

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: 47 (16%)
- Underway for Training (local): 29 (10%)



As of Dec. 7, 2023:

- 337,708 active duty officers, Sailors and midshipmen
- 292 deployable Battle Force ships in service



- Aircraft Carriers at sea: 5
- Amphibious Assault Ships (LHA/LHDs) at sea: 3

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Naval Air Forces

Our Mission

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

- **Focus Areas:**

1. **Current Readiness**
2. **Leading People Every Day**
3. **Future Readiness**

- **Priorities:**

1. **Warfighting**
2. **People**
3. **Readiness**



What We Manage

- ~100,000 civilian and military personnel
- 11 aircraft carriers
- 22 Naval Air Stations
- 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.



E-9

NAVY



Navy Diversity Equity & Inclusion Goals

GOAL 1

Institutionalized inclusion and diversity
across our Navy

GOAL 2

Attract and recruit the best talent from our diverse
nation to cultivate a high performing and
innovative workforce

GOAL 3

Develop and retain Sailors and civilians by
ensuring an inclusive culture across our workforce

BIG PICTURE OUTCOME: WARFIGHTING EXCELLENCE

Improved readiness

Reduced inclusion barriers

Enhanced team performance

More lethal fighting force

More resilient team

Enhanced understanding of bias



U.S. Navy Recruitment and Diversity

Racial Diversity:

- ❖ 67% White
- ❖ 15% Black
- ❖ 6% Asian
- ❖ 7% Multiracial

Gender Diversity:

- ❖ 78% Male compared to 49% national population average
- ❖ 22% Female compared to 51% national population average

Ethnic Diversity:

- ❖ 84% Non-Hispanic compared to 81% national population average
- ❖ 16% Hispanic compared to 19% national population average





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)
- This year: 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's only land-based signals intelligence (SIGINT) reconnaissance aircraft. Built on P-3 Orion airframe.



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 enduring; 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-8C 'Fire Scout'
Fire Scout operates from air-capable surface ships and significantly improves over-the-horizon surveillance capability



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

Future Unmanned Aircraft

- First unmanned carrier-based aircraft
 - Airborne tanking platform
 - Surveillance and reconnaissance capability



Navy Training Aircraft



T-6B II Texan Basic Flight Trainer



T-44 Pegasus Multi-engine Trainer for future E-2C, C-2, and multi-engine pilots



T-45 Goshawk Basic Jet Trainer – first 10 aircraft carrier landings before F/A-18 flights



TH-73A Thrasher Helicopter Trainer

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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)

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)

Nimitz Class Statistics



VS

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), Bremerton, WA
5. USS Abraham Lincoln (CVN 72), San Diego, CA
6. USS George Washington (CVN 73), Hampton, VA
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), Yokosuka, Japan
10. USS George H.W. Bush (CVN 77), Norfolk, VA
11. USS Gerald R. Ford (CVN 78), Norfolk, VA (first in class)



Integrated Island

Smaller Island Re-
Positioned Aft &
Outboard

Dual Band
Radar

Joint Precision
Approach and
Landing System

Enlarged Flight
Deck Footprint

"Pit Stop"

Advanced Arresting Gear

Aircraft Elevators (3)
Stbd Sponson Redesign

Enhanced Flight
Deck

2 Hangar Bays

#4 Catapult Unrestricted

Electromagnetic Aircraft
Launching System (4)

