

CHARLES W. MORGAN 38^{TH} VOYAGE MAY 17, 2014 – AUGUST 8, 2014



37 Voyages



FEASIBILITY STUDY

CONDITION

INSURANCE

USCG REGULATORY INVOLVEMENT

Precedence

OTHER REGULATORY CONSIDERATIONS

DECD

FINANCIAL OBLIGATIONS BEYOND RESTORATION FOR THE VOYAGE

EARLY ASSUMPTIONS

- UNINSPECTED PASSENGER VESSEL CARRYING 12 PASSENGERS
- WHENEVER AWAY FROM THE DOCK ALWAYS ACCOMPANIED OR ASSISTED BY A TUG
- ALWAYS ACCOMPANIED BY ROANN AND BONE CRUSHER
- INSPECTED AS A DOCKSIDE ATTRACTION VESSEL WHEN IN PORT
- PROFESSIONAL CORE CREW
- MODERN EQUIPMENT AS NECESSARY FOR THE SAFETY OF CREW AND PASSENGERS
- SEASONALITY: Mindful of hurricane season, return to Mystic Seaport by early August
- VOYAGE MODEL: Series of day sails from port to port, no overnight operation.
- WEATHER WINDOW: 3 days allowed in schedule for each leg. Formal go/no go decision process. Steve White, Dana Hewson, Quentin Snediker, Captain

Accompanying Support Vessels

- Tug THUBAN, Tisbury Towing and Transportation 54 feet, 850hp (Inspected)
 - Towing fitting fit to stem below rig
- ROANN, Eastern rig dragger 62 feet, 350hp
- **BONE CRUSHER**, 26 feet, Hard Bottom Inflatable, 2 150hp outboards
- Numerous and varied small craft

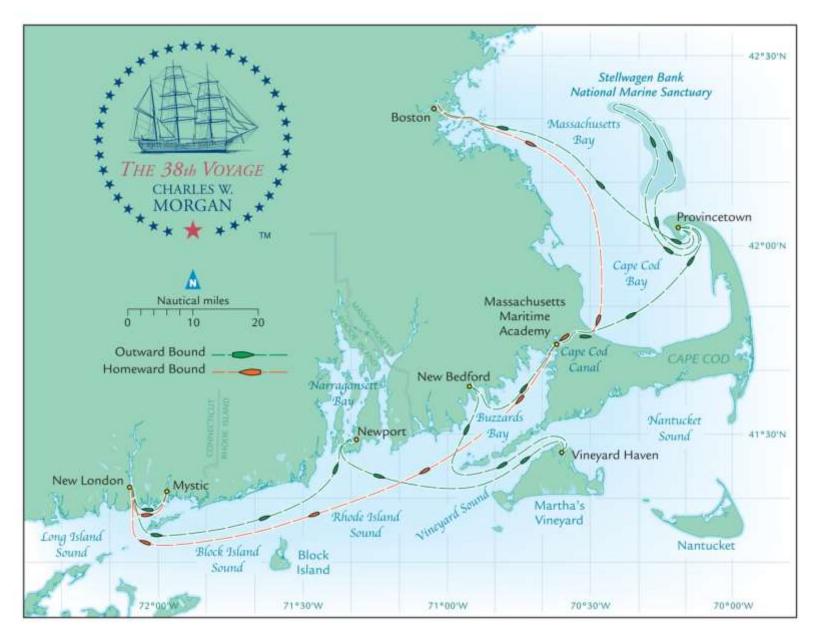








Voyage Route



Goals

- Maximum Safety of personnel and vessel
- Minimal intrusion into historic integrity
- Upgrade of extant systems
- Acceptable accommodations for crew and guests

Redundancy in all provisions for safety





Restoration

- Removed 9.5" of Hog
- Restore Frame Below the Waterline
- Evaluated and Sistered Keel Bolts and all fastenings
- Renewed Ceiling
- Renewed hanging knees in hold
- Renewed stem
- Renewed framing and planking forward
- Renewed 90% planking below waterline – balance refastened
- Complete rebuild of transom
- Complete bottom re-caulking
- 14 out of 22 spars to be renewed

NOTE: All Work Surveyed and Verified By Capt. Paul Haley, Marine Surveyor



Regulatory Considerations

- Discussion began with Marine Inspection Office prior to announcing our decision to sail the vessel
 - Marine Inspection office in New Haven will represent us to other districts
- Original plan was to have the Vessel considered an Uninspected Passenger Vessel when underway, and a Dockside Attraction Vessel in port
- Current plan is to have the 38th Voyage named a Marine Event of National Significance



Applicable Regulation

- USCG Marine Safety Manual, Vol. II, Chapter 4: Inspection Procedures
 Applicable to Vessel Types, Classes, and Categories, CC. Inspection and
 Certification of Moored Passenger/Attraction Vessels
- 46 CFR Shipping
 - Subchapter C Uninspected Vessels
 - Subchapter T Small Passenger Vessels
 - Subchapter H Passenger Vessels
 - Subchapter J Electrical Standards

