

**This is an image of the outfall canal showing the lodge when it was still a pumping station. The outfall canal connects to the Pamlico Sound and is the way that the construction materials and pumps reached the site to construct the building in 1915-1916**

Cover design by students of the *Natural Design Team*

The photograph was taken from of [Images of America Lake Mattamuskeet](#)

[New Holland and Hyde County](#) by Lewis Forrest , Arcadia Publishing, Charleston, S.C. 1999 page 41

During the fall semester of 2007 the students of the Capstone studio designed an *environmental learning center* at Mattamuskeet. The graphics that are shown here illustrate some of the ideas of three student teams. It is hoped that their vision of what could be built at the old pump house will provide a focus for the current efforts of East Carolina University.



**Figure 1: Lower level of the renovated lodge showing berths for boats , a reception and display area, as well as a laboratory on the left side of the plan** Watermark student design team

The history of Mattamuskeet is not a tale of man’s co-existence with nature. It is, instead , a series of stories of attempts to dominate the natural environment. The first recorded story of the destruction or modification of the area that is now the lake is an Indian legend about how a peat bog burned for 13 moons creating the basin that is now the lake. The Indian word for Mattamuskeet is a word that can be translated to dry and dusty place- a far different meaning than what we now attribute as qualities of the natural environment that is now Mattamuskeet. <sup>1</sup>

In 1773, the Provincial Congress of the U.S. passed a bill to build a large canal from the lake to the Pamlico Sound in order to drain it for farm land. The lake was attractive to potential farmers due to the fact that it was rich organic soil and did not have to be cleared for growing crops. <sup>2</sup> Colonist and citizens of the new nation of the United States slowly encroached on the edges of the lake and its size began to be reduced. The size of the lake was diminished steadily throughout the 1800’s.

By 1913 a drainage commission had been established and sold stock to raise the money to drain the lake entirely. A new town was even planned to be built in the rich bottom land of the lake bed. This town was named New Holland because the inspiration for this effort was the control of Lake Harlem by the Dutch. By 1915 the largest pumps in the world were installed in the building shown on the cover of this report. Their purpose was to remove the water from the lake so that the land could be used for farming and the growing farm community which by now had a railroad station, a post

<sup>1</sup> IBID Page 7

<sup>2</sup> IBID Page 9

office , homes and a general store and garage. However, the lake kept filling up again. And the pumps had to be run day and night to kept the fertile farm land dry. Experimental crops were planted by the last development company which stayed in business until 1932; the business climate of the Great Depression caused the pumps to fall silent for the third and final time <sup>3</sup>.

After this effort bankrupted two corporations, the pump house became a hunting lodge. The 1933- 1936 conversion was the work of the Civilian Conservation Corps <sup>4</sup>; and this effort gave the lodge its current appearance. The Canadian geese and ducks that migrated here in the winter were fair game for the 50-60 sportsman who could be entertained at the pump-house which had was renovated to be a lodge. These ducks were shot, until the hunting laws changed in 1970 and hunters stopped coming; in 1974 the hunting lodge closed and the land was transferred to the U.S. Fish and Wildlife Service.<sup>5</sup> The ducks and geese are now protected as residents of a wild life refuge, but the most recent threat to the area has been the controversial Outlying Landing Field sought by the Navy.

Those who oppose the OLF argue that both birds and pilots would be endangered by one another. It now seems the Navy will abandon the idea of a landing field near the lake; however, the history of human development of Lake Mattamuskeet has been a series of stories of how humans sought to impose their will on the natural surroundings. The syllabus for this course posed the question: "Does nature have rights as well?"



**Figure 2: Proposed changes to the existing first floor reception area renovation that are in character with the rustic furniture that now is in the building and was made by the CCC boys.  
Drawing by Natural Design Student Team**

<sup>3</sup> IBID Page 77

<sup>4</sup> IBID Page 91-96

<sup>5</sup> ECU Field Station for Coastal Studies: Draining the lake [www.artsci.ecu/matt/mattamuskeet.htm](http://www.artsci.ecu/matt/mattamuskeet.htm)  
And Page 10 of *North Carolina Down East Magazine* Spring 2006



