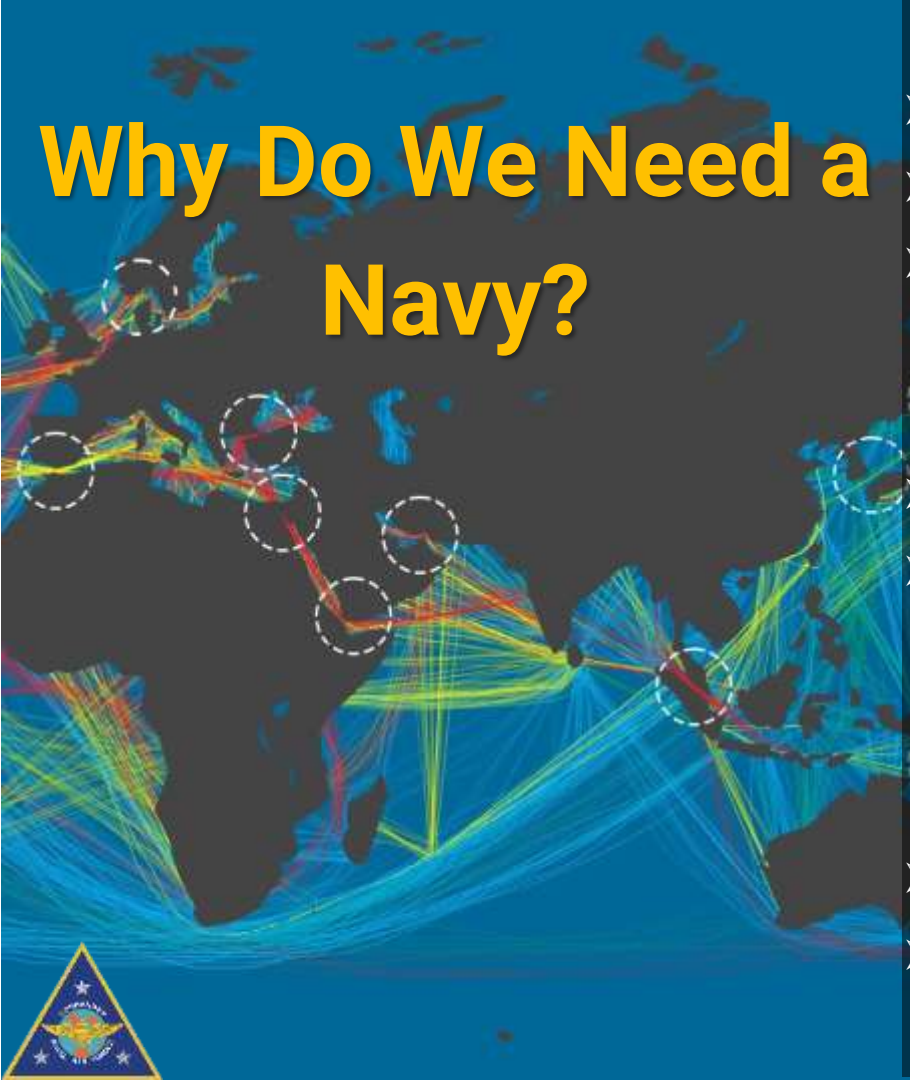
Commander Naval Air Forces

Aircraft Carrier Embark Brief

Briefing Overview

- **Why do we need a Navy?**
- **Naval Air Force Mission**
- **Naval Aviation Assets**
- **Naval Aviation Employment**
- **Your Carrier Embark**

Why Do We Need a Navy?



- 70% of the World is covered in water
- 12 miles off coast is international waters
- 80% of the World's population lives within 100 miles of a coastline
  - CVN's aircraft travel 600 miles
- 90% of commerce travels via ocean
- 90% of the World's communications lines pass under the oceans
  - People assume communications are by satellite
- The Navy ensures uninterrupted flow
- 100% of the time, the U.S. Navy is steaming around the world

Today's Navy

Ships Underway:
Underway or Overseas: 48 (16%)
Underway for Training (local): 39 (13%)

As of Jan 17, 2025:
332,063 active duty officers, Sailors and midshipmen
297 deployable Battle Force ships in service

Aircraft Carriers at sea: 4

Amphibious Assault Ships (LHA/LHDs) at sea: 2

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Naval Air Forces

Our Mission:

"Man, Train and Equip deployable, combat-ready Naval Aviation forces that win in combat.."

Values:

- **Focus Areas:**
  1. High-end Training
  2. Treatment of Sailors
  3. Foundational Operations
- **Priorities:**
  1. Warfighting
  2. People
  3. Safety

What We Manage

- ~100,000 civilian and military personnel
- 11 aircraft carriers
- 22 Naval Air Stations (Oversight & Planning)
- 21 Type Wings
- 170 Squadrons
- ~3,700 aircraft
  - Manned and unmanned

Human Resources

The Navy is divided into Officers and Enlisted

OFFICERS:

(W-1 to O-10)

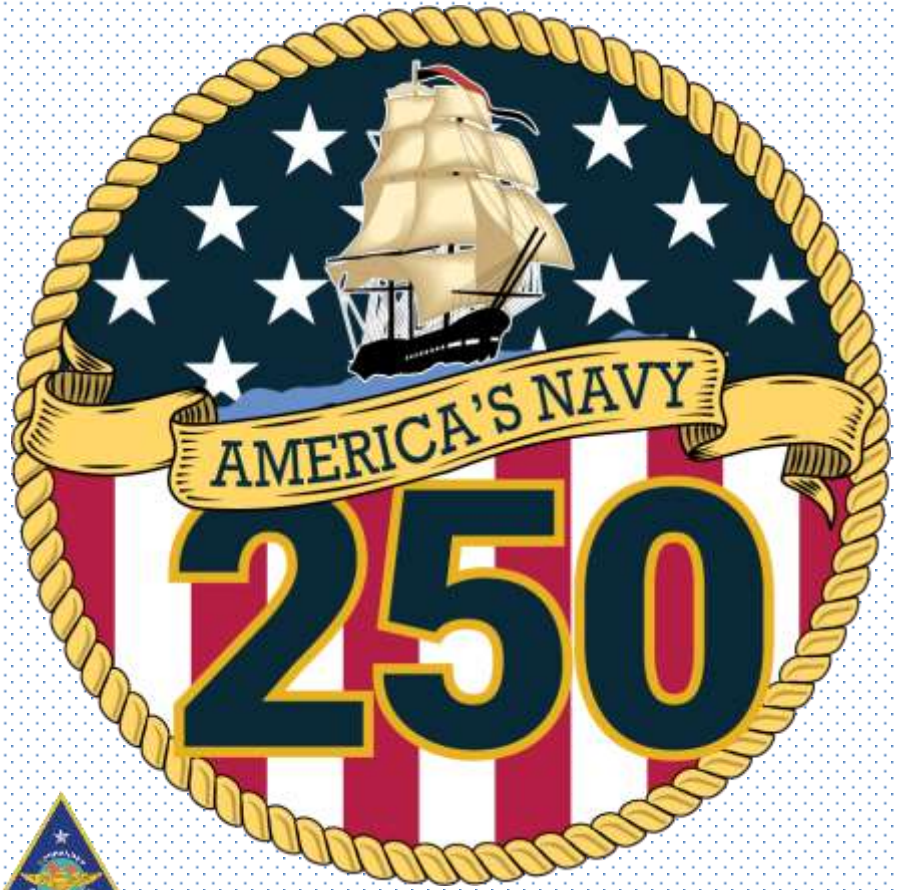
~55,500 Officers. Bachelor's degree to enter, and graduate degrees (or equivalent) by O-4/O-5.

