Marine Corps Seabasing

"Assured Access for the 21st Century"

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UPDATED 2015.10.14

Discussion Topics

- USMC 101
- Seabasing Concepts and Doctrine
- Amphibious Warship Programs
- Connectors
- Maritime Prepositioning Programs
- Maritime Expeditionary Support Ships
- Future Seabasing Capabilities
- Seabasing Capability Development

UNITED STATES MARINE CORPS

ROLES AND MISSIONS

National Security Act of 1947 directed the Marine Corps to conduct:

- **The seizure or defense of advanced naval bases and other land operations to support naval campaigns**
- **The development of tactics, techniques and equipment used by amphibious landing forces**
- **Such other duties as the President may direct**

MARINE AIR-GROUND TASK FORCE

Command Element

Ground Combat Element	Aviation Combat Element	Logistics Combat Element

Expeditionary Force

Expeditionary Brigade

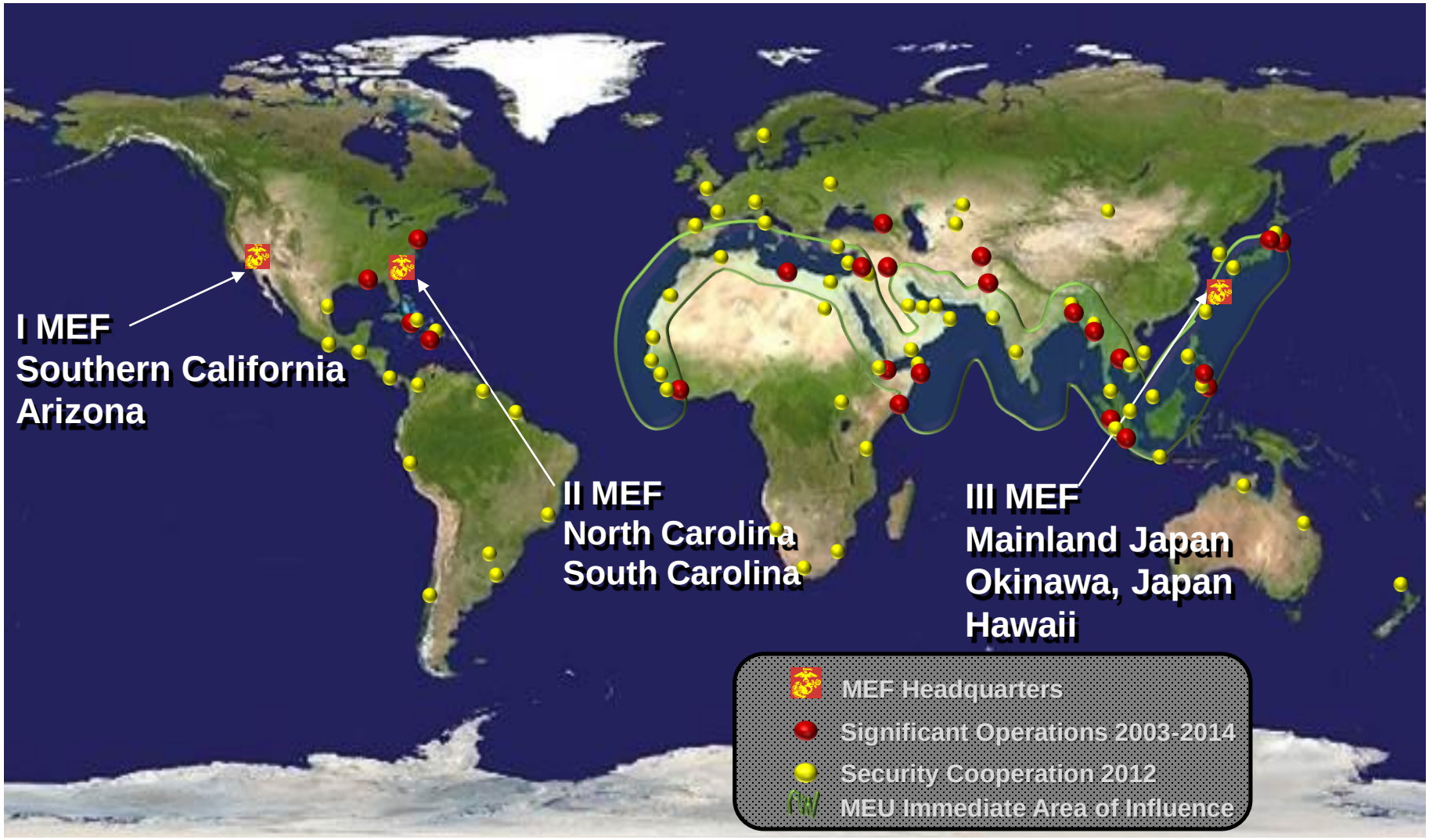
Expeditionary Unit

Special Purpose MAGTF

Scalable and tailorable combined arms teams

MARINE EXPEDITIONARY FORCE

GLOBALLY ENGAGED…



MARINE EXPEDITIONARY BRIGADE

- **Able to respond to a full range of crises and contingencies**
- **Can serve as enabler for joint / combined forces**
- **Deployment options:**
  - By Amphibious Task Force (ATF)
  - By Maritime Prepositioning Squadron (MPS)
  - By Strategic Air Lift

MARINE EXPEDITIONARY UNIT

- **Normally forward-deployed in/near**
  - Northeast Asia
  - Southwest Asia
  - Indian Ocean
  - Mediterranean Sea
- **On-scene, on-call, immediately employable**
- **Capable of conducting conventional & select maritime special purpose missions:**
  - Over the horizon
  - By surface and air
  - From the sea
  - Under adverse weather conditions
- **Combatant Commanders' combined arms force of first resort**

MEU CURRENT OPERATIONS

11th & 13th MEU
CAMP PENDLETON, CA

22d & 26th MEU
CAMP LEJEUNE, NC

15th MEU
CAMP PENDLETON

24th MEU
CENTCOM

31st MEU
PACOM

PRE-DEPLOYED

DEPLOYED

POST-DEPLOYED

UNCLASSIFIED

SPECIAL PURPOSE MAGTF

- **Formed to accomplish a specific mission, operation or exercise.**
- **Typically formed to support combatant commander engagements, security cooperation and civil-military operations.**
- **Recent SPMAGTFs include:**
  - SP-MAGTF Katrina (2005)
  - SP-MAGTF Unified Assistance (2005)
  - SP-MAGTF Haiti (2010)
  - SP-MAGTF Tomodachi (2011)
  - SP-MAGTF Africa (2011-)
  - SP-MAGTF Crisis Response (2013-)

HQMC Pacing Items

- CMC Focus
  - How We Fight From the Sea Base
- 36th Commandants' Planning Guidance (CPG)

  "*Our service-level exercise priorities for 2015 and 2016 will focus on how we fight from the sea in the A2/AD threat environment*"
- 37th CMC "Frago" to previous CPG

  "All previous guidance remains in effect" …. "Like war itself, our approach to warfighting must evolve."
- High Interest

  <u>*Littoral Mobility</u>
  - Crisis Response
  - Amphib Availability
  - Alternative Platforms
  - Connectors

Seabasing Strategic Messaging

WE ARE A MARITIME NATION

Freedom of movement and freedom of access are key to our national security and economic stability.

THE LITTORALS CONTAIN KEY GLOBAL ENGAGEMENT POINTS

The Navy-Marine Corps team is uniquely organized, trained, and equipped to assure access and influence in the littorals.

OUR AMPHIBIOUS WARSHIP REQUIREMENT IS 38 SHIPS

The USMC amphibious warship requirement is based on war plans containing the assault echelons of two Marine Expeditionary Brigades conducting simultaneous forcible entry operations.

AMPHIBIOUS WARSHIPS ARE MORE THAN TRANSPORTS

They are versatile, interoperable, warfighting platforms capable of going into harm's way and serving as the cornerstone of America's ability to extend seapower ashore.

THERE ARE INSUFFICIENT AMPHIBIOUS SHIPS TO MEET CURRENT REQUIREMENTS ACROSS ROMO

We are aggressively developing concepts of employment for alternative platforms that are consistent with mission requirements and platform capabilities.

CONNECTORS ARE CRITICAL ENABLERS

Connectors are a vital component of naval expeditionary capability to execute ship-to-objective maneuver.

THE MARITIME PREPOSITIONING FORCE IS A PROVEN CAPABILITY

Maritime Prepositioning Ships provide global coverage, forward presence, and crisis response.

ENHANCED MPF SEABASING CAPABILITIES PROVIDE WIDER EMPLOYMENT OPTIONS

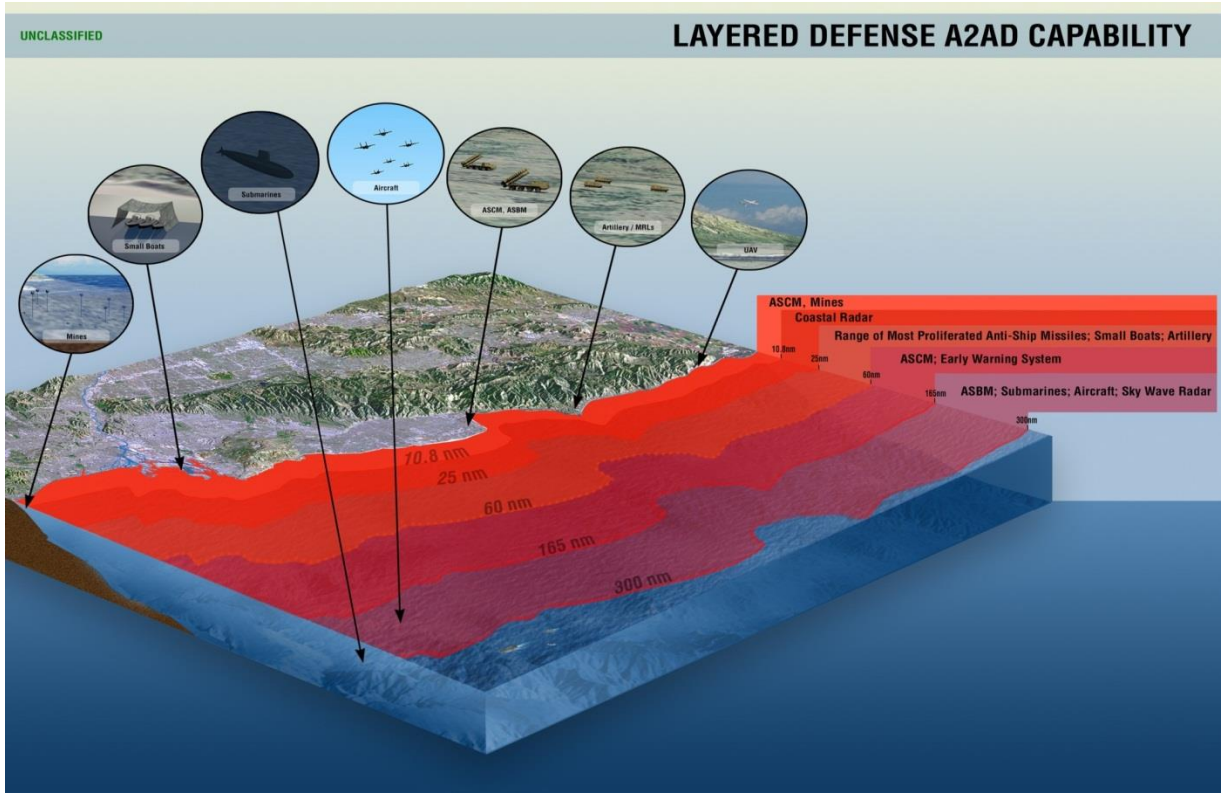
The introduction of the Mobile Landing Platform, LMSR, and T-AKE provides at-sea selective offload of equipment and supplies to support MAGTF operations across the range of military operations.

AMPHIBIOUS COMBAT VEHICLES BRIDGE SEA AND LAND DOMAINS

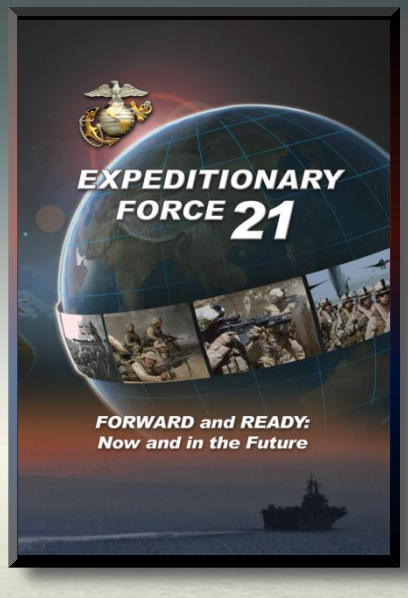
Amphibious Combat Vehicles enable rapid crisis response through seamless maneuver on sea and land, facilitate the introduction of follow-on forces, and impose disproportionate costs on our enemies that are forced to extend defenses across a far greater battlespace.

The Military Problem

Anti Access / Area Denial



- **Threat Based**
- **Political**
- **Environmental**



Refining Our Organization

- MEB focus for capability development
- Flexible MAGTF employment models
- Sustainable in austere environments

Adjusting Our Forward Posture

- 1/3 operating forces forward
- Flexibly distribute over a wider area
- Positioned for crisis response

Increasing Naval Integration

- Integrating operational staffs
- Holistic concepts of operation
- Forward "compositing" at/near the crisis

Enhancing Littoral Maneuver

- Employ dispersed forces from greater distances
- Maneuver throughout the littorals
- High-speed, long-range high-capacity system of connectors

Goal is to improve how we support the requirements of Geographic Combatant Commanders

Seabasing

Definition

The deployment, assembly, command, projection, sustainment reconstitution and reemployment of joint power from the sea, with minimal reliance on land bases in the joint operational area.

