Currituck Boat NCHH0025

Vessel NCHH0025 is currently catalogued with the North Carolina historic vessel registry database at the Maritime Museum in Beaufort, North Carolina. Built by Burbel Beasley in 1958, vessel NCHH0025 is one of few surviving personal and recreational watercraft specific to regions of North Carolina and southern Virginia. Beasley, an engineer at the Ford Plant in Virginia, built the vessel on commission to Ranier Collins, of Currituck, NC.

Collins later used NCHH0025 as a transport carrier that brought workers from Church Island to Corolla and back. In 1964, Collins transferred vessel registration to the Whalehead Club, and it again changed hands in 1966 when the club sold the vessel to Atlantic Research, which was engaged in testing rocket fuel and space rockets off the islands of the Outer Banks of North Carolina. Atlantic Research again used vessel NCHH0025 to transport its employees to and from work sites. Local historians note that during this period, Collins helped install a jet engine into the boat, which supposedly broke up shortly after running into the marsh during a test run.

The vessel changed hands again in 1969 when Atlantic Research closed operations and transferred ownership to the grounds caretaker, Gene Austin. Later in 1984, Austin sold NCHH0025 to Wilson Snowden, a local historian and maritime enthusiast in Currituck, who repaired the vessel and used it recreationally for several years before finally retiring the boat within a shed on his property. In 2005 Brian Dively used it as a test subject to create a photogrammetric model.

Three views of NCHH0025 with noted dead-rise and bow flair, Currituck, NC (Photographs by Brian Diveley, 2005)

Photogrammetric Recording of NCHH0025

In 2005, Brian Diveley, then a graduate student of the Program in Maritime Studies at East Carolina University commenced the photogrammetric recording of NCHH0025 as a part of a class assignment.

A number of steps were followed.

Step 1. An Olympus 7070W 7.1 megapixel camera was calibrated using a software function within *Photomodeler*. 280 photographs were taken at the same focal length of 28mm. From these 94 were selected for processing based upon an assessment of differences between perspectives (i.e. less than 90 degrees apart)

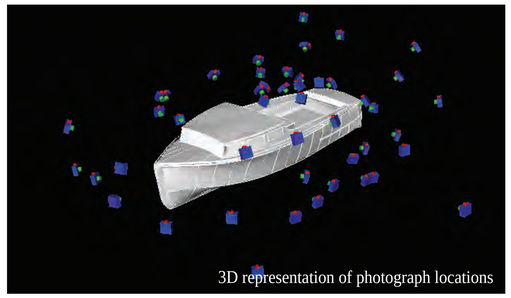
Step 2. Common points on each individual photograph were selected or "tagged" within the software. Each point must be noticeable from at least three different photographs in order for *Photomodeler* to project its location in virtual space.

Step 3. Points are used as a foundation to create lines which are drawn between common features. A structure soon emerges.

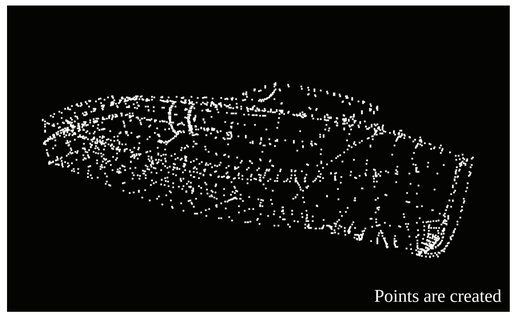
Step 4. Surfaces are constructed by telling the software which lines form the boundary of surfaces on the digital model.

Step 5. Phototextures are lifted from the photographs by *PhotoModeler* and merged with the defined surfaces.

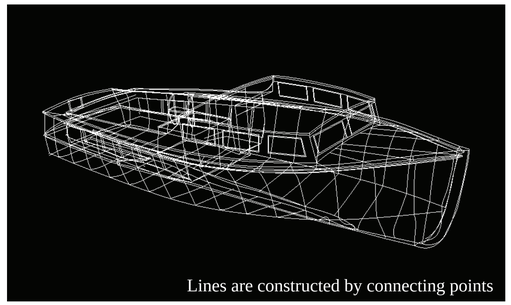
Result. A virtual representation of NCHH0025 is created that be used to preserve the boat in a digital format. In this case a comparison between the boat and the digital boat indicates that the model is 96.4% accurate with a maximum error of 0.22 feet or 6.7 cm.



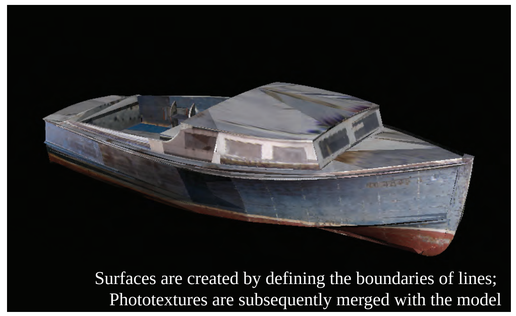
3D representation of photograph locations



Points are created



Lines are constructed by connecting points



Surfaces are created by defining the boundaries of lines; Phototextures are subsequently merged with the model

What is Photogrammetry?

Photogrammetry is term used to describe the process of determining the optical and geometric properties of a photograph, or series of photographs. Photogrammetry is a process almost as old as photography, having been used for decades to produce products for scientific purposes as well as for education and entertainment. Photogrammetric recording techniques are used for many purposes including topographic mapping, crime scene investigation, recording important historic and archaeological sites, and for creating three-dimensional computer models for movies.

There are many ways to do photogrammetry. In 2005, graduate students from the MA in Maritime Studies at East Carolina University had the opportunity to create photogrammetric models using a software application created by the company EOS called *Photomodeler Pro*.

PhotoModeler Pro is a Windows program that allows a user to extract measurements and create three-dimensional models from photographs. The user begins the process by importing photos from a calibrated camera. From these photos, the program essentially triangulates by measuring rays from the camera to points on the site, feature, or object. Images containing multiple views of the same points allow the program to calculate angles and therefore complete the necessary geometry to create a model of the photographed image. The software user references the photos to one another by making marks on the photographs which tag and trace specific identifying features of interest that appear on one or more photograph. In other words, *PhotoModeler Pro* allows a user to extract coordinates by photographing an an object with a standard camera.

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North Carolina Maritime Museum: Dr. Paul Fontenoy
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East Carolina University: Dr. Lawrence Babits

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