



N954 Expeditionary Preposition/Connector Branch

Surface Connector Outlook

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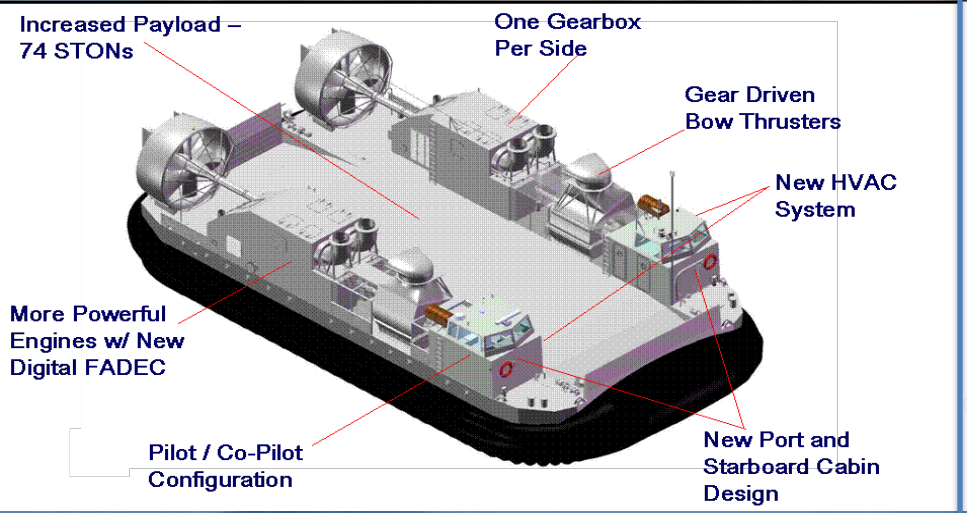
Connectors

LCAC and LCAC(SLEP)

Landing Craft Utility (LCU)



SSC/LCAC-100

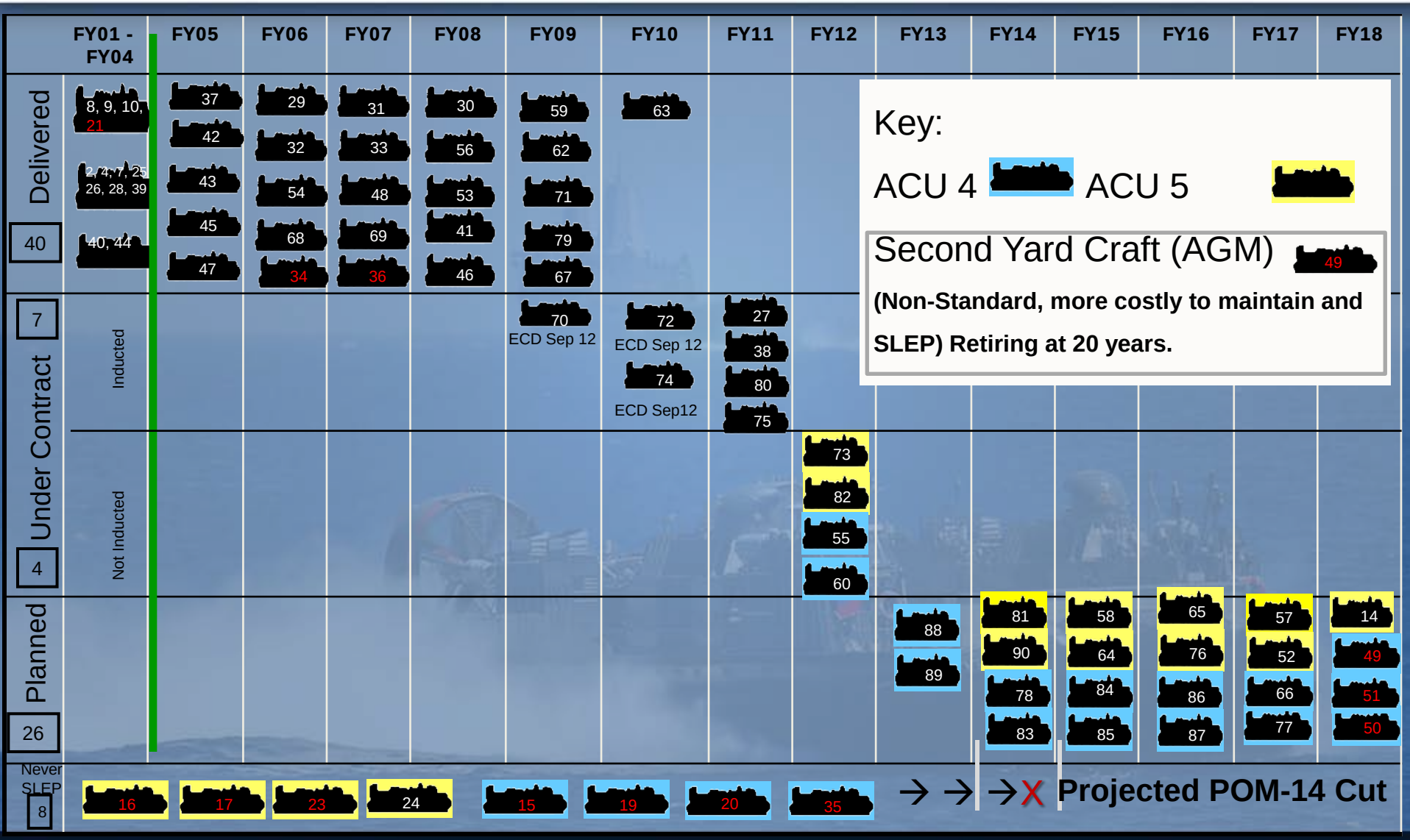
Surface Connector (X) Replacement
(LCU Recapitalization)

