Commander, Naval Air Forces

Aircraft Carrier Embark Brief
Briefing Overview

• Why do we need a Navy?
• Naval Air Force Mission
• Navy’s Aviation Assets
• Employing Naval Aviation
• Your Carrier Embark
Why Do We Need a Navy?

- 70% Of the World is covered in water
- 80% Of the World’s population lives within 100 miles of a coastline
- 90% Of the World’s commerce travels over the oceans
- 95% Of the World’s communications lines pass under the oceans
- 100% Of the time, the U.S. Navy is steaming around the world
90% of global trade by volume travels by water
70% of global trade by value travels by water

Without open sea lanes, our only trading partners would be Canada and Mexico
As of November 13, 2015:

- 327,862 active duty officers, Sailors and midshipmen
- 272 deployable Battle Force ships in service

Ships Underway:

- Deployed overseas: 50 (18%)
- Underway for Training: 111 (41%)

Aircraft Carriers at sea:

- USS Dwight D. Eisenhower (CVN 69) – Atlantic Ocean
- USS Theodore Roosevelt (CVN 71) – Pacific Ocean
- USS George Washington (CVN 73) – Atlantic Ocean
- USS John C. Stennis (CVN 74) – Pacific Ocean
- USS Ronald Reagan (CVN 76) – Pacific Ocean

Amphibious Assault Ships (LHA/LHDs) at sea: 3
Naval Air Forces Mission

To man, train, equip and maintain a Naval Air Force that is:

- Forward deployed
- Immediately employable
- Engaged:
  - Combat Ops (Iraq/Syria)
  - Forward Presence
  - Always Training
The Navy is divided into separate groups of leaders: Officers and Enlisted

**At-sea Officers:** (W-2 to O-8)
- Approximately 500 officers assigned to CVN & CVW
- Assigned for 18-36 month tours
- Many degrees (Bachelor’s and Master’s)

**At-sea Enlisted:** (E-1 to E-9)
- Approximately 4,300 Sailors assigned to CVN & CVW
- Assignments are 36-48 months w/command
- HS grads or greater. Specialized careers

**Training:** All hands, all the time
- 35% annual crew turnover.
- Perpetual cycle of job rotations to ones with increasing roles and responsibilities
- Skill proficiency: Persistent training and drilling of the crew

--- Sailors in today’s Navy are best-educated and trained EVER!

**Females:** Females make up 15 percent of the crew on a CVN. 18 percent serve Navy-wide.
Your Naval Air Force

- 9 Carrier Air Wings
- 11 Type Wings
- 5 Training Wings
- 3 Patrol / Reconnaissance Wings
- 168 fleet, reserve and training squadrons
- 3700+ aircraft
- 10 Aircraft Carriers
- 22 Naval Air Stations
- 100,000+ personnel
Carrier-Based Aircraft

**F/A-18 E-F ‘Super Hornet’**
(Advanced Strike-Fighter)
Highly capable across the full mission spectrum, longer range, and aerial refueling capability

**F/A-18 A-D ‘Hornet’**
(Strike-Fighter)
Navy’s first all-weather fighter & attack aircraft. Introduced in 1980s
Carrier-Based Aircraft

**EA-18G ‘Growler’**
Electronic Warfare
Integrates electronic attack technology, communication countermeasures, satellite communications and offensive weapons

**MH-60S ‘Knighthawk’**
(Multi-Mission Capable)
Anti-Submarine Warfare, Anti-Surface Warfare, Search and Rescue, Combat Search and Rescue, Logistics

**MH-60R ‘Seahawk’**

Carrier-Based Aircraft

E-2C/D ‘Hawkeye’
(Airborne Early Warning)
Tactical battle management, airborne early warning, command and control aircraft

C-2A ‘Greyhound’
(Logistics / Personnel)
Transport of high-priority cargo, mail and passengers
Referred to as the ‘COD’
(Carrier On board Delivery)
Shore-Based Aircraft

P-3C ‘Orion’
Maritime Surveillance (retiring)

EP-3E ‘Aries II’
Signals Intelligence/Reconnaissance

P-8 ‘Poseidon’
Maritime Surveillance (new)
Shore-Based Aircraft

E-6A/B ‘Mercury’
Communications and Strategic Forces Airborne Command Post, known as TACAMO: Take Charge and Move Out
(Boeing 707)

C-40 ‘Clipper’
Personnel / cargo transport
(Boeing 737)
Unmanned Aircraft

X-47B Carrier Integration Demonstrator
Test platform for autonomous aircraft integration into the aircraft carrier environment

MQ-4C ‘Triton’ (BAMS-D)
Known as BAMS, Triton will provide operational and tactical users a continuous source of information to maintain a tactical overview of the maritime battle space.

