Program Executive Office

SHIPS

We Are Ships
From Cradle to Grave

NDIA 10th Annual Expeditionary Warfare Conference:

Ship Acquisition

Presented by RADM Charles Hamilton

26 October 2005




Ship Acquisition

- **Issues, challenges and opportunities in the areas of platforms, sensors, weapon systems, automation and reduced manning in order to provide the warfighters the most “bang for the buck”**
- **Achieved through:**
  - **Technology Maturation Model: DD(X)**
  - **Accelerated Acquisition Model: LCS**
  - **Balanced Resources / Requirements Model: MPF(F)**

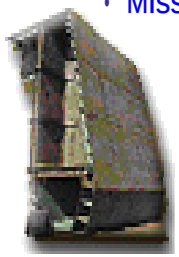
DD(X) Engineering Development Models

Infrared Mockups (IR)
- At-sea testing complete

Integrated Composite Deckhouse & Apertures (IDHA)
- RCS testing complete
- Co-site testing complete

Peripheral Vertical Launch System (PVLS)
- Two detonation tests conducted
- Missile restrained firing testing complete

▶ MCDE-2



Dual Band Radar (DBR)
- MFR land-based testing complete

Advanced Gun System (AGS)
- Initial guided flight testing complete
- Land-based testing complete

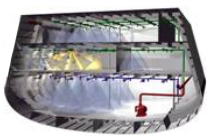
▶ Dugway 56

▶ LRLAP GF- 6

Integrated Power System (IPS)
- Component factory testing complete
- Land-based testing complete

Total Ship Computing Environment (TSCE)
- Authorized Releases 1 and 2
- SR3 System Acceptance Testing complete
- SR3 Authorization Panel Oct 05

▶ SMC fly-through



Autonomic Fire Suppression System (AFSS)
- At-sea weapons effect fire suppression demonstration

▶ Peterson ▶ Shadwell

Hull Form Scale Model
- Model testing complete
- CDR complete

▶ ¼ Scale ▶ Hydro Test

Integrated Undersea Warfare (IUSW)
- At-sea mine avoidance testing complete
- Automation testing complete

Technology Readiness Levels

Engineering Development Model (EDM)	MS B TRL	TRL at Ship Installation
1. Advanced Gun System and LRLAP	6	6
2. Integrated Power System	6	6
3. Dual Band Radar Suite – MFR/VSR	6 / 5	7 / 6
4. Total Ship Computing Environment	5	6
5. Peripheral Vertical Launching System / Advanced Vertical Launching System	6 / 6	7 / 6
6. Integrated Deckhouse and Apertures	5	6
7. Autonomic Fire Suppression System	6	7
8. Infrared Signature Mockups	6	6
9. Hull Form	6	6
10. Integrated Undersea Warfare System	7	7

