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Abstract: In 2005, Richard Grubb & Associates mitigated the wreck of a wooden deck scow (an unpowered barge), abandoned in the Arthur Kill at Perth Amboy, Middlesex County, NJ. Built in 1923, the stick lighter MARICOPA was later converted to a deck scow. She served her entire career in New York Harbor, part of the large fleet of largely undocumented lighterage vessels that was critical to the area's economy throughout the nineteenth and twentieth centuries. This discussion will include the MARICOPA's mitigation, her role in the history of the area and the concept of significance applied to these vessel types.

[title]

Good morning. I'm going to speak to you this morning about a wooden harbor vessel called the MARICOPA.

In two previous cultural resource surveys, undertaken as part of the Army Corps of Engineers Drift Collection and Removal Project for New York Harbor, an abandoned wooden deck scow was documented on the short of the Arthur Kill at Perth Amboy, Middlesex County, New Jersey.

[map - NJ; point out location of vessel and Staten Island]

Identified as Vessel 92, she was found by the New Jersey State Historic Preservation Office, along with several other abandoned vessels in and around New York Harbor, as eligible for inclusion in the National Register of Historic Places under Criterion C (embodying distinctive characteristics of the vessel type) and Criterion D (yielding

critical information concerning the construction of the type). Of the wooden open deck scows recorded in the Arthur Kill portion of the Drift Collection and Removal Project, only Vessel 92 was described as being in an excellent state of preservation, and was recommended for complete recordation. The other vessels were recommended for recordation of length and beam/breadth measurements only.

[slide Vessel 92 in 1995]

Very few examples of wooden harbor barges of this type, or any type, for that matter, survive in any condition, as the wooden vessel began to be replaced by metal ones as early as the late 19th century. This shift was due in part to a decline in the availability of raw materials for vessel construction, as well as the promise of easier and cheaper maintenance for steel vessels.

[slide: ship graveyard along the north shore of Staten Island, New York]

The presence of many wrecked and abandoned wooden working vessels, including all manner of barges, scows and lighters, has been recorded throughout New York Harbor and along the Hudson River. Often tucked into otherwise unused coves and along shorelines, these deteriorating vessels present an increased hazard to maritime traffic, as a significant source of drift. The significance of Vessel 92 is not associated with her specific history, but rather her condition -- she was the best remaining example of her type of vessel, one that played a crucial part in the history and development of the Port of New York and American commerce in general.

[slide barge]

Quick note about terminology:

Barge = a generic term for all manner of cargo vessels that are not self-propelled

Scow/Deck Scow = a barge where cargo is carried on the top of the deck; the space belowdecks is used only for buoyancy. No cargo masts, derrick masts, or booms

Lighter = deck scow with the addition of a derrick mast, boom, and sometimes a cargo mast

In 2005, Richard Grubb & Associates was contacted by our client to mitigate Vessel 92 prior to its removal associated with the construction of a new residential development. Mitigation was to include a basic set of measured drawings, copious black and white and digital photos, wood identification of various parts of the vessel, monitoring during removal of the vessel to document areas previously inaccessible, and a public outreach/education component. We used Justine McKnight, an archaeobotanical consultant, for identification of our wood samples.

[slide : vessel 92 in 2005]

As you can see, she suffered considerable deterioration in the 10 years since she was first identified as eligible for the Register. Damage included:

- removal of the bow, apparently to accommodate the installation of bank-stabilizing rip rap along the shoreline
- loss of most of the side and end planking
- loss of the deck or log rail

Initially discouraged by her condition, we proceeded with the mitigation. As it turns out, the deteriorated condition of the vessel permitted ready access to internal structural features and changes that may otherwise have remained hidden.

[slide: interior port side showing access to interior framing details]

A previously recorded vessel registry number, which had been carved into a deck beam near the bow of the vessel, was gone, probably removed with the rest of the bow. This registry number, however, led us to the given name of the vessel, the MARICOPA, her documentary history as recorded in the government documents, *Merchant Vessels of the United States*, and ultimately, to some of her original plans. These permitted a

comparison of the MARICOPA "as planned" to the MARICOPA "as built" and also provided a baseline for documenting structural changes to the vessel over time.

[slide: Dave in Kayak]

One of the challenges to this job was the necessity of working around tide times. At high tide, the MARICOPA was almost entirely submerged; at low tide, we could reach most of the vessel for recordation. We worked from about 2 hours before to about 2 hours after low tide, which resulted in a constantly shifting work day. To reach portions of the vessel not accessible from shore, we rented a Kayak.