RQ-8A / MQ-8B ‘Fire Scout’
Vertical Take-Off and Landing Tactical Unmanned Aerial Vehicle (VTUAV). Fire Scout is designed to operate from air-capable surface ships and significantly improves over-the-horizon surveillance capability.
Training Aircraft

- **T-6B II Texan** Basic Flight Trainer
- **TH-57 Sea Ranger** Helicopter Trainer
- **T-45 Goshawk** Basic Jet Trainer – first 10 aircraft carrier landings before F/A-18 flights
- **T-44 Pegasus** Multi-engine Trainer for future E-2C, C-2, and multi-engine pilots
F-35C ‘Lightning II’ (Joint Strike Fighter – JSF)

Navy’s first stealth aircraft

- F-35A is Air Force version
- F35B is Marine version (vertical take-off)
- F35C is Navy’s version (folding wings)

Commonality of avionics/parts reduces costs

Designed to carry internal or external weapons

Robust communications suite

- First F-35C delivered to Navy in 2013
- First carrier operations Nov. 2014
- Targeting carrier integration in 2018
U.S. Navy Aircraft Carriers

**Nimitz Class Statistics**
- Flight Deck Area: 4.5 acres
- Displacement: 97,000 tons
- Speed: 30+ knots
- Aircraft: 65+
- Personnel: Ship 2,800, Air Wing 2,000, Staff 200
- Catapults: 4, steam powered
- Propellers: 4

**Ford Class Statistics**
- Flight Deck Area: 4.6 acres
- Displacement: 100,000 tons
- Speed: 30+ knots
- Aircraft: 65+
- Personnel: Ship 2,240, Air Wing 2,000, Staff 200
- Catapults: 4, Electromagnetic
- Propellers: 4

- USS Nimitz (CVN 68), Bremerton, WA *(first in class)*
- USS Eisenhower (CVN 69), Norfolk, VA
- USS Carl Vinson (CVN 70), San Diego, CA
- USS Theodore Roosevelt (CVN 71), San Diego, CA
- USS Abraham Lincoln (CVN 72), Hampton, VA *(mid-life refuel)*
- USS George Washington (CVN 73), Norfolk, VA
- USS John C. Stennis (CVN 74), Bremerton, WA
- USS Harry S. Truman (CVN 75), Norfolk, VA
- USS Ronald Reagan (CVN 76), Yokosuka, Japan
- USS George H.W. Bush (CVN 77), Norfolk, VA
- USS Gerald R. Ford (CVN 78), Norfolk, VA *(Commissions 2016)*
Gerald R. Ford Class CVN

Integrated Island
- Smaller Island Re-Positioned Aft & Outboard
- Dual Band Radar
- Joint Precision Approach and Landing System
- "Pit Stop"

Enhanced Flight Deck
- Enlarged Flight Deck Footprint
- Advanced Arresting Gear
- Aircraft Elevators (3)
- Stbd Sponson Redesign
- 2 Hangar Bays
- #4 Catapult Unrestricted

New Propulsion/Electric Plant
- All Electric Aux Services
- Zonal Electrical Distribution System
- New Propulsion Plants
- Electromagnetic Aircraft Launching System (4)

Improved Survivability
- Underwater Protection

Improved Weapon & Material Handling
- Advanced Weapons Elevators
- Plasma Arc Waste Destruction System
- Evolved Sea Sparrow Missile

Enhanced Ship Self Defense

Manpower Reduction; $4B Reduction in Total Ownership Costs
Aircraft Carrier vs LHD/LHA

Nimitz-Class Aircraft Carrier

- **Displacement**: 97,000 tons
- **Aircraft**: F/A-18E/F Super Hornet, F/A-18C Hornet, EA-18G Growlers, E-2C/D Hawkeyes, C-2 Greyhound, SH-60F Seahawk
- **Dimensions**: 1,092 x 252 feet
- **Speed**: 30 knots
- **Ship’s Personnel**: 2,800 With Air Wing & Staff: 5,000
- **Mission**: Support and operate aircraft that engage in attacks on airborne, afloat and ashore targets that threaten free use of the sea; and engage in sustained power projection operations in support of U.S. and coalition forces.