ENLISTED:

(E-1 to E-9)

~275,000 Enlisted Sailors. High School grads or greater to join. Specialized careers throughout service.

Celebrating the Navy's 250th Birthday



Navy's Birthdate: Oct. 13, 1775

Celebration events include:

- Blue Angels Air Shows
- 40 Tactical Demonstration Air Shows
- Special Event Flyovers
- 8 Fleet Week Celebrations
- 15 Navy Week Celebrations
- *Your Carrier Embark!*

Training Sailors

- Highly technical workforce
  - Requires advanced skills
  - Formal classroom
  - On-the-job training
- ~35% annual crew turnover
  - Career progression
  - Rotation between deploying and non-deploying jobs
- Persistent training and drilling of the crew ensures combat readiness
- Sailors in today's Navy are best-educated and trained EVER!

Briefing Overview

- Why do we need a Navy?
- Naval Air Force Mission
- Naval Aviation Assets: Naval Aircraft
- Naval Aviation Employment
- Your Carrier Embark

Uniqueness of Carrier-Based Aircraft

1) **Tailhook** withstands force of engines at full power while the cable stops the aircraft on the flight deck.

2) **Structurally framed/reinforced** to withstand the arresting and launching forces.

3) **Landing gear** with oversized wheels to absorb impact of landing on CVN flight deck.

4) **Wings fold** to conserve space when moving on flight deck and while stored.

These items add weight. CVN aircraft may not fly as fast Air Force aircraft; but with a CVNs ability to move around the world, they don't have to fly great distances to engage an enemy.

Catapult Launch

1. Front landing gear has 2 wheels with a launch arm on front
2. Precise roll-up to catapult w/launch arm in up position
3. Pilot lowers launch arm to connect to catapult
4. Catapult grabs launch arm: 2 hooks
5. Holdback bar attached (red bar)
6. Pilot conducts control checks, runs up engines, and salutes catapult officer
7. Catapult officer salutes, checks with crew, then touches deck.
8. Catapult engaged. Holdback bar separates. Aircraft is pushed down runway.

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.
Entered service 2001

EA-18G ‘Growler’
(Electronic Warfare)

Integrates electronic warfare technology, communication countermeasures, satellite communications and offensive weapons.
Entered service 2009

Carrier-Based Aircraft

F-35C 'Lightning II" Joint Strike Fighter (JSF)

- Navy's first supersonic stealth aircraft
- 5th Generation aircraft
- Commonality of avionics and parts reduces costs
- Carries internal or external weapons
- Robust communications suite
- Increased lethality and survivability

CVNs Operating with F-35C:

- USS Carl Vinson (CVN 70)
- USS Abraham Lincoln (CVN 72)
- USS George Washington (CVN 73)

Carrier-Based Aircraft

E-2D ‘Hawkeye’

Airborne Early Warning
Tactical battle management, command and control aircraft.
Entered service 1964 (E-2A)

C-2A ‘Greyhound’

Logistics Transport of cargo, mail and passengers, COD (Carrier On board Delivery)
Entered service 1964

Carrier-Based Aircraft

MH-60R Seahawk

Anti-Submarine & Surface Warfare.

Entered service in 2006

MH-60S Knighthawk

Anti-Surface, Combat Support, Logistics, Search and Rescue

Entered service 2002

Ship/ Shore Based Aircraft

CMV-22 ‘Osprey’

Logistics

Tilt-rotor aircraft that will replace the C-2A Greyhound in 2020s. Transport of high-priority cargo, mail and passengers.

MH-53E ‘Sea Dragon’

Anti-Mine

Airborne Mine Countermeasures aircraft. Vertical shipboard logistics and assault support capable.

Shore-Based Aircraft

EP-3E ‘Aries II’

Intelligence & Reconnaissance

Navy’ Navy's only land-based signals intelligence (SIGINT) reconnaissance aircraft. Built on P-3 Orion airframe. Retiring in 2025

P-8 ‘Poseidon’

Multi-Mission Maritime Surveillance

Patrol and reconnaissance aircraft capable of conducting a variety of combat warfare missions. These capabilities are enhanced through secure, interoperable, net-ready systems.

Shore-Based Aircraft

E-6A/B ‘Mercury’

Airborne Command Post

Communications and Strategic Airborne Command Post. Survivable, reliable, and endurable; provides comms between the National Command Authority (NCA) and U.S. strategic forces (Boeing 707)

C-40 ‘Clipper’

Personnel / cargo transport

Cost effective, proven and reliable airframe, with low maintenance costs due to the prevalence of aircraft around the world.
(Boeing 737)

Operational Unmanned Aircraft

MQ-4C 'Triton'

Triton provides operational and tactical users a continuous source of information to maintain a tactical overview of the maritime battle space.

MQ-25 'Stingray'

First unmanned carrier-based aircraft. Airborne tanking platform that will return 6-8 Super Hornets to warfighting role. Adaptable airframe to include surveillance and reconnaissance capability

Navy Training Aircraft

T-6B II Texan - Basic Flight Trainer

T-45 Goshawk - Basic Jet Trainer

T-54 Marlin - Multi-engine Trainer

TH-73A Thrasher - Helicopter Trainer

Briefing Overview

- Why do we need a Navy?
- Naval Air Force Mission
- Naval Aviation Assets: Aircraft Carriers
- Naval Aviation Employment
- Your Carrier Embark

U.S. Navy Aircraft Carriers

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
Cost: ~$8.5B FY12 (CVN77)

Nimitz Class Statistics

VS

Flight Deck Area: 4.6 acres
Displacement: 100,000 tons
Speed: 30+ knots
Aircraft: 65+
Personnel: Ship 2,440
Air Wing 2,000
Staff 200
Catapults: 4, Electromagnetic
Cost: ~$12.6B FY15 (1st 3 CVNs)

Ford-Class Statistics

U.S. Navy Aircraft Carriers

1. USS Nimitz (CVN 68), Bremerton, WA (first in class)
2. USS Eisenhower (CVN 69), Norfolk, VA
3. USS Carl Vinson (CVN 70), San Diego, CA
4. USS Theodore Roosevelt (CVN 71), San Diego, CA
5. USS Abraham Lincoln (CVN 72), San Diego, CA
6. USS George Washington (CVN 73), Yokosuka, Japan
7. USS John C. Stennis (CVN 74), Hampton, VA (refuel)
8. USS Harry S. Truman (CVN 75), Norfolk, VA
9. USS Ronald Reagan (CVN 76), Bremerton, WA
10. USS George H.W. Bush (CVN 77), Norfolk, VA
11. USS Gerald R. Ford (CVN 78), Norfolk, VA (first in class)