LCAC

- Landing Craft Air Cushion (LCAC)
  - High speed ship-to-shore delivery of heavy equipment and personnel to trafficable terrain beyond surf zone.
  - 81 in inventory. ROC /POE is 72 craft to support 60 deployable.
  - Entered Service 1985 with 20 year service life.

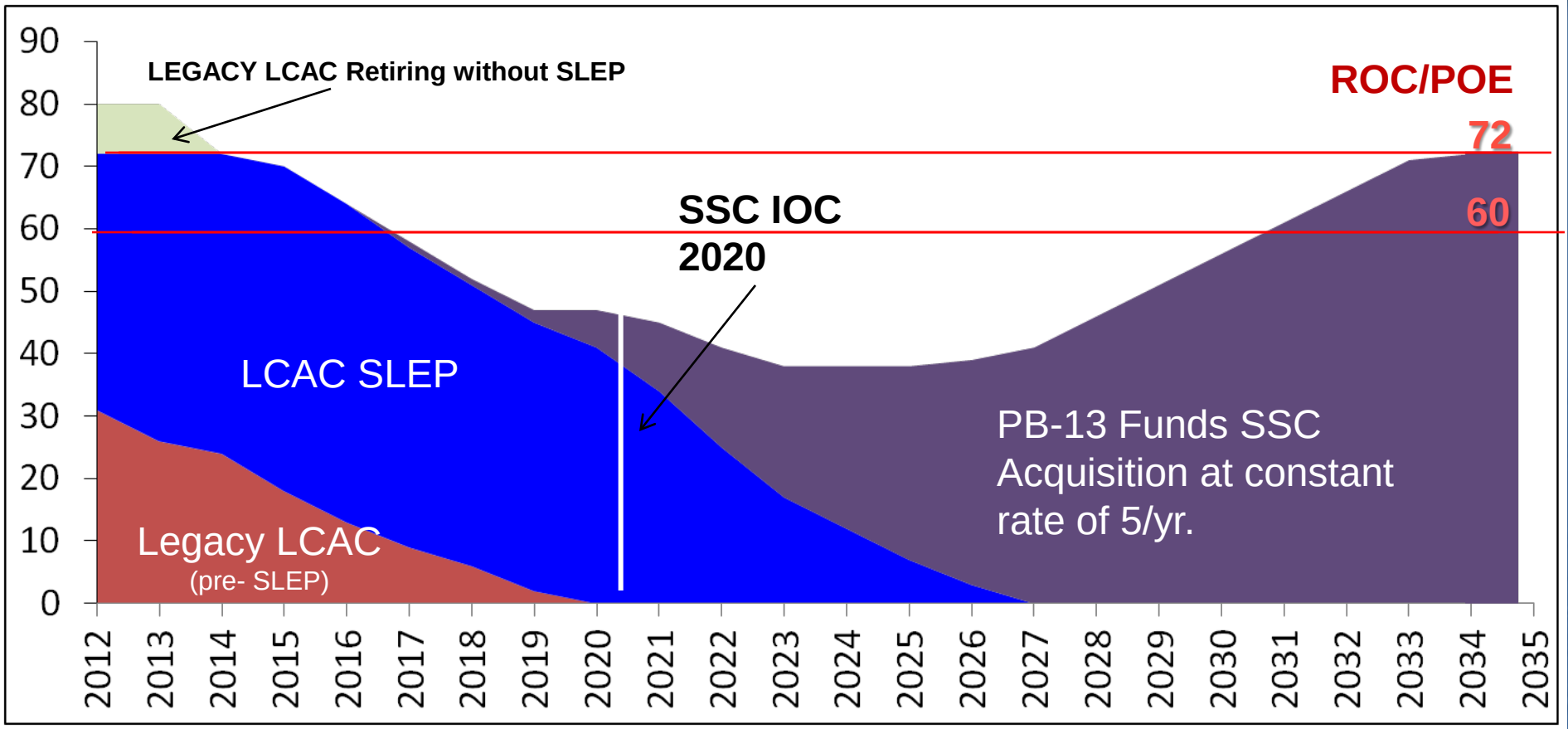
- LCAC Service Life Extension Program (SLEP)
  - Initiated FY2000.
  - Extends LCAC service life of 72 craft from from 20 to 30 years.
  - 39 of 72 complete; 7 in progress; 4 awaiting induction; 22 remaining (last SLEP delivers FY20).
  - PB-13 funds 4 SLEP annually FY 14-18.
  - Only 2 SLEP in FY13 after FMB action to clear contracting delays
  - First SLEP craft begin to reach 30 years of service in 2015

LCAC (SLEP) Overview



LCAC/SSC Capability GAP

PB-13



Assumes LCAC retire at 30 years

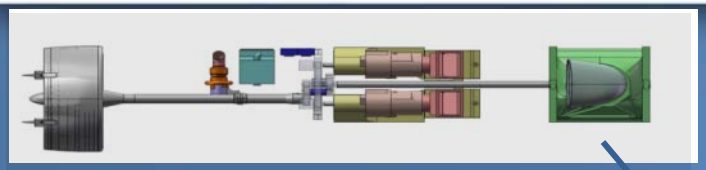
Need for mitigation understood, but not funded in PB13

Ship to Shore Connector (LCAC-100)

- Replacement for LCAC(SLEP); IOC in 2020.
- Evolutionary design leveraging 20+ years of LCAC operations and maintenance.
  - 20% more power than LCAC to carry heavier payload from sea basing ranges (74 STons) and achieve hump speed in hot weather at full load.
  - Addresses major maintenance drivers in LCAC to improve reliability
- Achieved Milestone B June 2012
- Detailed Design and Construction (DD&C) contract awarded July 2012
  - Awarded first craft (Test and Training Craft) with options for first eight fleet assets.
- SSC/LCAC-100 does not arrive in time to address the LCAC gap.
- Actions to mitigate the gap were not funded in PB-13.
  - Options remain in POM-14 and POM-15 to extend LCAC (SLEP) beyond 30 years in service.