A quick history of lighterage:

[slide: early lighters]

In general, deck scows and stick lighters are unpowered vessels used for moving cargo to and from vessels, railroad cars, and, in the case of New York Harbor, often directly from one waterfront business to another. Their use dates back to the colonial period, when small sailing vessels were used to "lighten" the loads of larger vessels. This entailed either a transfer of the entire cargo, or just enough to permit the larger cargo vessel to sail high enough in the water to enter shallow ports.

During this early period, cargo vessels sailed from European and other American ports directly to small local ports for trade and commerce. The cost of moving goods overland was significantly higher than moving them by water, so most goods traveled by ship. For example, prior to 1820, it cost many times more to ship a ton of grain from Buffalo to New York City (about 300 miles as the crow flies) than to ship a ton of grain between New York City and England (some 3,500 miles as the crow flies).

[slide: transportation network stats]

Through the nineteenth century, port activity became increasingly centralized. Several factors led to this centralization, including the building of canals that permitted water movement to inland areas; an increase in the number of miles of surfaced roads; the development of the railway system; and advances in shipbuilding that led to larger cargo vessels. As the road, rail and canal network expanded, it became cheaper to move goods by inland routes than by vessel, and shipping began to concentrate at ports best served by these transportation networks and which also were able to physically accommodate the larger cargo vessels. As shipping companies began to centralize their operations, so too did the supporting businesses and service providers, including wholesalers, insurance agents, customs agents and banks. With this increasing centralization, shipping and shipbuilding industries shifted from a small, individualistic enterprise to large-scale corporate business.

[slide: scow framing]

Part of this process included a standardization of scow and lighter shape. By the late nineteenth century, the form of unpowered freight vessels, including scows and lighters, had standardized. The basic form of these vessels are similar: rectangular boxes with a flat bottom, vertical sides and steeply raked or angled ends which end in a short vertical "wall" just below the deck, to help prevent the vessels from climbing up on their neighbors. These vessels are comprised of massive timbers meeting at ninety-degree angles for strength and stability (they didn't have to be pretty or fast; they just had to be able to support large amounts of cargo).

[slide: tug with 3 barges]

These vessels also standardized in size to approximately 100 feet long by 30 feet wide by 10 feet high; this allowed large rafts of barges and scows to be maneuvered by a single tugboat.

[slide: scow with cars]

At most ports around the world, railroads were able to transport their freight directly to the holds of cargo vessels via tracks on dockside piers. Because of the geography of New York Harbor, however, it was necessary to develop a system for moving railroad freight between terminals on the New Jersey side and customers and suppliers on the New York side.

[slide: boxcar navy; "point" to perth amboy]

While railroad fleets existed in most eastern harbors during the late nineteenth and early twentieth centuries, they were most extensive in New York Harbor. A lighter transferred the first ton of freight between Manhattan and a railroad freight car on September 24, 1841 for the New York & Erie Railroad. The first railroad to own and operate its own marine equipment in New York Harbor was the Pennsylvania Railroad in 1879, and by about 1905, the rest of the major railroads had followed suit. In 1926, the Army Corps of Engineers counted a total of 763 stick lighters in New York Harbor, including the MARICOPA, which was launched 3 years earlier. Railroad companies owned approximately half of these vessels. Prior to WWII, there were over 120 lighterage and towing companies operating in New York Harbor, and through the 1950s, the area was an unending scene of activity.

With improvements in the highway system and in trucks, the use of lighters to move cargo between New Jersey and New York declined. Cargo containerization, implemented in the 1950s very near where the MARICOPA was abandoned, was the last nail in the coffin for large-scale lighterage service.

[slide: Concorde on barge]

Unpowered barges are, however, still used on a small scale to move non-standard cargo, including the Concorde, dredge equipment, cooling towers, etc.

The MARICOPA:

[slide : Feeney]

- built during 1923, launced December 27, 1923. Built by Thomas Feeney Boat Builders, Inc., Rondout Creek, Kingtson, New York. Feeney is still in business on Rondout Creek, doing primarily boat repairs as Feeney Enterprises.

[slide: NY Maps: point out Feeney and Hudson River Maritime Museum]

- research discovered that partial plans of the MARICOPA were in the Feeney papers, part of the archival collections of the Hudson River Maritime Museum, Kingston, New York.