New Propulsion/Electric Plant

All Electric Aux Services
Zonal Electrical
Distribution System

New Propulsion
Plants

Improved Weapon & Material Handling

Advanced Weapons
Elevators

Underwater Protection

Evolved Sea
Sparrow Missile

Improved Survivability

Enhanced Ship Self
Defense

Gerald R. Ford Class CVN



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



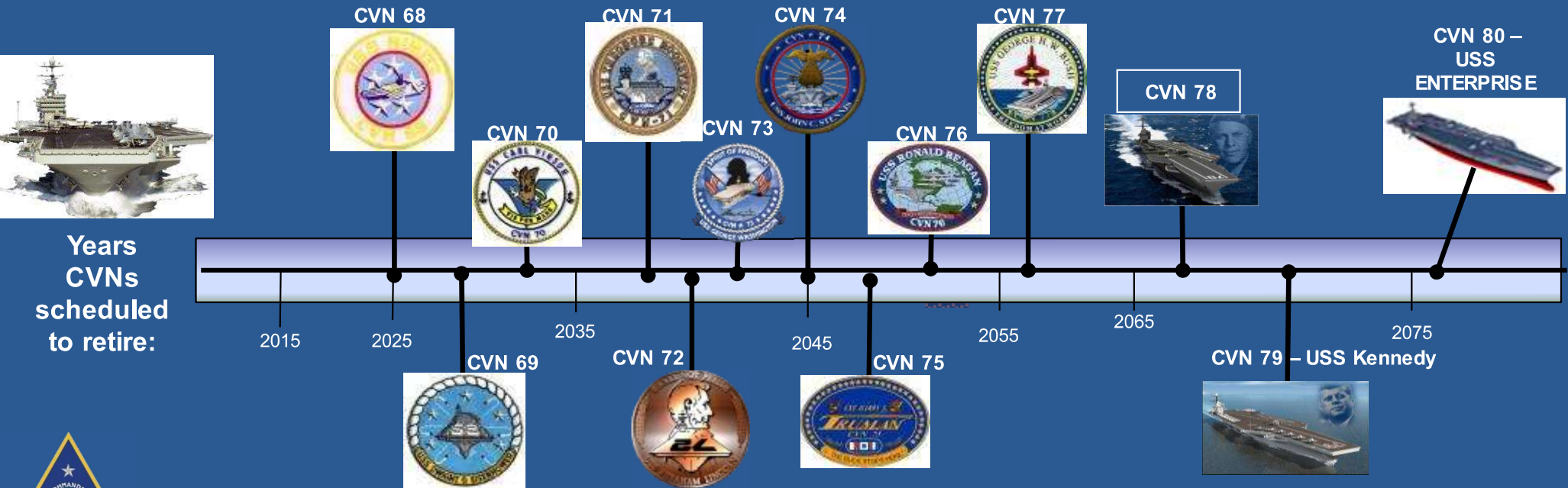
Value of CVNs: 50 Years of Service

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)



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: One active aircraft carrier (no catapults). Second under construction without catapults.



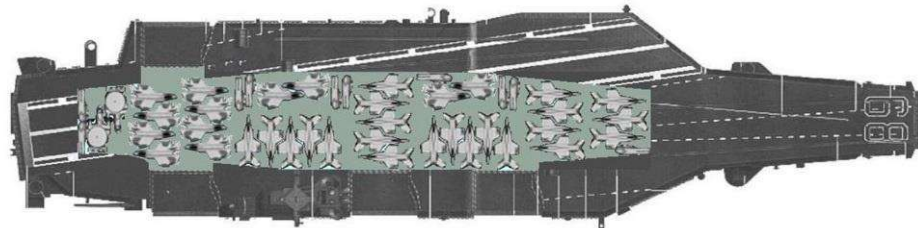
France: One active aircraft carrier (has two catapults). Only other nation with a nuclear-powered aircraft carrier



Russia: One active aircraft carrier (no catapults).



Nimitz-Class Aircraft Carrier (Super Carrier)



(1,092)

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

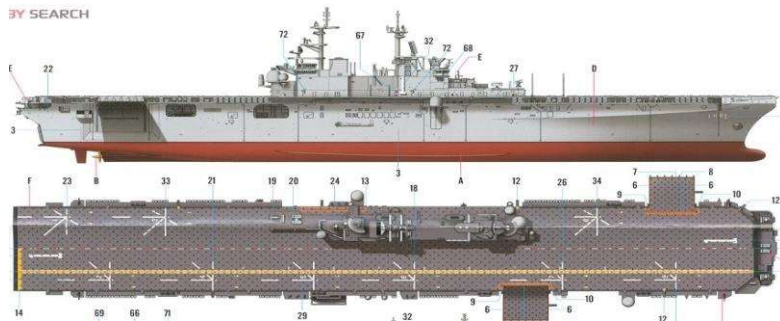
Dimensions: 1,092 x 252 feet

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



(844)