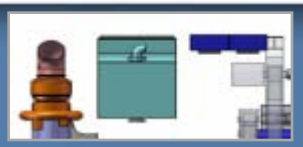
SSC/LCAC-100

Increased lift + Lower Fuel Consumption + Reduced Maintenance



Simpler & More Efficient Drive train/ One Gearbox per Side

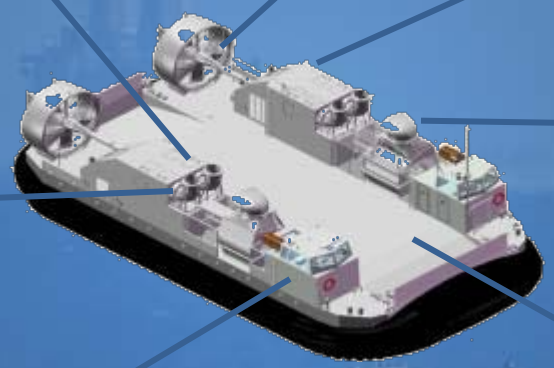
Extensive composites



Main engine geared electrical generators + APU & 60Hz distribution bus

More Powerful Engines w/ Greater Fuel Efficiency & Digital FADEC

Gear driven bowthrusters



Pilot/Co-Pilot Dual Controls
Smaller Crew (5) + new C4N suite

Sustained speed>35 kts
NATO Sea State 3-4 @ 100degF
w/74 STON load

Aluminum (5083)
Better corrosion resistance and Immersion grade wet deck coating system

The Ship to Shore Connector (SSC/LCAC-100) Program will ensure the Navy continues to field a high-speed assault craft to complement USMC vertical assault aircraft and amphibious vehicles for the next 30 years.

Landing Craft Utility

The Other Connector

Landing Craft Utility (LCU)

- 32 LCU-1600 craft average 40+ years of service
  - Heavy lift, range/persistence, flexibility, independent ops
  - Block system obsolescence and increasing maintenance costs
    - 4 year dry docking $1.8M in FY02;
    - Mean cost FY07-11 >$3M per overhaul
  - Declining reliability
    - LCU-1644 Hull repair in 6th Fleet due to corrosion of prior repair
    - Recent ROH delays due to rudder, rudder post seals, propellers and propeller shafting non availability.
  - Cargo capacity de-rated due to age
    - 195 STONS (1960s)
    - <144 STONs (2012) (-17 STONS is attributable to addition of RO unit and 4K gal potable water storage remainder related to advanced age

LCU (Recapitalization)

Working Title: ***Surface Connector (X) Replacement (SC(X) R)***

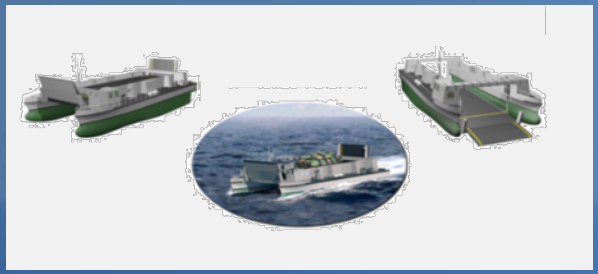
- **Objective**: Restore 30 year service life to displacement utility craft *at current capability.*
  - Initial Capabilities Document (ICD) approaching R3B review (Navy Gate 1)
- **Gap**: Ship-to-shore self mobility for expeditionary forces in lower to middle ROMO (NEO, HA/DR, TSC, AFOE)
  - Endurance/range (10 days/1200 nm), heavy bulk lift & crane loading, fuel economy, riverine ops; a comparatively less overt platform.
- Recent Study: LCU in Support of Global Security Study (N81):
  - LCU Complementary to LCAC in areas where distinct differences exist in capability
  - SSC/LCAC answers MCO high speed over beach assault need
    - Leaves gap in routine engagement, presence, (HA/DR) and sustainment of forces from sea basing that LCU fulfills.
    - Pursuit of high speed LCU replacement could be seen as redundant, vice complementary, in capability
- Affordability and TOC reduction are driving considerations in SC (X) R
  - Complexity of design directly associated with higher acquisition cost and TOC
  - Argues against increased speed, payload or adoption of developmental technologies.