Principles

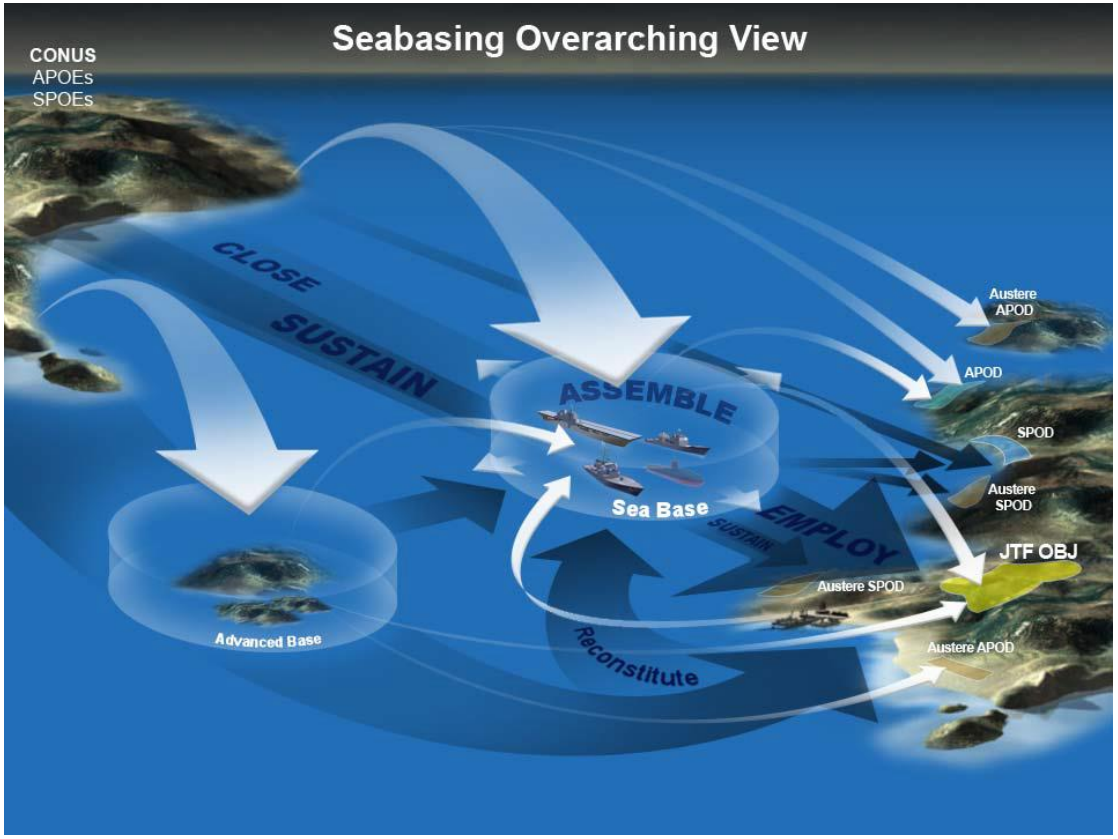
- Use the Sea as Maneuver Space
- Leverage Forward Presence
- Protect Forces
- Provide Scalable Responsive Power Projection
- Expand Access Options
- Create Uncertainty for Adversaries

Seabasing Lines of Operation

• Seabasing provides options for scalable power projection to a JFC through the sequential and concurrent integration of the five primary seabasing lines of operation.

CAESR

- Close
- Assemble
- Employ
- Sustain
- Reconstitute



Seabasing Spans
The *Full Range of Military Operations*

Frequency

Most Likely

Train/Advise/Assist

Relief Operations

Nation Building

Peace Enforcement

Show of Force

NEO

Acts of Terrorism

COIN

Civil War

Limited War

Regional Conflict

Global War

Most Dangerous

Task organized forces to meet Combatant Commander requirements

Permissive

Semi-Permissive

Non-Permissive/Forcible Entry

Peacetime and Crisis | Low Intensity Conflict | Mid-Intensity Conflict | High Intensity Conflict

137 Amphibious Operations since 1982…Amphib ships are <u>not just for MCO</u>

16

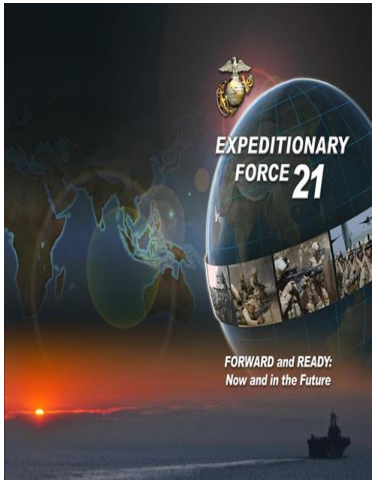
Guiding Concepts

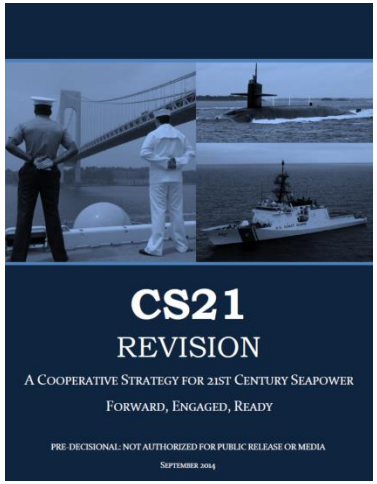
Joint

- Capstone Concept for Joint Operations (23 Force Development Implications)
- Joint Operational Access Concepts (30 Operational Capabilities)
- Joint Concept for Entry Operations (21 Required Capabilities)
- Joint Concept for Rapid Aggregation
- Joint Access & Maneuver in the Global Commons (Air / Sea Battle)

Navy/Marine Corps

- Cooperative Strategy 21
- Expeditionary Force 21 (Approved)
- MEB CONOPS (Approved)
- Aggregated/ Disaggregated COE (Approved)
- Alternative Platforms
- Distributed STOVL Ops (In Development)
- Advanced Basing (In Consideration)





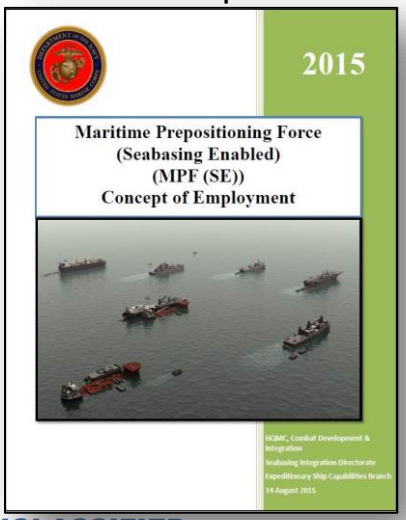
Seabasing Doctrine

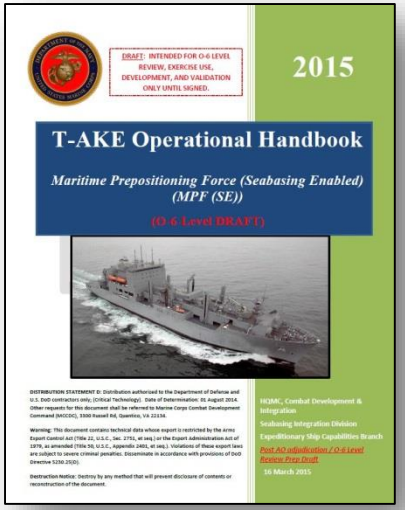
Current Doctrine

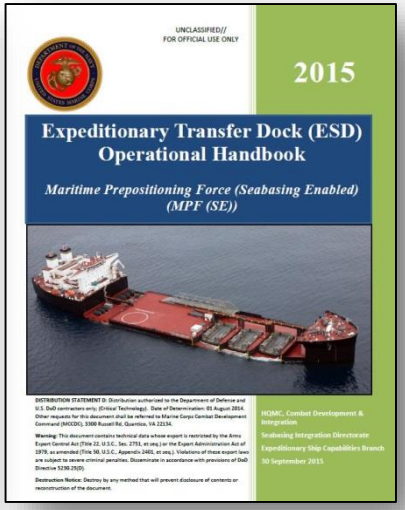
- MCWP 3-31.7 Seabasing (Jun 2013)

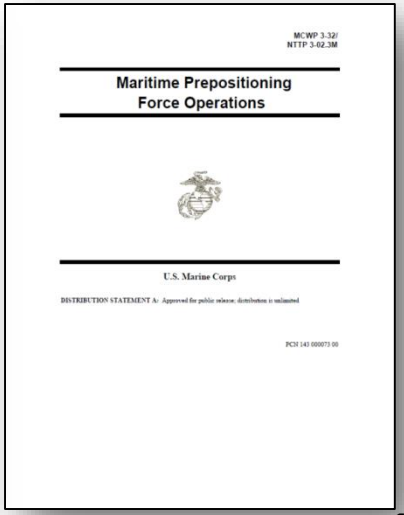
Emerging Doctrine

- Naval
  - Mobile Landing Platform (MLP) Wholeness Concept Of Operations (COE) (February 2014)
- Marine Corps
  - Maritime Prepositioning Force (Seabasing Enabled) Concept of Employment (MPF (SE) COE) (Signed Aug 14 2015)
  - MPF (SE) T-AKE Operational Handbook (TBD Nov 2015)
  - MPF (SE) Expeditionary Transfer Dock (ESD) Operational Handbook (TBD Nov 2015)
  - Update MCWP 3-32 / NTTP 3-02.3M, Maritime Prepositioning Ops (2016)

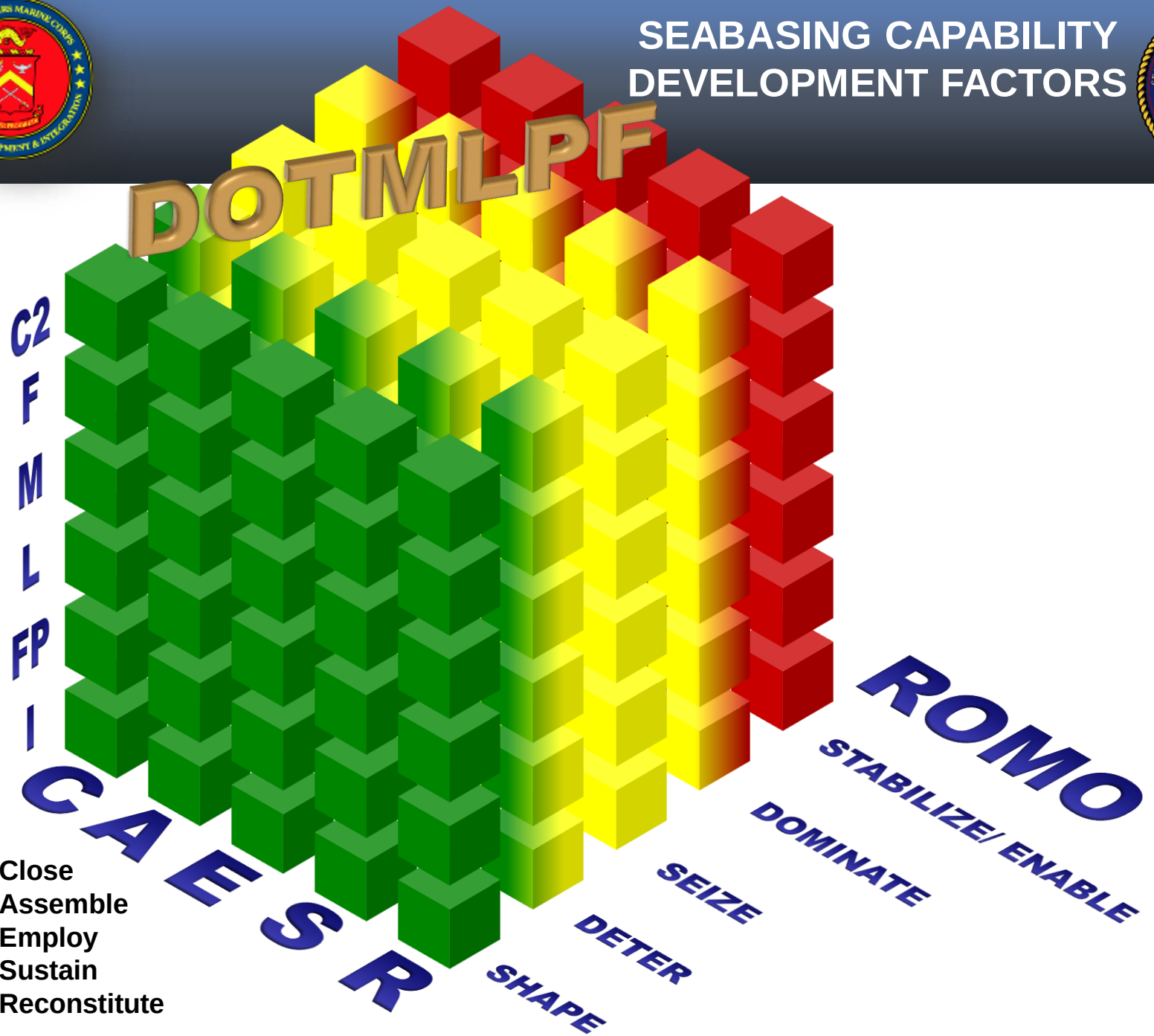








SEABASING CAPABILITY DEVELOPMENT FACTORS



Seabasing Capability

LPD-17
Capable of basing over 700 Marines, their equipment and supplies and projecting capabilities ashore with LCACs, conventional landing craft, amphibious connectors and rotary lift craft.

LHA-8
Lifts and supports over 1300 Marines and the MAGTF command & control nodes- is main base to fixed (JSF), rotary wing / tilt rotor, and unmanned aircraft systems. Well deck supports simultaneous landing craft operations. Level II medical capability.

LSD
Provides largest capacity to operate landing craft in support of MAGTF operations.

LMSR
Military Sealift Command's (MSC) Large, Medium Speed, Roll-On/ Roll-Off ship (LMSR) program significantly expands the nation's sealift capability as a prime mover of US military equipment. The ships carry vehicles and equipment to support humanitarian missions, as well as combat missions.

JHSV
Provides high speed transportation for over 300 Marines and 20,000 sq ft of MAGTF equipment.

Ship to Shore Connector (SSC)
Provides modernized landing craft over-the-beach capability.

