Oliver Hazard Perry Class Frigates

United States Navy

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Oliver Hazard Perry class frigate

USS *Oliver Hazard Perry* (FFG 7) underway in the Great Lakes

Class overview	
Name:	Oliver Hazard Perry
Builders:	→ Bath Iron Works → Todd Pacific Shipyards San Pedro Todd Pacific Shipyards Seattle Australian Marine Engineering Consolidated Bazan China Shipbuilding
Operators:	United States Navy Royal Australian Navy Armada Española Republic of China Navy Royal Bahrain Naval Force Egyptian Navy Polish Navy Turkish Navy
Preceded by:	*Brooke*-class frigate
Subclasses:	*Adelaide*-class (Australia) *Santa María*-class (Spain) *Cheng Kung*-class (Republic of China)
Built:	1975 – 2004
In commission:	1977 – Present
Completed:	71
General characteristics	
Type:	Frigate
Displacement:	4100 long tons (4200 t) full load

Length:	408 ft (124 m) waterline, 445 ft (136 m) overall, 453 ft (138 m) for "long-hull" frigates
Beam:	45 ft (14 m)
Draft:	22 ft (6.7 m)
Propulsion:	2 × → General Electric LM2500-30 gas turbines generating 41,000 shp (31 MW) through a single shaft and → variable pitch propeller; 2 x Auxiliary Propulsion Units, 350 hp (.25 MW) retractable electric → azipods for maneuvering and docking.
Speed:	29+ knots (54+ km/h)
Range:	4500 nmi (8300 km) at 20 knots (40 km/h)
Complement:	176
Sensors and processing systems:	**Radar:** → AN/SPS-49, → AN/SPS-55, Mk 92 fire control system **Sonar:** SQS-56, SQR-19 Towed Array
Electronic warfare and decoys:	SLQ-32(V)2, Flight III with sidekick, → Mark 36 SRBOC → AN/SLQ-25 Nixie
Armament:	One single-arm Mk 13 Missile Launcher with a 40-missile magazine that contains → SM-1MR anti-aircraft guided missiles and Harpoon anti-ship missiles. Removed from the U.S. Navy ships starting in 2003, due to the retirement of the SM-1 missile from American service Two → triple Mark 32 Anti-submarine warfare torpedo tubes with → Mark 46 or → Mark 50 anti-submarine warfare torpedoes One → OTO Melara 76 mm/62 caliber naval gun One 20 mm → Phalanx CIWS rapid-fire cannon Eight Hsiung Feng II SSM or four HF-2 and 4 HF-3 supersonic AShM, plus 2 Bofors 40mm/L70 guns on Taiwanese vessels only)
Aircraft carried:	Two LAMPS multi-purpose helicopters (the → SH-2 *Seasprite* LAMPS I on the short-hulled ships or the → SH-60 *Seahawk* LAMPS III on the long-hulled ships)

The ***Oliver Hazard Perry* class** is a class of → frigates named after the American Commodore → Oliver Hazard Perry, the hero of the naval Battle of Lake Erie. Also known as the Perry or FFG-7 class, the warships were designed in the United States in the mid-1970s as general-purpose escort vessels inexpensive enough to be bought in large quantities to replace World War II-era destroyers. Fifty-five ships were built in the United States: 51 for the United States Navy and four for the Royal Australian Navy (RAN). In addition, eight were built in the Republic of China (Taiwan), six in Spain, and two in Australia for their navies. Former U.S. Navy warships of this class have been sold/donated to the navies of Bahrain, Egypt, Poland, and Turkey.

Design and Construction

→ SH-2 Seasprite landing on ORP Generał Tadeusz Kościuszko

The ships were designed by the → Bath Iron Works shipyard in Maine in partnership with the New York-based naval architects Gibbs & Cox.

The *Oliver Hazard Perry*-class ships were produced in 445-foot (136 meter) long "short-hull" (Flight I) and 453-foot (138 meter) long "long-hull" (Flight III) variants. The long-hull ships (FFG 8, 28, 29, 32, 33, and 36-61) carry the larger → SH-60 *Seahawk* LAMPS III helicopters, while the short-hulled warships carry the smaller and less-capable → SH-2 *Seasprite* LAMPS I. Aside from the lengths of their hulls, the principal difference between the versions is the location of the aft capstan: on long-hull ships, it sits a step below the level of the flight deck in order to provide clearance for the tail rotor of the longer *Seahawk* helicopters. The long-hull ships also carry the RAST (Recovery Assist Securing and Traversing) system for the *Seahawk*, a hook, cable, and winch system that can reel in a *Seahawk* from a hovering flight, expanding the ship's pitch-and-roll range in which flight operations are permitted. The FFG 8, 29, 32, and 33 were built as "short-hull" warships but were later modified into "long-hull" warships.

American shipyards constructed *Oliver Hazard Perry*-class ships for the U.S. Navy and the Royal Australian Navy (RAN). Early American-built Australian ships were originally built as the "short-hull" version, but they were modified during the 1980s to the "long-hull" design. Shipyards in Australia, Spain, and the Republic of China have produced several warships of the "long-hull" design for their navies.

Although the per-ship costs rose greatly over the period of production, all 51 ships planned for the U.S. Navy were built. Some *Oliver Hazard Perry*-class warships are planned to remain in American service for years, but some of the older ships have been decommissioned and some scrapped. Others of these decommissioned ships have been transferred to the navies of other countries, including Bahrain, Egypt, Poland, and Turkey. Several ot these have replaced old Second World War-built American destroyers that had been given to those countries.

