CNO’s Sailing Directions:

• Warfighting First
• Operate Forward
• Be Ready

Unmanned systems in the air and water will employ greater autonomy and be fully integrated with their manned counterparts.

CNO’s Navigation Plan 2015 - 2019

- Our Navy must be able to achieve access in any domain - where we need it, when we need it - and possess the capability mix of kinetic and non-kinetic weapons to prevail today and be ready to win tomorrow.

- Continue to improve the passive and active kill-chain capabilities of netted, multi-mission carrier air wing aircraft from NIMITZ and FORD Class aircraft carriers to assure sea control and strike dominance in contested sea and air spaces. … We will improve our platforms’ reach in all domains through new payloads of more capable sensors, networks, and weapons.

Payloads Over Platforms …
PEO(U&W) Portfolio

PEO Programs Assigned
ACAT I: 5 (plus 2 PRE-MDAP)
ACAT II: 5
ACAT III: 2
ACAT IV: 4
Demo: 4
Non-ACAT/AAP: 80

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# UAS Groups

<table>
<thead>
<tr>
<th>UAS Groups</th>
<th>Max Weight (lbs)</th>
<th>Normal Operating Altitude (ft)</th>
<th>Speed (kts)</th>
<th>Representative DoN UASs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Group 1</td>
<td>0-20</td>
<td>&lt;1200 AGL</td>
<td>100</td>
<td>RQ-11 Wasp</td>
</tr>
<tr>
<td>Group 2</td>
<td>21-55</td>
<td>&lt; 3500 AGL</td>
<td>&lt;250</td>
<td>Scan Eagle</td>
</tr>
<tr>
<td>Group 3</td>
<td>&lt;1320</td>
<td>&lt;FL 180</td>
<td>&lt;250</td>
<td>RQ-21A Blackjack</td>
</tr>
<tr>
<td>Group 4</td>
<td>&gt;1320</td>
<td>&lt;FL 180</td>
<td>Any</td>
<td>MQ-8 Fire Scout</td>
</tr>
<tr>
<td>Group 5</td>
<td>&gt;1320</td>
<td>&gt;FL 180</td>
<td>Any</td>
<td>MQ-4C Triton/UCLASS</td>
</tr>
</tbody>
</table>

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Where do we need innovation?

“All Domain Access”

Kill Chain

- Surveillance
- Detect
- Track
- ID
- Launch
- Control
- Weapon

**UAS:**
- GPS independent navigation and geo-location in the maritime domain
- Landing systems for sea-based UAS
- Beyond Line Of Sight (BLOS) communications for rotary-wing aircraft
- Multi-vehicle/multi-sensor planning and control
- Reducing bandwidth and/or operator workload
- Small UAS sensors to detect non-cooperative airborne contacts

**Overarching Technology needs:**
- Cyber Security
- Autonomy
- Data Management / Data Fusion
- Open Architectures / Modularity
- Assured navigation and communications in A2/AD environments

**Weapons:**
- Net enabled / Interoperable
- Multi-mission capability
- Speed / Range -- ENERGETICS

Allow joint force maritime component commanders to generate a range of options in all domains to defeat A2/AD measures through synchronizing and integrating capabilities that provide battlespace awareness, assured C2, integrated fires and electromagnetic maneuver warfare.
Navy's intent is to produce a family of capable, effective, and interoperable unmanned systems that integrate with manned platforms and ships to provide situational awareness and warfighting advantage to commanders at all levels.

Summary

• Navy is on glide slope to provide:
  – Persistence via unmanned systems . . . Increasingly from the sea
  – Capacity with more platforms and sensors
  – Capability with automated sensors
  – Flexibility with modular, scalable “plug & play” sensors
  – Timeliness through effective TCPED process
  – Connectivity through secure information sharing

• The innovative development of unmanned capabilities and warfighter applications are key to achieving the full potential of unmanned systems.
Questions