       Other \$ \_\_\_\_\_

Name: \_\_\_\_\_ Date: \_\_\_\_\_

Address: \_\_\_\_\_

City: \_\_\_\_\_ State: \_\_\_\_\_ Zip: \_\_\_\_\_

Phone: \_\_\_\_\_

Email: \_\_\_\_\_

- Renewal       New Friend

Comments: \_\_\_\_\_  
\_\_\_\_\_



## JOCKEY'S RIDGE STATE PARK

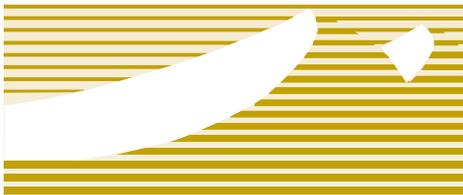
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252-441-7132



Friends of Jockey's Ridge  
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