• NAVIC No. 2-00 Inspection and Guidance for Vessels Participating in

Marine Events







Machinery Space Includes:

- 27 kw Diesel Generator
- Two 7.5 HP 210 GPM bilge/fire pumps
- One 35 HP 320 GPM diesel Bilge/Fire Pump
- Main Breaker Panels
- 350 gal Fuel Tank (USCG)
- Two Banks of 24 volt batteries
- Auto fire suppression system



Safety of Rig

- 100% of Standing Rig and Iron work thoroughly inspected
- Rigging renewal includes:
 - Fabrication of blocks, several new deadeyes
 - Repair or
 Fabrication of
 many elements
 or rig ironwork
 - Running gear being fabricated





Iron Work

- Chains and Deadeyes being repaired or replaced
- Repair or Replacement of spar iron work
- Jib Hanks
- Anchor windlass
- Occasional miscellaneous fabrications





Spars Renewal

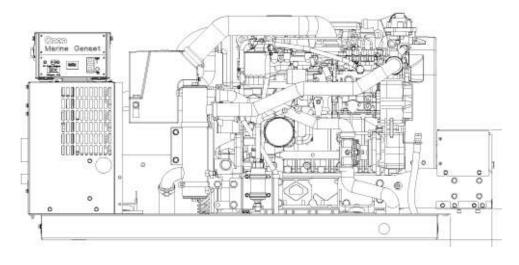
- Two of Three lower
 Masts Renewed (Main renewed in 1997 found sound).
- Topmasts, Topgallants, Yards and being repaired or replaced as necessary



Outside Engineering and Systems Assistance

- JMS Naval Architects and Salvage Engineers
- Bayside Diesel
- ABYC (Ed Sherman)
- Cote Marine Electrical and Corrosion Control
- IEMMarine, Marine Switchboards and Controls

- Lightship Group, LLC
- Woycik Plumbing
- Dockside Electronics
- Anchor Insulation
- Raymarine



Bilge Pumping Capability

- 320 GPM Diesel Pump (Hale)
- 210 GPM Electric Pumps (2 MP Flomax @ 7.5HP)
- Manifold to allow each to perform both Firefighting and Bilge
- Bilge Maintenance Pump (daily use)
- Portable Diesel Emergency Pumps (2)

Electrical

- New Marine Wiring and Panels throughout to ABYC
 Standards
- Cummins 27 KW Gen-set: Pumps, Battery Charging,
 Lighting, Domestic Service, etc.
- 12v DC: Diesel Starting, Navigation Equipment,
 Communications,
- 24v DC: House Lighting, MSD, Domestic Plumbing
- Emergency lighting



Firefighting

- New Detection system
- Pumps (3) and Manifold as above
- Fire Main System: Each Deck Level (proper hoses, nozzles, etc.)
- Fixed suppression system in machinery space
- Hand Portable extinguishers as per regulation
- Hand Portable Pump, Ax, etc.
- ALL Pumps will be set up to serve either Bilge or Firefighting capability

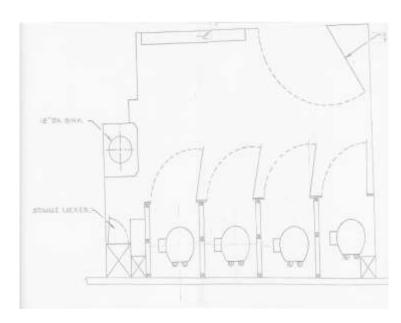
NO Live Flame Aboard



Domestic Systems

- Four (4) MSD's to be installed in 'tween deck store room
- 2 wash sinks to be installed
- 400 gal FW capacity (Heads and wash)
- 250 gals Potable Water
- 500 gal waste water
- 250 gal grey water
- O grey or black water discharge





Navigation

- Full suite of most recent electronic aids to navigation
- Located in Hurricane House
- Raymarine
 - Radar
 - GPS
 - Fathometer
 - AIS



Life Saving

- Full compliment of PFDs, Inflatable life rafts (3),
 MOB system, Ring Buoys, etc.
- Accompanied by large HB inflatable as rescue boat



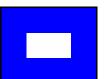


Communications

- (2) 25 w VHF Radios
- (4) Handheld VHF
- EPIRB (2)
- AIS
- Required PA System all levels
- Intercom Between Helm and Machinery Space
- Fog Horn
- Ships Mobile Phone