TRLs Continue to Mature Past MSB – Supporting Ship Installation

Littoral Combat Ship Seaframes

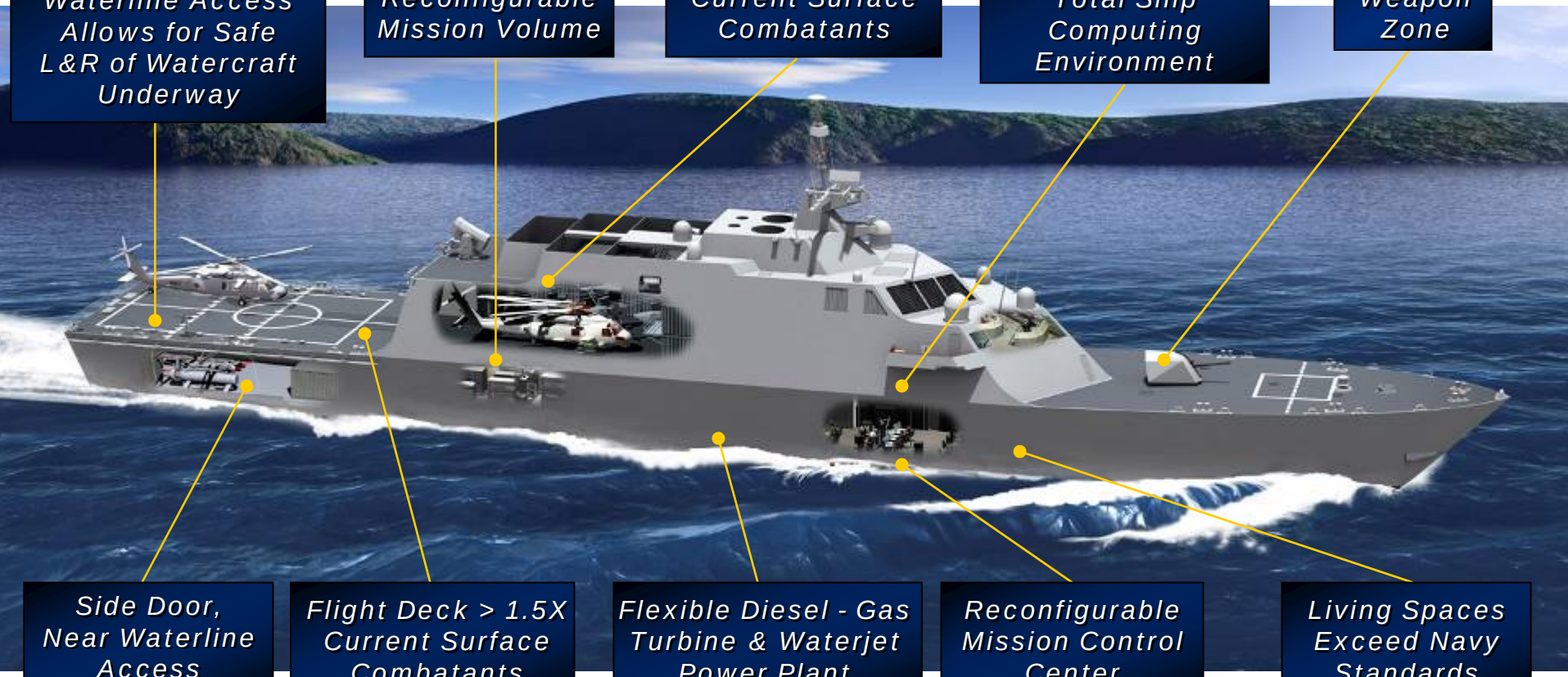
Lockheed Martin

Gibbs & Cox
Marinette Marine
Bollinger Shipyards

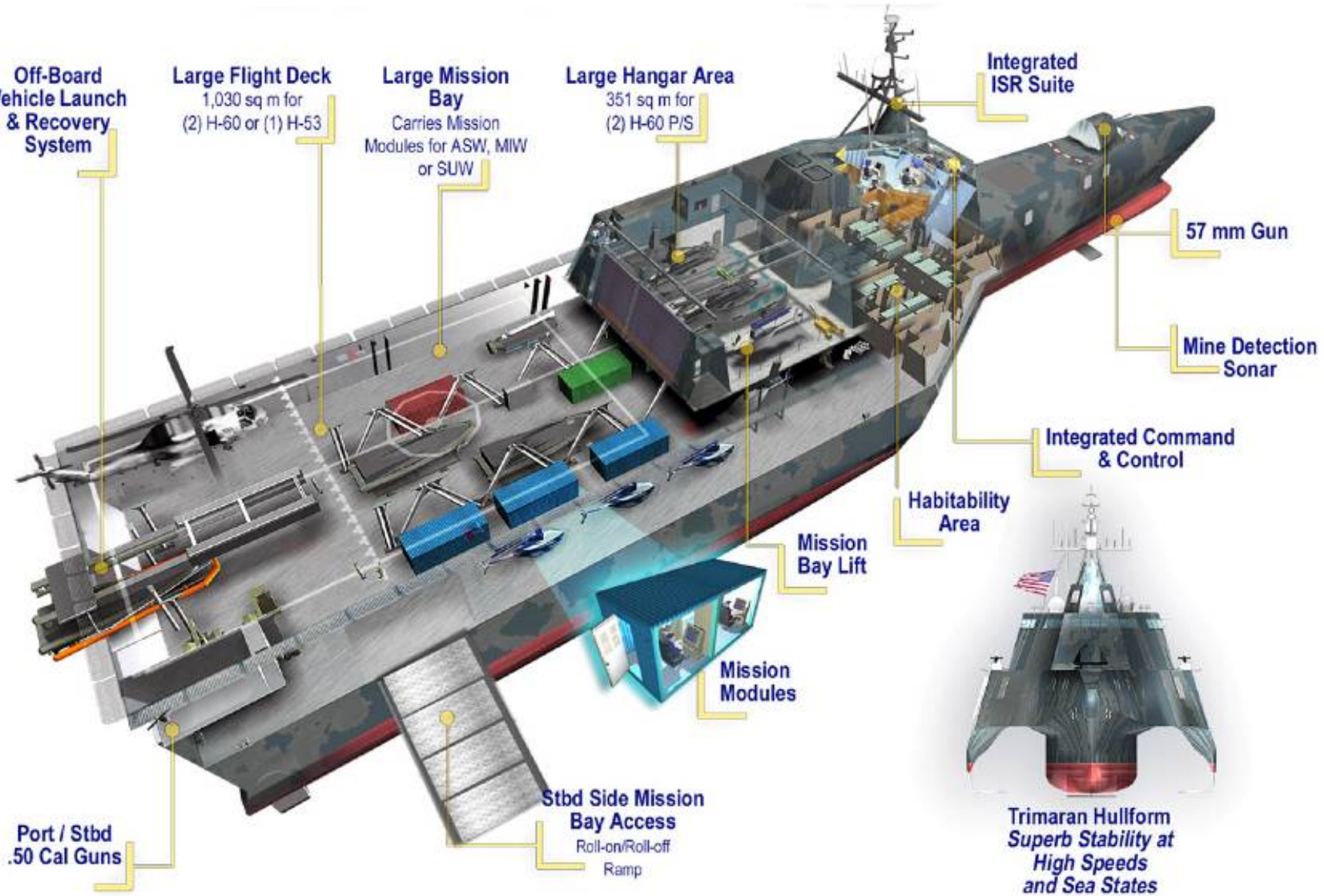
General Dynamics

Bath Iron Works
Austal USA
BAE Systems
MAPC

Semi-Planing Monohull



Trimaran Hull

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LCS Today

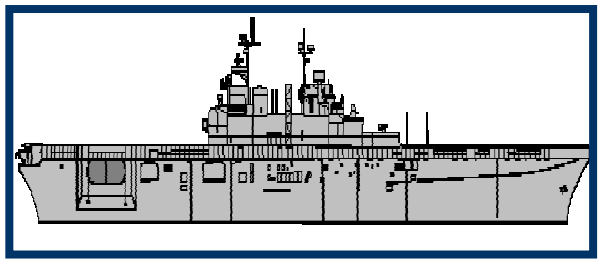
- First Ship Under Construction
  - Delivery December 2006
- Second Ship Final Design Approved
  - GD Detail Design and Construction contract award, 14 October 2005
  - On Track for October 2005 Construction Start
  - Lay Keel this January in Mobile AL
- LCS Interface Control Document (ICD) Complete
- First USN Open Architecture Combat System Under Construction (x2)
- PRE-COM in place & first 40 Sailors in training
  - First application of Sea Warrior principles
  - At sea on HSV-2 and soon on SEAFIGHTER
- First Early Operational Assessment Complete (LM Design)

Winner, FY 2004 DON Competition and Procurement Excellence Award

Winner, PEO C4I Lightning Bolt Award

Every Milestone Met On Schedule

Maritime Prepositioning Force (Future)