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

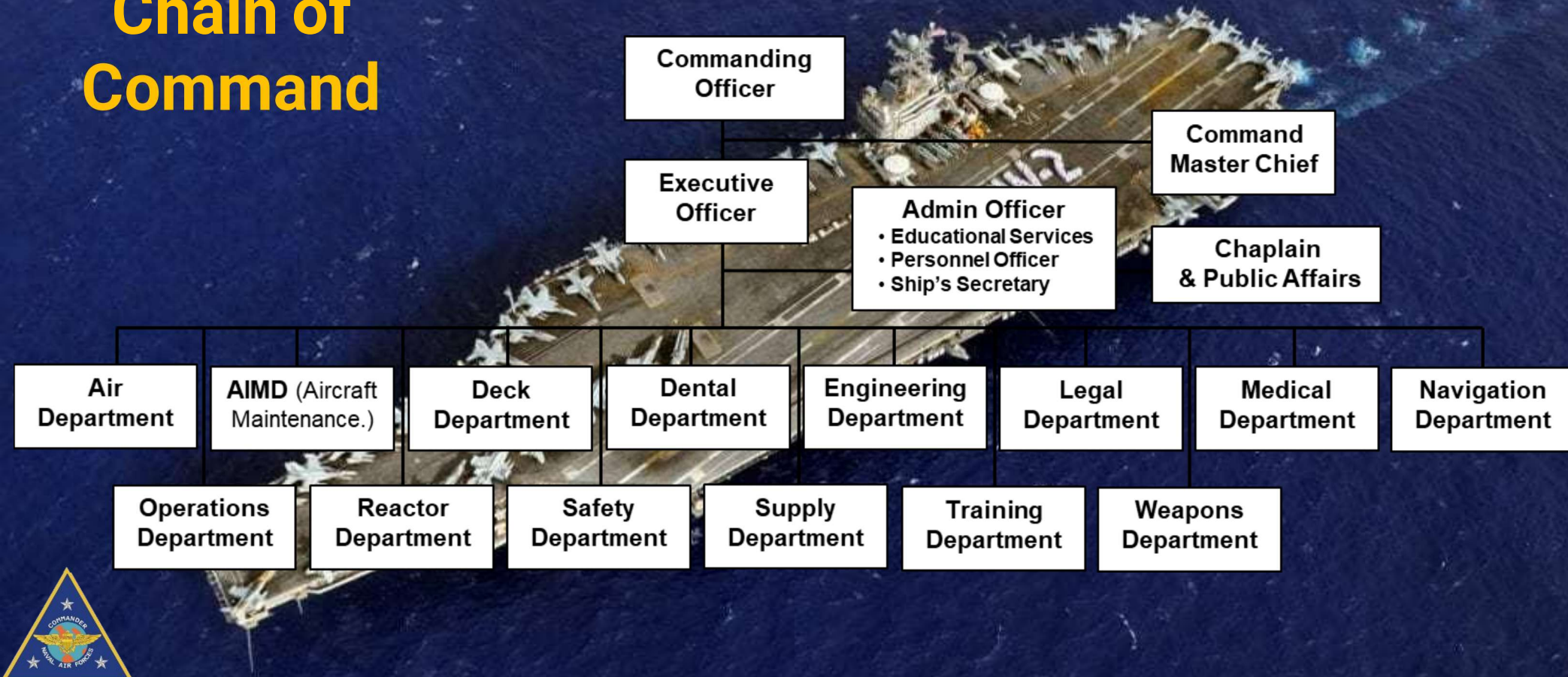
Ship's Personnel: 1,059 **Marine Contingent:** 2,500

Mission: Provide the U.S. Marine Corps with a means of ship-to-shore movement by helicopter in addition to movement by landing craft.



Aircraft Carriers

Chain of Command



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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 |
| 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 |
| VAW-6 | 4 x E-2D |
| HSC-7 | 8 x MH-60S |
| HSM-8 | 11 x MH-60R |
| VRC-9 | 2 x C-2A |

Fighter/Attack

Electronic Warfare

Airborne Early Warning

Multi-use helicopters

Logistics



Air Wing Evolution



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 – 2000s

- 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 Retires – 2025

- 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



CVN and Carrier Strike Group remains relevant as its 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
- ~ Fast Attack Class Submarine (Close proximity)
- Ticonderoga-Class Cruiser
- Combat Stores Ship (close proximity)