Gerald R. Ford Class CVN

Integrated Island

Smaller Island Re-Positioned Aft & Outboard

Dual Band Radar

Joint Precision Approach and Landing System

New Propulsion/Electric Plant

All Electric Aux Services

Zonal Electrical Distribution System

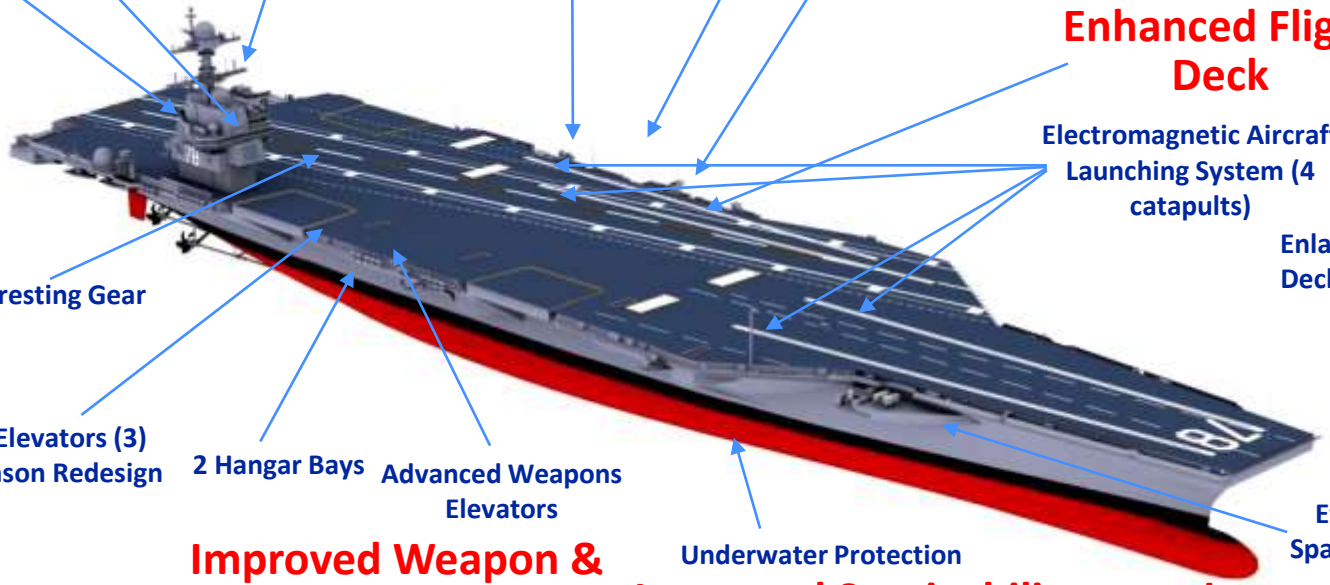
New Propulsion Plants

Enhanced Flight Deck

Electromagnetic Aircraft Launching System (4 catapults)

Enlarged Flight Deck Footprint

Advanced Arresting Gear



Aircraft Elevators (3) Stbd Sponson Redesign

2 Hangar Bays

Advanced Weapons Elevators

Improved Weapon & Material Handling

Underwater Protection

Improved Survivability

Evolved Sea Sparrow Missile

Enhanced Ship Self Defense

USS John F. Kennedy (CVN 79), (Launched)

USS Enterprise (CVN 80), (Under Construction)

USS Doris Miller (CVN 81) (Funded & Planned)

Value of the Carrier

- Combat-ready aviation capability not relying on foreign nation airfield
- World-wide capability, can project power ~1,000 miles ashore
- Sustained high speed enables global transit
- Can go weeks without resupply

- **Unmatched Superiority:** No other nation can match U.S. carrier capability
- on-call global air power gives the United States a strategic advantage

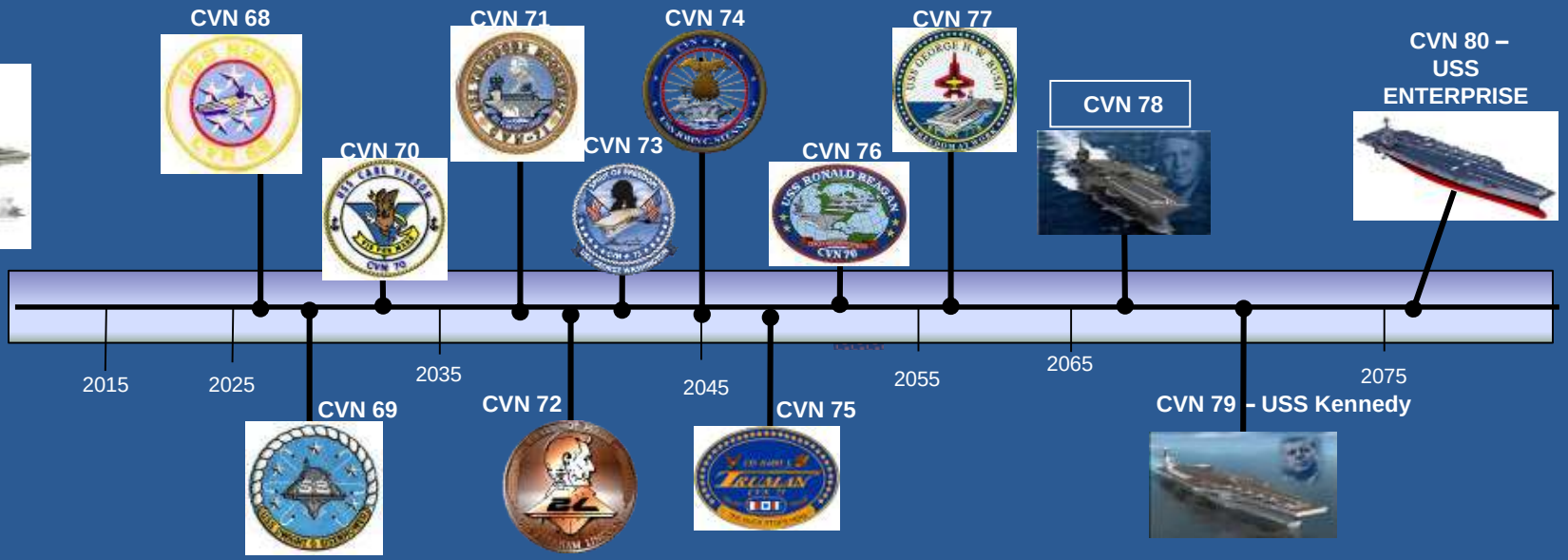
Value of CVNs: 50+ Years of Service

NIMITZ Class: 10 Aircraft carriers spanning 84 years in service, from 1975 through 2059

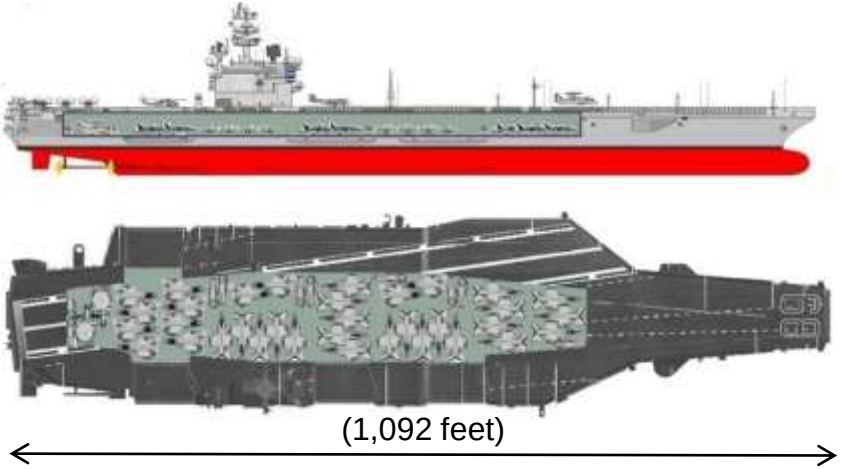
- Over half way through the service life of the NIMITZ Class CVN force
- When a CVN retires, it retires as an unequalled, world-class combat ship. Their importance does not diminish with age

FORD Class: 1 aircraft carrier (10 planned), serving 2017 until 2110 (Planned)

Years CVNs scheduled to retire:



Nimitz-Class Aircraft Carrier (Super 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-60R/S Seahawk

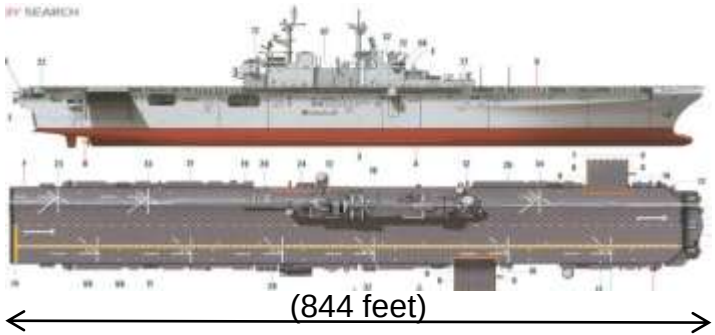
Dimensions: 1,092 x 252 feet

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 **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.