The *Oliver Hazard Perry*-class frigates were designed primarily as anti-aircraft and anti-submarine warfare guided-missile warships intended to provide open-ocean escort of amphibious warfare ships and merchant ship convoys in moderate threat environments in a potential war with the Soviet Union and the Warsaw Pact countries. They could also provide air defense against 1970s- and 1980s-era aircraft and anti-ship missiles. These warships are equipped to escort and protect aircraft carrier battle groups, amphibious landing groups, underway replenishment groups, and merchant ship convoys. They can conduct independent operations to perform such tasks as surveillance of illegal drug smugglers, maritime interception operations, and exercises with other nations.

The addition of the Naval Tactical Display System, LAMPS helicopters, and the Tactical Towed Array System (TACTAS) gave these warships a combat capability far beyond the original expectations. They are well-suited for the littoral regions and most war-at-sea scenarios.

Notable combat actions

USS *Stark* listing to port following an air attack

Oliver Hazard Perry-class frigates made worldwide news twice during the 1980s. Despite being small, these frigates were shown to be extremely durable. During the Iran–Iraq War, on 17 May 1987, the → USS *Stark* was attacked by an Iraqi warplane. Struck by two Exocet anti-ship missiles, thirty-seven American sailors died in the deadly prelude to the American Operation Earnest Will, the reflagging and escorting of oil tankers through the Persian Gulf and the Straits of Hormuz. Less than a year later, on 14 April 1988, the USS → *Samuel B. Roberts* was nearly sunk by an Iranian mine. No lives were lost, but 10 sailors were evacuated from the warship for medical treatment. The U.S. Navy retaliated four days later with Operation Praying Mantis, a one-day attack on Iranian oil platforms being used as bases for raids on merchant shipping. Those had included bases for the minelaying operations that damaged the USS *Samuel B. Roberts*. Both frigates were repaired in American shipyards and returned to full service. The USS *Stark* was decommissioned in 1999, and scrapped in 2006.

Modifications

United States

The remaining American "long-hull" *Oliver Hazard Perry*-class warships are being modified to reduce their operating costs. The Detroit Diesel Company electrical generators are being replaced with more modern Caterpillar, Inc.-made diesel engines and the ships' Mk 13 single arm missile launchers and magazines have been removed from all U.S. Navy active frigates because the primary missile that it was meant to fire, the Standard missile SM-1MR, has outlived its service life.[1]

→ USS *Rodney M. Davis* (FFG-60) after the removal of her foredeck → Mk 13 missile launcher.

It would supposedly be too costly to refit the Standard Missile SM-1MR missiles, which had a marginal ability to bring down sea-skimming missiles. Another reason for withdrawing the SM-1MR from the American ships is to focus the supplies of these missiles to American allies, such as Poland, Spain, Australia, Turkey, and the Republic of China (Taiwan), which need them most. (Possessing no or few other guided-missile warships in their navies.)

With the removal of their → Mk 13 missile launchers the American *Oliver Hazard Perry*-class warships also lose their Harpoon anti-ship missile capability. However, their *Seahawk* helicopters can carry the much shorter-ranged Penguin anti-ship missile, delivered far from the ship by helicopter. The "zone-defense" anti-aircraft warfare (AAW) capability has vanished, and all that remains is a "point-defense" type of AAW armament.

The U.S. Navy plans to update the *Oliver Hazard Perry*-class warships' → Phalanx CIWS to the "Block 1B" capability, which will allow the Mk 15 20 mm Phalanx gun to shoot at fast-moving surface craft and helicopters. The remaining *Oliver Hazard Perry*-class ships are also to be fitted with the Mk 53 DLS "Nulka" missile decoy system, which will be better than the presently-equipped chaff (SRBOC, Super Rapid Blooming Offboard Chaff) and flares at guarding against anti-ship missiles.

On June 16, 2009, Vice Adm. Barry McCullough turned down the suggestion of Mel Martinez to keep the Perrys in service, citing their worn out and maxed out condition.[2]

Australia

As part of a major project of improvements, a one billion Australian dollar moderization project for the Royal Australian Navy (RAN) *Adelaide*-class guided-missile frigates is in progress. This project will include enhancements to both their weapons and other equipment. The costs of the project will be partly offset, in the short run, by the decommissioning and disposal of the two older frigates. HMAS *Canberra* was decommissioned on 12 November 2005 at naval base HMAS *Stirling* in Western Australia and HMAS *Adelaide* was decommissioned at that same naval base on 20 January 2008. The first of the upgraded frigates, HMAS *Sydney*, returned to the RAN fleet in 2005. Some of the new features include the ability to carry and fire the SM-2 version of the Standard missile, an eight-cell Mk-41 [3] vertical launch system (VLS) for Evolved Sea Sparrow missiles, enhanced air-search radars, and enhanced long-range sonar systems. Each of the four frigates to be upgraded have the work at the Garden Island shipyard in Sydney, Australia, with the modernizations lasting between 18 months and two years. These frigates are planned to be replaced starting in 2013 by three new *Hobart*-class air warfare destroyers equipped with the AEGIS combat system. However, the third of those destroyers will not be commissioned until 2017, at the earliest.

