Connectors

SSC/LCAC-100 Surface Connector (X) Replacement (LCU Recapitalization)

Increased Payload – 74 STONs
More Powerful Engines w/ New Digital FADEC
Pilot / Co-Pilot Configuration
One Gearbox Per Side
Gear Driven Bow Thrusters
New HVAC System
New Port and Starboard Cabin Design

Landing Craft Utility (LCU)

LCAC and LCAC(SLEP)
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)
  – 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

### Delivered Under Contract

<table>
<thead>
<tr>
<th>FY01 - FY04</th>
<th>FY05</th>
<th>FY06</th>
<th>FY07</th>
<th>FY08</th>
<th>FY09</th>
<th>FY10</th>
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<th>FY13</th>
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<th>FY15</th>
<th>FY16</th>
<th>FY17</th>
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<td>40</td>
<td>37</td>
<td>42</td>
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<td>32</td>
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<td>53</td>
<td>46</td>
<td>67</td>
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### Inducted

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<tr>
<th>ECD Sep 12</th>
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<tbody>
<tr>
<td>70</td>
</tr>
</tbody>
</table>

### Not Inducted

- FY01:
  - 37
  - 42
  - 43
- FY02:
  - 45
- FY03:
  - 46
- FY04:
  - 47

### Planned

<table>
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<tr>
<th>Never</th>
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<td>8</td>
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### Key:

- **ACU 4**
- **ACU 5**

**Second Yard Craft (AGM)**  
(Non-Standard, more costly to maintain and SLEP) Retiring at 20 years.

Projected POM-14 Cut

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Distribution Authorized to DoD & DoD Contractors only; Other Requests Must be Referred to Team Ships / PMS 377.
**LCAC/SSC Capability GAP**

**PB-13**

- **LEGACY LCAC Retiring without SLEP**
- **SSC IOC 2020**
- **PB-13 Funds SSC Acquisition at constant rate of 5/yr.**

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
  - 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

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
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.
<table>
<thead>
<tr>
<th><strong>Preliminary Recapitalization Alternatives</strong></th>
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<tbody>
<tr>
<td><strong>Ultra Heavy Assault Connector (UHAC); An ONR Sponsored Capability Demo</strong></td>
</tr>
<tr>
<td>• Aluminum with hybrid diesel and gas turbine propulsion (CODAG).</td>
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<td>• ½ scale test in cooperation with Singapore.</td>
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<tr>
<td>• Crawls over the water/beach @ 20 kts; reaches beyond surf zone like LCAC.</td>
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<tr>
<td>• Original design lacked habitability for endurance—encroachment on troop berthing.</td>
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<tr>
<td><strong>Landing Catamaran (L-CAT) Developed for French Navy Mistral Class Ships</strong></td>
</tr>
<tr>
<td>• Aluminum hulled catamaran with rising cargo deck (uses four hydraulic lifts).</td>
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<tr>
<td>• Sustains 20(+) kts in catamaran operation; but must raise cargo deck.</td>
</tr>
<tr>
<td>• Has overhead constraints; uncertain if supports M1A1 with mine plow (74STONs).</td>
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<tr>
<td>• Footprint approximates LCAC; concern for well deck point loading from catamaran.</td>
</tr>
<tr>
<td>• ~1000 nm range, but no crew habitability in French Navy version—possible encroachment on troop berthing spaces.</td>
</tr>
<tr>
<td><strong>Partial Air Cushion Supported Catamaran (PACSCAT)</strong></td>
</tr>
<tr>
<td>• Originated as possible U.K. Replacement for LCU Mk 10; developed by QinetiQ.</td>
</tr>
<tr>
<td>• Aluminum hull sized between LCU-1600 and LCM-8.</td>
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<tr>
<td>• Can’t carry M1A1 with mine plow and lacks habitability and endurance for extended transits—encroachment on troop berthing spaces.</td>
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<tr>
<td>• Accessibility to two massive diesels in wing walls driving 20 + Kts raises concerns; as does waterjet impeller erosion in surf-zone (Maintainability/Reliability).</td>
</tr>
<tr>
<td><strong>Landing Craft Utility (LCU) 1600 Class</strong></td>
</tr>
<tr>
<td>• Service Life Extension Program (SLEP), OR Modified Repeat</td>
</tr>
<tr>
<td>• Introduces no major technological enhancements or complexity.</td>
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<tr>
<td>• Preserves current capability, steel construction, durability.</td>
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<tr>
<td>• Reuses current infrastructure: manning, training, basing (lower TOC)</td>
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<tr>
<td>• Renews a 30 year service life while addressing obsolescence and configuration control issues.</td>
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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.