World Aircraft Carrier

World maritime powers recognize the value of aircraft carriers, and are actively expanding their existing fleets. (See back-up slides for additional aircraft carriers of other nations)

China: Two active aircraft carriers (no catapults). A larger aircraft carrier (with three catapults) under construction

United Kingdom: Two active aircraft carriers (no catapults).

India: Two active aircraft carrier (no catapults).

France: One active aircraft carrier (has two catapults). Only other nation with a nuclear-powered aircraft carrier

Russia: One active aircraft carrier (no catapults).

-- Four other nations have aircraft carriers. None have a “Super Carrier”

Aircraft Carriers

Chain of Command

Briefing Overview

- Why do we need a Navy?
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- Naval Aviation Assets: Carrier Air Wings
- Naval Aviation Employment
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Carrier Air Wing Composition

~ 74 aircraft, with helicopters on most escorting ships

VFA-1	12 x F/A-18E or F-35C	Fighter/Attack
VFA-2	12 x F/A-18E	
VFA-3	10 x F/A-18F	
VFA-4	10 x F/A-18F	
VAQ-5	5 x EA-18G	Electronic Warfare
VAW-6	4 x E-2D	Airborne Early Warning
HSC-7	8 x MH-60S	Multi-use helicopters
HSM-8	11 x MH-60R	
VRC-9	2 x C-2A or CMV-22B	Logistics

Air Wing Evolution

Nimitz – 1975 (90 Acrft)

- 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

Nimitz – 2000s (75 Acrft)

F/A-18E/F Super Hornet
F-14D Super Tomcat

- F/A-18 A/C Hornet
- E-2C Hawkeye
- EA-6B Prowler
- SH-60B/F Sea Hawk
- C-2 Greyhound

NIMITZ – 2025 (65 Acrft)

- F-35C Lightning II
- F/A-18E/F Super Hornet
- E-2D Advanced Hawkeye
- EA-18G Growler
- MH-60R/S Sea Hawk
- CMV-22 Osprey
- MQ-25 Stingray

A CVNs and Carrier Strike Groups remain relevant as the Air Wing EVOLVES to match changing threats and technologies

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Why We Deploy

- **Persistent world-wide presence of credible combat forces**
  - **Diplomacy in action**
  - **Visible presence for allies**
  - **Crisis response**
    - **Armed response**
    - **Humanitarian aide**

- Nuclear Powered Aircraft Carrier
- Arleigh Burke-Class Destroyers
- Ticonderoga-Class Cruiser
- Combat Stores Ship (close proximity)

~ Fast Attack Class Submarine (Close proximity)

A CSG is of a mix of 6 – 8 ships

Carrier Strike Group

Carrier Strike Group

0-7/Admiral

Carrier Strike Group
Commander

0-6/Captain

0-6/Captain

Aircraft Carrier
Commanding Officer

Air Wing
Commander

Destroyer Squadron
Commodore

Cruiser
Commanding Officer

0-5/Commander

Heads of Departments

Strike Fighter Squadron
Commanding Officer

Destroyers
Commanding Officer

Carrier Strike Group Value

- CSGs constantly move, complicating an enemy's targeting.
- Mobility and flexibility of CSG can influence nations from hundreds of miles.
- The CSG provides national command authority
- CSG escort ships ensure the survivability of the aircraft carrier

Combatant Commanders know the value of CSGs, and are unrelenting in their requests for aircraft carrier deployments to protect, deter, fight, and win, within their theater of operations.

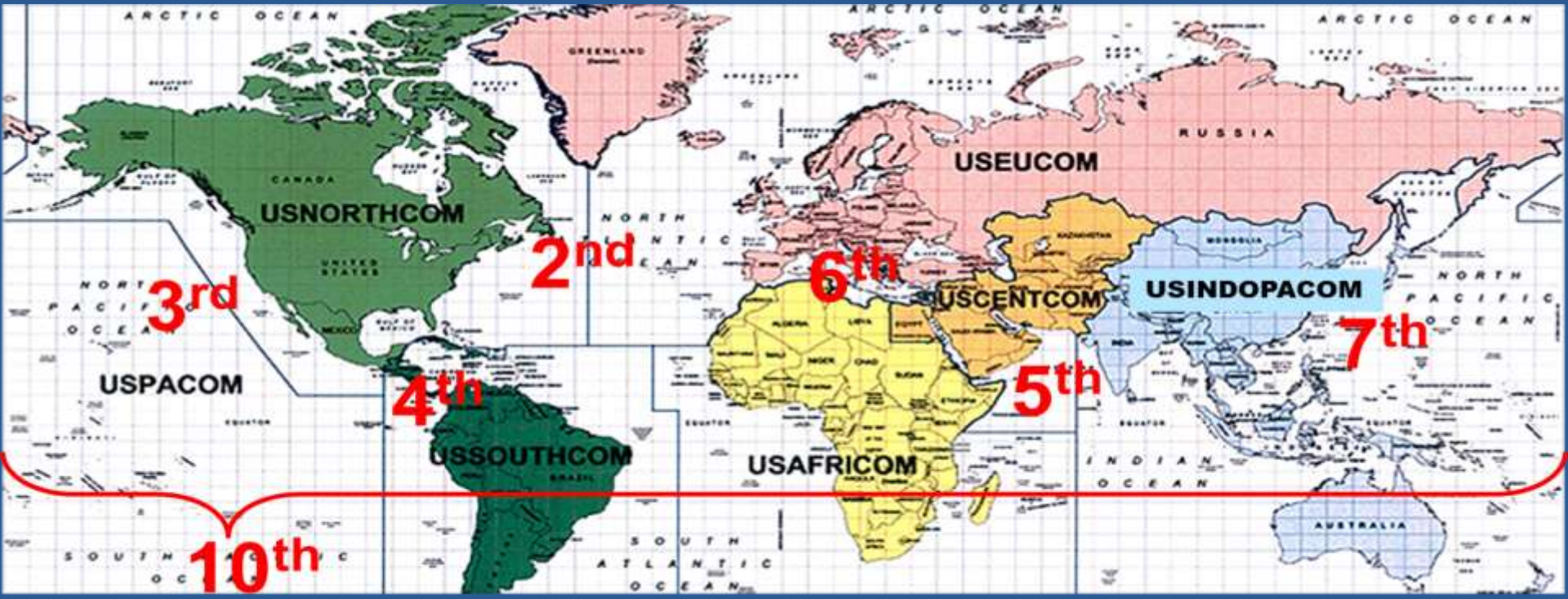
Carrier Strike Group ships

Ticonderoga Class Cruiser: Multi-mission Air Warfare (AW), Undersea Warfare (USW), Naval Surface Fire Support (NSFS) and Surface Warfare (SUW) capable. Supports carrier battle groups, amphibious forces, or operates alone and as flagships of surface action groups.

Arleigh Burke Destroyer: Guided missile destroyers provide multi-mission offensive and defensive capabilities. They can operate independently or as part of Carrier Strike Groups, Surface Action Groups, and Expeditionary Strike Groups.