Turkey

F-490 TCG *Gaziantep* is a G class frigate of the Turkish Navy

The Turkish Navy has commenced the modernization of its G class frigates with the GENESIS (Gemi Entegre Savaş İdare Sistemi) combat management system.[4] The first GENESIS upgraded ship was delivered in 2007, and the last delivery is scheduled for 2011.[5] The "short-hull" *Oliver Hazard Perry*-class frigates that are currently part of the Turkish Navy were modified with the ASIST landing platform system at the Istanbul Naval Shipyard, so that they can accommodate the S-70B *Seahawk* helicopters. Turkey is planning to add one eight-cell Mk 41 Vertical Launching Systems (VLS) for the Evolved Sea Sparrow missile, to be installed forward of the present → Mk 13 missile launchers, similar to the case in the modernization program of the Australian Adelaide class frigates.[6] [7] [8] There are also plans for new components to be installed that are being developed for the Milgem class warships (*Ada class* corvettes and *F-100 class* frigates) of the Turkish Navy. These include modern Three-dimensional and X-band radars developed by Aselsan and Turkish-made hull-mounted sonars. One of the G class frigates will also be used as a test-bed for Turkey's 4,500-ton TF-2000 class anti-aircraft warfare (AAW) → frigates that are currently being designed by the Turkish Naval Institute.

Operators

- Australia (*Adelaide* class): The Royal Australian Navy purchased six frigates. Four of them were built in the United States while the other two were built in Australia. They are being upgraded since 2005, with the addition of an eight-cell Mk 41 VLS with 32 Evolved Sea Sparrow (ESSM) missiles, and the Standard Missile SM-2, plus upgraded radars and sonars.
- Bahrain: The → *USS Jack Williams (FFG-24)*, a gift of the American government in 1996, and re-christened the *Sabha*.
- Egypt (*Mubarak* class frigates): Four *Oliver Hazard Perry*-class frigates were transferred from the U.S. Navy.
- Pakistan: 6 to be transferred [9] , FFG-8 McInerney to be transferred to Pakistani Navy in August, 2010.[10]
- Poland: Two frigates were transferred from the U.S. Navy in 2002 and 2003.

- Republic of China (*Cheng Kung* class): Taiwanese-built. Eight ships equipped with 8 Hsiung Feng II anti-ship missiles, PFG-1101 and PFG-1105 now carrying 4 HF-2 and 4 HF-3 supersonic AShM. Rest of the ships in the class will change the anti-ship mix upon their major overhaul. 7 out of 8 ships addes Bofors 40mm/L70 guns for both surface and anti-air use.
- Spain (*Santa Maria* class): Spanish-built: six frigates.
- Turkey (*G* class): Eight former U.S. Navy *Oliver Hazard Perry*-class frigates have been transferred to the Turkish Navy. All eight are undergoing extensive modernization, and they are now know as the *G Class* frigates. The Turkish Navy modernized *G Class* frigates have an additional Mk-41 Vertical Launch System capable of launching Evolved Sea Sparrow missiles for close-in, as well as their longer-range SM-1 missiles; advanced digital fire control systems and new Turkish-made sonars.
- United States: The U.S. Navy commissioned 51 FFG-7 class frigates between 1977 and 1989. As of early 2008, 30 long-hull *Oliver Hazard Perry*-class frigates remain in active service.

On May 11, 2009, the first International Frigate Working Group met in Mayport Naval Station to discuss maintenance, obsolescence and logistics issues regarding Oliver Hazard Perry-class ships of the U.S. and foreign navies.[11]

The *Oliver Hazard Perry* Frigates

Ship Name	Hull No.	Builder	Commission–Decommission	Fate	Link
U.S.-built					
→ *Oliver Hazard Perry*	FFG-7	→ Bath Iron Works	1977-1997	Disposed of by scrapping, dismantling, 21 April 2006	[12]
→ *McInerney*	FFG-8	Bath Iron Works	1979-	Active in service as of 2009	[13]
→ *Wadsworth*	FFG-9	→ Todd Pacific Shipyards, San Pedro	1978-2002	Transferred to Poland as ORP *Gen. T. Kos'ciuszko* (273)	[14]
→ *Duncan*	FFG-10	→ Todd Pacific Shipyards, Seattle	1980-1994	Transferred to Turkey as a spare-parts hulk	[15]
→ *Clark*	FFG-11	Bath Iron Works	1980-2000	Transferred to Poland as ORP *Gen. K. Pulaski* (272)	[16]
→ *George Philip*	FFG-12	Todd, San Pedro	1980-2003	Stricken, to be disposed of, 24 May 2004.	[17]
→ *Samuel Eliot Morison*	FFG-13	Bath Iron Works	1980-2002	Transferred to Turkey as → TCG *Gokova* (F 496)	[18]
→ *Sides*	FFG-14	Todd, San Pedro	1981-2003	Stricken, to be disposed of, 24 May 2004.	[19]
→ *Estocin*	FFG-15	Bath Iron Works	1981-2003	transferred to Turkey as TCG *Goksu* (F 497)	[20]
→ *Clifton Sprague*	FFG-16	Bath Iron Works	1981-1995	transferred to Turkey as TCG *Gaziantep* (F 490)	[21]
built for Australia as HMAS *Adelaide* (FFG 01)	FFG-17	Todd, Seattle	1980-2008	Decommissioned, to be sunk as diving & fishing reef	[22]
built for Australia as HMAS *Canberra* (FFG 02)	FFG-18	Todd, Seattle	1981-2005	Decommissioned, to be sunk as diving & fishing reef	[23]
→ *John A. Moore*	FFG-19	Todd, San Pedro	1981-2001	transferred to Turkey as TCG *Gediz* (F 495)	[24]