America-Class Amphibious Assault Ship

- **Displacement**: 45,000 tons
- **Aircraft**: F-35B Lightning II, MV-22 Osprey, CH-53E Sea Stallion, UH-1 Huey, AH-1Z Super Cobra, MH-60S Seahawk
- **Dimensions**: 844 x 106 feet
- **Speed**: 20 knots
- **Ship’s Personnel**: 1,059 With Marine Contingent: 2,500
- **Mission**: Provide the U.S. Marine Corps with a means of ship-to-shore movement by helicopter in addition to movement by landing craft.
Value of CVNs: 50 years of service

NIMITZ Class: 500 total carrier-years, spanning 84 years in service, from 1975 through 2059
- Less than 50% through the service life of the NIMITZ Class – just over 250 carrier-years remaining
- When a CVN retires, it retires as an unequalled, world-class combat ship. Their importance does not diminish with age

FORD Class: 10 aircraft carriers (planned), serving 2016 until 2110

Years CVNs scheduled to retire:
- CVN 68
- CVN 70
- CVN 71
- CVN 72
- CVN 73
- CVN 74
- CVN 75
- CVN 76
- CVN 77
- CVN 78
- CVN 79
- CVN 80
Air Wings Continually Evolve

- **Nimitz New – 1975**
  - F-4J Phantom / F-14 Tomcat
  - A-6 Intruder / A-7 Corsair II
  - S-3 Viking
  - RA-5 Vigilante
  - E-2B Hawkeye
  - EA-6B Prowler
  - C-2 Greyhound
  - SH-3 Sea King / SH-46 Sea Knight

- **NIMITZ Today – 2015**
  - F/A-18E/F Super Hornet
  - F/A-18 A/C Hornet
  - E-2C Hawkeye
  - EA-18G Growler
  - MH-60R/S Sea Hawk
  - C-2 Greyhound

- **NIMITZ Retires – 2025**
  - F-35C Lightning II
  - F/A-18E/F Super Hornet
  - E-2D Advanced Hawkeye
  - EA-18G Growler
  - MH-60R/S Sea Hawk
  - V-22 Osprey
  - UCLASS

A CVN remains relevant as its Air Wing EVOLVES to match changing threats and technologies.
Carrier Air Wing composition

- VFA-1 12 x F/A-18E
- VFA-2 12 x F/A-18E
- VFA-3 10 x F/A-18F
- VFA-4 10 x F/A-18C
- VAQ-5 4 x EA-18G
- VAW-6 4 x E-2C / D
- HSC-7 8 x MH-60S
- HSM-8 11 x MH-60R
- VRC-9 2 x C-2A

• 1 Legacy / 3 Super mix

~ 74 aircraft, with helicopters on most escorting ships
The Carrier Strike Group

A CSG consists of a mix of 6 – 8 ships including:

- Nuclear Powered Aircraft Carrier
- Arleigh Burke-Class Destroyers
- Ticonderoga-Class Cruisers
- Combat Stores Ship

~ Fast Attack Class Submarine
# Carrier Strike Group Leadership

## Carrier Strike Group Commander
(1- or 2-star Admiral):
Overall responsible for engagement of the entire battle group

<table>
<thead>
<tr>
<th>Aircraft Carrier:</th>
<th>Carrier Air Wing:</th>
<th>Surface Squadron:</th>
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</thead>
<tbody>
<tr>
<td><strong>Commanding Officer:</strong> Captain (O-6)</td>
<td><strong>Wing Commander:</strong> Captain (O-6)</td>
<td><strong>Sqn Commander:</strong> Captain (O-6)</td>
</tr>
<tr>
<td><strong>Executive Officer:</strong> Captain (O-6)</td>
<td><strong>Squadron COs (6-8):</strong> Commander (O-5)</td>
<td>Captain (O-6), Commander (O-5), or Lt. Cmdrs (O-4)</td>
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An aircraft carrier is literally a city-at-sea with an airport on top that supports the embarked Air Wing. The ship provides all of the ‘services’ needed to operate overseas.

A Carrier Air Wing includes 4 F/A-18 Sqdns, 1 E-2 Sqn, 1 EA-6B or EA-18G Sqn, 2 helicopter squadrons and a C-2 detachment. Together, about 70 aircraft for the CSG to employ over the horizon.

Surface ships are spread over hundreds of miles of ocean and provide the CSG commander great engagement flexibility.
**Employing Naval Aviation**

**Navy Core Capabilities:**
- Forward presence
- Deterrence
- Sea Control
- Power Projection
- Maritime Security
- Humanitarian Assistance & Disaster Response

**U.S. Navy Tenets:**
- Integrity
- Accountability
- Initiative
- Toughness
The DoD Unified Command Plan sets missions and geographic responsibilities among combatant commanders. The Navy’s numbered Fleets report to those DoD commanders and provide a worldwide presence, unmatched deterrence, and allows for control of the seas.
Aircraft Carrier mobility is critical to mission success

7 Day Response: ~3360 Nautical Miles @ 20 knots
Employing Naval Aviation

Power Projection

CVN-based combat missions in against ISIS aggression in Northern Iraq and Syria

20 to 30 days to transit

On station up to 4 months
The ability of CVNs and U.S. Navy ships to remain ‘on station’ is vital to sustained operations and U.S. interests.
Employing Naval Aviation

Maritime Security & Humanitarian Assistance

**Maritime Security** efforts focus on common, global threats including: proliferation, smuggling, piracy, and terrorism. Naval Aviation assets provide long-range patrol and escort security for vessels transiting around the world.