Mobile Landing Platform
Leverages float-on/ float-off technology and has raised vehicle platform, sideport ramp, mooring fenders and LCAC lanes. Utility of "Interoperable Pier in the Ocean" spans the Range of Military Operations.

In future crises, forward based and forward deployed amphibious and MPF forces will continue to demonstrate their inherent flexibility and utility by aggregating with surged forces to conduct engagement, crisis response or forcible entry operations.

T-AKE
Offers selective access and off load of unitized supplies for prepositioning MEB and other MAGTFs operating in the sea base or ashore.

United States Marine Corps

Amphibious Warships

LHA 6

LHA 8

LHD

LPD

LSD

Assault Echelon (AE) Shipping

Total: 9 LHA / LHD (Amphibious Assault Ship – General/Multi Purpose)

HULL	SHIP NAME	START-END MAINT	HOME PORT	MIDLIFE	DECOMM
LHD 1	USS WASP +	01/09/17 – 05/19/17	NOFOLK, VA *	4QFY22	2029
LHD 2	USS ESSEX	03/28/16 - 02/24/17	SAN DIEGO, CA	2QFY16	2033
LHD 3	USS KEARSARGE	06/27/16 - 02/10/17	NORFOLK, VA	3QFY19	2034
LHD 4	USS BOXER	11/28/16 - 09/08/17	SAN DIEGO, CA	2QFY20	2035
LHD 5	USS BATAAN	01/07/15 - 11/20/15	NORFOLK, VA	2QFY23	2037
LHD 6	USS BONHOMME RICHARD	05/18/16 - 08/17/16	SASEBO, JA *	4QFY24	2038
LHD 7	USS IWO JIMA	08/31/15 - 07/01/16	MAYPORT, FL	1QFY21	2041
LHD 8	USS MAKIN ISLAND	04/27/15 - 11/06/15	SAN DIEGO, CA	TBD	2049
LHA 6	USS AMERICA	05/26/15 - 03/25/16	SAN DIEGO, CA	TBD	2054

HULL	SHIP NAME	BUILD STATUS	HOME PORT	DEL	COMM
LHA 7	PCU TRIPOLI	34.2%	SAN DIEGO,CA	DEC 18	FY19

Total: 12 LSD 41 / 49 (Dock Landing Ship)

HULL	SHIP NAME	START-END MAINT	HOME PORT	MIDLIFE	DECOMM
LSD 41	USS WHIDBEY ISLAND	03/06/17 - 10/06/17	LITTLE CREEK	Comp	2034
LSD 42	USS GERMANTOWN	01/11/17 – 06/23/17	SASEBO, JA	Comp	2035
LSD 43	USS FORT MCHENRY	09/19/16 - 05/05/17	MAYPORT, FL	Comp	2027
LSD 44	USS GUNSTON HALL	12/08/14 – 04/01/16	NORFOLK, VA	Comp	2029
LSD 45	USS COMSTOCK	04/27/15 - 02/18/16	SAN DIEGO, CA	Comp	2030
LSD 46	USS TORTUGA	12/14/15 - 06/28/19	LITTLE CREEK	SLEP	2034
LSD 47	USS RUSHMORE	03/07/16 - 02/10/17	SAN DIEGO, CA	Comp	2031
LSD 48	USS ASHLAND	08/03/16 – 01/25/17	SASEBO, JA	Comp	2032
LSD 49	USS HARPERS FERRY	12/05/16 – 09/01/17	SAN DIEGO, CA	Comp	2035
LSD 50	USS CARTER HALL	01/13/14 – 10/27/15	LITTLE CREEK	In Prog	2035
LSD 51	USS OAK HILL	08/15/16 - 03/17/17	NORFOLK, VA	Comp	2036
LSD 52	USS PEARL HARBOR	04/16/14 - 12/20/15	SAN DIEGO, CA	In Prog	2038

Total: 9 LPD 17 (Amphibious Transport Dock)

HULL	SHIP NAME	START-END MAINT	HOME PORT	MIDLIFE	DECOMM
LPD 17	USS SAN ANTONIO	03/06/17 – 01/05/18	NOFOLK, VA	FY24	2045
LPD 18	USS NEW ORLEANS	12/05/16 – 11/03/17	SAN DIEGO, CA	FY25	2046
LPD 19	USS MESA VERDE	01/12/15 - 12/04/15	NOFOLK, VA	FY26	2047
LPD 20	USS GREEN BAY	09/09/15 - 05/30/16	SASEBO, JA	FY27	2048
LPD 21	USS NEW YORK	12/07/15 - 10/07/16	MAYPORT, FL	FY28	2049
LPD 22	USS SAN DIEGO	04/27/15 - 03/18/16	SAN DIEGO, CA	FY30	2051
LPD 23	USS ANCHORAGE	02/22/16 - 09/02/16	SAN DIEGO, CA	FY31	2052
LPD 24	USS ARLINGTON	07/11/16 - 02/10/17	NOFOLK, VA	FY31	2052
LPD 25	USS SOMERSET	08/14/17 - 04/13/18	SAN DIEGO, CA	FY32	2053

HULL	SHIP NAME	BUILD STATUS	HOME PORT	DEL	COMM
LPD 26	PCU JOHN P MURTHA	91.3%	SAN DIEGO,CA	MAY16	JUL 16
LPD 27	PCU PORTLAND	63.9%	SAN DIEGO, CA	JUL17	TBD

Notes:
CMAV/SRA/PMA/PSA: ~4-12 month availability
DPMA/EDPMA: 9/12 month availability

Legend:
+ JSF SHIPALT: In Progress/Completed
* Home Port Shift: Q4FY17 Sasebo, Japan

Amphibious Ship Service Inventory

Long Range Plan for Construction of Naval Vessels for FY2016

HULL	FY 16	FY 17	FY 18	FY20	FY22	FY24	FY 26	FY 27	FY28	FY29	FY30
LHD 1	8	8	8	8	8	8	8	8	8	7	7
LHA 6	1	1	2	2	2	2	2	2	2	2	2
LHA 8						1	1	1	1	2	2
LPD 17	10	11	11	11	12	12	12	12	12	12	12
LSD 41	8 *7	8 7	8 7	8 7	8 7	8 7	8 7	7 6	7	5	3
LSD 49	4	4	4	4	4	4	4	4	4	4	4
LX(R)							2	3	4	5	6
QTY	31 30	32 31	33 32	33 32	34 33	35 34	37 36	37 36	38	37	36

* LSD PRESERVATION AND MAINTENANCE/SERVICE LIFE EXTENSION PROGRAM | SURGE ONLY
❑ FY16-20: LSD 46 | FY20-24: LSD 41 | FY24-28: LSD 42

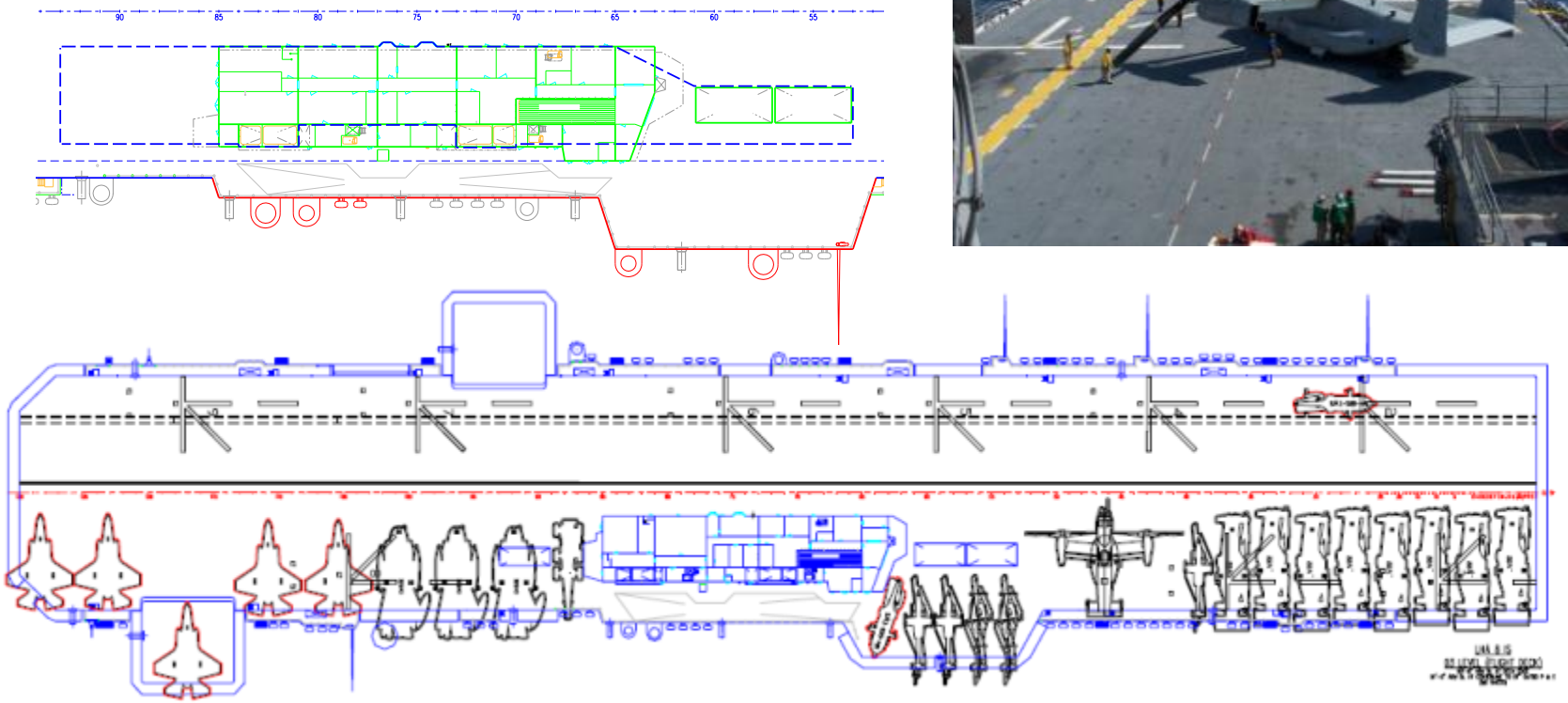
GAIN	LPD 26	LPD 27	LHA 7	LSD 46	LPD 28	LHA 8 LSD 41	LX(R) 1 LX(R) 2	LX(R) 3	LX(R) 4 LSD 42	LX(R) 5 LHA 9	LX(R) 6
LOSS	LSD 46			LSD 41		LSD 42		LSD 43		LSD 44 LHD 1	LSD 45

LHA 6 USS AMERICA

Speed	22.3 kts
Draft (full)	28.72 ft
Crew	1,204 (102 Officer, 78 > E7, 1,024 < E6)
Embarked Landing Force	1,518 (157 Officers, 57 > E7, 1,304 < E6)
Surge	184 Accommodations
Medical Capability	2 OR, 24 Ward, NCRTS
Mass Casualty/ Receiving	699 Overflow
Potable Water	200,000 gal/day
Surface Interface Point	None
Well Deck Capacity	N/A
Flight Deck (Spots, Level, Class)	9 Spots (6 Avail due to Stbd A/C Stow) 90,274 sqft, LVL 1, CL
Elevators	2, One Stbd (37.5 t), One port (37.5 t)
Hangar	25,937 sqft, 2 Seven Frame High Bays (49 ft ea) (3,918 sqft)
Ramp	Pier side Side Port
Vehicle Sq Ft (Net)	10,328 sqft
Cargo Cube (Net)	160,000 sqft
Lifting Capability	Crash Crane (50K lb)
Cargo Fuel	1,300,000 gal
Motor Gasoline	330 gal (embarked drum or bladder)

LHA 8
Increased Flight Deck Area

- **Design expectations:**
  - **Add ~ three aircraft parking spots in starboard bone**
  - **No locked spots on flight deck, or**
  - **Provide space for MV-22 in maintenance mode without blocking port operating spots**



Amphibious Transport Dock
LPD 17 San Antonio Class

Capability and Capacities

Speed	22 + kts
Draft (full)	23 ft
Crew	364 (29 Officer, 33 > E7, 302 < E6)
Embarked Landing Force	628 (60 Officers, 39 > E7, 529 < E6)
Surge	101 Accommodations
Medical Capability	2 OR, 6 ICU, 22 Ward, 2 Isolation Ward
Mass Casualty/ Receiving	Level II CRTS, 100 Overlfow = Surge berths
Potable Water	72,000 gal/day
Surface Interface Point	1
Well Deck Capacity	9,833 sqft, 2 LCAC or 1 LCU, or 15 AAV (21'2" ht)
Flight Deck (Spots, Level, Class)	2 Ops Spots, 4 Exp spots, 20,242 sqft
Elevators	2 Cargo- one 12,000 lbs, one 16,000 lbs, and a lift platform 6,000 lbs
Hangar	3,294 sqft, Crane 1 MV-22 or CH 53K capable
Ramp	Stern, Side Port
Vehicle Sq Ft (Net)	24,600 sqft
Cargo Cube (Net)	35,943
Lifting Capability	Hangar 4.3K, Art Boom 22k, Well Bridge 10k
Cargo Fuel	318,308

Dock Landing Ship
LSD 49 Harpers Ferry Class

Capability and Capacities

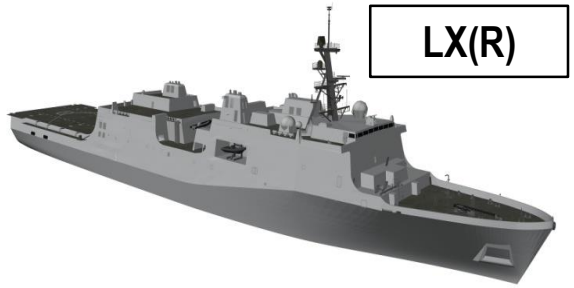
Speed	20 + kts
Draft (full)	20 ft
Crew	420 (24 Officer, 396 Elinsted)
Embarked Landing Force	365 (23 Officers, 16 > E7, 326 < E6)
Surge	101 Accommodations
Medical Capability	1 OR, 1 POR, 7 Ward,
Mass Casualty/ Receiving	N/A
Potable Water	Distill 60,000 gal/day; Store 34,800
Surface Interface Point	1
Well Deck Capacity	9,020 sqft, 2 LCAC or 1 LCU, or 15 AAV (21'2" ht)
Flight Deck (Spots, Level, Class)	2 Op Spots, 16,100 sqft
Elevators	N/A
Hangar	N/A
Ramp	Pier side, Stern,
Vehicle Sq Ft (Net)	15,180 sqft
Cargo Cube (Net)	49,742 cuft
Lifting Capability	Boat & Aircraft 30t
Cargo Fuel	51,923