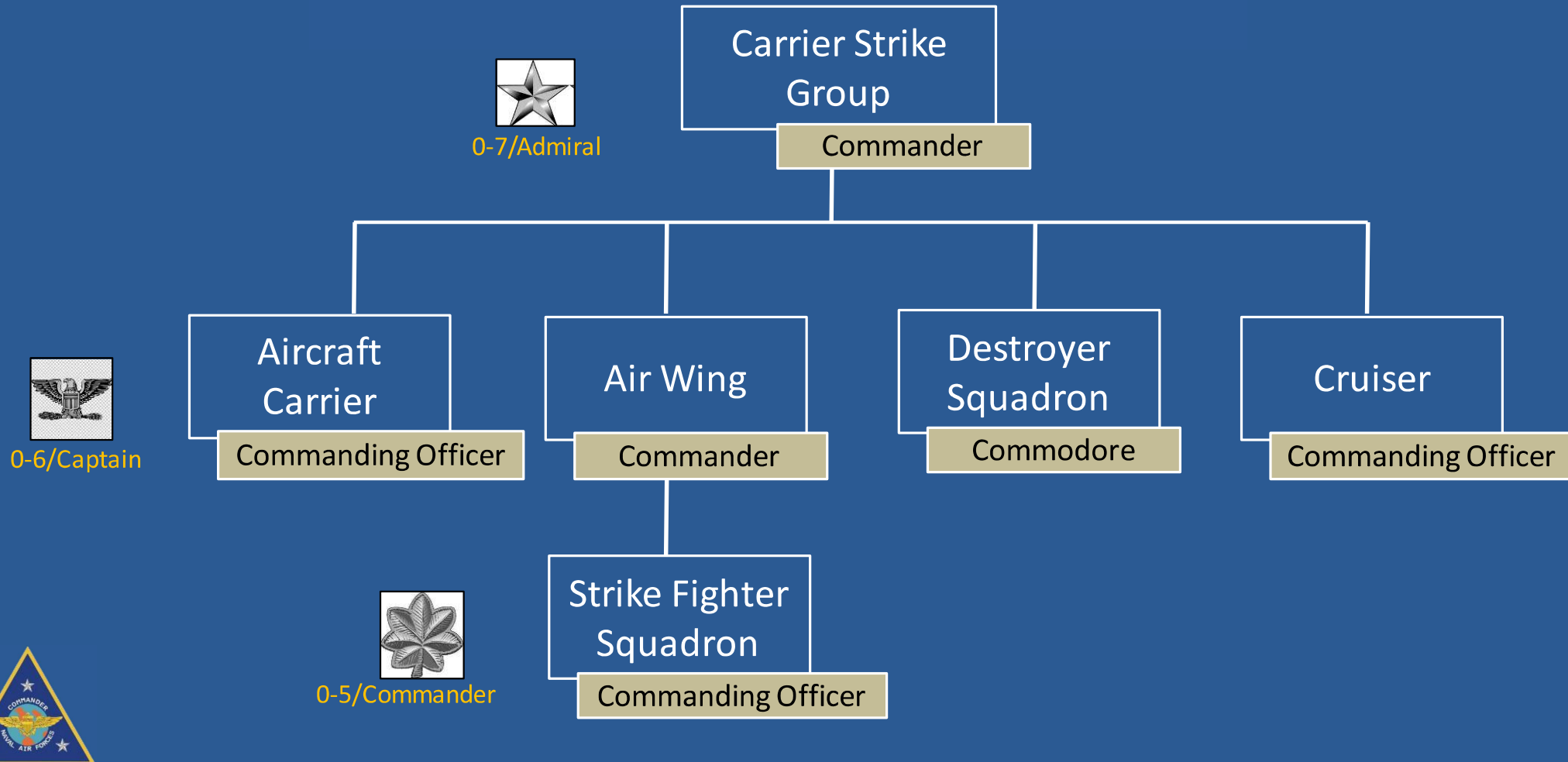
An aerial photograph of a Carrier Battle Group (CSG) in the open ocean. A large nuclear-powered aircraft carrier is at the center, surrounded by several Arleigh Burke-class destroyers and Ticonderoga-class cruisers in a protective formation. The ships are leaving white wakes in the blue water.

A CSG is of a mix of 6 – 8 ships

Carrier Strike Group



Carrier Strike Group



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.