**Figure 3: The current condition of the lodge Photo Credit: Katie Davis Watermark Design**

In 1994 , East Carolina University signed a memorandum of understanding with the U. S. Fish and Wildlife Services to use the building as a field station for coastal studies<sup>6</sup> The lounge, the area shown in the design revisions sketch in Figure 2, and the kitchen were renovated so that large groups of people could visit the lodge on the ground floor level. These changes also were made in conjunction with the Partnership for the Sounds. The academic year of 1996-1997 was the first year that the lodge was in full operation, and groups of students under, the direction of Dr. Rulifson, repaired plaster and repainted the interiors.<sup>7</sup> Bunk beds were moved into the dormitories and they were used by student researchers, student groups and other visitors to the lodge. The lodge stayed in use until a large dance took place ; 150 people were dancing around the space shown in the photograph above. The U.S Fish and Wildlife Service <sup>8</sup>expressed concern about the structural support for the building soon afterwards. It seems that the sand that was used for the mortar and plaster had a high salt content since it came from the Pamlico Sound. The lodge was closed to all visitors in November 2000 and has only projected images from the mini camera on the stack since then. Twenty research projects had been conducted during these four years.<sup>9</sup> Overnight stays had been logged at 2,500 “person

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<sup>6</sup> Field Station for coastal Studies at Mattamuskeet Annual Report for 2006-2007 Academic Year Page 2

<sup>7</sup> IBID Page 2 and lecture to Capstone students on September 5<sup>th</sup>, 2007 by Dr. Rulifson

<sup>8</sup> Page 10 of *North Carolina Down East Magazine* Spring 2006

<sup>9</sup> Facts about the Closure of Mattamuskeet lodge by Roger Rulifson [www.artsci.ecu/matt/mattamuskeet.htm](http://www.artsci.ecu/matt/mattamuskeet.htm)

nights” and three universities and fish and wildlife researchers had benefited from use of the lodge.<sup>10</sup>



Figure 4: rendering of the display area design by the **Natural Design team**

These designs seek to expand the role of ECU at Mattamuskeet to include outreach as well as basic research. Each of the student designs included a laboratory on the lowest floor of the lodge that had direct water access. The idea of keeping the field station active was essential to each of the schemes. And yet the class felt that this was just the beginning. To be a true *environmental learning center* the lodge would have to be used by more than just researchers.

A site visit and conversations with Roger Rulifson helped to develop a building program that would include ecotourism, naturalists, like members of the Audubon Society, boy scout troops, school groups, and most of all folks from Hyde County.

The student teams suggested:

- *Display areas* that would translate the wildlife and water resources of the areas to visitors to Lake Mattamuskeet. These displays might be like the ones shown above or they could be audio visual displays, or computer terminals where the visitor might do their own research or view a program.
- *A shop-* so that ecotourists and other visitors might take an item that helped them remember their stay or gifts that might interest future visitors.

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<sup>10</sup>Facts about the Closure of Mattamuskeet lodge by Roger Rulifson [www.artsci.ecu/matt/mattamuskeet.htm](http://www.artsci.ecu/matt/mattamuskeet.htm)

- Arts and crafts from local artists might be sold here which would help the economy of one of the poorest counties in the state.
- *A general store*- we only counted five convenience stores in the immediate area. Items that visitors might need would be sold here too.<sup>11</sup>
  - *Lodging* for eco tourist who would like to spend a weekend or a week at the lake. Our class felt that the more visitors that could be introduced to what the *environmental learning center* had to share about the stories of Mattamuskeet the more the lake
  - *Nature trails* to study the birds as well as other wildlife and Cabins and overnight camping
  - *Dining and food service*. Currently 26 restaurants are listed for Hyde County; 19 of them are located on Ocracoke Island.<sup>12</sup>
  - *Laundry service and other support functions* or R. V. s and guests of the lodge.