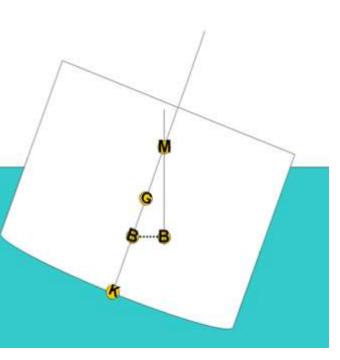






Stability

- Vessel has undergone stability analysis in the past for dockside service
- Vessel will require additional ballast beyond her past dockside service
- Initial stability test to determine final ballast needs was done last Friday
- JMS to perform a full inclining experiment to determine parameters stability prior to voyage
- Expect significantly increased stabilit due to use of Lead and Steel replacin Concrete Ballast



Outfitting

- Some Systems will be temporary and removed following 38th Voyage
- Vessel will be outfit to regulatory standards despite uninspected status
- NO Mechanical Propulsion or sub-division bulkheads
- Systems to be added will all meet USCG Standards

Electrical

Bilge

Firefighting

Domestic Plumbing

Navigation

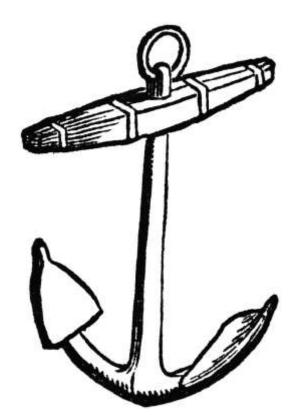
Life Saving



Outfitting

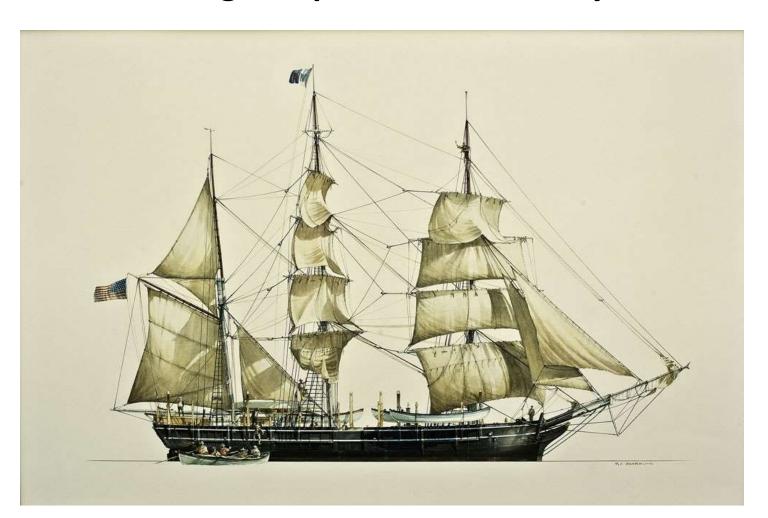
- Ground Tackle Guided by ABS
 - Loaded Displacement approx. 380 tons
 - (2) 1500# Bowers
 - (1) 1500# Spare Bower (Danforth Type)
 - (1) 700# Stream
 - (1) 300# Kedge
 - (2) 540' lengths 1-1/4 Stud link





Complete Suit of New Sails

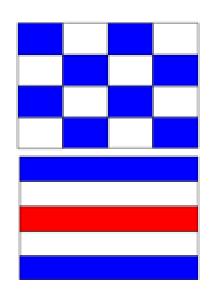
Nat Wilson has built new cotton sails for the ship.
 Work is nearing completion for delivery late winter.



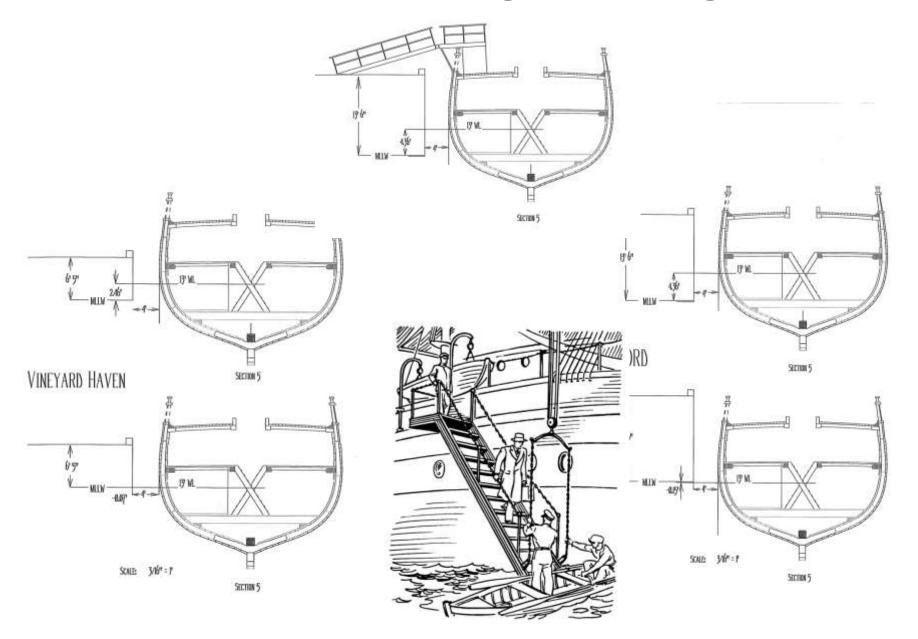
Damage Control and Mitigation

- Portable Bilge/Fire Pump Portable
- Portable Generator
- Full compliment of tools
- Spare and Replacement Parts
- Plugs for ALL Thru Hull Penetrations
- Large Membrane for Sheathing trouble spots