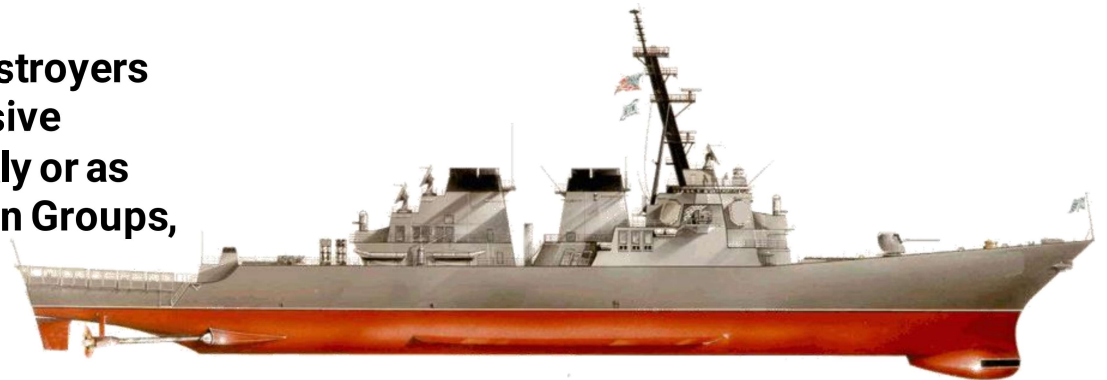


Carrier Strike Group ships



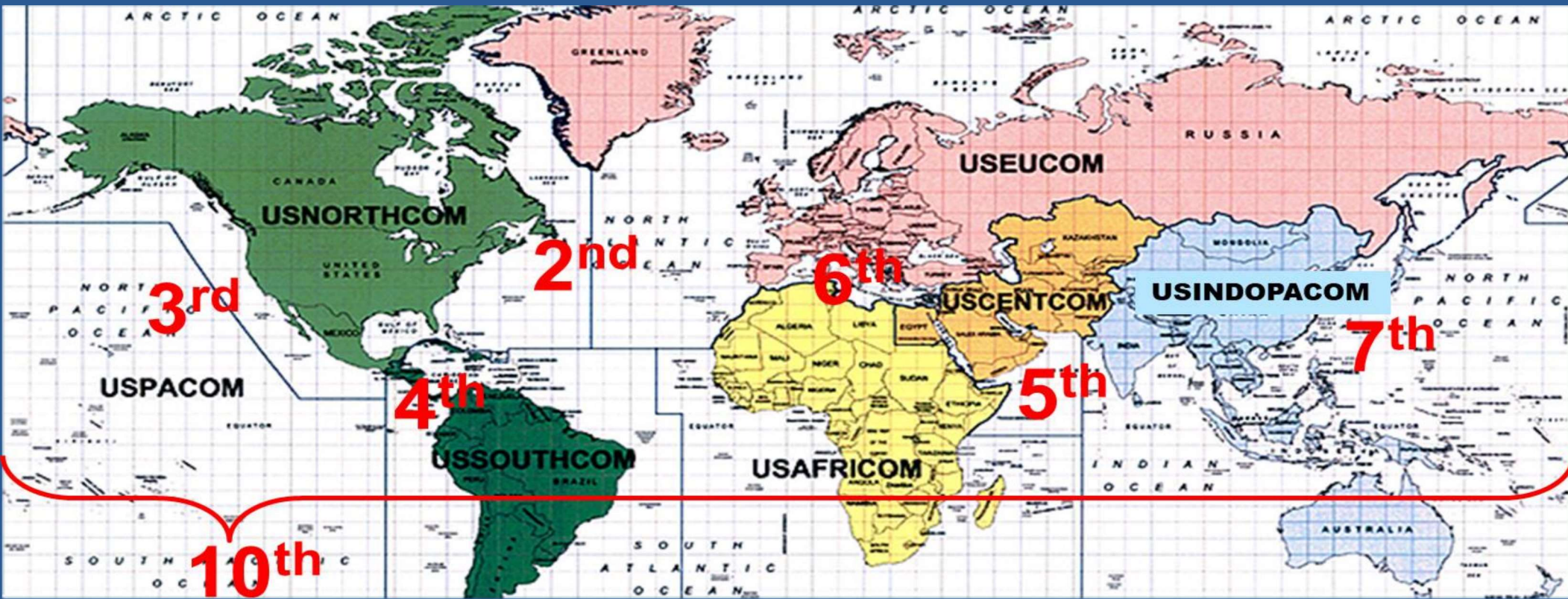
Ticonderoga Class Cruiser: Multi-mission Air Warfare (AW), Undersea Warfare (USW), Naval Surface Fire Support (NSFS) and Surface Warfare (SUW) capable. Supports carrier battle groups, amphibious forces, or operates alone and as flagships of surface action groups.