→ *Antrim*	FFG-20	Todd, Seattle	1981-1996	transferred to Turkey as TCG *Giresun* (F 491)	[25]
→ *Flatley*	FFG-21	Bath Iron Works	1981-1996	transferred to Turkey as TCG *Gemlik* (F 492))	[26]
→ *Fahrion*	FFG-22	Todd, Seattle	1982-1998	transferred to Egypt as *Sharm El-Sheik* (F 901)	[27]
→ *Lewis B. Puller*	FFG-23	Todd, San Pedro	1982-1998	transferred to Egypt as *Toushka* (F 906)	[28]
→ *Jack Williams*	FFG-24	Bath Iron Works	1981-1996	transferred to Bahrain as *Sabha* (90)	[29]
→ *Copeland*	FFG-25	Todd, San Pedro	1982-1996	transferred to Egypt as *Mubarak* (F 911)	[30]
→ *Gallery*	FFG-26	Bath Iron Works	1981-1996	transferred to Egypt as *Taba* (F 916)	[31]
→ *Mahlon S. Tisdale*	FFG-27	Todd, San Pedro	1982-1996	transferred to Turkey as → TCG Gokceada (F 494)	[32]
→ *Boone*	FFG-28	Todd, Seattle	1982-	Naval Reserve Force, Active since 1998	[33]
→ *Stephen W. Groves*	FFG-29	Bath Iron Works	1982-	Naval Reserve Force, Active since 1997	[34]
→ *Reid*	FFG-30	Todd, San Pedro	1983-1998	transferred to Turkey as TCG *Gelibolu* (F 493)	[35]
→ *Stark*	FFG-31	Todd, Seattle	1982-1999	Disposed of by scrapping, dismantling, 21 June 2006	[36]
→ *John L. Hall*	FFG-32	Bath Iron Works	1982-	Active in service as of 2009	[37]
→ *Jarrett*	FFG-33	Todd, San Pedro	1983-	Active in service as of 2009	[38]
→ *Aubrey Fitch*	FFG-34	Bath Iron Works	1982-1997	Disposed of by scrapping, dismantling, 19 May 2005	[39]
built for Australia as HMAS *Sydney* (FFG 03)	FFG-35	Todd, Seattle	1983-	Active in service as of 2009	[40]
→ *Underwood*	FFG-36	Bath Iron Works	1983-	Active in service as of 2009	[41]
→ *Crommelin*	FFG-37	Todd, Seattle	1983-	Naval Reserve Force, Active since 2003	[42]
→ *Curts*	FFG-38	Todd, San Pedro	1983-	Naval Reserve Force, Active since 1998	[43]
→ *Doyle*	FFG-39	Bath Iron Works	1983-	Naval Reserve Force, Active since 2002	[44]
→ *Halyburton*	FFG-40	Todd, Seattle	1983-	Active in service as of 2009	[45]
→ *McClusky*	FFG-41	Todd, San Pedro	1983-	Naval Reserve Force, Active since 2002	[46]
→ *Klakring*	FFG-42	Bath Iron Works	1983-	Naval Reserve Force, Active since 2002	[47]
→ *Thach*	FFG-43	Todd, San Pedro	1984-	Active in service as of 2009	[48]
built for Australia as HMAS *Darwin* (FFG 04)	FFG-44	Todd, Seattle	1984-	Active in service as of 2009	[48]

→ *De Wert*	FFG-45	Bath Iron Works	1983-	Active in service as of 2009	[49]
→ *Rentz*	FFG-46	Todd, San Pedro	1984-	Active in service as of 2009	[50]
→ *Nicholas*	FFG-47	Bath Iron Works	1984-	Active in service as of 2009	[51]
→ *Vandegrift*	FFG-48	Todd, Seattle	1984-	Active in service as of 2009	[52]
→ *Robert G. Bradley*	FFG-49	Bath Iron Works	1984-	Active in service as of 2009	[53]
→ *Taylor*	FFG-50	Bath Iron Works	1984-	Active in service as of 2009	[54]
→ *Gary*	FFG-51	Todd, San Pedro	1984-	Active in service as of 2009	[55]
→ *Carr*	FFG-52	Todd, Seattle	1985-	Active in service as of 2009	[56]
→ *Hawes*	FFG-53	Bath Iron Works	1985-	Active in service as of 2009	[57]
→ *Ford*	FFG-54	Todd, San Pedro	1985-	Active in service as of 2009	[58]
→ *Elrod*	FFG-55	Bath Iron Works	1985-	Active in service as of 2009	[59]
→ *Simpson*	FFG-56	Bath Iron Works	1985-	Naval Reserve Force, Active since 2002	[60]
→ *Reuben James*	FFG-57	Todd, San Pedro	1986-	Active in service as of 2009	[61]
→ *Samuel B. Roberts*	FFG-58	Bath Iron Works	1986-	Active in service as of 2009	[62]
→ *Kauffman*	FFG-59	Bath Iron Works	1987-	Active in service as of 2009	[63]
→ *Rodney M. Davis*	FFG-60	Todd, San Pedro	1987-	Naval Reserve Force, Active since 2002	[64]
→ *Ingraham*	FFG-61	Todd, San Pedro	1989-	Active in service as of 2009	[65]
Australian-built					
HMAS *Melbourne*	FFG 05	Australian Marine Engineering Consolidated (AMECON), Williamstown, Victoria	1992-	Active in service as of 2009	
HMAS *Newcastle*	FFG 06	AMECON, Williamstown	1993-	Active in service as of 2009	
Spanish-built					
SPS *Santa María*	F81	Bazan, Ferrol	1986-	Active in service as of 2009	
SPS *Victoria*	F82	Bazan, Ferrol	1987-	Active in service as of 2009	
SPS *Numancia*	F83	Bazan, Ferrol	1989-	Active in service as of 2009	
SPS *Reina Sofía*	F84	Bazan, Ferrol	1990-	Active in service as of 2009	
SPS *Navarra*	F85	Bazan, Ferrol	1994-	Active in service as of 2009	
SPS *Canarias*	F86	Bazan, Ferrol	1995-	Active in service as of 2009	
Republic of China-built (Taiwanese)					
ROCS *Cheng Kung*	FFG-1101	China Shipbuilding, Kaohsiung, Taiwan	1993-	Active in service as of 2009	
ROCS *Cheng Ho*	FFG-1103	China Shipbuilding, Kaohsiung, Taiwan	1994-	Active in service as of 2009	
ROCS *Chi Kuang*	FFG-1105	China Shipbuilding, Kaohsiung, Taiwan	1995-	Active in service as of 2009	
ROCS *Yueh Fei*	FFG-1106	China Shipbuilding, Kaohsiung, Taiwan	1996-	Active in service as of 2009	
ROCS *Tzu I*	FFG-1107	China Shipbuilding, Kaohsiung, Taiwan	1997-	Active in service as of 2009	
ROCS *Pan Chao*	FFG-1108	China Shipbuilding, Kaohsiung, Taiwan	1997-	Active in service as of 2009	