- Timber, Fastenings, etc.
- Qualified Divers and Gear on hand at all times
- Emergency Lights

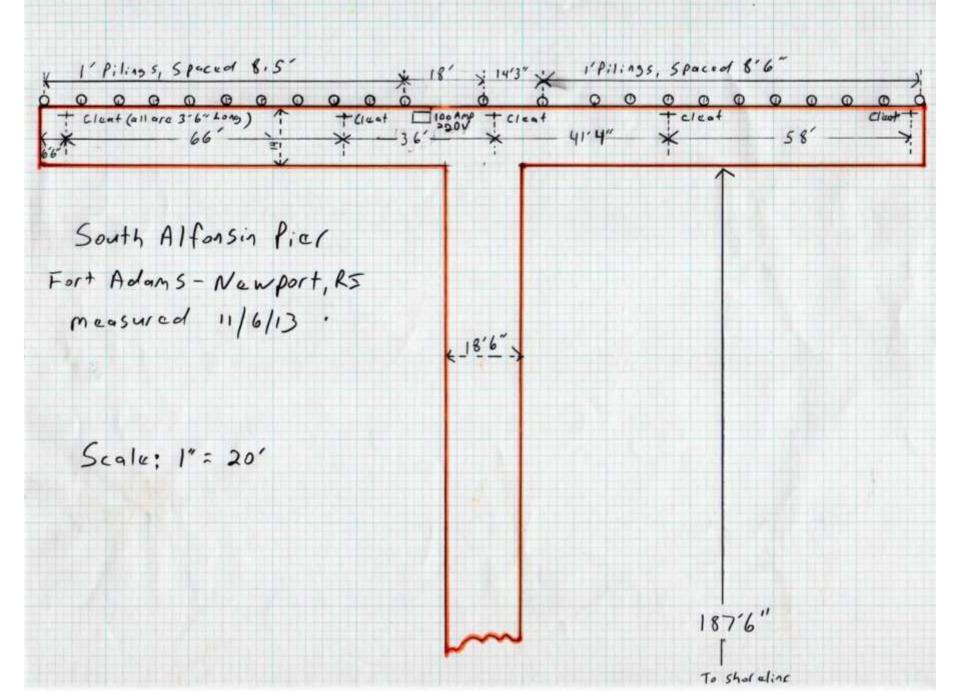


In Port Boarding Challenges

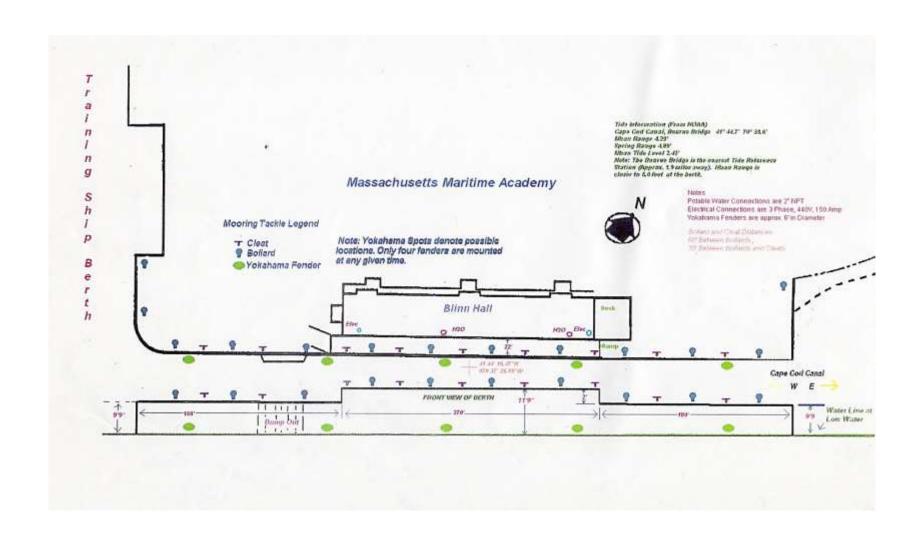


Port Facilities Information Gathering

- General assessment of dock and facilities (material, condition, hazards, weather/wind vulnerability, etc.).
- Controlling depths (water level at Mean Lower Low Water).
- Max. range of tide during port visit.
- Current -- direction and speed.
- Height of dock above MLLW.
- Location & contact info for emergency and non-emergency medical facilities.
- Security procedures --- shoreside.
- Shore power Type of service, type of outlet, is access locked, how far from vessel?
- Water Type of connection. Verify potable.
- Dock restrictions (times, weights, emergency easements, etc.).
- Wake restrictions.
- Other vessels Location on dock, dates and times of arrival/departure.
- Port traffic (wakes, extra fendering needed, etc.).
- Line Handlers--How many, who arranges, union issues, contact info, person in charge.



