R/V Maurice Ewing Replacement...
Replacement Vessel – Western Legend as an Example

*(EWING after midlife in parenthesis)*

- **Length:** 235 feet *(237 feet)*
- **Beam:** 56 feet *(46 feet)*
- **Displacement Lightship Tonnage:** 2578 metric tons *(1867 metric tons)*
- **HP:** 7200 HP *(3200 HP)*
- **Bollard Pull:** 86.2 metric tonnes *(20.2 metric tonnes)*
- **Compressor Capacity:** 2x2750cfm *(3x1000cfm)*
- **Speed Cruising/Max:** 12/14 kt *(11/13 kt)*
- **Ship’s Complement/ Maximum Science Party:** 60/40 people *(50/29 people)*
The Committee is established to provide oversight on all aspects of the conversion of the Western Legend for use as a research vessel within the UNOLS fleet. This includes consideration of the ship modifications, selection and placement of the seismic and other oceanographic equipment and establishment of design and budget priorities to ensure the project remains within the agreed scope and cost. The Committee responds to specific questions posed by NSF and LDEO Management and provides reports to NSF following each meeting. The Committee communicates regularly with LDEO management providing advice and guidance on all aspects of the conversion project. LDEO management ensures that the Committee is well informed in a timely way of all conversion related issues and decisions. A dedicated web page will be established by LDEO to facilitate this communication.

The Committee will consist of 7 -10 members, including a Chair. Employees of LDEO, or subcontractors involved in this project, may not be members of this Committee but may participate in an ex-officio capacity. The Committee is established and supported by LDEO, and its membership and scope of activities are approved by NSF.

It is anticipated that the EWING Replacement Oversight Conversion Committee will have carried out their charge with the completion of science sea trials. Thus, shortly thereafter, the Committee will be dissolved.

Committee Membership- Tom Shipley UTIG Chairman, Tom Althouse SIO, Jeff Babcock SIO, Fred Jones OSU, Peter Littlewood Shell International, Larry Mayer UNH, Al Suchy WHOI, Jim Cochran LDEO (ex-officio), Paul Ljunggren LDEO (ex officio).
Acceptance of the Western Legend was pending drydock and reinstatement of class.
This included hull survey, gauging, issuance of ISSC, SMC...
Overhaul of main engine and reduction gear...
On completion of drydock and sea trial, a Western Geco crew delivered the ship...
...to a lay berth at Quonset Point, RI.
Legend Modifications

• **Reflagging**
  – Stability Bulkhead and Inclining
  – Structural Fire Integrity
  – Safety Equipment

• **Open Main Deck**
  – Remove Structure
  – Remove Equipment for 8 Streamers

• **Increase General Laboratory Area**
  – Add Main Deck Labs (Port Side, Forward, Wet)
  – Instrument Room more General Purpose
  – Add Upper Deck Lab

• **Over-the-Side Ability**
  – Side A-Frame and Aft Over Boarding Boom
  – Cross-Deck Ewing Winches (Core, CTD, Camera)
  – Add Articulating Cranes
Reflagging review by Coast Guard include ship’s firefighting system, safety equipment, and stability.
Legend Modifications

• Reflagging
  – Stability Bulkhead and Inclining
  – Structural Fire Integrity
  – Safety Equipment

• Open Main Deck
  – Remove Structure
  – Remove Equipment for 8 Streamers

• Increase General Laboratory Area
  – Add Main Deck Labs (Port Side, Forward, Wet)
  – Instrument Room more General Purpose
  – Add Upper Deck Lab

• Over-the-Side Ability
  – Side A-Frame and Aft Over Boarding Boom
  – Cross-Deck Ewing Winches (Core, CTD, Camera)
  – Add Articulating Cranes
Western Legend Main & A Deck
Remove Portion of Flight Deck
Open main deck
Legend Modifications

- **Reflagging**
  - Stability Bulkhead and Inclining
  - Structural Fire Integrity
  - Safety Equipment

- **Open Main Deck**
  - Remove Structure
  - Remove Equipment for 8 Streamers

- **Increase General Laboratory Area**
  - Add Main Deck Labs (Port Side, Forward, Wet)
  - Instrument Room more General Purpose
  - Add Upper Deck Lab

- **Over-the-Side Ability**
  - Side A-Frame and Aft Over Boarding Boom
  - Cross-Deck Ewing Winches (Core, CTD, Camera)
  - Add Articulating Cranes
Lab Layout
Recording Room Arrangement
Legend Modifications