ROCS *Chang Chien*	FFG-1109	China Shipbuilding, Kaohsiung, Taiwan	1998-	Active in service as of 2009	
ROCS *Tien Dan*	FFG-1110	China Shipbuilding, Kaohsiung, Taiwan	2004-	Active in service as of 2009	

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External links

- *Oliver Hazard Perry*-class frigates [68] at Destroyer History Foundation [69]
- Official U.S. Navy Fact File: Frigates [70]
- FFG-7 OLIVER HAZARD PERRY-class: by the Federation of American Scientists [71]
- MaritimeQuest Perry Class Overview [72]
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Oliver Hazard Perry

Commodore **Oliver Hazard Perry** (August 2, 1785 – August 23, 1819) was born in South Kingstown, Rhode Island, the son of Captain Christopher Raymond Perry and Sarah Wallace Alexander. He was an older brother to Matthew Calbraith Perry. As a boy, he lived in South Carolina, sailing ships practicing for his future career as an officer in the US Navy. He served in the War of 1812 against Britain, and earned the title "Hero of Lake Erie" for leading American forces in a decisive naval victory at the Battle of Lake Erie. The city of Perrysburg, Ohio, Perry County, Kentuckyand its county seat Hazard, Kentucky, the borough of Perryopolis, Pennsylvania, Perry County, Pennsylvania, Oliver Township in Perry County, Pennsylvania, as well as the village of Perrysburg, New York and its the surrounding township are all named after him.

Oliver Hazard Perry

Biography

Through his mother, Perry is descended from Scotland's national hero, William Wallace.[1]

Educated in Newport, Rhode Island, Perry was appointed a midshipman in the United States Navy on April 7, 1799. During the Quasi-War with France, he was assigned to his father's frigate, the USS *General Greene*. He first experienced combat on February 9, 1800, off of the French colony of Haiti, which was in a state of rebellion.

During the First Barbary War, he initially served on the USS *Adams* and later commanded USS *Nautilus* during the capture of Derna.

At Perry's request during the War of 1812, he was given command of United States naval forces on Lake Erie. He supervised the building of a small fleet at Dobbin's Landing in Presque Isle Bay in Erie, Pennsylvania. On September 10, 1813, Perry's fleet defended against an attacking British fleet at the Battle of Lake Erie. Perry's flagship, the USS *Lawrence*, was destroyed in the encounter and Perry was rowed a half-mile through heavy gunfire to transfer command to the USS *Niagara*, carrying his battle flag (reading "DONT GIVE UP THE SHIP", the final words of Captain James Lawrence). Perry's battle report to General William Henry Harrison was famously brief: "We have met the enemy and they are ours; two ships, two brigs, one schooner and one sloop."

His victory opened Canada up to possible invasion, while simultaneously protecting the entire Ohio Valley. It was one of only two significant fleet victories of the war, along with the Battle of Plattsburgh.

Perry's battle flag

In 1819, during an expedition to Venezuela's Orinoco River Oliver Hazard Perry died of yellow fever contracted from mosquitos

The final words of Captain Lawrence painted onto the USS *Lake Erie*, seen here during a 2008 missile launch

while aboard the *Nonsuch*. He was 34 years old. Perry's remains were buried in Port of Spain, Trinidad, but were later taken back to the United States and interred in Newport, Rhode Island. After resting briefly in the Old Common Burial Ground, his body was moved a final time to Newport's Island Cemetery, where his brother Matthew C. Perry is also interred. Monuments to Perry are located in Front Park at Buffalo, New York and Perry Square in Erie, Pennsylvania, and Perry's Monument at Put-In-Bay, Ohio.

Further reading

- Langguth, A. J. (2006). *Union 1812:The Americans Who Fought the Second War of Independence*. New York: Simon & Shuster. ISBN 0743226189.

External links

- Perry @ the National Park Service [2]
- Perry @ the Naval Historical Center [3]
- Perry's account of the Battle of Lake Erie [4]
- "Log of the Battle of Lake Erie" [5] by Sailing Master William Taylor
- US Brig *Niagara* [6]
- Commodore Perry IPA [7] by Great Lakes Brewing Co
- Information about the epic battle painting by Julian O. Davidson [8]
- Perry Monument, Buffalo Historical Markers and Monuments website [9]

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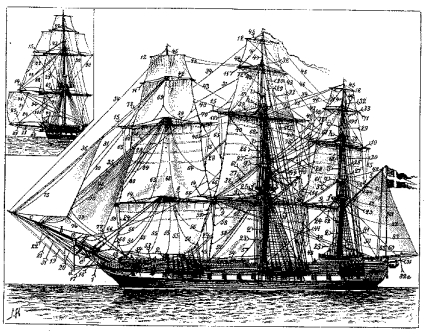
Frigate

A **frigate** (pronounced /ˈfrɪgɨt/) is a warship. The term has been used for warships of many sizes and roles over the past few centuries.