LX(R): LPD 17 vs. LPD 17 Derivative
High Level Requirement Comparison

	LPD 17	LPD 17 Derivative
C2	LINK 11,16, HF/ VHF/ UHF Voice/Data, UHF/ SHF SATCOM, SCI Network, ISNS	LINK 11,16, 75% HF/ VHF/ UHF Voice/Data and UHF/ SHF SATCOM, SCI Network, CANES
Vehicle Storage	20.9K square ft	22K square ft
Cargo Capacity	34K cubic ft	28K cubic ft
Troop Capacity	699 + 101 surge	552 + 78 surge
LCAC Capacity	2	2
Aviation	Level 1, Class 1 with 2 primary spots / 4 expanded spots with hangar	Level 1, Class 1 with 2 primary spots / 4 expanded spots with hangar
Medical	Level 2, CRTS with 2 OR, 6 ICU, 22 Ward beds, 2 Dental OR	Level 2, CRTS with 2 OR, 6 ICU, 16 ward beds, 2 isolation beds, 2 dental OR
Self Defense	SSDS Mk 2 with CEC	SSDS MK2 with CEC track manager
Mobility	22 kts sustained	22 kts sustained

LPD 17

LX(R)



- **$500M savings between LPD and LX(R) hull forms**
- **$1.64B lead ship; $1.4B avg follow ship cost over 11 ship run**
- **Retained full C2, aviation, stowage, medical capabilities**
- **Acceptable reduction in troop berthing**

USN and USMC Consensus: LPD 17 Derivative Optimizes Capability

Annual Shipbuilding Report to Congress

Report to Congress on the Annual Long-Range Plan for Construction of Naval Vessels for FY2014

Prepared by:

Deputy Chief of Naval Operations (Integration of Capabilities and Resources) (N8)
Office of the Chief of Naval Operations
2000 Navy Pentagon
Washington, DC 20350-2000

May 2013

The estimated cost of report or study for the Department of Defense is approximately $345,000 in Fiscal Years 2012 - 2013. This includes $280,000 in expenses and $65,000 in DoD labor. Generated on 2013Apr05 RefID: 4-861644A

Table 3. FY2014-2018 New Construction Shipbuilding Procurement and Funding Plan (TYSM)

Ship Type (SM)	FY 2014 $	FY 2014 Qty	FY 2015 $	FY 2015 Qty	FY 2016 $	FY 2016 Qty	FY 2017 $	FY 2017 Qty	FY 2018 $	FY 2018 Qty	Total $	Total Qty
CVN 78[1]	945		1,834		1,918		2,540		2,954	1	10,192	1
DDG 51	2,004	1	2,877	2	3,444	2	3,733	2	3,694	2	15,751	9
DDG 1000	232		321								553	
LCS[2]	1,793	4	1,825	4	997	2	1,032	2	1,056	2	6,704	14
SSN 774[3]	5,285	2	6,959	2	5,542	2	5,371	2	5,663	2	28,819	10
SSBN(X)							778		792		1,570	
LPD 17			54		38		24				116	
LX(R)									174		174	
LHA(R)			78		240		1,599	1	2,399		4,316	1
T-AO(X)					694	1			594	1	1,288	2
MLP/AFSB	659	1									659	1
T-ATF(X)							216	2	108	1	324	3
Total New Construction	10,918	8	13,947	8	12,872	7	15,293	9	17,434	9	70,465	41

Table ES-1. FY2014-2043 Long-Range Naval Battle Force Construction Plan

Fiscal Year	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43
Aircraft Carrier					1					1					1					1					1					1
Large Surface Combatant	1	2	2	2	2	2	2	2	3	3	2	3	2	3	3	3	2	2	2	2	2	2	2	2	3	3	3	3	3	2
Small Surface Combatant	4	4	2	2	2	3	3	3	3	3	3	1				1		1		1	1	1		4	4	4	4	4	3	3
Attack Submarines	2	2	2	2	2	2	2	2	2	1	2	1	2	1	1	1	2	1	1	1	1	1	1	2	2	1	2	1	2	1
Ballistic Missile Submarines								1		1		1	1	1	1	1	1	1	1	1	1									
Amphibious Warfare Ships				1		1		1		1	1	1		1	2	1	1	1	2	1			1				2		1	
Combat Logistics Force			1		1	1	1	1	1	1	1	1	1	1	1	1	1	1	1											
Support Vessels	1			2	1	1	2		2	3	2	1			1	1	2	2	3	2	2									1

Table ES-2. FY2014-2043 Long-Range Naval Battle Force Inventory

Fiscal Year	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43
Aircraft Carrier	10	10	11	11	11	11	11	11	12	12	12	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	10	10	10	10
Large Surface Combatant	85	78	82	83	84	86	87	88	87	87	89	88	89	91	90	88	86	82	81	81	80	82	84	86	88	90	90	90	88	88
Small Surface Combatant	26	23	27	29	33	38	37	37	39	38	40	42	45	48	51	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52
Attack Submarines	55	55	53	50	52	52	49	49	48	48	48	47	46	45	43	42	43	44	45	46	47	48	50	51	50	50	50	49	51	51
Cruise Missile Submarines	4	4	4	4	4	4	4	4	4	4	4	4	2	1																
Ballistic Missile Submarines	14	14	14	14	14	14	14	14	14	14	14	14	14	13	12	11	11	11	10	10	10	10	10	10	10	10	10	11	12	12
Amphibious Warfare Ships	31	28	29	30	31	31	31	31	31	31	32	34	33	33	33	33	32	32	32	33	34	33	33	34	33	33	32	33	32	31
Combat Logistics Force	31	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29
Support Vessels	26	29	31	33	33	35	33	33	33	34	34	34	33	33	33	33	33	33	34	34	34	34	34	33	34	33	33	33	33	33

Table A1-1. Ships Planned for Decommissioning or Deactivation during the FYDP[1]

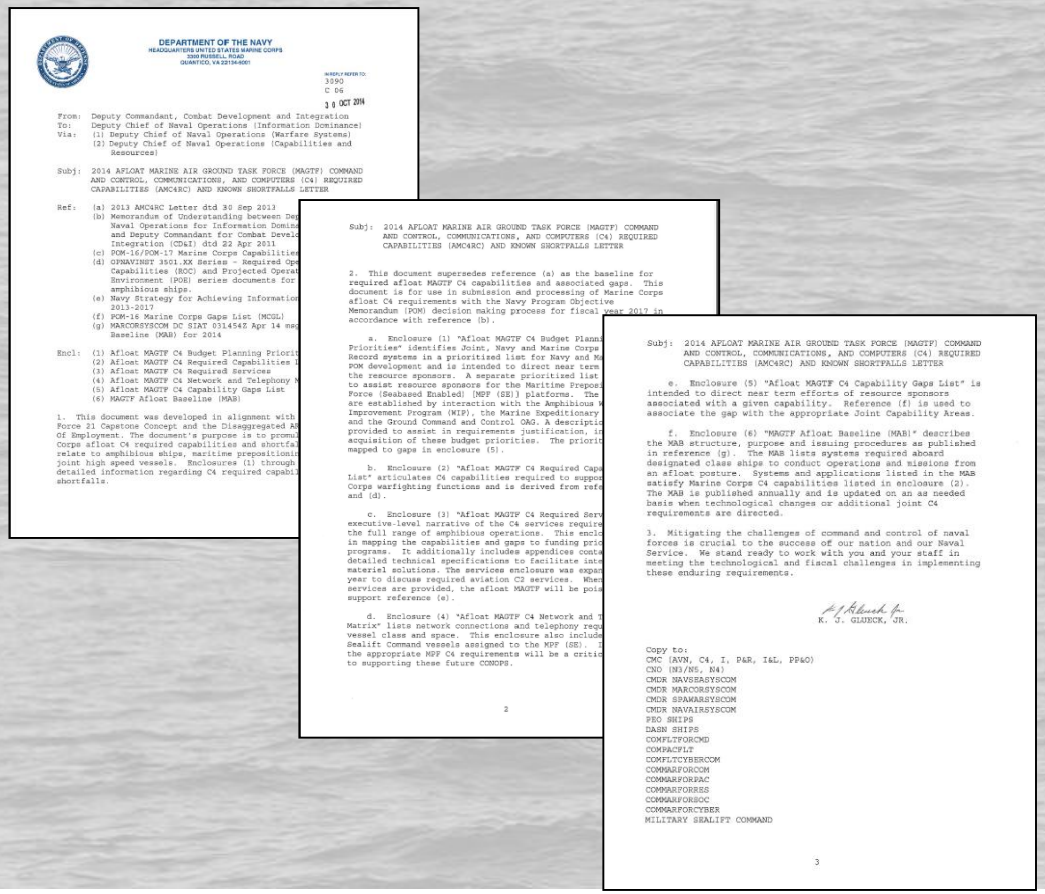
Inactivation Year (FY)	Ship Name	Disposition
2014	USS DENVER (LPD 9)	Foreign Military Sales
	USS HALYBURTON (FFG 40)	Foreign Military Sales
	USS FORD (FFG 54)	Foreign Military Sales
	USS THACH (FFG 43)	Foreign Military Sales
11 ships	USS DE WERT (FFG 45)	Foreign Military Sales
	USS RENTZ (FFG 46)	Foreign Military Sales
	USS NICHOLAS (FFG 47)	Foreign Military Sales
	USS ROBERT G BRADLEY (FFG 49)	Foreign Military Sales
	USS DALLAS (SSN 700)	Dismantle
	USNS BRIDGE (T-AOE 10)	OSIR[2]
	USS AVENGER (MCM 1)	Logistics Support Asset
2015	USS PELELIU (LHA 5)	OCIR[3]
	USS TAYLOR (FFG 50)	Foreign Military Sales
	USS GARY (FFG 51)	Foreign Military Sales
	USS MCCLUSKY (FFG 41)	Foreign Military Sales
	USS ELROD (FFG 55)	Foreign Military Sales
	USS SIMPSON (FFG 56)	Foreign Military Sales
20 ships	USSVANDEGRIFT (FFG 48)	Foreign Military Sales
	USS SAMUEL B ROBERTS (FFG 58)	Foreign Military Sales
	USS LA JOLLA (SSN 701)	MTS Conversion[4]
	USNS RAINIER (T-AOE 7)	OSIR
	USNS FLINT (T-AE 32)	Interagency Transfer[5]
	USS COWPENS (CG 63)	OCIR
	USS ANZIO (CG 68)	OCIR
	USS VICKSBURG (CG 69)	OCIR
	USS PORT ROYAL (CG 73)	OCIR
	USS GETTYSBURG (CG 64)	OCIR
	USS CHOSIN (CG 65)	OCIR
	USS HUE CITY (CG 66)	OCIR
	USS WHIDBEY ISLAND (LSD 41)	OCIR
	USS TORTUGA (LSD 46)	OCIR
2016	USS ALBUQUERQUE (SSN 706)	Dismantle
3 ships	USS HOUSTON (SSN 713)	Dismantle
	USS CITY OF CORPUS CHRISTI (SSN 705)	Dismantle
2017	USS KAUFFMAN (FFG 59)	Foreign Military Sales
	USS RODNEY M DAVIS (FFG 60)	Foreign Military Sales
	USS NORFOLK (SSN 714)	Dismantle
8 ships	USS BREMERTON (SSN 698)	Dismantle
	USS JACKSONVILLE (SSN 699)	Dismantle
	USS SAN FRANCISCO (SSN 711)	MTS Conversion
	USS BUFFALO (SSN 715)	Dismantle
	USS PONCE (AFSB (I) 15)	OCIR
2018	N/A	N/A
0 ships		

AMC4RC

Tier 1N

Tier 2

Tier 3



DEPARTMENT OF THE NAVY
HEADQUARTERS UNITED STATES MARINE CORPS
3000 RUSSELL ROAD
QUANTICO, VA 22134-5001

3990
C 5

30 OCT 2014

From: Deputy Commandant, Combat Development and Integration
To: Deputy Chief of Naval Operations (Information Dominance)
Via: (1) Deputy Chief of Naval Operations (Warfare Systems)
(2) Deputy Chief of Naval Operations (Capabilities and Resources)

Subj: 2014 AFLOAT MARINE AIR GROUND TASK FORCE (MAGTF) COMMAND AND CONTROL, COMMUNICATIONS, AND COMPUTERS (C4) REQUIRED CAPABILITIES (AMC4RC) AND KNOWN SHORTFALLS LETTER

Ref: (a) 2013 AMC4RC Letter dtd 30 Sep 2013
(b) Memorandum of Understanding between Dep Naval Operations for Information Domin and Deputy Commandant for Combat Develo Integration (CD&I) dtd 22 Apr 2011
(c) POM-16/POM-17 Marine Corps Capabilities
(d) OPNAVINST 3501.XX Series - Required Ope Capabilities (ROC) and Projected Operat Environment (POE) series documents for amphibious ships.
(e) Navy Strategy for Achieving Information 2013-2017
(f) POM-16 Marine Corps Gaps List (MCGL)
(g) MARCORSYSCOM DC SIAT 031454Z Apr 14 req Baseline (MAB) for 2014

Encl: (1) Afloat MAGTF C4 Budget Planning Priorit
(2) Afloat MAGTF C4 Required Capabilities
(3) Afloat MAGTF C4 Required Services
(4) Afloat MAGTF C4 Network and Telephony
(5) Afloat MAGTF C4 Capability Gaps List
(6) MAGTF Afloat Baseline (MAB)

1. This document was developed in alignment with Force 21 Capstone Concept and the Disaggregated Of Employment. The document's purpose is to promu Corps afloat C4 required capabilities and shortfa relate to amphibious ships, maritime prepositioni joint high speed vessels. Enclosures (1) through detailed information regarding C4 required capabi shortfalls.