### **Designing with Nature : making the Environmental Learning Center ecologically response and responsible.**

The student design teams suggested the following methods of saving energy in the renovations:

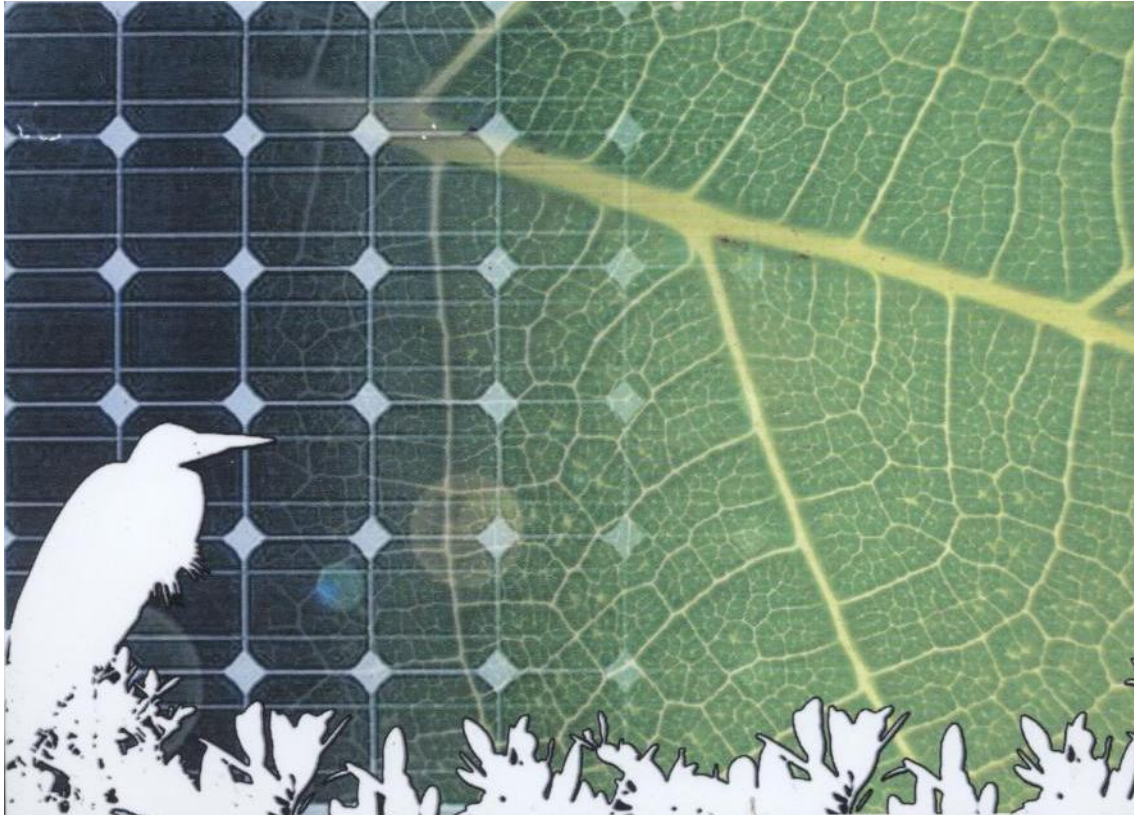
- **Solar collectors for hot water and electrical energy**
- **Low head hydroelectric power in order to use the tidal flow at the dam below the lodge**
- **Vertical draft windmills to harness The wind without injuring birds.**
- **The use of natural ventilation thru The windows on the North side of The lodge on the lowest level and up the next levels through the open stairways. Finally this air might be exhausted up the 112 ft. tall tower that is now contains a spiral stairway to the observation windows and cat-walk.<sup>13</sup>**
- **Insulating paint for the interior walls**
- **Division of the facility into multiple zones so that the large open areas are not heated and cooled to the same comfort level as the restaurant, classrooms, laboratories, offices and bedrooms. Thus there is a “coat” on or “flip flop” comfort zone and a terminally re-tempered area where the room comfort standards are more exacting.**
- **Installation of window screens and paddle fans for natural ventilation in as many areas as possible.**
- **Grey water recycling system to recharge the lake by use of water from sinks, drinking fountains and washing machines. Toilet wastes would be treated in a septic tank or collected by the county sewer.**

Figure 5: Naturally occurring chambered nautilus= Conceptual Golden Mean

<sup>11</sup> See locations listed in <http://www.hydecountry.org/nc-mshops.asp>

<sup>12</sup> See locations listed in <http://www.hydecountry.org/nc-restaurants.asp>

<sup>13</sup> See article in Nov 2007 issue of Architect [www.architectmagazine.com](http://www.architectmagazine.com)



**Figure 6: Graphic of the golden mean and chambered nautilus from presentation by the Watermark Design Team**

This graphic design characterizes some of the elements that the students found to be representative of Mattamuskeet. On the left is the image of a water bird. Behind the bird is a detail of a photovoltaic solar collector reflecting the sun, and this image transitions into the structure of a leaf. The image of the leaf is similar to the canal structure that once drained the lake for farmland.