Massachusetts Maritime Academy



Massachusetts Maritime Academy



Currents & Tides

		SLACK	CURRENT (TIME, MAX VELOCITY,	TIDES	NOTES / COMMENTS PLEASE NOTE: Currents and tides are ONLY for days the MORGAN might be
PORT	DATE	(TIME-EDT)	DIRECTION-TRUE)	(TIME, HGT FT MLLW)	moving. They do not include days the vessel will only be alongside in port.
Boston-Navy Yard	15-Jul-2014	0146	Ebb=0550, 0.5kts, 188	H=0145, 12.1'	Tide-Charlestown Navy Yard (interpolated); current-Charlestown Pier 1 (NOAA
		0839	Flood-11540.2kts, 356	L=0806, -1.8'	
		1424	Ebb=1810, 0.4kts, 188	H=1421, 11.2'	
		2058		L=2027, - <mark>0.9</mark> '	
		r			
Boston-Navy Yard	16-Jul-2015	0238	Flood=0008, 0.2kts, 356	H=0239, 11.8'	Tide-Charlestown Navy Yard (interpolated); current-Charlestown Pier 1 (NOAA
		0929	Ebb=0639, 0.4kts, 188	L=0857, -1.6'	
		1515	Flood=1238, 0.2kts, 356	H=1515, 11.2'	
		2152	Ebb=1907, 0.4kts, 188	L=2121, - <mark>0.8</mark> '	
Boston-Navy Yard	17-Jul-2014	0333	Flood=0057, 0.2kts, 356	U=0226 11 2'	Tide-Charlestown Navy Yard (interpolated); current-Charlestown Pier 1 (NOAA
boston-wavy raid	17-301-2014	1019	Ebb=0737, 0.4kts, 188	L=0951, -1.1'	Tide-Charlestown Navy Taru (interpolated), current-Charlestown Fier 1 (NOAA
		1608	Flood=1326, 0.2kts, 356	H=1609, 11.1'	
		2247	Ebb=2011, 0.4kts, 188	L=2021, - <mark>0.4</mark> '	

Dock Heights & Tidal Ranges

PORT	DATES (including weather windows)	DOCK HGTS ABOVE MILW	MAX HIGH TIDE MLLW	MAX LOW TIDE MLLW	RANGE	WIDTH OF DOCK
New London	ondon May 17 to June 16; July 28 to August 8		3.54'	-0.39'	3.94'	80'
Newport	June 14 to June 20	7' 0"	4.84'	-0.44'	5.28'	14'
Vineyard Haven	June 18 to June 27	6' 5"	2.46'	-0.07"	2.53'	160' L, 9' 6"W, 6' 4" opening
New Bedford	June 25 to July 7	13' 6"	4.36'	0.15'	4.21'	40'
Mass. Maritime	July 7 to July 11; July 23 to July 30	10' 0"	4.85'	-0.49'	5.34'	22'
Provincetown	July 9 to July 17	UNKNOWN	11.88'	-1.79'	13.67'	UNKNOWN
Boston-Navy Yard	July 15 to July 25 16' 6"		12.06'	-1.80'	13.86'	20'
Boston-Spaulding	July 22 to July 25	16' 1"	10.30'	0.3'	10.0'	19' 6"

Departure & Arrival Times

PORT	DATE	SUNRISE / SUNSET (military time)	UNDERWAY NO LATER THAN (all hands aboard 2 hrs beforehand)	ETA UNDER TOW (based on 5 kts avg speed over bottom, plus 1 hour at destination for docking, rounded to nearest 1/2 hour)	DISTANCE BETWEEN PORTS
Depart Mystic for New London	17-May-2014	0527 / 2002	0930	1230	10 NM
	18-May-2014	0526 / 2003	1020	1320	
	19-May-2014	0525 / 2004	1200	1500	
New London sea trials	6-Jun-2014	0515 / 2018	0900, return 1600	1600	Does Not Apply
	7-Jun-2014	0515 / 2019	0900, return 1600	1600	
	12-Jun-2014	0514 / 2022	0900, return 1600	1600	
	13-Jun-2014	0514 / 2022	0900, return 1600	1600	
Depart New London for Newport	14-Jun-2014	0514 / 2020	0430	1300	38 NM
	15-Jun-2014	0514 / 2020	0530	1400	
	16-Jun-2014	2023 / 2021	0630	1500	

"Plan B"

Alternative berthing location in the event that wind/sea conditions might endanger the MORGAN.