Subj: 2014 AFLOAT MARINE AIR GROUND TASK FORCE (MAGTF) COMMAND AND CONTROL, COMMUNICATIONS, AND COMPUTERS (C4) REQUIRED CAPABILITIES (AMC4RC) AND KNOWN SHORTFALLS LETTER

2. This document supersedes reference (a) as the baseline for required afloat MAGTF C4 capabilities and associated gaps. This document is for use in submission and processing of Marine Corps afloat C4 requirements with the Navy Program Objective Memorandum (POM) decision making process for fiscal year 2017 in accordance with reference (b).

a. Enclosure (1) "Afloat MAGTF C4 Budget Planni Priorities" identifies Joint, Navy and Marine Corps Record systems in a prioritized list for Navy and Ma POM development and is intended to direct near term the resource sponsors. A separate prioritized list to assist resource sponsors for the Maritime Preposi Force (Seabased Enabled) (MPF (SE)) platforms. The are established by interaction with the Amphibious Improvement Program (WIP), the Marine Expeditionary and the Ground Command and Control OAG. A descriptio provided to assist in requirements justification, in acquisition of these budget priorities. The priorit mapped to gaps in enclosure (5).

b. Enclosure (2) "Afloat MAGTF C4 Required Caps List" articulates C4 capabilities required to suppo Corps warfighting functions and is derived from refe and (d).

c. Enclosure (3) "Afloat MAGTF C4 Required Serv executive-level narrative of the C4 services require the full range of amphibious operations. This enclo in mapping the capabilities and gaps to funding prio programs. It additionally includes appendices conta detailed technical specifications to facilitate inte materiel solutions. The services enclosure was expan year to discuss required aviation C2 services. When services are provided, the afloat MAGTF will be pois support reference (e).

d. Enclosure (4) "Afloat MAGTF C4 Network and T Matrix" lists network connections and telephony requ vessel class and space. This enclosure also include Sealift Command vessels assigned to the MPF (SE). the appropriate MPF C4 requirements will be a critic to supporting these future CCMOPS.

2

Subj: 2014 AFLOAT MARINE AIR GROUND TASK FORCE (MAGTF) COMMAND AND CONTROL, COMMUNICATIONS, AND COMPUTERS (C4) REQUIRED CAPABILITIES (AMC4RC) AND KNOWN SHORTFALLS LETTER

e. Enclosure (5) "Afloat MAGTF C4 Capability Gaps List" is intended to direct near term efforts of resource sponsors associated with a given capability. Reference (f) is used to associate the gap with the appropriate Joint Capability Areas.

f. Enclosure (6) "MAGTF Afloat Baseline (MAB)" describes the MAB structure, purpose and issuing procedures as published in reference (g). The MAB lists systems required aboard designated class ships to conduct operations and missions from an afloat posture. Systems and applications listed in the MAB satisfy Marine Corps C4 capabilities listed in enclosure (2). The MAB is published annually and is updated on an as needed basis when technological changes or additional joint C4 requirements are directed.

3. Mitigating the challenges of command and control of naval forces is crucial to the success of our nation and our Naval Service. We stand ready to work with you and your staff in meeting the technological and fiscal challenges in implementing these enduring requirements.

K. J. GLUECK, JR.

Copy to:
CMC (AVN, C4, I, P&R, I&L, PP&O)
CNO (N1/N5, N4)
CMDR NAVSEASYSCOM
CMDR MARCORSYSCOM
CMDR SPAWARSYSCOM
CMDR NAVAIRSYSCOM
PEO SHIPS
DASN SHIPS
COMFLTFORCMD
COMPACFLT
COMFLTCYBERCOM
COMMARFORCOM
COMMARFORPAC
COMMARFORRES
COMMARFORSOC
COMMARFORCYBER
MILITARY SEALIFT COMMAND

3

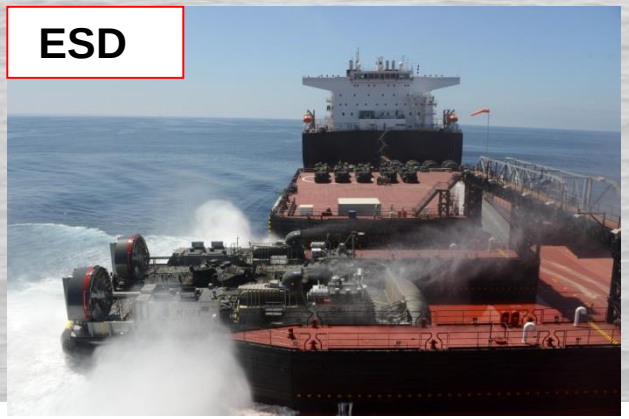
- **Delivered Annually to N2/6 via N8 and N9**
- **6 Enclosures**
  - **Budget Planning Priorities**
  - **Required Afloat Capabilities List**
  - **Afloat Network Required Specifications and Technical Characteristics**
  - **Network and Telephony MatriX**
  - **Gaps List**
  - **MAGTF Afloat Baseline**

Maritime Prepositioning Ships

T- AKE

LMSR

ESD



T- AK

Maritime Prepositioning Capability

MPSRON-2 (FOS)

DIEGO GARCIA

SISLER

SEAY

STOCKHAM

LEWIS & CLARK

BUTTON

LOPEZ

MONTFORD POINT
Assigned April 2015

Capacities

Sqft	69%
TEUs	61%
JP-5	37%
H_2O Storage	13%

MPSRON-3 (FOS)

GUAM / SAIPAN

DAHL

PILILAAU

LUMMUS

SACAGAWEA

WILLIAMS

BOBO

JOHN GLENN
Available for tasking Oct 2015

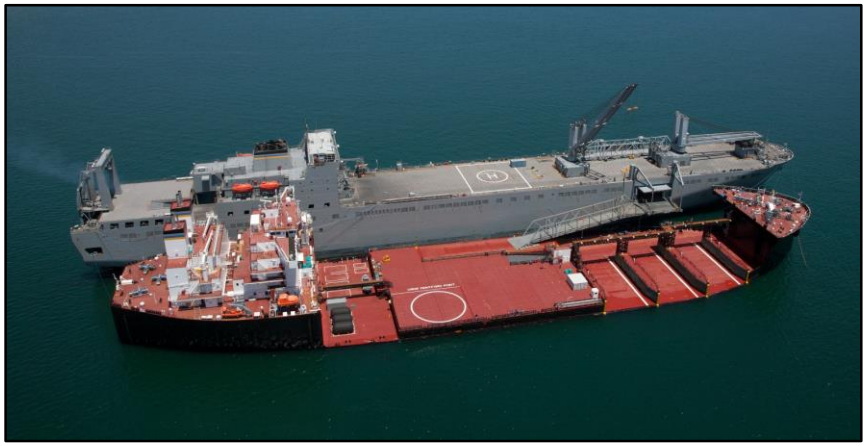
Capacities

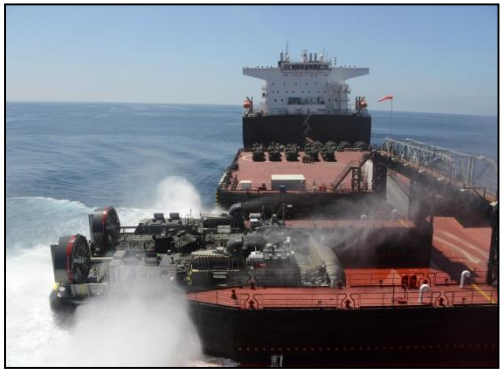
Sqft	65%
TEUs	67%
JP-5	50%
H_2O Storage	15%

Average squadron capacity is ~67% of MEB square-foot lift requirement.

Maritime Prepositioning Force Seabasing Enabled Advantage

- **Selective offload from the seabase**
- **At-sea transfer of heavy equipment & supplies**
- **LCAC, MV-22, CH-53 operational reach to objectives ashore**

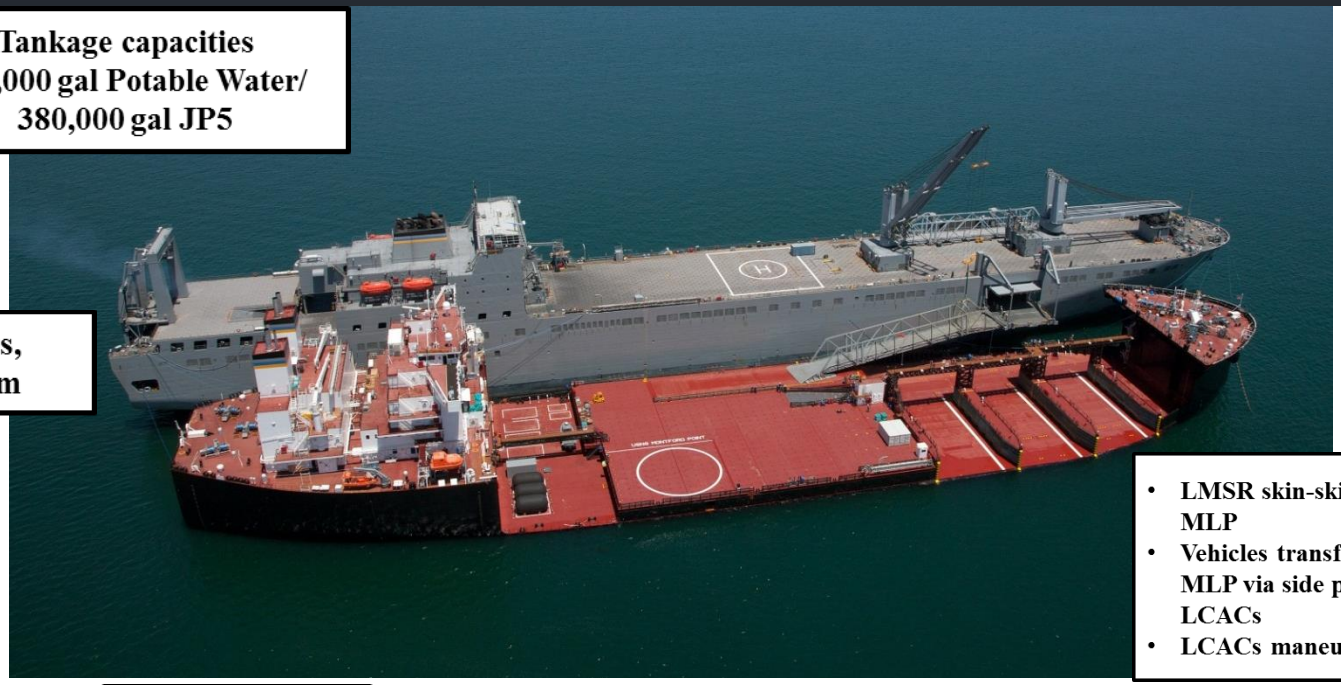




Expeditionary Transfer Dock (ESD)

Tankage capacities
100,000 gal Potable Water/
380,000 gal JP5

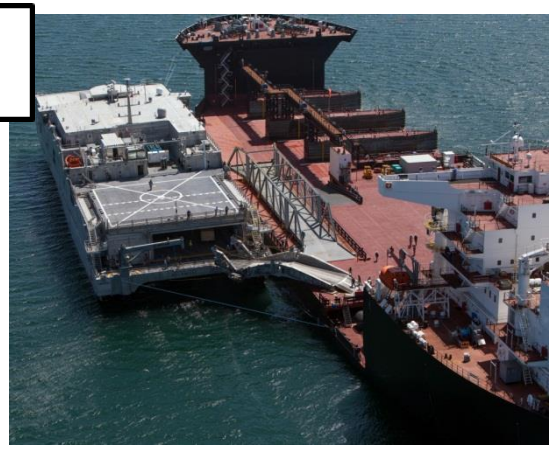
15 knots,
9,500 nm



- LMSR skin-skin moored alongside MLP
- Vehicles transfer from LMSR to MLP via side port ramp and onto LCACs
- LCACs maneuver forces ashore

3 LCAC lanes
with services

FLO/FLO



25,000 ft²
elevated vehicle stowage
deck module

MPF T-AKE: Selective Offload Plus Operational Reach

Support Ships

ESB

EPF

T-AVB

LCS

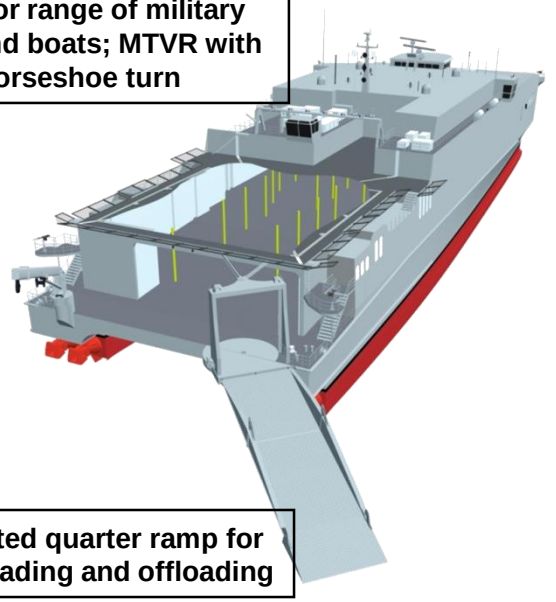
Expeditionary Fast Transport (EPF)

WPE/JHSV/HST Comparison			
	WestPac Express	JHSV POR: 11 Vessels	HST POR: 2 Vessels
Overall Length	101m	103m	107m
Draft	4.3m	3.83m	3.7m
Cruise/Max Speed	36kts/38kts	35kts/43kts	40kts/42kts
Passengers	900	312	866
Vehicle/Cargo Capacity	33,000sqft 165 HMMWVS	20,000-22,000sqft 100–110 HMMWVS	31,000sqft 152 HMMWVS
Deadweight	790t	700t	800t
Range	1250nm	1200nm	1200nm

Extensive, yet flexible crew & troop accommodations with lounge, medical, and mess facilities