Employing Naval Aviation

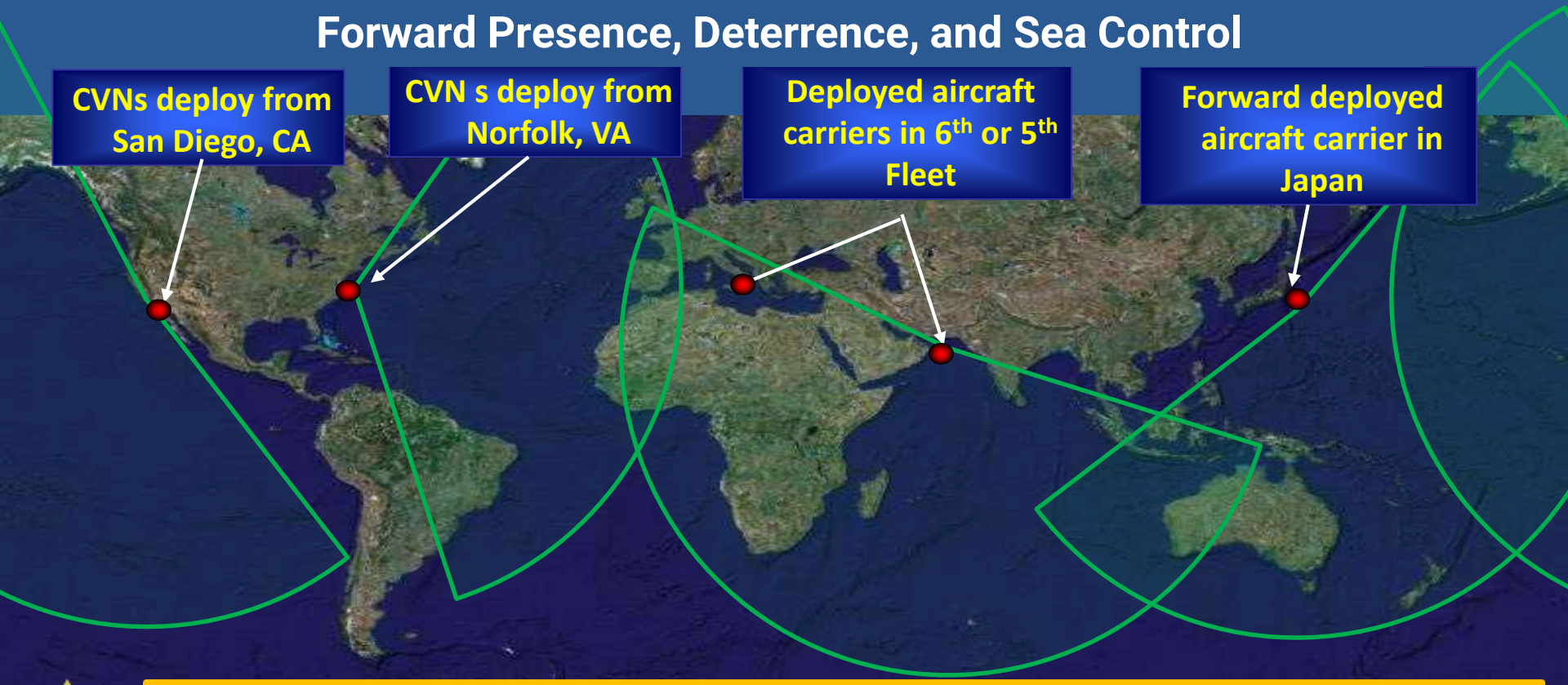
We are a force provider



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

Employing Naval Aviation

Forward Presence, Deterrence, and Sea Control



Aircraft Carrier mobility is critical to mission success

This depicts the 7 Day Response coverage for a CSG: ~3360 Nautical Miles @ 20 knots

Employing Naval Aviation

Power Projection

Can remain on station up to six months

In 2013, CVN77 moved into the Persian Gulf, to stop Isis from sacking Baghdad. U.S. Air Force aircraft in Saudi Arabia were grounded, needing host nation permission to launch aircraft into Iraq.

CVNs do not need host nation permission to launch combat strikes. Only the President's.

Employing Naval Aviation

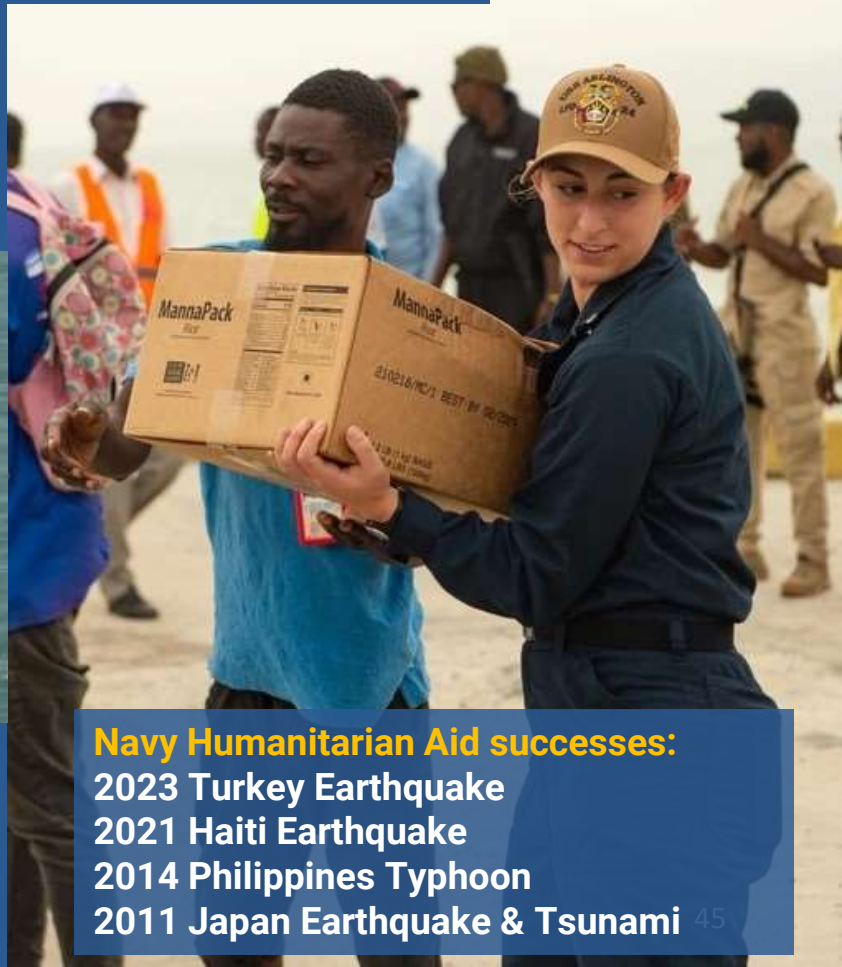
Replenishment-At-Sea

The ability of U.S. Navy ships to remain ‘on station’ is vital to sustained operations and U.S. interests

Employing Naval Aviation

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:
2023 Turkey Earthquake
2021 Haiti Earthquake
2014 Philippines Typhoon
2011 Japan Earthquake & Tsunami

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Shipboard Safety

Guest Safety is our number ONE priority for visitors:

- **Stay with the group:** adopt a "herd" mentality
- Pay attention to, and adhere to safety briefs
- Everyone onboard is a Safety Officer
  - … including you!
  - Ask for help if unsure
  - Don't hesitate to bring up issues
- Watch for knee knockers
- Hands on the rails – no sliding
- Watch for low overheads
- Do not roam on your own
- Stay engaged and have fun!

Your flight in the C-2A “COD”

Squadron
VRC-40 Rawhides

Length
57 feet, 7 inches

Max. take-off weight
57,000 lbs.

Max. Cruising Speed
300 knots (345 mph)

Passenger capacity
26

Travel time
30-60 minutes
Seats face backward

Your Flight in the CMV-22B Osprey

Squadron: VRM-30 Titans

Length: 57 feet, 4 inches

Max. gross take-off weight: 60,500 lbs..