In the 17th century, the term was used for any warship built for speed and manoeuvrability, the description often used being "frigate-built". These could be warships carrying their principal battery of carriage-mounted guns on a single deck or on two decks (with further smaller carriage-mounted guns usually carried on the forecastle and quarterdeck of the vessel). The term was generally used for ships too small to stand in the line of battle, although early line-of-battle ships were frequently referred to as frigates when they were built for speed.



Sailing frigate and its rigging

In the 18th century, the term referred to ships which were usually as long as a ship-of-the-line and were square-rigged on all three masts (full rigged), but were faster and with lighter armament, used for patrolling and escort. In the definition adopted by the British Admiralty, they were Rated ships of at least 28 guns, carrying their principal armament upon a single continuous deck - the upper deck, while ships-of-the-line possessed two or more continuous decks bearing batteries of guns. Frigates did not carry any guns (or have any gunports) on their lower decks; confusingly, the lower deck was often referred to as the "gun deck" in the British Navy (in the American Navy, it was usually called the "berth deck"), even for frigates, where it did not carry any guns or have gunports. Both types could (and usually did) additionly carry smaller carriage-mounted guns on their quarter decks and forecastles (the superstructures above the upper deck). Technically, rated ships with fewer than 28 guns could not be classed as frigates but as "post ships"; however, in common parlance most post ships were often described as 'frigates', the same casual misuse of the term being extended to smaller two-decked ships that were too small to stand in the line of battle.

In the late 19th century (beginning about 1858 with the construction of prototypes by the British and French navies), the **armoured frigate** was a type of ironclad warship and for a time was the most powerful type of vessel afloat. The term 'frigate' was used because such ships still mounted their principal armament on a single continuous upper deck. The later 19th century battleship thus developed from the frigate rather than from the ship of the line.

In modern navies, frigates are used to protect other warships and merchant-marine ships, especially as anti-submarine warfare (ASW) combatants for amphibious expeditionary forces, underway replenishment groups, and merchant convoys. But ship classes dubbed "frigates" have also more closely resembled corvettes, destroyers, cruisers and even battleships.

The rank Frigate Captain derives from the name of this type of ship.

Age of sail

Origins

Boudeuse, of Louis Antoine de Bougainville

The term "frigate" (Italian: *fregata*; Spanish/Catalan/Portuguese/Sicilian: *fragata*; Dutch: "fregat") originated in the Mediterranean in the late 15th century, referring to a lighter galleass type ship with oars, sails and a light armament, built for speed and maneuverability.[1]

In 1583, during the Eighty Years' War, Habsburg Spain recovered the Southern Netherlands from the rebellious Dutch. This soon led to the occupied ports being used as bases for privateers, the Dunkirkers, to attack the shipping of the Dutch and their allies. To achieve this they developed small, maneuverable, sail-only vessels that came to be referred to as frigates. Because most regular navies required ships of greater endurance than the Dunkirker frigates could provide, the useful term 'frigate' was soon applied less exclusively to any relatively fast and elegant sail-only ship, such that much later even the mighty English *Sovereign of the Seas* was described as 'a delicate frigate' after modifications in 1651.

The navy of the Dutch Republic was the first regular navy to build the larger ocean-going frigates. The Dutch navy had three principal tasks in the struggle against Spain: to protect Dutch merchant ships at sea, to blockade the ports of Spanish-held Flanders to damage trade and halt enemy privateering, and to fight the Spanish fleet and prevent troop landings. The first two tasks required speed, shallowness of draft for the shallow waters around the Netherlands, and the ability to carry sufficient supplies to maintain a blockade. The third task required heavy armament, sufficient to fight against the Spanish fleet. The first of these larger battle-capable frigates were built around 1600 at Hoorn in Holland.[2] By the later stages of the Eighty Years War the Dutch had switched entirely from the heavier ships still used by the English and Spanish to the lighter frigates, carrying around 40 guns and weighing around 300 tons.

The effectiveness of the Dutch frigates became most visible in the Battle of the Downs in 1639, triggering most other navies, especially the English, to adopt similar innovations.

The fleets built by the Commonwealth of England in the 1650s generally consisted of ships described as 'frigates', the largest of which were two-decker 'great frigates' of the third rate. Carrying 60 guns, these vessels were as big and capable as 'great ships' of the time; however, most other frigates at the time were used as 'cruisers': independent fast ships. The term 'frigate' implied a long hull design, which relates directly to speed (see hull speed) and also, in turn, helped the development of the broadside tactic in naval warfare.

At this time a further design evolved, reintroducing oars to create the galley frigate such as the Charles Galley of 1676 which was rated as a 32 gun fifth rate but also had a bank of 40 oars set below the upper deck which could be used to propel the ship in the absence of a favourable wind.

