Condition Issues

Inspection after 2012 tourist season by U.S. Coast Guard found that the ship had some deteriorating planks and futtocks (frame sections).

PLIMOTH PLANTATION: Return of Mayflower II delayed

The Mayflower II's winter vacation will last a little longer than expected.

Every two years, the 45-year old wood replica voyages down the coast and through the Great Bay Bar, where it's placed in dry dock to undergo the basic maintenance and inspections required to keep it seaworthy.

March 2, 2013
Salt Damage to Planks and Decking

Douglas-fir Half Deck shown here

Inside the Ship’s Hold
A Continual Restoration Since 2012

Fairhaven Shipyard, Fairhaven, MA
March 25, 2013

Port Side

March 25, 2013
The ship didn’t return to Plymouth until August 8, 2013. Material shortages slowed repairs.
Summer–Fall 2014, Berea, KY

Live edge sawing of WO to 32’ lengths

Timber & ship headed to Mystic Seaport, CT

Mystic Seaport Work Plan

About 70% of the hull needed replacement
Danish White Oak Arrived 2015
Mystic Seaport

18,000 board feet of Danish white oak (Q. robur)

Futtocks Cut to Shape & Replaced
More Planking: Steamed WO

2017-2018 Update: Work Continues!
Old-Style Workmanship

[Image of a boat being restored]

[Image of a person working inside a boat]

Presented by Terry Conners, Dept. of Forestry, Univ. of Kentucky
Wood from Kentucky!

Wood ID Needed to Aid Restoration

1. Keelson by the main mast step - White oak
2. Second plank above the lower wale starboard - Douglas-fir
3. Port-side bilge stringer - White oak
New Douglas-fir Decking

Some Woodworm Damage

Old, not replaced
Sapwood Only

Teredo Damage!

Sacrificial “worm shoe” under the keel
Wood for knees

Recent 2018 Progress
Whiskey Plank Installed 10/21
Keeping Everything Watertight

After planks are installed, oakum is inserted and then covered with tar.

Most oakum (fiber caulk) was formerly made from long-used tarred hemp ropes.

Picking Oakum: Hemp Ropes

2’ sections of tarred hemp rope were untwisted and picked apart by hand into “stuff”, which was then loosely rolled into caulking material for wooden ships – oakum. (Photo from the movie, Oliver Twist.)
Yard Hands Spinning Oakum from Old Mail Bag Hemp Fiber

During the Mayflower II construction

Mystic Seaport Had Some Fiber on Hand

- Shipwrights didn’t know if they should use it
  - Hemp would be great, authentic to original
  - Jute is the fiber that’s used to make cheap brown twine, sold in hardware stores. Cheap but not suitable
Original Oakum from Mayflower II
Tarred hemp per old records

Oakum is tarred after installation. Asked to verify what was used originally

Oakum from Mayflower II
Had to remove the tar to look at it

Rounded tips

Dislocations
Oakum from Mayflower II

Uneven fiber diameters, wide lumens

Checked out as hemp

“Oakum on Hand at Mystic Seaport – Hemp? Hopefully not Jute.”

Not hemp. More uniform fiber diameters, narrow lumens
New Material Was Flax!

Flax seed found in “New Material”. The seed is the broad structure at the end of the stalk. *Verified microscope analysis.*

Steel Supports Removed 10/30
Other Recent Challenges

- Finding suitable rigging material
- Replacing the mast. The original mast was Douglas-fir.

The ship will leave Mystic Seaport and return to Plymouth by late spring or early summer of 2019.