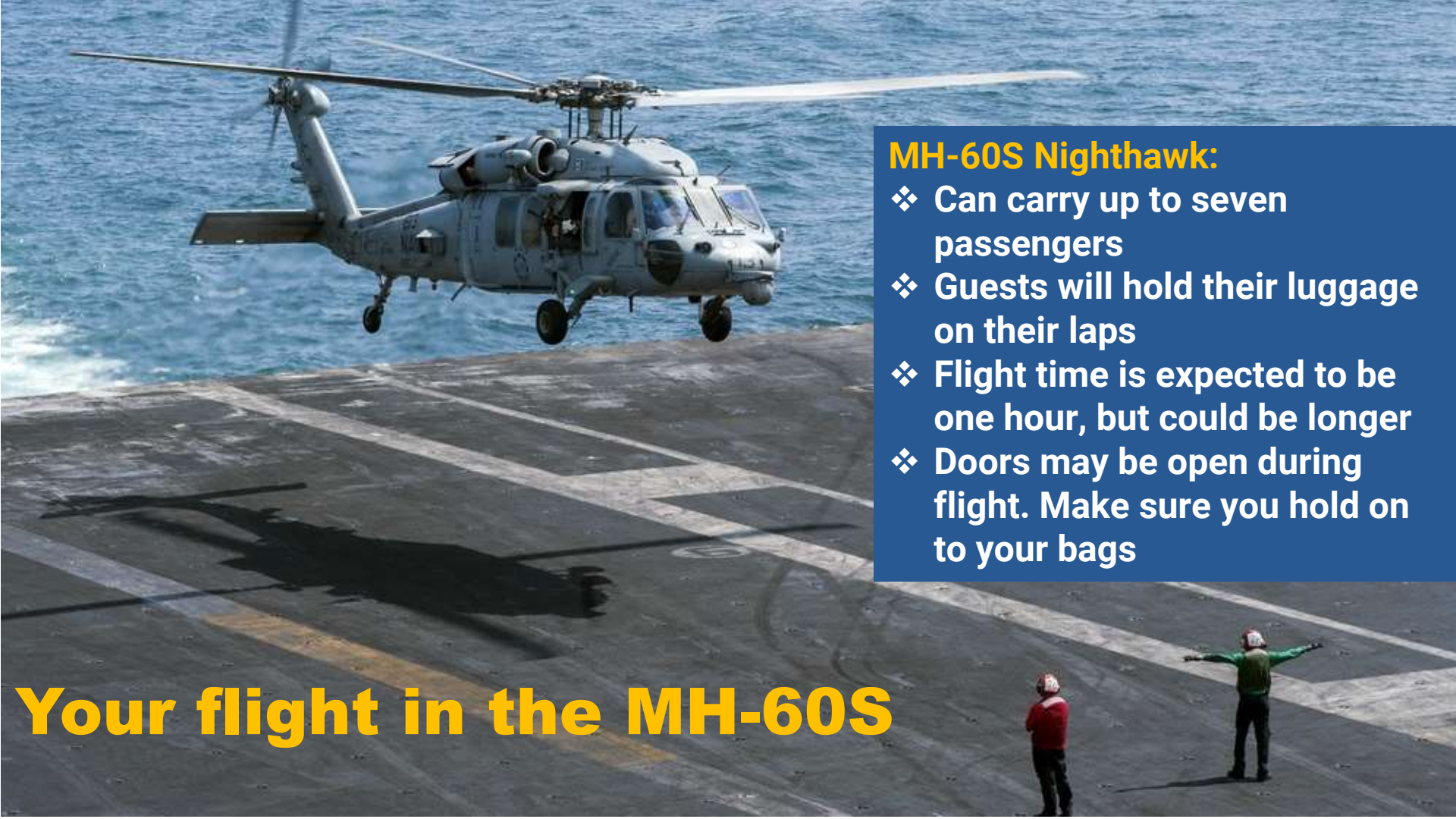
Max. Cruising Speed:

280 knots (345 mph)

Max. Passenger capacity: 22

Travel time: 30-60 minutes.

Seats face inward from side of aircraft



Your flight in the MH-60S

MH-60S Nighthawk:

- Can carry up to seven passengers
- Guests will hold their luggage on their laps
- Flight time is expected to be one hour, but could be longer
- Doors may be open during flight. Make sure you hold on to your bags

What You'll Experience

- Landing on Aircraft Carrier
- Observe day/night flight ops
  - Flight Deck and Vulture's Row
- Meet the crew
  - Engage Sailors
- Tour the ship
- Dine with the crew
  - Wardroom, CPO and Mess Decks
- Berth in 2-person stateroom
- Aircraft launch from ship

Daily Life at Sea

Busy schedule & long days: +12 hours daily

- Watch standing / Work
- Maintenance
- Training, training, training
- -- Flying /flight operations
- -- Administration

Four meals per day / every day:

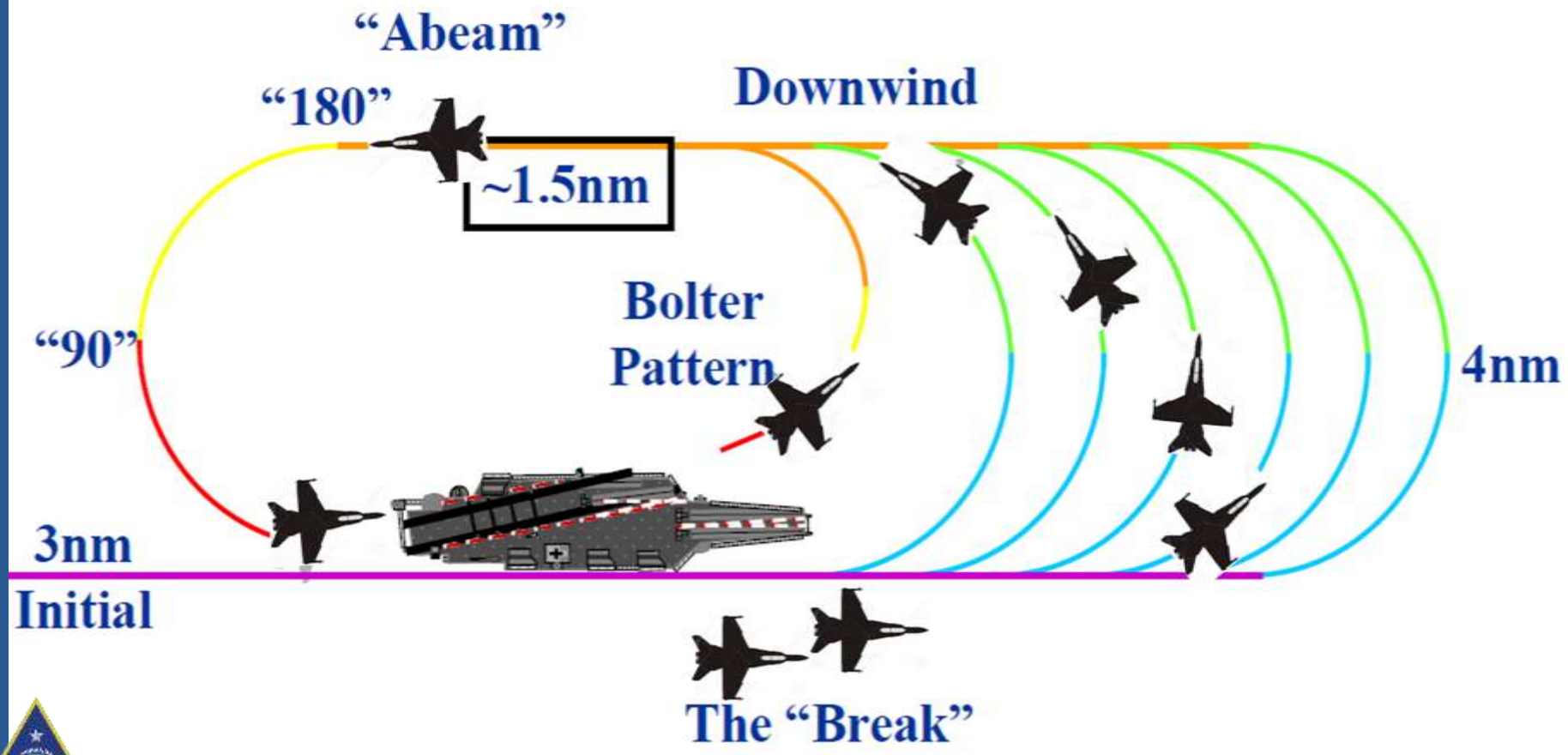
- Breakfast
- Dinner
- -- Lunch
- -- “MIDRATS”