- New London State Pier; possibly Fishers Island Ferry dock.
- Newport Tall ship moorings; possibly Newport Yacht Club.
- Vineyard Haven Move the vessel to New Bedford (inside hurricane barrier).
- New Bedford Well protected behind hurricane barrier. Option of moving to the south side of State Pier.
- Mass. Maritime Academy -- Move the vessel to New Bedford (inside hurricane barrier).
- Provincetown USCG mooring.
- Boston Well protected at Charlestown Navy Yard. Option of moving to Spaulding Hospital.

"Plan C" New Bedford Harbor

Coordinate with Local Agencies to Manage Port Risks

Agencies

- U.S. Coast Guard
- Law enforcement federal, state, and local
- Fire Departments
- Emergency Medical Service
- Harbormaster
- Local governmental agencies

Risks Include

- Vandalism / trespassing
- Fire
- Injury
- Protesters

New Bedford Port Security Workshop February 26, 2014

- Organized by the New Bedford / Fairhaven Port Security Sub-Committee.
- Members include emergency responders from federal, state, and local law enforcement, fire, EMS, emergency management, USCG, Harbor Development Commission.
- More than a dozen possible scenarios will be used to test the response capabilities of these agencies.
- This group will use the exercise to construct a specific Incident Action Plan.

New Bedford Port Security Workshop Incident Action Plan (IAP)

- The IAP will identify the personnel, assets, areas of responsibility, and the command structure of assets, on both land and water.
- It will identify the communications channels that will be used and what specific units will be needed to respond to critical incidents.
- The New Bedford Incident Action Plan will be shared with local agencies in other ports.

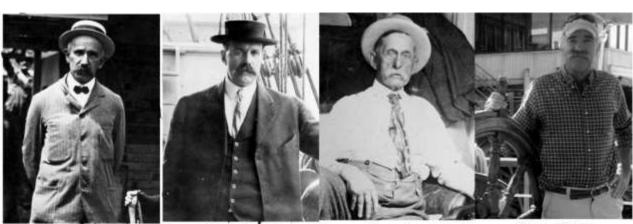
Crew

CORE CREW

- Captain
- 3 Mates
- 1 Medical Deckhand
- 8 additional Deckhands
- 1 Engineer
- 1 Steward

SAILING CREW

- Rigger
- **Shipyard Representative**
- Sailing Deckhands rotating from a pool of ~30 Mystic Seaport Staff
- **Programmatic Crew**
- **Passengers**



Capt. Earle ca.1902

Capt. Church ca.1910 Capt. Cleveland 1916

Capt. Files

Training

- 3 weeks in New London before first day sail
 - Training, drills, vessel familiarization
- Rotating Sailing Deckhands will have ~4 training sessions in New London at the dock
- 3-4 days of sea trials for the core crew, sailing deckhands rotate so each has at least one underway training opportunity
- Training Handbooks
 - Core Crew, Sailing Crew, Programmatic Crew, Passengers
- Manuals
 - Sailing and Engineering/ Systems
- Station Bill and Drills
 - Fire, Man Overboard, Abandon Ship, Sailing Stations

Challenges





Shore- Side Exhibit





Supported by the

National Endowment for the Humanities

- Reinterpretation of the artifact, public history:
- Changing perceptions of whales
- Perils and profits of whaling
- Whaling as a cultural crossroads
- > Impact on American culture





National Endowment for the Humanities

"Reviewers unanimously agreed this 'groundbreaking' project was deserving of a Chairman's Special Award. They were impressed by the 'exceptional' advisors and praised the 'brilliant array of program formats."

"Far and away the most comprehensive and exciting public history/museum/humanities project I have ever had the privilege to review."

"This proposal **sets a very high bar** for future Chairman's Special Award applicants"

"There is no rival to this museum in the depth of its collections, the expertise of its staff, and the organization of the Seaport site."