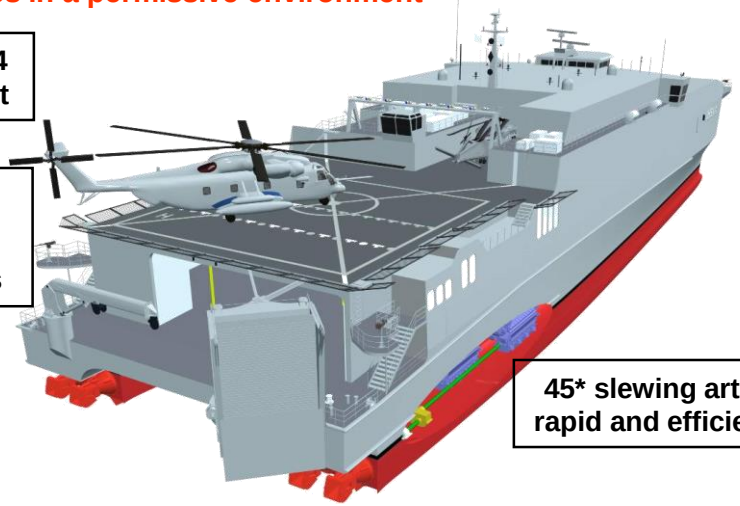
Crew-served weapon mounts fore and aft

Large mission bay for range of military hardware, vehicles and boats; MTVR with trailer can do horseshoe turn



****JHSV is not a combatant; operates in a permissive environment****

Supports 312 troops for 4 days or 104 troops 14 days without replenishment

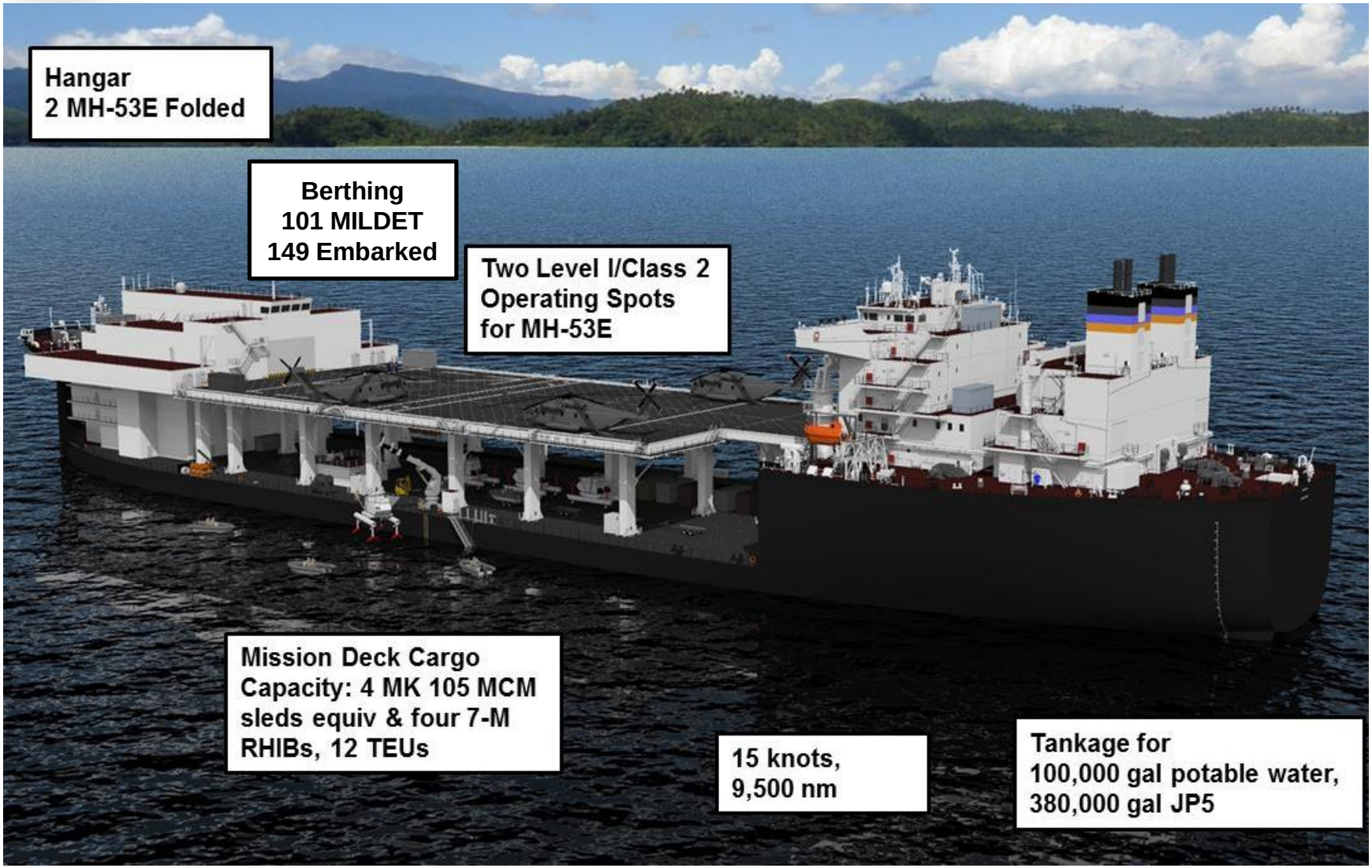


Level I, Class 2 for H53/H60 helo operations

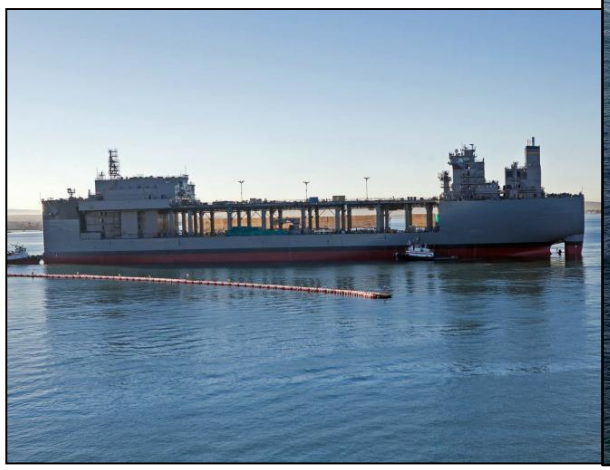
Level I, Class 4 VERTREP operations

45* slewing articulated quarter ramp for rapid and efficient loading and offloading

Expeditionary Mobile Base (ESB) Capabilities



USNS Lewis B Puller (ESB 1)



Littoral Combat Ship

Lockheed Martin Flight 0
USS Freedom LCS-1

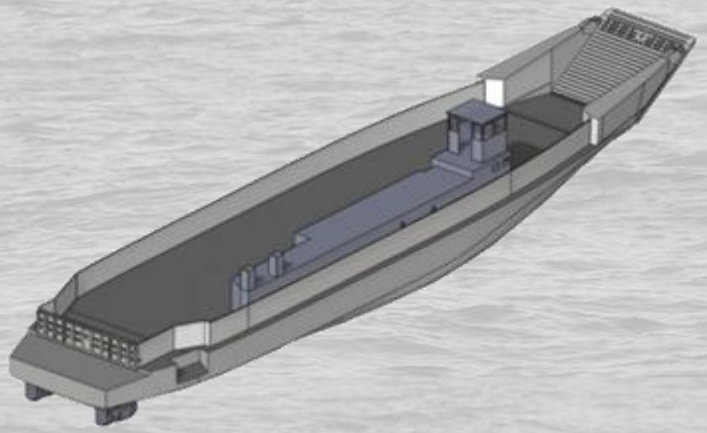
General Dynamics Flight 0
USS Independence LCS-2

Current Missions	Potential Missions
Anti Sub Warfare	Littoral ISR
Mine Counter Measure	TSC
Small Boat Defense	Advanced Force Ops

Surface Connectors

Ship to Shore Connector (SSC)

Surface Connector (X)-Recapitalization (SC (X)-R)



Roll on/Roll off Discharge Facility (RRDF)

Improved Navy Lighterage System (INLS)

Surface Connectors

LCAC (SLEP)

- 60 ST at 35 kts
- Designed to carry M-60 tank
- Narrower performance envelope

Retains a high speed, OTH surface assault capability

72 craft procurement starting in 2013
IOC FY 20

SSC

- 74 ST at 35 kts
- Carries M1A1 with TWMP
- Full load in sea-state 3+ / 100F

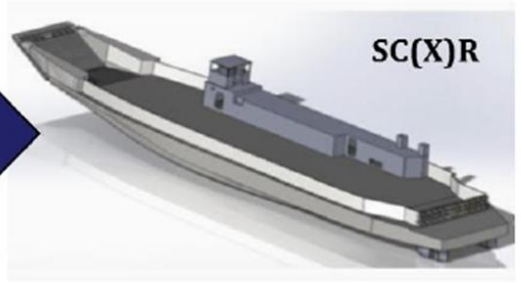
LCU-1600

- <140 ST / 1200 NM at 11 kts
- 2200 sq ft payload cargo

Recapitalizes a rugged, persistent, economical, high capacity landing craft

32 craft procurement starting in 2018
IOC FY 22

SC(X)R



- Min 170 ST / 1200 NM at 11 kts
- Min 2200 sq ft payload cargo

Recapitalization of primary surface ship to shore connectors

Future Seabasing Capabilities

Dense Pack Access Retrieval & Transit (DPART)

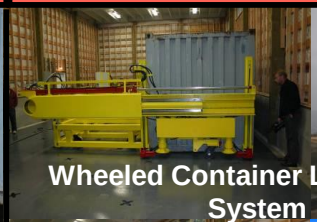
Background

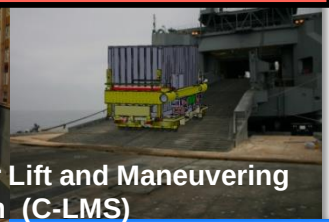
- SID-led FY13 JCTD proposal with NSWC–CD and UASACE-ERDC assist; USPACOM & USTRANSCOM Co-Sponsors
- 30 month effort
- Innovates SSARS technologies (C-LMS, SPIDR and ORLAMS)
- Produces prototypes: Wheeled C-LMS; Amphibious Naval Transport (ANT) – Large Wheeled Vehicle (LWV); ANT-Aviation (ANT-AVN), Common Remote Controller

Innovates SSARS

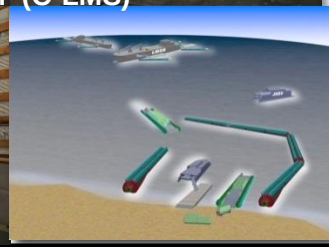
Builds on lifting & omni-directional maneuvering technology developed under SSARS program

Container Solution

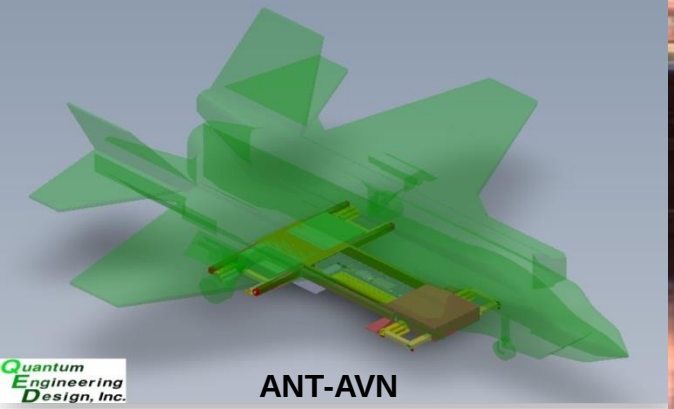




Wheeled Container Lift and Maneuvering System (C-LMS)



Large Wheeled Vehicle & Aviation Solutions



ANT-AVN

• The ANT AVN and LWV variants innovate technologies taken from the SPIDR and ORLAMS technology demonstrations to allow for omni-directional movement of aircraft and large vehicles aboard ships.

Future

- Written endorsements from seven organizations, incl. BIC, MARFORPAC, MARCORPSYSCOM, RS-JPO, MSC, USA-CoT, and USA-LIA
- Potential teaming with TARDEC on battery and autonomous sensor technologies
- Project decision timing:
  - 22 May 2012 – Candidate Nomination Bd (unanimous approval)
  - 20 Jul 2012 - COCOM/Service Rankings Due
  - Aug 2012 – Candidate Decision Board
  - Jun 2013 – Start JCTD

Advanced Mooring System (AMS)

Concept

Capability and Capacities

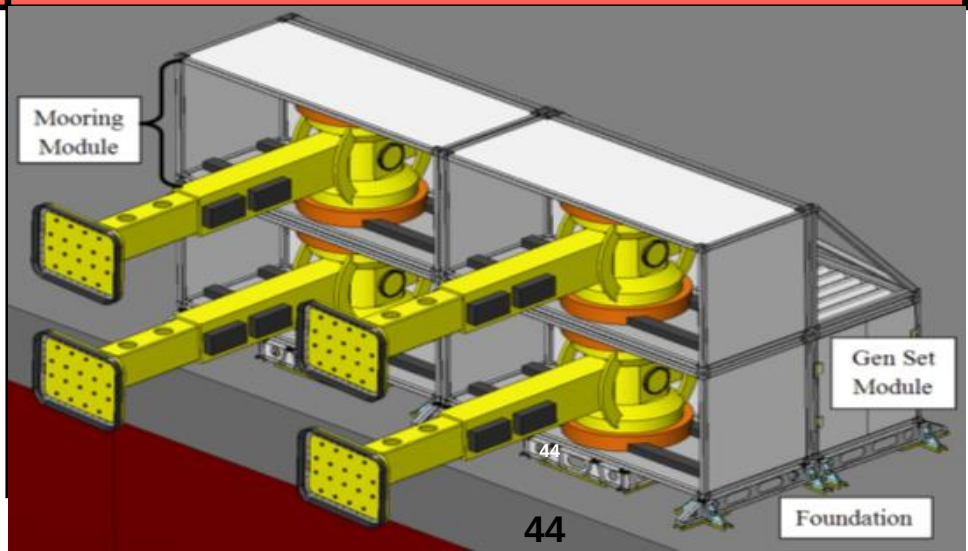
- Enables "skin-to-skin" at-sea-transfer of personnel, vehicles, and equipment in up to SS 3-4 (T-O)
  - MLP-LMSR
  - MLP-JHSV
  - RRDF-JHSV (Demo)
- Moor, de-moor in 15 min
- Modular, Deployable, Transferable
- Minimum modifications to vessels
- Does not need DP for either vessel