Off duty time:

- Email (limited wifi)
- Comradery
- Professional development
- -- Gym
- -- Study
- -- Shipboard Television

The Flight Deck

Carrier Landing



Flight Deck Rainbow Wardrobe

Color defines job

Catapult Officers / Directors

Safety / Medical & Observers

Crash / Ordnance

Maintenance

Fuels

Plane Captains

Handlers

Engage the Crew

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

- Sailors will treat you with dignity and respect.
- Guests should maintain proper etiquette while aboard.

The pride, dignity, honor, 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!

Nimitz turns 50!

USS Nimitz (CVN 68)

Commissioned: May 3, 1975

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 Carl Vinson (CVN 70)

Commissioned: March 13, 1983

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 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 Abraham Lincoln (CVN 72)

Commissioned: Nov. 11, 1989

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

Back-up Slides:

United Kingdom
(Queen Elizabeth)
Displacement: 70,600 tons
Dimensions: 920 x 230 ft..
Speed: 25 knots
Personnel: 1,600
Aircraft: 40 - 50
Types: F-35B Lightning, H-47 Chinook, Agusta Westland Apache, Merlin, Wildcat, Merlin Crowsnest AEW

China
(Soviet-era design)
Displacement: 67,500 tons
Dimensions: 999 x 236 ft..
Speed: 28 knots
Personnel: 1,200
Aircraft: 40
Types: Shenyang J-15, Changhe Z-18, 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 211ft.
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

(Atlântico)

Displacement: 23,700 tons

Dimensions: 667 x 115 ft..

Speed: 18 knots

Personnel: 830

Aircraft: 18

Types: EC725 Caracal
S-70B Seahawk
AS350 Écureuil

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

(*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.

Carriers of the World

Carriers of the World

Russia

(Soviet-era design)

Displacement: 67,500 tons

Dimensions: 999 x 236 ft..

Speed: 28 knots

Personnel: 1,200

Aircraft: 41

Types: Su-33, MiG-29, Su-25, Ka-27

Japan

(Hyūga-class helicopter destroyers)

Displacement: 14,170 tons

Dimensions: 646 x 108 ft..

Speed: 30 knots

Personnel: 340

Aircraft: 18

Types: SH-60K, MCH-101

Navy Comparison

United States' Navy:
22 Aircraft Carriers (+LHA/LHD)
22 Cruisers
69 Guided Missile Destroyers
19 Littoral Combat Ships
2 Command Ships
9 Amphibious Transport (LPD)
12 Landing ship Dock (LSD)
67 Submarines
13 Coastal Patrol (PC)
13 Mine Countermeasure
25 Supply/Replenishment

(+77 Auxiliary, non-combat)

China's Navy:
3 aircraft carriers
3 landing helicopter docks
8 amphibious transport docks
32 landing ship tanks
33 landing ship mediums
51 destroyers
49 frigates
70 corvettes
109 missile boats
26 submarine chasers
17+ gunboats
36 mine vessels
79 submarines
19 replenishment ships
232 auxiliaries

Russia's Navy:
1 aircraft carrier
2 battlecruisers
2 cruisers
10 destroyers
11 frigates
80 corvettes
11 landing ship tanks
60 landing craft
18 special-purpose ships
4 patrol ships
56 patrol boats
45 mine vessels
8 special-purpose submarines
47 Attack submarines

Employing Naval Aviation

Lines of Effort:

-- Strengthen Naval Power at and from the Sea

-- Achieve high velocity outcomes

-- Strengthen our Navy team for the future

-- Expand and strengthen our network of partners

Central Themes:

-- The Navy will become more agile.

-- The Navy will compete in ways that are sustainable.

-- The Navy, fighting with the Joint Force and with our allies and partners, will control the high end of maritime conflict.

Squadrons and Designations

Squadron Types:

HSC = Helicopter Sea Combat Squadron

HSM = Helicopter Maritime Strike Squadron

HT = Helicopter Training Squadron

VAQ = Electronics Warfare Squadron

VAW = Airborne Early Warning Squadron

VFA = Fighter Attack Squadron

VP/VPU/VUP = Patrol Squadron

VQ = Fleet Air Reconnaissance

VR/VRC = Fleet Logistics Support Squadron

VT = Training Squadron

VX = Research / Experimental

Squadron Designations:

The letters specify the mission or type of squadron

A: Attack

C: Composite / Transport

E: Electronic

F: Fighter

H: Helicopter

M: Multi-mission / Mine

P: Patrol

Q: Electronics / Intelligence

R: Logistics

S: Strike / Sea / Submarine

T: Trainer

U: Utility

V: Fixed-Wing

X: Special Research

W: Warning / Radar

Aircraft and Designations

Aircraft Types:

F/A-18E/F Super Hornet
F-35C Lightning II
E/A-18G Growler
MH-60R Seahawk
MH-60S Knighthawk
E-2C/D Hawkeye
C-2A Greyhound > CMV-22B Osprey
P-3C Orion > P-8 Poseidon
EP-3 Aries II
MQ-8 Fire Scout (UAV)
MQ-25 Stingray
E-6A/B Mercury
C-40 Clipper

Aircraft designations:

The letter(s) before the hyphen specifies the mission or type of aircraft.

A: Attack
C: Transport
E: Electronic
F: Fighter
H: Helicopter
K: Tanker
M: Multi-mission
P: Patrol
Q: Unmanned / Intelligence
T: Trainer
V: Vertical

Navy Aircraft: Carrier-Based

F/A-18 E-F 'Super Hornet'

(Advanced Strike-Fighter)

Highly capable across the full mission spectrum, long range, and aerial refueling capability

Primary Function: Multi-role attack and fighter aircraft.

Initial Operational Capability (IOC): Sept 2001.

Unit Cost: ~$57 million

Propulsion: Two F414-GE-400 turbofan engines. 22,000 pounds (9,977 kg) static thrust per engine.

Length: 60.3 feet (18.5 meters).

Height: 16 feet (4.87 meters).

Wingspan: 44.9 feet (13.68 meters).

Weight: Maximum Take Off Gross Weight is 66,000 pounds (29,932 kg).

Airspeed: Mach 1.8+.

Ceiling: 50,000+ feet.

Range: Combat: 1,275 nautical miles (2,346 kilometers)

Navy Aircraft: Carrier-Based

Primary Function: Airborne Electronic Attack

Initial operational capability (IOC) Sept 2009

Unit Cost: ~$67 million

Propulsion: Two F414-GE-400 turbofan engines. 22,000 pounds (9,977 kg) static thrust per engine

Length: 60.2 feet (18.5 meters)

Height: 16 feet (4.87 meters)

Wingspan: 44.9 feet (13.68 meters)

Weight: 48,000 lbs..