In French, the term 'frigate' became a verb, meaning 'to build long and low', and an adjective, adding further confusion. [3]

Under the rating system of the Royal Navy, by the middle of the 18th century, the term 'frigate' was technically restricted to single-decked ships of the fifth rate, though small 28-gun frigates were classed as sixth rate.[1]

Classic design

A *Magicienne* class frigate

The classic sailing frigate, well-known today for its role in the Napoleonic wars, can be traced back to French developments in the second quarter of the 18th century. The French-built *Médée* of 1740 is often regarded as the first example of this type. These ships were square-rigged and carried all their main guns on a single continuous upper deck. The lower deck, known as the "gun deck", now carried no armament, and functioned as a "berth deck" where the crew lived, and was in fact placed below the waterline of the new frigates. The new sailing frigates were able to fight with all their guns when the seas were so rough that comparable two-deckers had to close the gun-ports on their lower decks (see the Action of 13 January 1797, for an example when this was decisive). Like the larger 74 which was developed at the same time, the new frigates sailed very well and were good fighting vessels due to a combination of long hulls and low upperworks compared to vessels of comparable size and firepower.

The Royal Navy captured a handful of the new French frigates during the War of the Austrian Succession (1740–1748) and were impressed by them, particularly for their inshore handling capabilities. They soon built copies and started to adapt the type to their own needs, setting the standard for other frigates as a superpower. The first British frigates carried 28 guns including an upper deck battery of twenty-four 9-pounder guns (the remaining four smaller guns were carried on the quarter deck) but soon developed into Fifth Rates ships of 32 or 36 guns including an upper deck battery of twenty-six 12-pounder guns (with the remaining six or ten smaller guns carried on the quarter deck and forecastle). From around 1778, a larger "heavy" frigate was developed with a main battery of twenty-six or twenty-eight 18-pounder guns (again with the remaining ten smaller guns carried on the quarter deck and forecastle).

Royal Navy frigates of the late 18th century included the 1780-vintage *Perseverance* class, which measured around 900 tons burthen and carried 36 guns; this successful class was followed by numerous other classes that measured over 1,000 tons burthen and carried 38 guns.

In 1797, the US Navy's first six major ships were 44-gun frigates (or "super-frigates"), which actually carried fifty-six to sixty 24-pounder long guns and 36-pounder or 48-pounder carronades on two decks, and were exceptionally powerful and tough. These ships were so well-armed that they were often seen as equal to smaller ships of the line and, after a series of losses at the outbreak of the War of 1812, Royal Navy fighting instructions ordered British frigates (usually of 38 guns or less) to never engage American frigates at any less than a 2:1 advantage. USS *Constitution*, preserved as a museum ship by the US Navy, is the oldest commissioned frigate afloat, and is a surviving example of a frigate from the Age of Sail. *Constitution* and her sister ships were created in a response to deal with the Barbary Coast pirates and in conjunction with the Naval Act of 1794. The six ships when built had a distinctive building pattern which minimized "hogging" (in which the centre of the keel rises while both ends drop) and improves hydrodynamic efficiency.[4] The hull was designed so that all the weight from the guns was upon the keel itself. Joshua Humphreys proposed that only live oak, a tree that grew only in America, should be used to build these ships. The method was to use diagonal riders, eight on each side that sat a 45 degree angle. These beams of live oak were about two feet wide and around a foot thick and helped to maintain the shape of the hull, serving also to reduce flexibility and to minimize impacts.[5] These ideas were considered revolutionary in the late 18th and early 19th century. A three-layer method was used in which the planks along the sides of the hull were laid horizontally across the ribs, making a crossing or checker board pattern. The sides of the ship could be as thick as 25 inches, and were able to absorb substantial damage. The strength of this braced construction earned USS *Constitution* the nickname "Old Ironsides".

Role

Frigates were perhaps the hardest-worked of warship types during the Age of Sail. While smaller than a ship-of-the-line, they were formidable opponents for the large numbers of sloops and gunboats, not to mention privateers or merchantmen. Able to carry six months' stores, they had very long range; and vessels larger than frigates were considered too valuable to operate independently.

Frigates scouted for the fleet, went on commerce-raiding missions and patrols, conveyed messages and dignitaries. Usually frigates would fight in small numbers or singly against other frigates. They would avoid contact with ships-of-the-line; even in the midst of a fleet engagement it was bad etiquette for a ship of the line to fire on an enemy frigate which had not fired first.

For officers in the Royal Navy a frigate was a desirable posting. Frigates often saw action, which meant a greater chance of glory, promotion, and prize money.

Unlike larger ships that were placed in ordinary, frigates were kept in service in peacetime as a cost-saving measure and to provide experience to frigate captains and officers which would be useful in wartime. Frigates could also carry marines for boarding enemy ships or for operations on shore.

Frigate armament ranged from 22 guns on one deck to 60 guns on two decks. Common armament was 32 to 44 long guns, from 8- to 24-pounders (3.6 to 11 kg), plus a few carronades (large bore short-range guns).

The fictitious, but representative, ironclad frigate USS *Abraham Lincoln*, from Jules Verne's the novel *Twenty Thousand Leagues Under the Sea*

Frigates remained a crucial element of navies until the mid-19th century. The first ironclads were classified as 'frigates' because of the number of guns they carried. However, terminology changed as iron and steam became the norm, and the role of the frigate was assumed first by the protected cruiser and then by the light cruiser.

Frigates are often the vessel of choice in historical naval novels due to their relative freedom compared to ships of the line (kept for fleet actions) and smaller vessels (generally assigned to a home port and less widely ranging). For example the Patrick O'Brian Aubrey–Maturin series, C. S. Forester's Horatio Hornblower series and Alexander Kent's Richard Bolitho series. The motion picture *Master and Commander* features a reconstructed historic frigate, HMS *Rose*, to depict Aubrey's frigate HMS *Surprise*.