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

CVNs deploy from
San Diego, CA

CVNs deploy from
Norfolk, VA

Deployed aircraft
carrier in 6th or 5th
Fleet

Forward deployed
aircraft carrier in
Japan

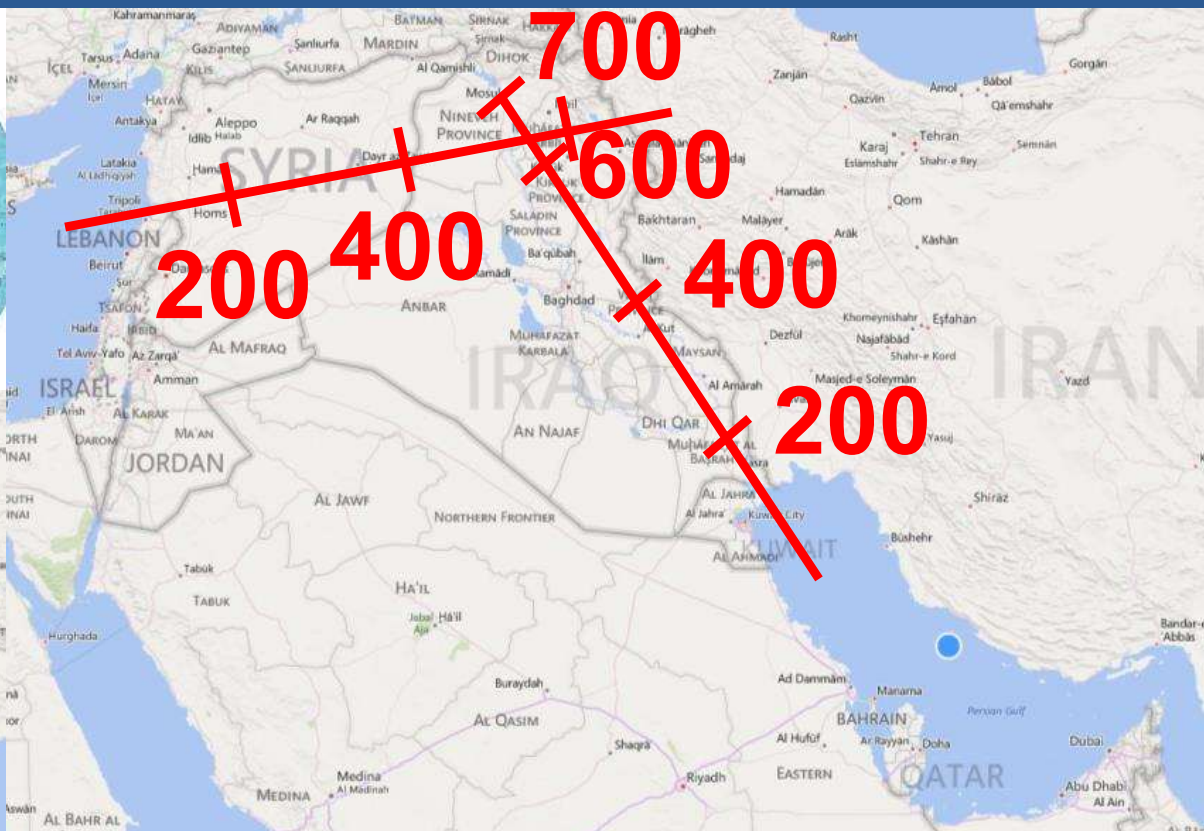
Aircraft Carrier mobility is critical to mission success
7 Day Response: ~3360 Nautical Miles @ 20 knots





Employing Naval Aviation

Power Projection



CVN does not need host nation's permission to launch. 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

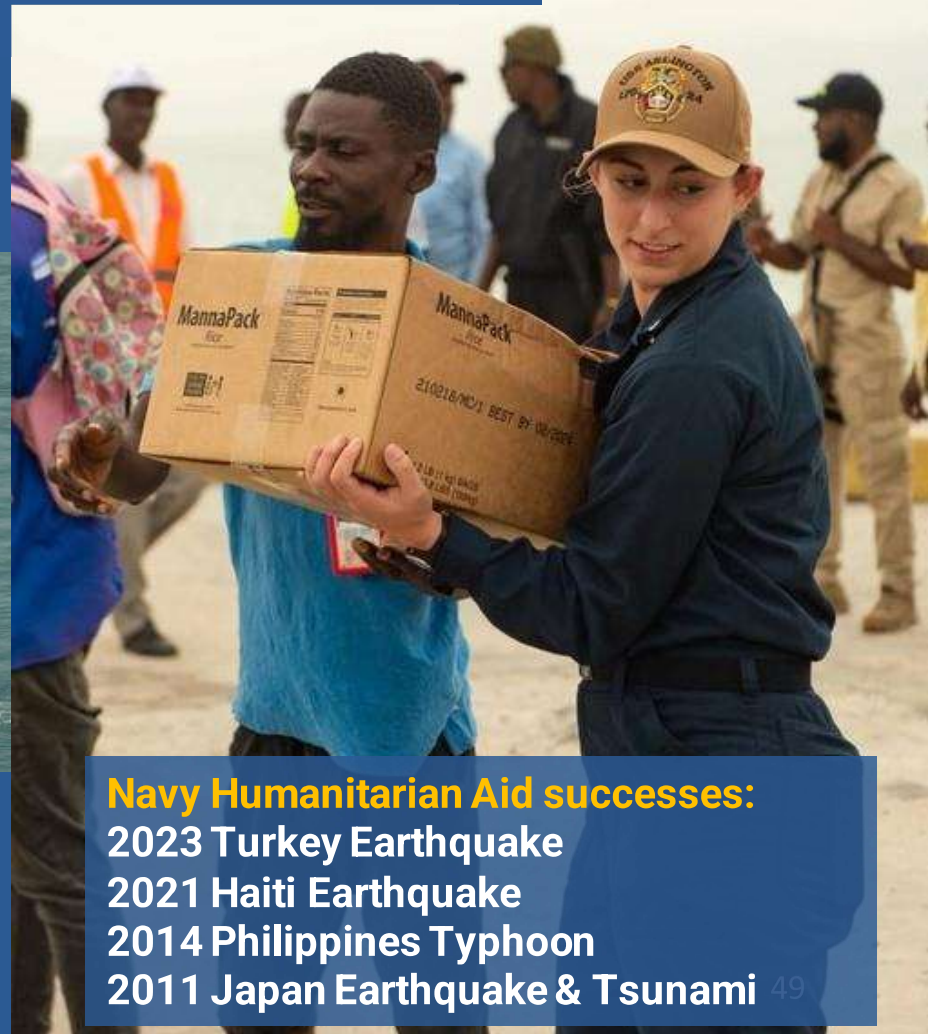


Employing Naval Aviation

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!