**Humanitarian Aid Relief** provides an immediate disaster response that saves lives. CVNs and LHDs can deliver water, food, and survival items to a devastated region within days, prior to relief organizations.

**Navy Humanitarian Aid successes:**
- 2014 Philippines Typhoon
- 2011 Japan Earthquake & Tsunami
- 2010 Haiti Earthquake
- 2004 Indian Ocean Tsunami
Your Aircraft Carrier Embark
Your flight in the C-2A “COD”

Squadron: VRC-30 Providers
Length: 57 feet, 7 inches
Max. gross take-off weight: 57,000 lbs.
Max. Cruising Speed: 300 knots (345 mph)
Max. Passenger capacity: 26
Travel time to CVN: 30-60 minutes.
What You’ll Experience

- “Trap” in the C-2A
- Observe day/night flight ops
- Meet the crew
- Tour the ship
- Dine with the crew
- Berth in stateroom
- “Cat shot” in the C-2A
Flight Deck Rainbow Wardrobe

Color defines job
Catapult Officers / Directors
Safety / Medical & Observers
Crash / Ordnance
Maintenance
Fuels
Plane Captains
Handlers
Your Embark: Engage the Crew

We encourage you to talk with the Officers and Sailors that you encounter throughout your journeys on the ship.

The pride and professionalism displayed by our Officers and Sailors is one of the primary messages that we hope you will take back with you to your communities.
Welcome Aboard!

USS Theodore Roosevelt (CVN 71)

Commissioned: Oct. 25, 1986
Dimensions: 1,092 x 252 feet
Area of Flight Deck: 4.5 acres
Displacement: 95,000 tons
Speed: 30 + knots
Aircraft: 65+
Personnel: Ship 2,800
            Air Wing 2,000
Welcome Aboard!

USS John C. Stennis (CVN 74)

Commissioned: Dec. 9, 1995
Dimensions: 1,092 x 252 feet
Area of Flight Deck: 4.5 acres
Displacement: 95,000 tons
Speed: 30 + knots
Aircraft: 65+
Personnel: Ship 2,800
            Air Wing 2,000
QUESTIONS?
Back-up Slides:
Carriers of the World

**United Kingdom**
(Queen Elizabeth)
- **Displacement:** 70,600 tons
- **Dimensions:** 920 x 230 ft.
- **Speed:** 25 knots
- **Personnel:** 900
- **Aircraft:** 50
- **Types:** F35B Lightening II, Chinook, Agusta Westland Apache, Merlin, Wildcat, Merlin Crowsnest AEW

**China**
(Liaoning)
- **Displacement:** 67,500 tons
- **Dimensions:** 999 x 890 ft.
- **Speed:** 28 knots
- **Personnel:** 1,200
- **Aircraft:** 36
- **Types:** Shenyang J-15, Changhe Z-18, Ka-31, Harbinm Z-9.

**India**
(Vikrant & Vishal)
- **Displacement:** 65,000 tons
- **Dimensions:** 860 x 200 ft.
- **Speed:** 28 knots
- **Personnel:** 1,400
- **Aircraft:** 30
- **Types:** Mikoyan MiG-29K, HAL Tejas, Kamov Ka-31, Westland Sea King, HAL Dhruv.

**France**
(Charles de Gaulle)
- **Displacement:** 42,500 tons
- **Dimensions:** 858 x 211 ft.
- **Speed:** 27 knots
- **Personnel:** 1,950
- **Aircraft:** 40
- **Types:** Rafale M, Super Etendard, E-2C Hawkeye, SA365 Dauphin, EC725 Caracal, AS532 Cougar.
Carriers of the World

Brazil
(Clemenceau-Class)
Displacement: 32,800 tons
Dimensions: 869 x 104 ft.
Speed: 32 knots
Personnel: 1,920
Aircraft: 39

Italy
(Cavour)
Displacement: 27,000 tons
Dimensions: 800 x 127 ft.
Speed: 28 knots
Personnel: 1,200
Aircraft: 30
Types: AV-8B Harrier II, Agusta Westland EH-101A AEW, other helicopters.

Spain
(Príncipe de Asturias)
Displacement: 16,700 tons
Dimensions: 643 x 80 ft.
Speed: 26 knots
Personnel: 830
Aircraft: 29
Types: Av-8B Harrier II Bravo, Sikorsky Sea king SH-3H, Agusta AB-212, Sikorsky SH-3 AEW.

Thailand
(HTMS Chakri Naruebet)
Displacement: 11,486 tons
Dimensions: 599.2 x 100 ft.
Speed: 25.5 knots
Personnel: 675
Aircraft: 30
Types: Sikorsky SH-60 Seahawk, MH-60S Knighthawk.