Squadron Threshold Requirements

- Preposition the 2015 MEB (1 Air and 2 Surface Battalions [selective offload])
- Close a 2015 MEB in 10 - 14 days
- At Sea Arrival, Assembly in 24-72 Hours
- Employ one Surface Battalion and one Vertical Battalion in 8 - 10 hours
- Provide accommodations and aircraft/vehicle maintenance capability (O level/selected I level) for a 2015 MEB
- Sustain the forces ashore from the Sea Base
- Provide Level II (resuscitative surgery) medical support
- Accommodate and operate organic surface connectors
- Conduct external operations in Sea State 3 (threshold)/4 (objective)
- Provide MEB C2

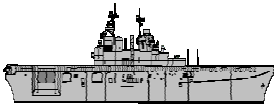
2015 MEB assumptions	2015 R/W/T/R MEB ACE	Required Squadron Capacity
11,912 Accommodations	48 MV-22	88K RO/RO m^2
799 HMMWVs	20 CH-53(X)	85K Cargo m^{3-}
106 EFVs	18 AH-1	35K POL metric ton
335 MTVRs	9 UH-1	197 CH 46 Equiv
30 M1A1 Tanks	2 H-60/Aviation Ship	20 A/C operating spots
18 LW 155 Howitzers	8 UAVs	1226 Trailers and others

MPF(F) Decision – Hybrid Legacy Option

- Meets the basic requirements – preferred option by USMC/USN leaders
- Flexible mix of ships and capabilities, transition opportunities
  - Provides opportunities for Joint applications
- MPF(F) Squadron selected has both low cost and schedule risk overall:
  - One new design – fits with industrial base capacity
  - Two hot production lines
    - Program benefits from non recurring engineering already accomplished and learning curve (LHA(R) and T-AKE)
    - Return costs available
  - Three existing designs (LHD, T-AKE and LMSR)
    - Mitigates cost for non-recurring engineering
    - Return costs available
  - Minimizes workload disruption in shipyards

MPF(F) Squadron

LHA(R) w/MEB C2



2

- Lightship Displacement: 30,862 MT
- Landing Spots: 9/ship
- Personnel: 3000/ship
- Ship Speed: 22 kts

LHD w Aviation C2

1

- Lightship Displacement: 28,540 MT
- Landing Spots: 9/ship
- Personnel: 3000/ship
- Ship Speed: 22 kts

LMSR

3

- Lightship Displacement: 36,289 MT
- Landing Spots: 2/ship
- Personnel: 345/ship (+500 surge)
- Ship Speed 24 kts

T-AKE

3

- Lightship Displacement: 25,700 MT
- Landing Spots: 2/ship
- Personnel: 194/ship
- Ship Speed 20 kts

Legacy Dense Pack

2

- Lightship Displacement: 19,900 MT
- Landing Spots: 1/ship
- Personnel: 62/ship
- Ship Speed 18 kts

- Squadron is 14 ships
- 6 hulls: 2 hot production lines, 1 new design
- Full MEB (1 vertical battalion and 2 surface battalions) are selectively offloadable
  - Personnel for second surface battalion are on Sea Base
- 11 of 14 ships built to commercial survivability standards (minor enhancements), 3 ships to military survivability standards
- MLP required for surface interface
- Meets delivery timeline for vertical and surface battalions
- Significant Industrial Base stability