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

Your flight in the MH-60S

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:

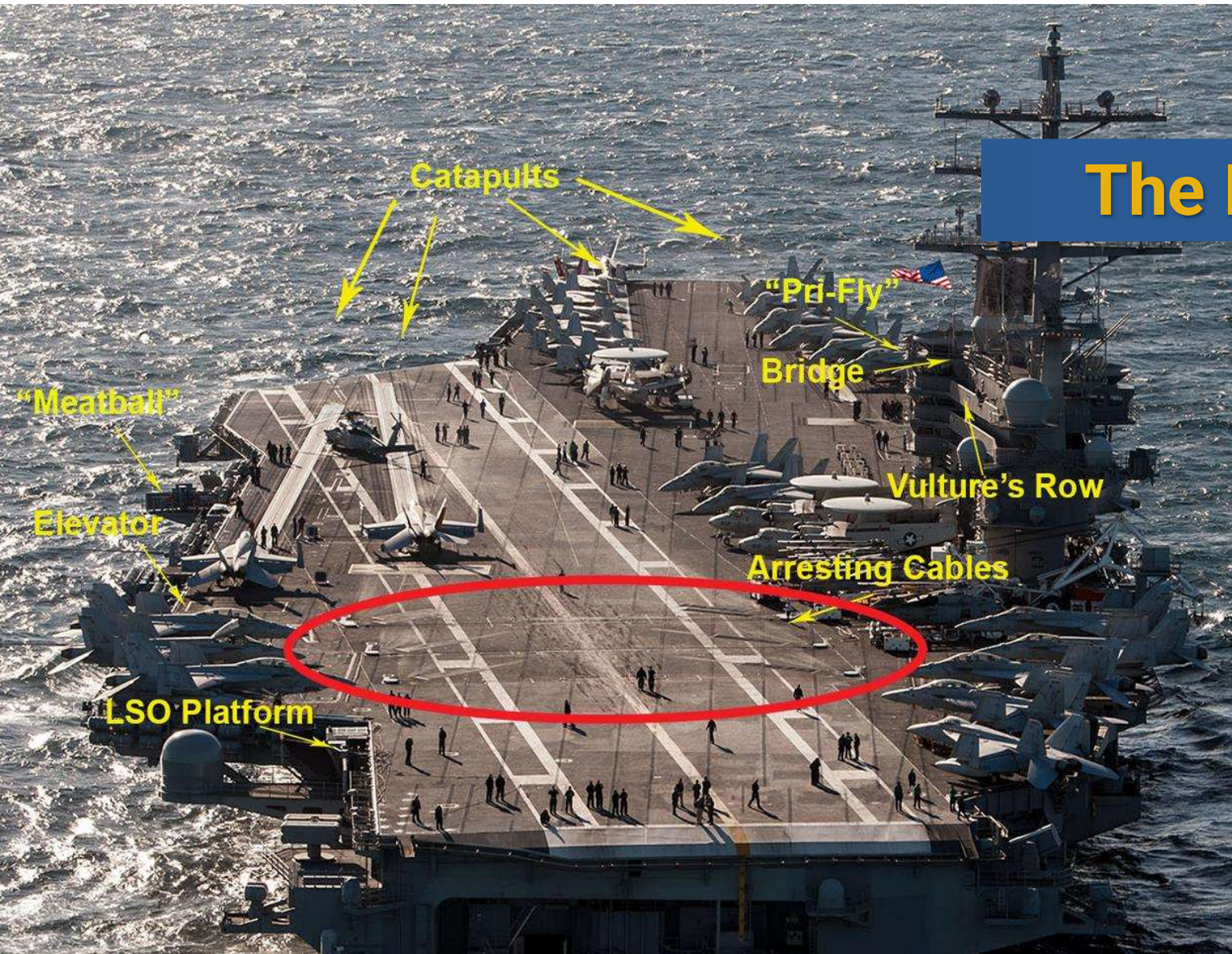
- Breakfast
- Dinner
- Lunch
- “MIDRATS”

Off duty time:

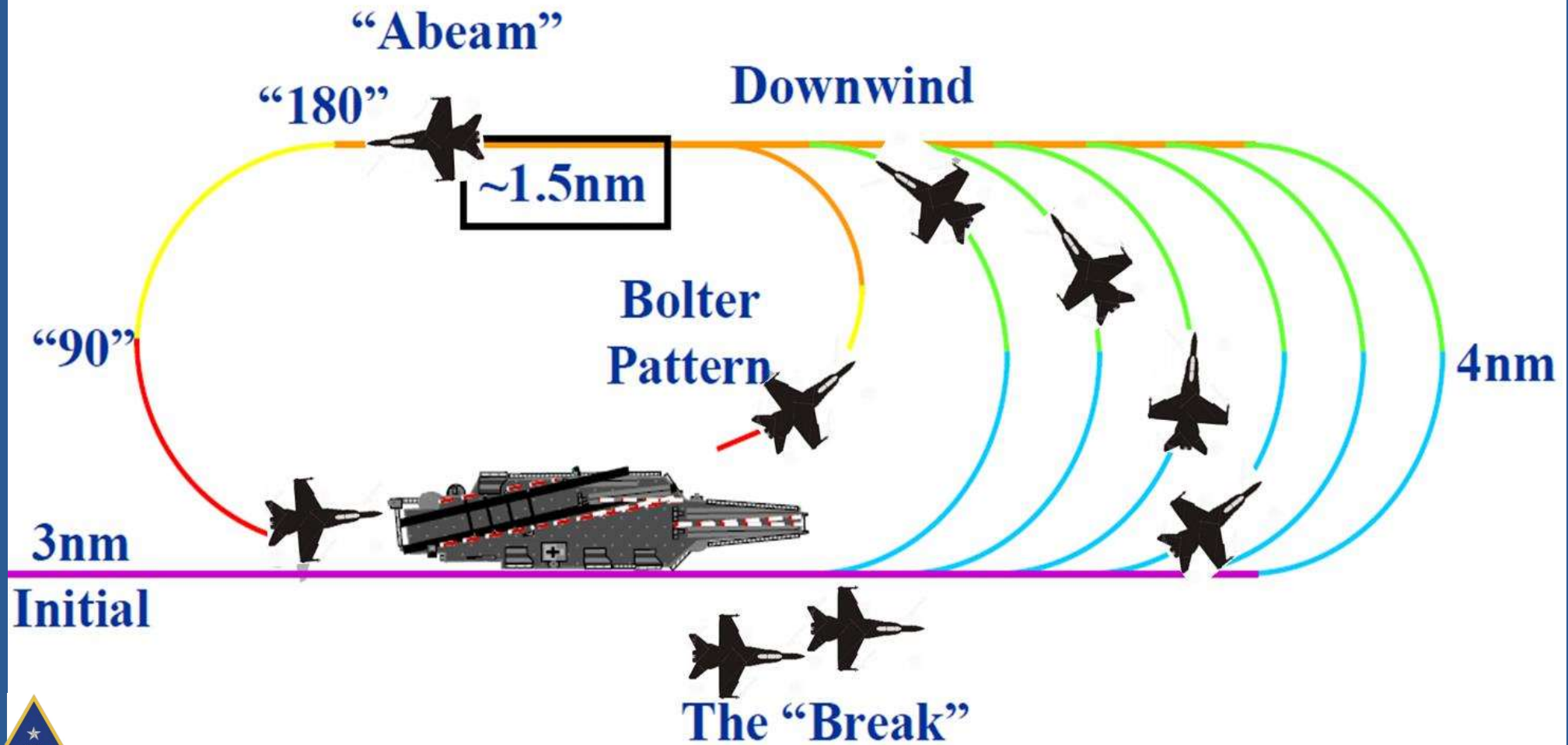
- Email (limited wifi)
- Comradery
- Professional development
- Gym
- Study
- Shipboard Television



The Flight Deck



Carrier Landing



Day Train

Night Train

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!

USS Abraham Lincoln (CVN 72)

Commissioned: Nov. 11, 1989

Dimensions: 1,092 x 252 feet

Area of Flight Deck: 4.5 acres

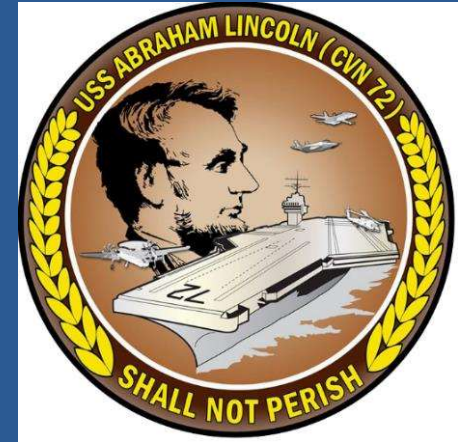
Displacement: 95,000 tons

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



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

Carriers of the World



Navy Comparison

United States' Navy:

42 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 provide 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

Operational Chain (Warfighting)

Administrative Chain (Man, Train and Equip)

Chain of Command when on deployment

Chain of Command when not deployed