LCU-1600 Class characterized by rugged construction, high operational reliability, economical operation, simplicity of maintenance, large capacity and extended range.

Preliminary Recapitalization Alternatives

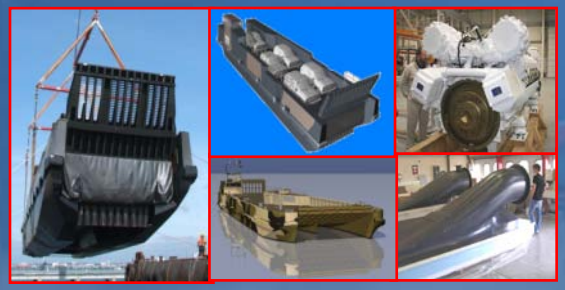
Ultra Heavy Assault Connector (UHAC); An ONR Sponsored Capability Demo

- Aluminum with hybrid diesel and gas turbine propulsion (CODAG).
- ½ scale test in cooperation with Singapore.
- Crawls over the water/beach @ 20 kts; reaches beyond surf zone like LCAC.
- Original design lacked habitability for endurance-- encroachment on troop berthing.



Landing Catamaran (L-CAT) Developed for French Navy *Mistral* Class Ships

- Aluminum hulled catamaran with rising cargo deck (uses four hydraulic lifts).
- Sustains 20(+) kts in catamaran operation; but must raise cargo deck.
- Has overhead constraints; uncertain if supports M1A1 with mine plow (74STONs).
- Footprint approximates LCAC; concern for well deck point loading from catamaran.
- ~1000 nm range, but no crew habitability in French Navy version—possible encroachment on troop berthing spaces.



Partial Air Cushion Supported Catamaran (PACSCAT)

- Originated as possilbe U.K. Replacement for LCU Mk 10; developed by QinetiQ.
- Aluminum hull sized between LCU-1600 and LCM-8.
- Can't carry M1A1 with mine plow and lacks habitability and endurance for extended transits—encroachment on troop berthing spaces.
- Accessibility to two massive diesels in wing walls driving 20 $^{+}$ Kts raises concerns; as does waterjet impeller erosion in surf-zone (Maintainability/Reliability).

Landing Craft Utility (LCU) 1600 Class

- Service Life Extension Program (SLEP), **OR** Modified Repeat
- Introduces no major technological enhancements or complexity.
- Preserves current capability, steel construction, durability.
- Reuses current infrastructure: manning, training, basing (lower TOC)
- Renews a 30 year service life while addressing obsolescence and configuration control issues.

Take Aways

- The Connector Fleet continues to age--*Mitigation awaits POM-14/15*
  - Average LCAC is 20 years old; LCUs average 42 years in service
  - Need to maintain LCAC in service while funding SSC acquisition
  - Need LCAC until SSC FOC (2028 - 32)
    - Average age will exceed 35+ years
    - SSC/LCAC-100 now under contract
  - LCUs will remain in service for the foreseeable future
    - Escalating sustainment costs, systemic obsolescence of systems and replacement parts, de-rating of cargo capacity.
    - 30 of 32 craft have 42-52 years in service (two 25 year craft transferred from Reserve Component).
    - SC (X) R Initial Capabilities Document in routing for Gate 1
    - AOA anticipated in FY-13
- Readiness of both LCAC and LCU is a function of age, usage and past life cycle program cuts.