Some of the stories that we feel need to be shared with visitors to the lodge Are:

- *Water quality* Hyde County is an agricultural county and agricultural run off into the lake, which is now only around three feet deep, can change its ecology. Already we know that a portion of the lake is algae dominated.<sup>14</sup> If more nutrients ( nitrates and phosphors from fertilizers ) are washed into the lake then the plant dominated part of the lake could change, the clarity

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<sup>14</sup> The Daily Reflector Section B-7 State and Local June 4, 2006 *Mattamuskeet Still Confounds*

of the water would be decreased and the plants that the fish and migratory birds rely on would be endangered.

- *Salination* North Carolina has been experiencing a drought since the summer of 2007. The crab population migrates based on available food and salinity . The story might be told about what the salination of the Pamlico Sound might have been in 1916- 1930 when the pumps that were used to drain Mattamuskeet moved up to 13,000 gallons of water a second down the outfall canal. <sup>15</sup> Changes to the Ph of the water either due to drought , run- off or a flow as great as was introduced by draining the lake must have had a dramatic effect on the entire marine ecology.
- *The carbon emissions of the pumping station* must have been something to consider. The pumps ran night and day for the years that the companies were in business. This spanned a period of at least twenty years. In addition a railroad was built though the lakebed, cars and tractors were used in the enterprise and coal was constantly being hauled up the outfall canal by barge. In the 1940's , a road would be build across the lake from the recreational trailer park at Lake Comfort to the airstrip at Fairfield.
- *The idea of an ideal community* that imposes itself on Nature. The development of an 800 acre new town, <sup>16</sup> the canals and pumping system sought to “subdue “ nature and to take advantage of the soil and water of the lake for crop land that did not have to be cleared. What was not calculated was that since the lake bed was underwater the lake continually refilled and the initial investment was only the beginning of the ultimate cost of working against the natural environment.
- *The Civilian Conservation Corps* – In 1932, Franklin D. Roosevelt proposed a “peacetime army to battle against the destruction and erosion of our natural resources”. The CCC boys were the workforce that turned the pumping station into a lodge for hunting birds. The idea of developing natural resources to be used by the citizens of the nation had not changed.<sup>17</sup>
- *Ducks, Geese, Swans, Tropical birds, fish, wolves, bear, and the ecology that sustains Mattamuskeet as a unique environment.* Currently federal support is declining for the U.S. Fish and Wildlife Service.<sup>18</sup> It is hoped that N. C. Wildlife Resources Commission will be able to maintain the refuge. However, money from Non Governmental Organizations could help to maintain the largest natural lake in the state as a safe environment for its

<sup>15</sup> Lake Mattamuskeet, New Holland and Hyde County by Louis Forrest Page 44

<sup>16</sup> IBID Page 44 Ref. to drawing by Harland Kelsey , landscape architect

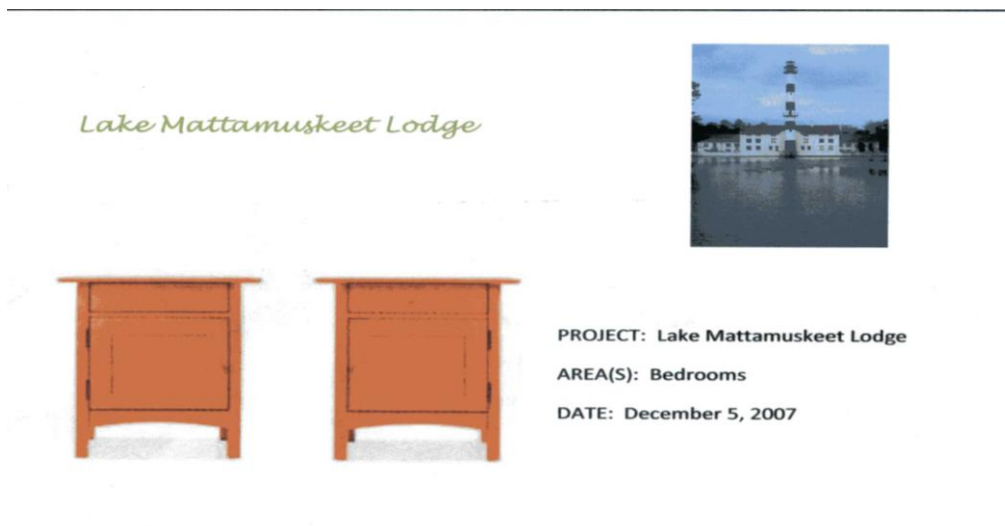
<sup>17</sup> See information in <http://www.cccalumni.org/history1.html> printed 9/9/07