- **Refflagging**
  - Stability Bulkhead and Inclining
  - Structural Fire Integrity
  - Safety Equipment
- **Open Main Deck**
  - Remove Structure
  - Remove Equipment for 8 Streamers
- **Increase General Laboratory Area**
  - Add Main Deck Labs (Port Side, Forward, Wet)
  - Instrument Room more General Purpose
  - Add Upper Deck Lab
- **Over-the-Side Ability**
  - Side A-Frame and Aft Over Boarding Boom
  - Cross-Deck Ewing Winches (Core, CTD, Camera)
  - Add Articulating Cranes
Western Legend Bridge & BDeck
Legend Modifications -continued

- **Accommodation**
  - Habitability Improvements (Mess, Reading Room, Movie Room)
  - Add 8 Staterooms
  - Maximize Single Crew Staterooms/Increase on Ewing’s capacity
- **Sonar Systems**
  - 1°x1° Deep Sea Multibeam and Sub-bottom Profiler
- **Dynamic Positioning Control System**
- **Mammal Observation and Mitigations**
- **General Purpose Abilities**
  - Equipment Lift
  - Computer and Network Systems
  - Clear Main Deck with Long Open Rail
- **MCS**
  - Retain Equipment Designed for Multiple Streamer Operations
Captain’s Cabin
3 Person Cabin
Messdeck
Movie Room
B Deck – 4 SR’s added
A Deck Accommodations - 4 single SR's added
Main Deck Accommodations
Legend Modifications -continued

• **Accommodation**
  – Habitability Improvements (Mess, Reading Room, Movie Room)
  – Add 8 Staterooms
  – Maximize Single Crew Staterooms/Increase on Ewing’s capacity

• **Sonar Systems**
  – 1°x1° Deep Sea Multibeam and Sub-bottom Profiler

• **Dynamic Positioning Control System**

• **Mammal Observation and Mitigations**

• **General Purpose Abilities**
  – Equipment Lift
  – Computer and Network Systems
  – Clear Main Deck with Long Open Rail

• **MCS**
  – Retain Equipment Designed for Multiple Streamer Operations
Legend Modifications -continued

- Accommodation
  - Habitability Improvements (Mess, Reading Room, Movie Room)
  - Add 8 Staterooms
  - Maximize Single Crew Staterooms/Increase on Ewing’s capacity
- Sonar Systems
  - 1°x1° Deep Sea Multibeam and Sub-bottom Profiler
- Dynamic Positioning Control System
- Mammal Observation and Mitigations
- General Purpose Abilities
  - Equipment Lift
  - Computer and Network Systems
  - Clear Main Deck with Long Open Rail
- MCS
  - Retain Equipment Designed for Multiple Streamer Operations
Legend Modifications -continued

- **Accommodation**
  - Habitability Improvements (Mess, Reading Room, Movie Room)
  - Add 8 Staterooms
  - Maximize Single Crew Staterooms/Increase on Ewing’s capacity
- **Sonar Systems**
  - $1^\circ \times 1^\circ$ Deep Sea Multibeam and Sub-bottom Profiler
- **Dynamic Positioning Control System**
- **Mammal Observation and Mitigations**
- **General Purpose Abilities**
  - Equipment Lift
  - Computer and Network Systems
  - Clear Main Deck with Long Open Rail
- **MCS**
  - Retain Equipment Designed for Multiple Streamer Operations
Marine Mammal Observation
Legend Modifications -continued

- **Accommodation**
  - Habitability Improvements (Mess, Reading Room, Movie Room)
  - Add 8 Staterooms
  - Maximize Single Crew Staterooms/Increase on Ewing’s capacity

- **Sonar Systems**
  - 1°x1° Deep Sea Multibeam and Sub-bottom Profiler

- **Dynamic Positioning Control System**

- **Mammal Observation and Mitigations**

- **General Purpose Abilities**
  - Equipment Lift
  - Computer and Network Systems
  - Clear Main Deck with Long Open Rail

- **MCS**
  - Retain Equipment Designed for Multiple Streamer Operations
Equipment Lift
Equipment Lift
Legend Modifications -continued

• Accommodation
  – Habitability Improvements (Mess, Reading Room, Movie Room)
  – Add 8 Staterooms
  – Maximize Single Crew Staterooms/Increase on Ewing’s capacity

• Sonar Systems
  – 1°x1° Deep Sea Multibeam and Sub-bottom Profiler

• Dynamic Positioning Control System

• Mammal Observation and Mitigations

• General Purpose Abilities
  – Equipment Lift
  – Computer and Network Systems
  – Clear Main Deck with Long Open Rail

• MCS
  – Retain Equipment Designed for Multiple Streamer Operations
Science Abilities
Paravanes
Linear Gun Array
Gun Winches
Paravane Winch and Boom
Streamer Reels
Reduce Gun Winches from 8 to 4
Reduce streamer winches from 8 to 4
Acquisition of the *Western Legend* is a unique opportunity to revolutionize the international academic community’s capabilities for observational marine geophysics.