Program Status

Three-Phase S&T Effort

- Phase I – Concept Development
- Phase II – S&T/Modeling
- Phase III – Fabrication/Full Scale At-Sea Demonstration
- Key timeline driver is an at-sea demo in 2014

Features



Flexible Sea-based Force Projection (FSFP)

OPERATIONAL NEED

Objective: Deliver more combat power and flexibility from more ships of the sea base in higher sea states

Value to Naval Warfighter:

- Enables cargo transfer at sea for T-AK, LMSR, T-AKE, and surface connectors
- Provides interfaces to LCAC/LCAC-100/LCU/Joint/Coalition surface connectors

Impact if Not Addressed:

- Inability to access vehicles and equipment from >50% of prepositioned ships (T-AK & T-AKE) via surface connector

PROPOSED SOLUTION

The Technology:

- Sea-based Floating Breakwater

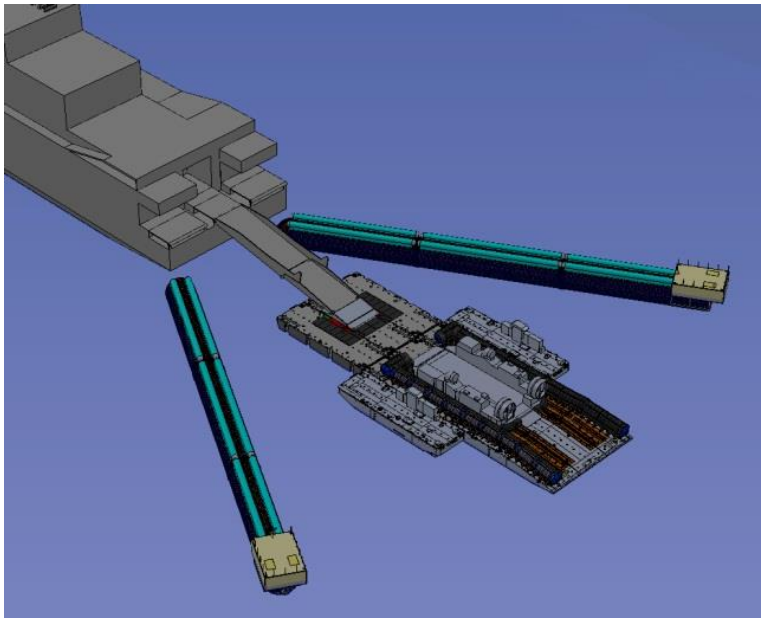
Similar/Related Projects:

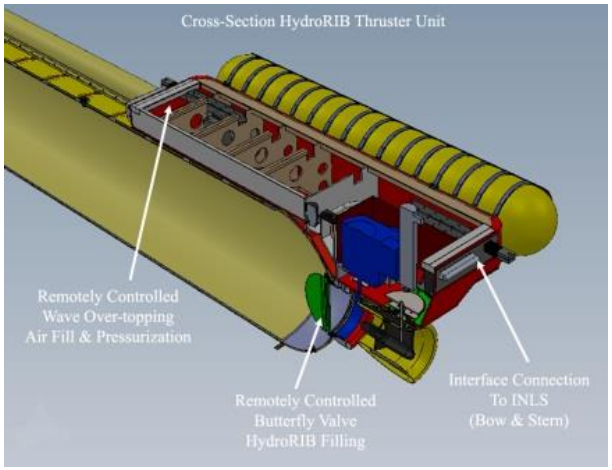
- Army Rapidly Installed Breakwater
- Rigid Air Beam structures

TRL: Current (FY13): 3, Projected at End (FY19): 6

Major Goals/Schedule by Fiscal year:

- FSFP: Final test and Demo (Q4FY19)
- Transitions to Sea Lift R&D program in FY19





Environmental and Ship Motion Forecasting (ESMF)

ESMF Program Objectives

An open-architecture, common interface system to assist shipboard operators in making go/no-go decisions for shipboard ops such as:

- **Skin-to-skin ship mooring/fendering evolutions**
- **Inter/intra-ship cargo, personnel, and vehicle movement**
- **Launch and recovery of manned or unmanned air and sea vehicles.**

System will use shipboard sensing and computing assets to predict wind, waves, and resulting ship motions.

Technology Areas:

- **Wave field sensing**
- **Wave/wind field reconstruction**
- **Ship motions measurement/prediction**
- **Decision Support System/Operator Guidance**

Ship speed: 5-10 knots

Prediction Time:

Specific Wave/Wind events: 30 seconds

General environmental conditions: 5 minutes

Ship type:

- **MLP, AFSB, LMSR, T-ACS, T-AKE, JHSV, LCAC**

Sea State: SS5, swell and wind-driven waves

Water depth/Shoreline obstructions: Unobstructed blue water

Payoff:

- **Significantly increase the safety and extends the operational envelope of sea-based operations from sea state 2-3 to 4-5.**
- **Guidance output will improve effectiveness and safety of existing/legacy, planned and envisioned transfer and launch and recovery systems**
- **Provides high-fidelity inputs to Navy Meteorology and Oceanography (METOC) global weather models**

- **Phase IB: TRL 4 Single-ship at-sea demo, Q3 FY13**
- **Phase II: TRL 6 Multi-ship at-sea demo with operator guidance integration– Q3 FY15**

UHAC Demonstration
1/2 Scale Test Results

- Larger scale mobility performance verified
  - Speed/ power (Re-affirmed)
  - Well-deck and MLP deployment and recovery
  - Stable open-ocean transit and 360 rotation maneuver
  - Landing on 25 degree slope, debris-laden shoreline
- Verified infinitely variable transmission low-speed maneuvers and high-speed sprint operation
- Payload (HMMWV) – ballasted to simulate M113, LAV 25, TEU

Seabasing….So What's Next?

?

?

Wargames

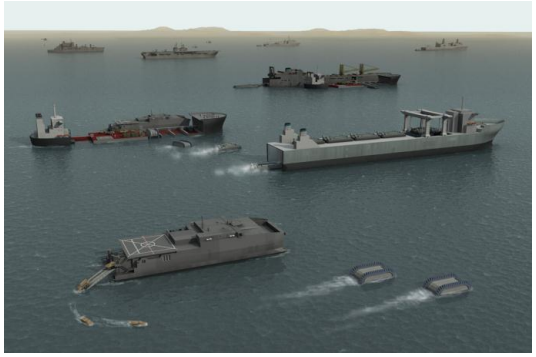
Naval Service Game

8-12 Dec 14

Naval War College

Alternative Platforms

- **Assess connector cycle**
- **Identify best investment – capability opportunities**



Expeditionary Warrior 15

23-27 Feb 15

EWTG LANT

DPS Phase 2/3

- **Assess ability to provide lethal fires from the sea base**
- **Assess ability to project force from distances greater than 25 nm**

Elegant Potentail 15

Apr 15

DPS Phase 0/1

- **Assess best seabasing architecture and configuration to support IW**
- **Identify key capabilities and limitations to support regional IW missions from the sea base**

Army Watercraft Overview

Joint Interoperability Essential!

46% in APS

Fighting Functions

Command: Harbormaster, Logistics Over the Shore (LOTS) and Battle Command on the Move

Movement & Maneuver: Assured Access, Simultaneous/Distributed Operations, Controlled Operational Tempo

Sustainment: Intra-Theater Distribution, Access to Degraded & Austere Ports/Seaport, Damage/Vessel Salvage, Tugs/Firefighting and Rescue

1

Harbormaster Command & Control Center
(3 AC/4 USAR)

Landing Craft Mechanized Mod 2 (6)
(1 AC/1 USAR/4 APS)

2 & 3

Small Tug (16)
(2 AC/6 USAR/8 APS)

Large Tug (8)
(1 AC/3 USAR/4 APS)
2ea in Lieu of 100 ft tugs

Logistics Support Vessel (8)
(5 AC/3 USAR)

Landing Craft Utility (34)
(7 AC/7 USAR/20 APS)

Landing Craft Mechanized (30)
(8 AC/8 USAR/14 APS)

3

3 Modular Causeway Systems (1 AC/2 APS)

Roll-on/Roll-off Discharge Facility (6)

Causeway Ferry (3)

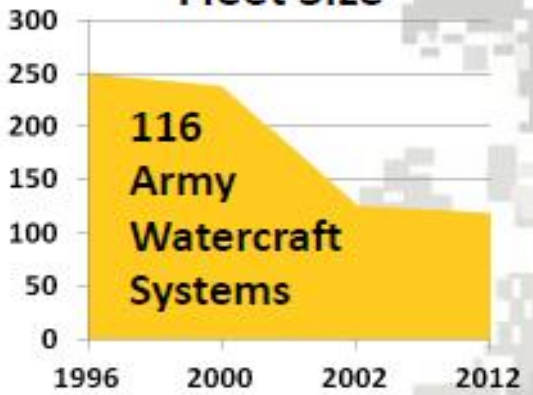
Warping Tug (18)

Floating Causeway (3)

(2 USAR/2 APS)

Barge Derrick (4)

Fleet Size



Soldiers

Support Starts Here!

Partner Nation Capability

JPN- DDH- Hyuga x2

UK- LPH- Ocean x 1

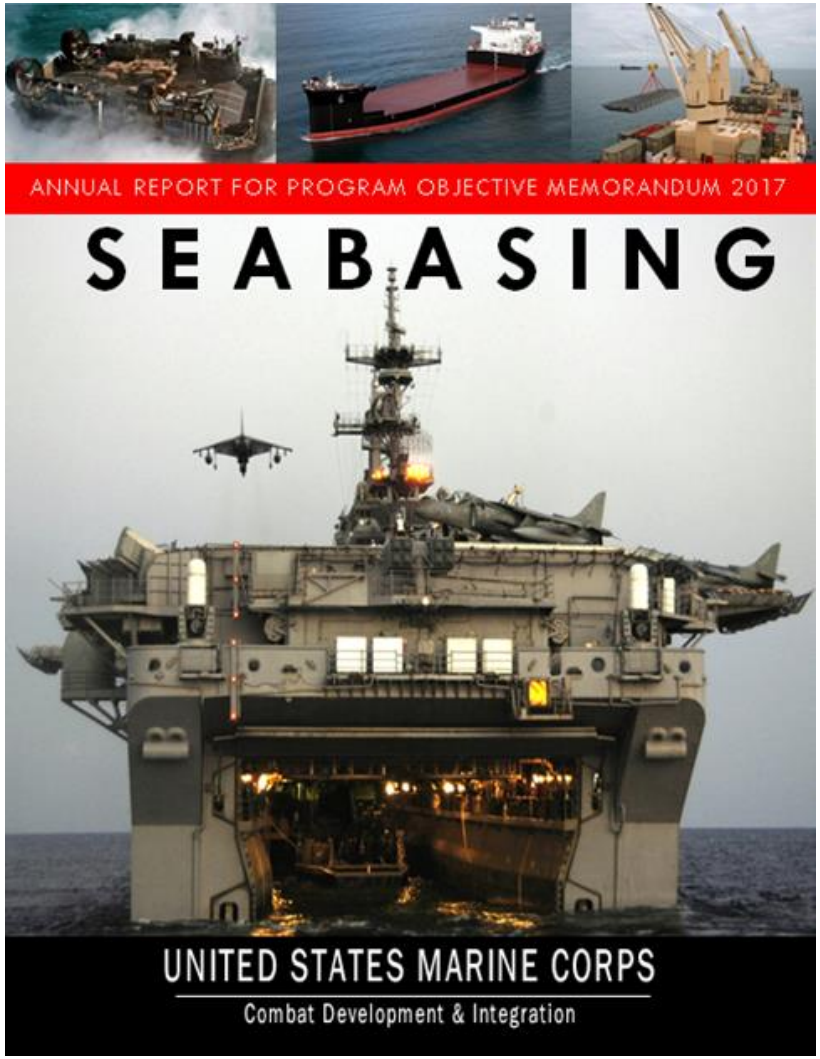
AUS- LST- Tobruk x 1

JPN- LST- Osumi x 3

AUS- LHD- Canberra x 2

Annual Report

- DC, CD&I - HQMC Seabasing Advocate
- Seabasing Operational Advisory Group is the primary injection point
- 3rd year published
- Report submitted to OPNAV
- Integrated view of Seabasing Capability Objectives
- Contents
  - Seabasing Overview
  - Major Programs
  - Capability Objectives
    - Amphibious Warfare Ships
    - Crafts & Connectors
    - Maritime Prepositioning Force
    - Afloat MAGTF C4
    - Naval Integration
    - Seabasing S&T



MISSION

Advise and assist the Deputy Commandant for Combat Development & Integration in identifying, developing and articulating Marine Corps seabasing and expeditionary ship/connector requirements and related doctrine in order to facilitate MAGTF integration with Naval Expeditionary Forces.