<sup>18</sup> See story <http://www.newsobserver.com/102/vprintstory/540897.html> printed 2/21/07



plant and animal residents. The rules adopted by the state agency for hunting will be important to understanding how the natural environment is more than just our playground. It is hoped that the *environmental learning center* changes the perspective of Man dominating Nature by telling the many stories of how this has not be sustainable in the past. In that way the lake can become a place where researchers might mingle with students and tourists at the country store or restarurant. This could further the broad understanding of the environment and the many lessons of co-existence with nature that could be illustrated in this special place.

Rachael Carson stayed in the lodge in 1934 while she was writing a booklet entitled Mattamuskeet: A National Refuge ; this booklet advocated the lake become a wildlife sanctuary.<sup>19</sup> In 1959 , Ms. Carson wrote her friend Dorothy Freeman “ *I hope I can take you to Mattamuskeet in North Carolina. I will never forget it.* ”<sup>20</sup> We hope our work during the fall semester of visits, study and design of what the lodge might symbolize will help maintain the excitement that is shown in this letter and that future students at East Carolina University and other visitors will use the lodge to further a truer understanding of the interaction of humans with the other living things that surround us.



**Figure 7: Side tables proposed to be in keeping with the CCC artifacts by the Road Less Traveled Design Team**

Come see our display in the cabinets in the ground floor of the River’s Building closest to 5<sup>th</sup> street. We have provided lots of ideas for you to consider.

**The Capstone Studio of Fall 2007 w/ Hunt McKinnon, AIA, NCARB, NCIDQ-** Instructor for the cours

<sup>19</sup> *A Historians Coast* Coastwatch Magazine May June 1998 page 21

<sup>20</sup> IBID page 22



Karl and Grace Ponzer look at the dry lake bed. In 1916, D.N. Graves wrote, “You don’t have to clear off a tree or stump, a bush or stone. You can set a plow in your land the day after you buy it and begin farming. It is largely a deep, rich, sandy loam, of the right texture to cultivate easily and drain readily” (Courtesy of Carolyn Ponzer Taylor.) 21



At a Farmers’ Institute meeting in Swan Quarter, North Carolina, on September 30, 1908, J.O. Wright, the chief drainage engineer of the U.S Department of Agriculture, made the following statement: “The area of the county is 247,680 acres. If it were all drained and cultivated as it can be and it produced corn at 40 bushels to the acre, it would yield 9,907,200 bushels. If this were loaded on box cars at 400 bushels per car, it would require 24,768 cars to haul the product away. Allowing 23 cars to a train and running three trains a day, it would require one year’s time to remove the crop. Selling this corn at 60 cents a bushel, it would bring a revenue to the county of \$5,944,320.” (Courtesy of Carolyn Ponzer Taylor.) 22



In promoting land sales in 1916, D.N. Graves, stated, “We have fifty thousand acres of virgin soil right in the very midst of a successful farming community...land without a tree or stone, which has never been touched with a plow, and yet has been gathering up fertility for your benefit, and waiting for your coming through a thousand years.”  
(Courtesy of Carolyn Ponzer Taylor) 23

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21 Images of America Lake Mattamuskeet New Holland and Hyde County by Lewis Forrest , Arcadia Publishing, Charleston, S.C. 1999 Page 61

22 IBID Page 67

23 IBID Page 57 reference photo; Page 47 reference quote

The Road Less Traveled Design Team



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*Team member Lauren Erisman not shown in photo.*

Quintessential INK- the Watermark Design Team



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