[slide: plans - whole sheet]
[slide: plans - details x section]
[slide: plans - details captains cabin and hoist]
[slide: plans - deck]

These plans permitted us to compare her planned dimensions to her specifications as-built. The MARICOPA measured 100.1' x 34.3' x 9.2' depth when she was issued her license, very slightly different from her planned size of 100' x 34' by 10.6' depth. There were also variations in her actual construction compared to her plans, including the utilization of different woods and structural changes. While the plans called for hackmatack (tamarack), yellow or Oregon pine, oak and spruce for her various members, wood samples taken during the mitigation indicate that she was made entirely of yellow pine (which was occasionally surprisingly dense and hard), except for black locust which was used for some of her treenails.

[slide: treenails; point out metal spikes AND treenail deck fastenings]

[slide: knee]

There were also minor structural changes, including the hanging knee arrangement. In the plans, there was an overlap of the upper and lower knees. In actuality, the ends of the knees abutted each other.

[slide: lighters @ statue of liberty]

Although the MARICOPA was previously identified as an open deck scow, she was originally built as a lighter, with a derrick mast just fore of the cabin and a 20-foot cargo mast at the bow. The derrick mast was outfitted with a boom, and was used to raise and lower cargo to and from the deck. The cargo mast was used to raise and lower a tarpaulin over the cargo to protect it from the elements. Barge captains lived on their vessels, and were responsible for the security of the cargo.

[slide: random maricopa]

Built for the Southern Pacific Company, the MARICOPA served her entire career in New York Harbor, where the Southern Pacific, who were noted primarily for their railroad history, operated a fairly large coastwise shipping and passenger service from Pier 49, North River, New York. In 1924, the year after they acquired the MARICOPA, they had 24 registered vessels (17 freighters, 2 tankers, 3 passenger vessels and a tugboat). Unpowered vessels such as lighters and scows were not listed in the Merchant Vessels lists until 1937, when the Southern Pacific's New York fleet consisted of 23 barges, one passenger vessel, 12 freighters and 2 towboats.

[slide: random Maricopa]

By 1941, Southern Pacific abandoned their passenger services out of New York City, and in 1942, they sold the MARICOPA to the Manhattan Lighterage Company. She was sold again in 1955 to the McAllister Lighterage Line. McAllister is still in business as McAllister Towing, providing tugboat and other marine transportation services throughout the eastern United States. Their red and white tugs are easily recognizable.

[slide: random Maricopa]

The MARICOPA last appears in the Merchant Vessels registry in 1964, after which she is exempt from listing, since she was non-self-propelled. Aerial photos indicate that the MARICOPA was abandoned in Perth Amboy in the 1970s.

[slide: Maricopa's broken mast]

The Merchant Vessels list always referred to the MARICOPA as a barge, indicating the presence of a derrick mast (vessels without onboard lifting capabilities were listed as scows). The loss of the MARICOPA's mast was never recorded; however, at sometime during her career, her mast was broken off, and not repaired. This may have taken place sometime in the mid-twentieth century, when typical cargo load sizes began to significantly outweigh the 3-5 ton capability of the wooden lighters, further encouraging the shift to metal vessels.

REPAIRS: good and sloppy
[slide: repairs - deck beam reinforcement]
[slide: repairs - side planking repair]
[slide: repairs - replacement of treenail with carriage bolt]
[slide: repairs - deck overlay with carpenters nails]

ARTIFACTS:
[slide: winch]
[slide: domestic pump catalog]
[slide: drift bolt]
[slide: spike]
[slide: deck rail support]
[slide: oakum]
[slide: bollard]

[slide: green arm]

The MARICOPA was finally demolished in late 2005.

[slide: panel]

As part of the Mitigation, a public outreach panel was created, to be placed near the MARICOPA's former location.

The significance of the MARICOPA was not associated with her owners, nor to any specific event in her history. Rather, her history in general is the history of lighterage in the Port of New York. This was a unique opportunity to document a stick lighter that had been converted to an open deck scow, as examples of these vessels are rapidly disappearing from the landscape. Despite her advanced state of deterioration, considerable information on the construction techniques and alterations and repairs to the MARICOPA were available for study. It was fortunate that this particular vessel had a registry number associated with her, and that it had previously been recorded.

In general, wooden vessels considered eligible for the National Register that are otherwise deteriorated, have been recommended only for the recordation of length and breadth measurements. As this investigation has demonstrated, considerable information may still be available from deteriorated vessels, particularly in the case of poorly documented vessel types. In all cases, an attempt should be made to locate a vessel registry number or other identifying information (such as a name) prior to, or during, demolition. This information will allow the reconstruction of the vessel's history from available documentary sources. As fewer and fewer of these vessels remain, these histories are significant contributions to an often overlooked part of the history of the Port of New York and the lighterage industry in general, even in cases where the vessel itself may not be a significant example of its type.