Ceiling: 50,000 feet

Range: Combat: 850+ nautical miles **Crew:** 2

EA-18G 'Growler'

(Electronic Warfare)

Integrates electronic attack technology, communication countermeasures, satellite communications and offensive weapons

Navy Aircraft: Carrier-Based

E-2D 'Hawkeye'

(Airborne Early Warning)
Tactical battle management, airborne early warning, command and control aircraft

Primary Function: Airborne Command & Control, Battle Space Management.

Date Deployed: January 1964 (E-2A)

Unit Cost: $80 million.

Propulsion: Two Allison T-56-A427 turboprop engines; (5,100 shaft horsepower each).

Length: 57 feet 6 inches (17.5 meters).

Height: 18 feet 3 inches (5.6 meters).

Wingspan: 80 feet 7 inches (28 meters).

Weight: Max. gross, take-off: 53,000 lbs.. (23,850 kg) 40,200 lbs. basic (18,090 kg).

Airspeed: 300+ knots (345 miles, 552 km. per hour).

Ceiling: 30,000 feet (9,100 meters).

Crew: Five.

Navy Aircraft: Carrier-Based

C-2A 'Greyhound'

(Logistics / Personnel)
Transport of high-priority cargo, mail, and passengers to aircraft carriers. Referred to as the 'COD' (Carrier On board Delivery)

Primary Function: Carrier On-board Delivery (COD) aircraft
Unit Cost: ~$38.96 million (1980s)
Propulsion: Two Allison T56-A-425 turboprop engines; 4,600 horsepower each
Length: 56 feet 10 inches (17.3 meters)
Height: 17 feet 2 inches (5.28 meters)
Wingspan: 80 feet 7 inches (24.5 meters)
Weight: Max. Gross, take-off: 57,500 lbs. (26,082 kg)
Airspeed: Cruise - Approximately 260 knots; Max - Approximately 343 knots
Ceiling: 30,000 feet (9,144 meters)
Range: 1,000 nautical miles (1150.78 statute miles)
Crew: Four

Navy Aircraft: Carrier-Based

Primary Function: Long-range resupply missions for CVNs at sea.
Date Deployed: 2009 (Marine Corps)
Propulsion: Two, Rolls-Royce Liberty AE1107C engines, 6,200 shaft horsepower
Length: 63 feet
Height: 22 feet, w/nacelles vertical.
Wingspan: 84.6 feet with rotors turning
Weight: Max. gross, vertical take-off: 52,600 lbs.. Short take-off 57,000 lbs.
Airspeed: Cruise: 280 knots
Ceiling: 25,000 feet (7,620 meters).
Range: 2,100 nautical miles with auxiliary fuel tanks
Crew: 4
Cargo: 22 Personnel

CMV-22 'Osprey'

(Logistics / Personnel)
Replacing C-2A Greyhound starting in 2021.
Transport of high-priority cargo, mail, and passengers.

Navy Aircraft: Shore-Based

P-3C 'Orion'

Maritime Surveillance (retiring)

Primary Function: Anti-Submarine warfare and Anti-Surface Warfare
Propulsion: Four Allison T-56-A-14 turboprop engines (4,600 hp each)
Length: 116.7 feet (35.57 meters)
Height: 33.7 feet (10.27 meters)
Wingspan: 99.6 feet (30.38 meters)
Weight: Maximum takeoff, 139,760 pounds (63,394 kilograms)
Airspeed: 411 knots; Cruise, 328 knots
Ceiling: 28,300 feet (8,626 meters)
Range: 2,380 nautical mile radius
Crew: 3 pilots, 2 flight officers, 2 engineers, 3 sensor operators and 1 in-flight technician

EP-3E 'Aries II'

Signals Intelligence/ Reconnaissance

Navy Aircraft: Shore-Based

Primary Function: Anti-Submarine Warfare (ASW) and Anti-surface Warfare (ASuW), Intelligence, Surveillance and Reconnaissance (ISR)
Propulsion: 2 CFM 56-7B engines. 27,300 lbs.. thrust
Length: 129.5 feet (39.47 m).
Height: 42.1 feet (12.83 m).
Wingspan: 123.6 feet (37.64 m)
Weight: Maximum gross takeoff, 189,200 pounds (85,820 kg)
Airspeed: 490 knots
Ceiling: 41,000 feet
Range: 1,200 nautical miles radius with four hours on station
Crew: Nine

P-8 'Poseidon'

Maritime Surveillance (new)
Multi-mission maritime patrol and reconnaissance aircraft. Efficiently conducts anti-submarine warfare, anti-surface warfare, intelligence, surveillance, reconnaissance, and humanitarian response.

Navy Aircraft: Shore-Based

E-6A/B 'Mercury'

Communications and Strategic Forces Airborne Command Post, known as TACAMO: Take Charge and Move Out (Boeing 707)

Primary Function: Communications relay for fleet ballistic missile submarines and airborne command post for U.S. Strategic forces.
Date Deployed: October 1998.
Unit Cost: 141.7 million.
Propulsion: Four CFM-56-2A-2 High bypass turbofans.
Length: 150 feet, 4 inches (45.8 meters).
Height: 42 feet 5 inches (12.9 meters).
Wingspan: 148 feet, 4 inches (45.2 m).
Weight: Max gross, take-off. 342,000 lbs. (154,400 kg).
Airspeed: 522 knots, 600 miles (960 km)
Ceiling: Above 40,000 feet.
Range: 7,590 statute miles
Crew: 22

Navy Aircraft: Shore-Based

Primary Function: Fleet logistics support.
Date Deployed: April 2001
Propulsion: Two CFM56-7 SLST engines.
Length: 110 feet 4 inches (33.63 meters).
Height: 41 feet 2 inches (12.55 meters).
Wingspan: 117 feet 5 inches (35.8 m).
Weight: Max. 171,000 lbs. (77,564 kg)
Taxi: 171,000 lbs. (77,564 kg)
Landing: 134,000 lbs. (60,781 kg)
Zero fuel: 126,000 lbs. (57,153 kg).
Airspeed: Range: 0.78 to 0.82 Mach (585 to 615 mph, 940 to 990 kph).
Ceiling: 41,000 feet (12,497 meters).
Range: 3,142 nautical miles (3,452 statute miles) with 121 passengers or 40,000 lbs.. (18,144 kg) of cargo.
Crew: Four.

C-40 'Clipper'

Personnel / cargo transport. Boeing 737 airframe. 3 configurations: All-passenger configuration, all-cargo, or combination of pallets and passengers.

Navy Unmanned Aircraft

Primary Function: Maritime Intelligence, Surveillance, and Reconnaissance

Propulsion: Rolls-Royce AE3007H

Endurance: 24 + hours

Length: 47.6 feet (14.5 m)

Wingspan: 130.9 feet (39.9 m)

Height: 15.4 feet (4.7 m)

Speed: 320 knots

Crew: Five per ground station

MQ-4C 'Triton'

Autonomously operated aircraft that provides a persistent maritime ISR capability using multiple sensors. Provides a continuous source of information to maintain a tactical overview of the maritime battle space.

Navy Unmanned Aircraft

MQ-8B 'Fire Scout'

MQ-8B currently operates from air-capable surface ships. Significantly improves over-the-horizon surveillance capability, with day and night real-time ISR target acquisition

MQ-8C 'Fire Scout'

MQ-8C is being introduced to the Fleet with a range of 150 nautical miles and a 700 pounds payload capacity. Larger and more capable than the MQ-8B, it will be a force multiplier in the coming years.

Navy Unmanned Aircraft

MQ-25 'Stingray'

Navy's first unmanned carrier-based aircraft, will provided airborne tanking capability with surveillance and reconnaissance capability which will enhance carrier capability and versatility.

The MQ-25 system will deliver a robust organic refueling capability to make better use of current combat strike fighters while extending the range of CVN combat aircraft.

Navy Organization and Leaders

Chain of Command when on deployment

Chain of Command when not deployed