National Scope



- Financial donations to restoration from 40 different states
- Wood and restoration materials in the Morgan come from 14 states
- 23 states involved with 38th Voyage--restoration, whaleboats, and satellite exhibit hosts

Dockside Experience

Performance Stage

- Chantey singers
- Tale of a Whaler play



with world flags, seating

Wishes for the Whales

participatory art activity

Introductory Video

about *Charles W. Morgan* history

Full-Scale Whale Model

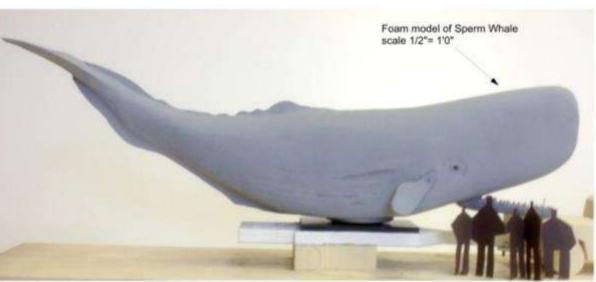
Science content (NOAA)

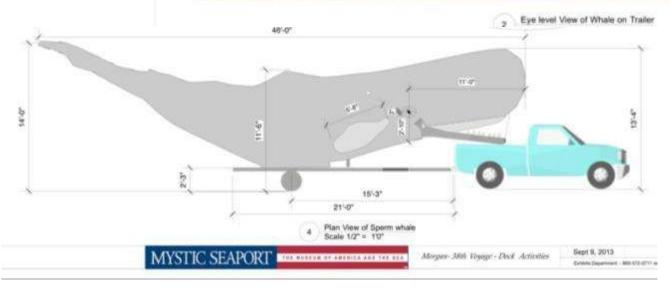
Shoreside Trade Demonstrations

- Cooper
- Ropemaking
- Shipsmith

Life Size Whale Model, Inflatable

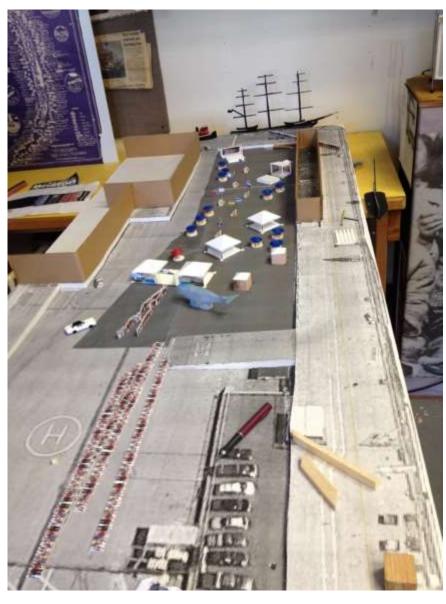




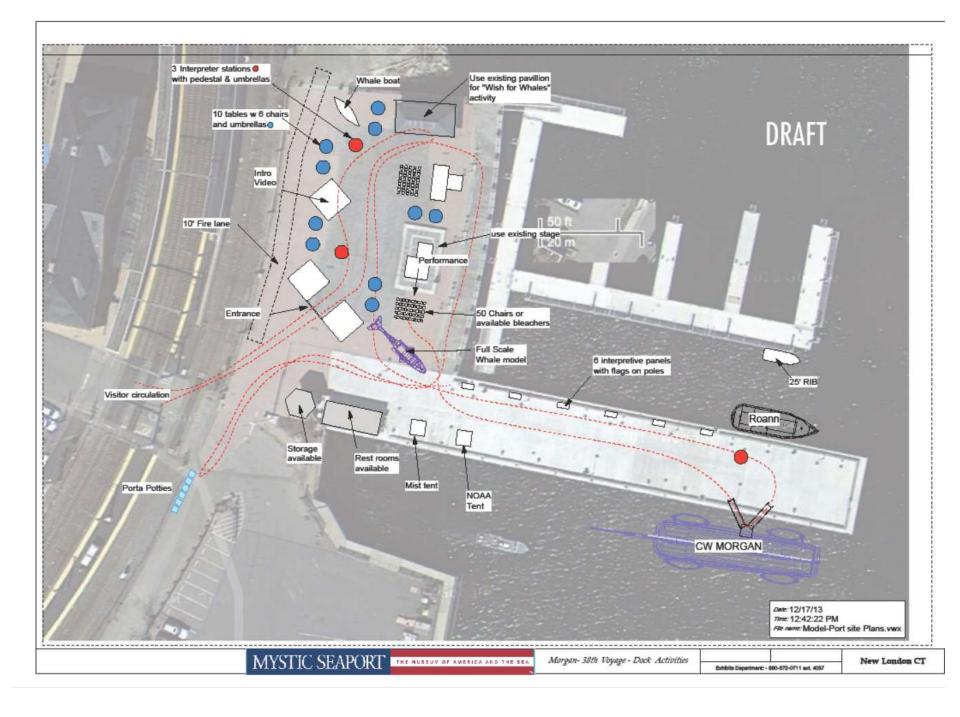








Dockside Exhibit Scale Model: 1/8" = 1'



The 38th Voyage: Sharing Onboard Stories

38th Voyagers

chosen for each transit to research and share across disciplines: teachers, artists, historians, scientists...

"Stowaway"

sharing their voyagelong learning experience with video, blog, etc.