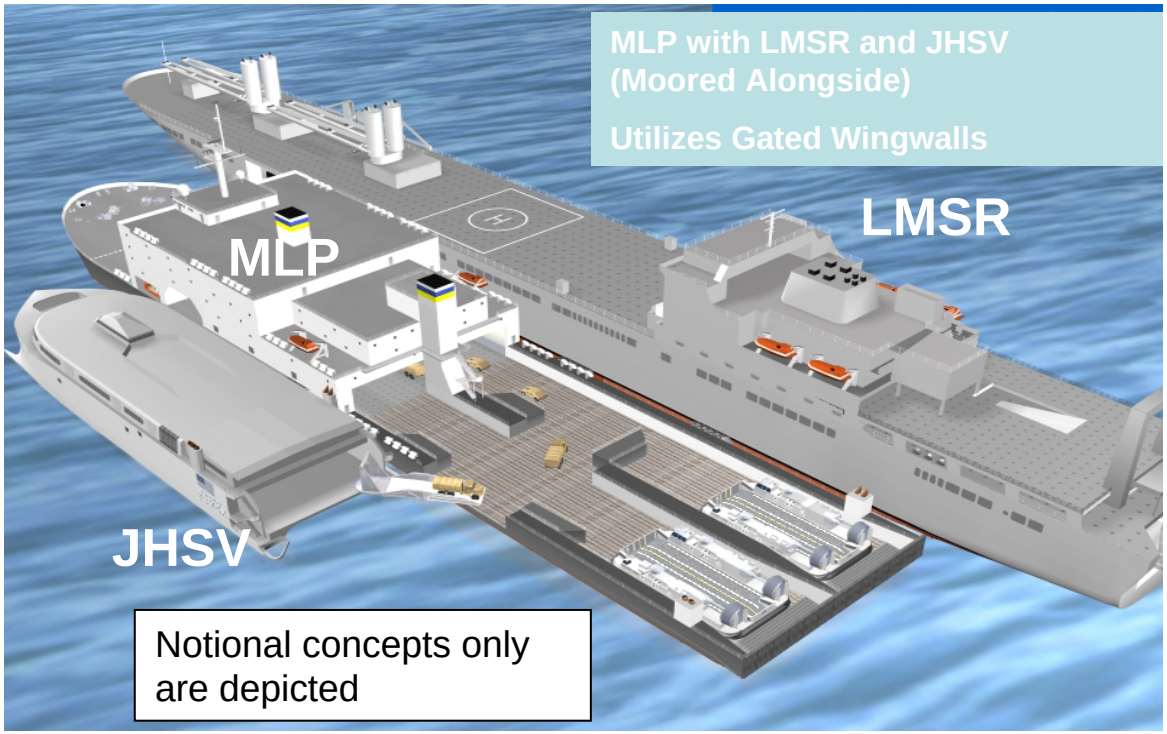
MLP(w/Troops)

3

- Light Ship Displacement: 28,423 MT
- Landing Spots: VERTREP
- Personnel: 1300/ship
- Ship Speed 20 kts

Mobile Landing Platform (MLP)

- **MLP provides independent surface connector interface**
- **Joint: Potential universal interface for Navy and Army ships and small craft**



- **Based on commercial FLO FLO technology**
- **Sized to accommodate 6 LCAC equivalents**
- **Accommodations for 2 BLTs and equipment for 1**
- **Could also transport causeway sections, barges, containers, etc.**
- **COMPETITIVE OPPORTUNITY**

MLP Concept Demo Sept 05

LMSR USNS Watkins and FLO/FLO Ship MS1 rafted and underway in calm water. The Watkins sideport ramp is down on the MS1 and ready for vehicle operations.

USNS Watkins (LMSR) with her sideport ramp deployed onto the deck of the Mighty Servant I.

The Kalmar Container Handling Truck is driving down the ramp to the MS1 deck. The orange barrier walls on MS1 were installed to guide LCACs on deck in later exercises.

Future Ships Summary

- DD(X) is moving forward
  - Meets future Marine Corps surface fire requirements
  - Meets reduced signature requirements for sustained littoral operation
  - Flag-level CDR complete
  - Four LOE Contracts awarded
  - Milestone B on track
- LCS is moving forward
  - Lockheed Martin seaframe under construction; ship delivery scheduled late 2006, deployment 2007
  - General Dynamics construction begins October 2005; ship delivery scheduled 2007, deployment 2008
  - Represents speed, modularity, flexibility and rapid acquisition
- MPF(F) is moving forward
  - Integrates legacy resources with new acquisition to meet warfighter requirements
  - Flexible solution with low cost and limited design risk

Questions?