www.mccdc.marines.mil/units/seabasing.aspx

Interoperability Chart

Ship to Ship

Working Papers

*MPS/Support/Sealift - Ship to Ship (**Working Paper**)*

Platform	ESD 1, 2	ESB 3, 4 (AFSB)	T-AKE 2-Jan	T-AKR 302, 304	T-AKR 311, 312	T-AK 3008-3012	T-AK 3017	T-AVB 3, 4	T-AG 5001 (OPDS)	LCC 19, 20	LCS 1 (LM)	LCS 2 (GD)	EPF 1
ESD (MLP) 1, 2	No	No	R(cdeg)	T/R(ab)	T/R(ab)	R(bg)	T/R(ab)	R(bg)	No	No	No	No	T/R(ah)
AFSB MLP 3, 4, 5	No	T/R(c)	R(deg) T/R(c)	T(c)	T(c)	T(c)	T(c)	T(c)	No	T(c)	T/R(c)	T/R(c)	T(c)
T-AKE 1, 2	T(cdeg)	T/R(deg) T/R(c)	T/R(cde)	T/R(c)	T/R(c)	T(c)	T/R(c)	T(c)	T	T(c)	T/R(c)	T/R(c)	T(c)
T-AKR 302, 304 LMSR (Bob Hope Class)	T/R(ab)	T/R(c)	R(deg) R(c)	T/R(bg)	T/R(bg)	T/R(bg)	T/R(bg)	T/R(bg)	No	No	R(c)	R(c)	No
T-AKR 311,312 LMSR (Watson Class)	T/R(ab)												
T-AK 3008-3012 (Bobo Class)	T(abfg)	R(c)	R(deg) R-c	T/R(bg)	T/R(bg)	T/R(bg)	T/R(bg)	T/R(bg)	No	No	R(c)	R(c)	No
T-AK 3017 (Stockham)	T/R(ab) fg	T/R(c)	R(deg) R(c)	T/R(bg)	T/R(bg)	T/R(bg)	T/R(bg)	T/R(bg)	No	No	R(c)	R(c)	No
T-AVB 3, 4	T(bcg)	R(c)	T/R(cde)	T/R(bg)	T/R(bg)	T/R(bg)	T/R(bg)	T/R(bg)	No	No	R(c)	R(c)	No
LCC 19, 20	No	R(c)	R(c)	No	No	No	No	No	No	No	R(c)	R(c)	No
LCS 1 LM (Steel FD)	No	T/R(c)	T/R(c)	T(c)	T(c)	T(c)	T(c)	T(c)	No	T(c)	T/R(c)	T/R(c)	T(c)
LCS 2 GD (Aluminum FD)	No	T/R(c)	T/R(c)	T(c)	T(c)	T(c)	T(c)	T(c)	No	T(c)	T/R(c)	T/R(c)	T(c)
EPF (JHSV) 1	TR(ah)	R(c)	R(c)	No	No	No	No	No	No	No	R(c)	R(c)	No

Abbreviations

ESD-Expeditionary Transfer Dock (MLP)
LMSR– Large Medium Speed Roll On – Roll Off ship
T-AVB– Aviation Logistics Support Ship
LCC– Command Ship
LCS- Littoral Combat Ship
LM- Lockheed martin
ESB-Expeditionary Mobile Base (AFSB)
MLP-Mobile Landing Platform
AFSB-Afloat Forward Staging Base

Abbreviations

GD– General Dynamics
EPF-Expeditionary Fast Transport
UNREP– underway replenishment [CONREP & VERTREP]
CONREP– connected replenishment [FAS & RAS]
RAS– replenishment at sea
FAS– fueling at sea
VERTREP– vertical replenishment
OPDS- Offshore Petroleum Distribution System

Notes

T = Transfers
R = Receives
a = Skin-to-Skin Roll-on / Roll-off (ramp op
b = Skin-to-Skin Lift-on / Lift-off (crane op
c = VERTREP
d = CONREP (RAS)
e = CONREP (FAS)
f = Surface Connector
g = Pending experimentation/validation
h = Sea-state 1 only

Legend

Fully interoperable
Limited
Pending experimentation
Not interoperable

Interoperability Chart

Ship - Surface Connector

Working Papers

*MPS/Support/Sealift - Ship to Connector (**Working Paper**)*

Platform	RO/RO	LO/LO	FLO/FLO	LCAC/SSC	LCU 1600	LCU 2000	LCM 8	LARC-V	INLS (f)	RRDF	MPF UB	AAV	ABLTS
ESD (MLP) 1, 2	Yes	(a)	Yes	Yes	(b)	(b)	(b)	(b)	(b)	(b)	(b)	Yes (g, j)	No
ESB (AFSB) 3, 4, 5	No	(a)	No	No	(l)	(l)	(l)	(l)	(l)	No	(l)	No	No
T-AKE 1-2	No	Yes	No	No	Yes (a, c, k)	Yes (a, c, k)	Yes (a, c, k)	No	Yes (a, c, k)	No	(d)	No	(d)
T-AKR 302, 304 LMSR (B Hope)	Yes	Yes	No	No	Yes (c, k)	Yes (c, k)	Yes (c, k)	Yes (c, k)	Yes (c, k)	Yes	Yes	Yes (g, j)	No
T-AKR 311, 312 LMSR (Watson)													
T-AK 3008-3012 (Bobo)	Yes	Yes	No	No	Yes (c, k)	Yes (c, k)	Yes (c, k)	Yes (c, k)	Yes (c, k)	Yes	Yes	Yes (g, j)	Yes
T-AK 3017 (Stockham)	Yes	Yes	No	No	Yes (c, k)	Yes (c, k)	Yes (c, k)	Yes (c, k)	Yes (c, k)	Yes	Yes	Yes (g, j)	No
T-AVB 3, 4	No	Yes	No	No	(l)	(l)	(l)	No	(l)	No	(l)	No	No
LCC 19, 20	No	No	No	No	No	No	No	No	No	No	No	No	No
LCS 1 LM (Steel FD)	(e)	No	No	No	No	No	No	No	No	No	No	No	No
LCS 2 GD (Aluminum FD)	(e)	No	No	No	No	No	No	No	No	No	No	No	No
EPF (JHSV) 1	Yes	Yes	No	No	No	No	No	No	No	Yes (h)	No	Yes (i)	No

Abbreviations	Abbreviations	Notes	Notes
RO/RO- Roll on/Roll off	LARC- Lighter, Amphibious Resupply, Cargo, 5 ton	a = Limited by crane capability	g = Launch only / No Recovery
LO/LO- Lift on-/Lift off	INLS- Improved Navy Lighterage System	b = Pending – FY14/15	h = Sea state-1 only
FLO/FLO- Float on/ Float off	RRDF- Roll-On/Roll-Off Discharge Facility	c = LO/LO Only	l = RO/RO only, no launch
LCU- Landing Craft, Utility	CWF– Causeway Ferry	d = Pending – MSC engineering study	j = MPF ships only - RRF and other MSC ships cannot launch AAVs.
LCM 8- Landing Craft, Mechanized	UB- Utility Boat	e = Pier side only	k = Shipboard crane limited to sea-state 3
	ABLTS- Amphibious Bulk Liquid Transfer System	f = CWF normally in a 2+1 configuration	l = Pending future study/experimentation

Legend

Fully interoperable | Limited | Pending experimentation | Not interoperable

- FY 14 $2.4 Mil RDT&E funding IOT conduct interoperability testing

Interoperability Chart

Ship - Aviation

Working Papers

*MPS/Support/Sealift - Ship Vertical Connector (**Working Paper**)*

SHIP	TYPE	AVIATION CAPABILITY	Spot-Factor[1] / Spot	MH-60	AH-1W	AH-1Z	UH-1N	UH-1Y	CH-53E	CH-53K*	MV-22B	RQ-21	Remarks
ESD 1-2	Air Capable Ships	Sized to fit aircraft	4.47	Yes	No	No	No	No	No	No	No	Yes	Spot Factor: MH-60 Spread
		Certified Operating Spo	1	Yes	No	No	No	No	No	No	No	TBD	Coast Guard Only Spot
		Hangar	No	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
T-AKE 1-2		Sized to fit aircraft	6.99	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Spot Factor: MV-22B Spread
		Certified Operating Spo	1	Yes (h,d)	Yes (h,d)	Yes (h,d)	Yes (h,d)	Yes (h,d)	Yes (h,d)	TBD	Yes	TBD	H-53 VERTREP T-Ball Line
		Hangar	2.60	Yes	Yes (i)	Yes (i)	Yes (i)	Yes (i)	No	No	No	TBD	Designed for (2) H-46s; (2) doors
T-AKR 302, 304 T-AKR 311, 312 (LMSR)		Sized to fit aircraft	6.53	Yes	Yes	Yes	Yes	Yes	Yes	Yes (k,l)	No	Yes	Spot Factor: CH-53E Spread; V-22 (Deck Strength/Heating)
		Certified Operating Spo	1	Yes (g,h)	Yes (g)	Yes (g)	Yes (g,h)	Yes (g,h)	Yes (g,h)	TBD	Yes (h)	TBD	No Support Facility; V-22: Vertrep only
		Hangar	No	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
T-AK 3008-3012 (BOBO CLASS)		Sized to fit aircraft	6.53	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Spot Factor: CH-53E Spread; V-22 (Deck Strength/Heating)
		Certified Operating Spo	1	Yes (g,h)	Yes (g)	Yes (g)	Yes (g,h)	Yes (g,h)	Yes (g,h)	TBD	No	TBD	No Support Facility
		Hangar	No	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
T-AK 3017 (STOCKHAM)		Sized to fit aircraft	6.53	Yes	Yes	Yes	Yes	Yes	Yes	Yes (m)	Yes	Yes	Spot Factor: CH-53E Spread; V-22 (Deck Strength/Heating)
		Certified Operating Spo	1	Yes (f,h)	Yes (g)	Yes (g)	Yes (g,h)	Yes (g,h)	Yes (f,h)	TBD	No	TBD	No Support Facility
		Hangar	No	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
T-AVB 3, 4		Sized to fit aircraft	6.53	Yes	Yes	Yes	Yes	Yes	Yes	Yes (n)	Yes	Yes	Spot Factor: CH-53E Spread; V-22 (Deck Strength/Heating)
		Certified Operating Spo	1	Yes (g,h)	Yes (g)	Yes (g)	Yes (g,h)	Yes (g,h)	Yes (g,h)	TBD	TBD	TBD	No Support Facility
		Hangar	No	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
LCC 19, 20		Sized to fit aircraft	4.47	Yes	Yes	Yes	Yes	Yes	Yes	TBD	Yes	Yes	Spot Factor: MH-60 Spread; H-53/V-22: Deck Strength/Heating analysis
		Certified Operating Spo	1	Yes (h,d)	Yes (b)	Yes (b)	Yes (h,d)	Yes (h,d)	No	No	Yes (d)	TBD	VERTREP: T-Line
		Hangar	No	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
LCS 1 LM (Steel FD)		Sized to fit aircraft	4.47	Yes	Yes	Yes	Yes	Yes	No	No	No	Yes	Spot Factor: Spread MH-60
		Certified Operating Spo	1	Yes (h,d)	Yes (b)	Yes (b)	Yes (h,d)	Yes (h,d)	Yes (d)	TBD	Yes (e)	TBD	H-53 VERTREP T-Ball Line
		Hangar	1.59	Yes (j)	Yes (j)	Yes (j)	Yes (j)	Yes (j)	No	No	No	TBD	Not Class 1 certified; Tie downs not verified
LCS 2 GD (Aluminum FD)		Sized to fit aircraft	6.99	Yes	Yes	Yes	Yes	Yes	TBD	TBD	TBD	Yes	Spot Factor: MH-60 Spread; H-53/V-22: Deck Strength/Heating analysis
		Certified Operating Spo	1	Yes (a,d)	Yes (b)	Yes (b)	Yes (a,d)	Yes (a,d)	Yes (d)	TBD	No	TBD	H-53/V-22: Unable to land, deck strength
		Hangar	2.34	Yes	Yes (j)	Yes (j)	Yes	Yes (j)	No	No	No	TBD	(AH-1Z & UH-1Y) Hangar doors ajar/open, Tiedowns not verified (AH-1W/Z & UH-1Y)
EPF (JHSV) 1		Sized to fit aircraft	6.53	Yes	Yes	Yes	Yes	Yes	Yes	TBD	No	Yes	Spot Factor: Spread CH-53; V-22 Not Certified Structurally
		Certified Operating Spo	1	Yes (c,d)	Yes (c)	Yes (c)	Yes (c,d)	Yes (c,d)	Yes (c,d)	TBD	TBD	TBD	No Support Facility; 53K (90% load); V22 (Deck Heating Analysis: VERTREP Only)
		Hangar	No	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	

REFERENCE: NAEC-ENG-7576 Rev BG dated January 2014

* CH-53K CDR BASELINE DESIGN HELO DECK STRUCTURAL EVALUATION FOR OPS (NSWC-Carderock Ltr 9110 over Ser 65/13-40 dtd 27 Feb 13)

LEGEND

a = Level I, Class 1: Day and night Ops with IMC; Landing area support (Service and Maintenance facilities)
b = Level I, Class 2: Day and night Ops with IMC; Landing area with Service facilities
c = Level I, Class 3: Day and night Ops with IMC; Landing area without support facilities
d = Level I, Class 4, Ty 2 (T-Line), SP2 (T-Ball): Day/night Ops with IMC; VERTREP/External Lift Area Hover in exce
e = Level I, Class 5, Ty 2: Day and night Ops with IMC; VERTREP/External Lift Area Hover in excess of 15 feet.
f = Level II, Class 2: Day and night Ops with VMC; Landing area with Service facilities
g = Level II, Class 3: Day and Night Ops with VMC; Landing area without support facilities.
h = Level II, Class 4: Day and Night Ops with VMC; VERTREP/External Lift Area Hover in excess of 5 feet.
i = Not Certified but will fit
j = Service facility with no maintenance
k = T-AKR 300 Class Parking up to Storm Sea (SS 7) limited not to exceed 49K lbs Longitudale and 54K lbs Athwart parking.
l = T-AKR 310 Class Parking no more than (SS 5) limited not to exceed 58.4K lbs Longitudale and 72.7K lbs Athwart parking.
m = T-AK 3017 Class Parking up to Storm Sea (SS 7) limited not to exceed 57.5K Athwart parking.
n = T-AVB 3 Class limited not to exceed:
Landing (Long 61K descent rate 8ft/s, Athw 44K descent rate below 8ft/s);
Parking (SS 3) 65K lbs Athw.; Parking (SS 5) 66.6K lbs Long., 51K Athw.

FOOTNOTE

1. MH-60 Equivilant (1:00 = MH60S; Spot Factor per NAEC-ENG-7604 Rev V "Maximum Density Aircraft Spotting"

Fully interoperable | Limited | Pending | Not interoperable