Mystic Seaport

Documentation Staff

collecting photo, video,
objects, log

Media

providing publicity coverage

Work happening: observe, photograph, write, haul, paint, record, furl, climb, film, discuss...

Stellwagen Bank/NOAA



New Bedford Planning Team

- New Bedford Whaling Museum
- State Pier
- NB Whaling National Historical Park
- Chamber of Commerce
- Tourism Office
- Descendants of Whaling Masters
- Standard Times
- Round Hill
- Harbor Development Commission
- Community Foundation of SE MA
- Mayor's Office
- Fairhaven Office of Tourism
- Rep. Anthony Cabral
- Sen. Montigny
- Azorean Heritage Maritime Society





Boston Planning Team

- USS Constitution
- USS Constitution Museum
- US Navy
- Boston Harbor Association
- Boston Harbor Islands National Recreation
 Area
- NOAA Stellwagen Bank NMS
- New England Aquarium
- Boston National Historical Park









Whaleboat Builders

Alexandria Seaport Foundation (VA)
The Apprenticeshop (ME)
Lowell's Boat Shop (MA)
Beetle Boat Shop (MA)
Lake Champlain Maritime Museum (VT)

Great Lakes Boat Building School (MI) Independence Seaport Museum (PA) Gannon and Benjamin Boatyard (MA) Rocking the Boat (NY)

































USS Constitution









Smithsonian Affiliations

New England Newspaper of the Year

The Standard-Times

SERVING THE SOUTHCOAST COMMUNITY











REPRINTED WITH PERMISSION

The New York Times

Science Times

TUESDAY, AUGUST 17, 2010

A Quest to Make the Morgan Seaworthy

By WILLIAM J. BROAD

Mystic, Conn.

The shipbuilders are long dead, their knowledge gone. The ship-yard no longer exists. No blue-prints survive, nor ship's models.

But the Charles W. Morgan is still here—the world's last surviving wooden whaling vessel, built in 1841. And restorers are spending \$10 million to turn the museum piece into a working ship able to ply the unruly sea. They plan to sail the ship on its first voyage in nearly a century, opening a new chapter in its long career.

Built in New Bedford, Mass., a bustling port known as the whaling capital of the world, the Morgan sailed the globe for eight decades in pursuit of leviathans, escaping fire and cannibals, Confederate raiders and Arctic ice. She brought home thousands of barrels of whale oil that lighted homes and cities. She also delivered tons of baleen, the horny material from the mouths of certain whales that was made into buggy whips and corset stays. In 1941, its centenary, the Morgan was towed to Mystic Seaport for museum display and in 1966 was named a national



DENNIS A. MURPHY/MYSTIC SEAPORT

historic landmark.

To learn as much as possible about the old ship and ensure its successful restoration, the specialists here are turning to the art and science of imaging.

They are deploying lasers and portable X-ray machines, laptops and forensic specialists, cameras and recorders, historians and graphic artists to tease out hidden details of the ship's construction and condition. The project, begun in 2008, is producing a revealing portrait. It shows the exact placement and status of many thousands of planks, ribs, beams, nails, reinforcing pins, wooden pegs and other vital parts of the Morgan, giving shipwrights a high-tech guide for the rebuilding of the historic vessel.

Restorers are spending millions and using imaging to try to revive the world's last wooden whaling vessel.

"When we're done, she'll be as strong or stronger as the last time she went to sea," Quentin Snediker, director of the shipyard here, said during a restoration tour. "So why not sail her?"

Minutes later, a specialist was firing X-rays through the ship's keel—a massive oak spine composed of several timbers, its length more than 90 feet. He was hunting for the large bronze pins that hold the keel together. The restorers want to assess the so-called drift pins 169 years after their installation and plan to replace or reinforce those that show deterioration. The pins are between one and two feet long.

In a more sweeping assessment, specialists have sent laser beams racing across the Morgan, inside and out, seeking to record inconspicuous details and



HARRY R. FELDMAN IN

AT REST IN CONNECTICUT The Charles W. Morgan, built in 1841, has been docked in Mystic, Conn., since 1941. The Morgan sailed the globe for eight decades in pursuit of leviathans, escaping fire and cannibals, Confederate raiders and Arctic ice.

educators.mysticseaport.org



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Living Documents

Active Maps

Resource Sets

Lectures & Scholars











Brief information and context about an artifact in the collection. Includes questions for deeper thought and other classroom ideas. Documents of the past come to life with sound, transcripts, and informational pop-ups. Geospatial representations of objects and manuscripts from our collection. Collections of all MSE website features (Artifact Articles, Living Manuscripts, Active Maps, and Lectures & Scholars) tied together under a central theme.

Audio recordings of popular lectures at the Frank C.

Munson Institute of American Maritime Studies, as well as MSE teacher-scholar 58 interviews.

Mystic Seaport for Educators educators.mysticseaport.org