Age of steam

French paddle frigate *Descartes*

Vessels classed as frigates continued to play a great role in navies with the adoption of steam power in the 19th century. In the 1830s navies experimented with large paddle steamers equipped with large guns mounted on one deck, which were termed 'paddle frigates'. From the mid-1840s frigates which more closely resembled the traditional sailing frigate were built with steam engines and screw propellers. These 'screw frigates', built first of wood and later of iron, continued to perform the traditional role of the frigate until late in the 19th century.

From 1859, armour was added to ships based on existing frigate and ship of the line designs. The additional weight of the armour on these first ironclad warships meant that they could have only one gun deck, and they were technically frigates, even though they were more powerful than existing ships-of-the-line and occupied the same strategic role. The phrase 'armoured frigate' remained in use for some time to denote a sail-equipped, broadside-firing type of ironclad.

Towards the end of the 19th century, the term 'frigate' fell out of use. Armoured vessels were designated as either 'battleships' or 'armoured cruisers', while unarmoured vessels including frigates and sloops were classified as 'unprotected cruisers'.

Modern Age

Second World War

Modern frigates are related to earlier frigates only by name. The term "frigate" was readopted during World War II by the Royal Navy to describe a new type of anti-submarine escort vessel that was larger than a corvette, but smaller than a destroyer. The frigate was introduced to remedy some of the shortcomings inherent in the corvette design: limited armament, a hull form not suited to open-ocean work, a single shaft which limited speed and maneuverability, and a lack of range. The frigate was designed and built to the same mercantile construction standards (scantlings) as the corvette, allowing manufacture by yards unused to warship construction. The first frigates of the River class (1941) were essentially two sets of corvette machinery in one larger hull, armed with the latest Hedgehog anti-submarine weapon. The frigate possessed less offensive firepower and speed than a destroyer, but such qualities were not required for anti-submarine warfare. Submarines were slow, and ASDIC sets did not operate effectively at speeds of over 20 knots. Rather, the frigate was an austere and weatherly vessel suitable for mass-construction and fitted with the latest innovations in anti-submarine warfare. As the frigate was intended purely for convoy duties, and not to deploy with the fleet, it had limited range and speed.

The contemporaneous German *Flottenbegleiter* ("fleet escorts"), also known as "F-Boats" were essentially frigates.[6] They were based on a pre-war *Oberkommando der Marine* concept of vessels which could fill roles such as fast minesweeper, minelayer, merchant escort and anti-submarine vessel. Because of the Treaty of Versailles their displacement was officially limited to 600 tons, although in reality they exceeded this by about 100 tons. F-boats had two stacks and two 105 mm gun turrets. The design was flawed because of its narrow beam, sharp bow and unreliable high pressure steam turbines. F-boats suffered relatively heavy losses and were succeeded in operational duties later in the war by Type 35 and Elbing class torpedo boats. *Flottenbegleiter* remained in service as advanced training vessels.

It was not until the Royal Navy's Bay class of 1944 that a British design bearing the name of frigate was produced for fleet use, although it still suffered from limited speed. These frigates were similar to the United States Navy's (USN) destroyer escorts (DE), although the latter had greater speed and offensive armament to better suit them to fleet deployments. American DEs serving in the British Royal Navy were rated as frigates, and British-influenced

Tacoma class frigates serving in the USN were classed as patrol frigates (PF). One of the most successful post-1945 designs was the British *Leander* class frigate, which was used by several navies.

Guided missile role

Modern frigates

The introduction of the surface-to-air missile after the Second World War made relatively small ships effective for anti-aircraft warfare (AAW): the "guided missile frigate." In the USN, these vessels were called "Ocean Escorts" and designated "DE" or "DEG" until 1975 - a holdover from the World War II Destroyer Escort or DE. British Navy maintained the use of the term "frigate." Soviet Navy used the term "guard-ship" (сторожевой корабль).

From the 1950s to the 1970s, the USN commissioned ships classed as guided missile frigates which were actually AAW cruisers built on destroyer-style hulls. Some of these ships—the *Bainbridge*-, *Truxtun*-, *California*- and *Virginia*- classes—were nuclear-powered. These were larger than any previous frigates and the use of the term *frigate* here is much more analogous to its original use. All such ships were reclassified as guided missile cruisers (CG / CGN) or, in the case of the smaller *Farragut*-class, as guided missile destroyers (DDG) in 1975. The last of these particular frigates were struck from the Naval Vessel Register in the 1990s.

Nearly all modern frigates are equipped with some form of offensive or defensive missiles, and as such are rated as guided-missile frigates (FFG). Improvements in surface-to-air missiles (e.g., the Eurosam Aster 15) allow modern guided-missile frigates to form the core of many modern navies and to be used as a fleet defence platform, without the need for specialised AAW frigates.

Anti-submarine role


HMS *Somerset* of the Royal Navy. Type 23 frigates are leading anti-submarine warfare frigates.

At the opposite end of the spectrum, some frigates are specialised for anti-submarine warfare (ASW). Increasing submarine speeds towards the end of the Second World War (see German Type XXI submarine) greatly reduced the margin of speed superiority of frigate over submarine. The frigate could no longer be slow and powered by mercantile machinery and consequently postwar frigates, such as the *Whitby* class, were faster. Such ships carry improved sonar equipment, such as the variable depth sonar or towed array, and specialised weapons such as torpedoes, forward-throwing weapons such as Limbo and missile-carried anti-submarine torpedoes such as ASROC or Ikara. Surface-to-air missiles such as Sea Sparrow and surface-to-surface missiles such as Exocet give them defensive and offensive capabilities. The Royal Navy's original Type 22 frigate is an example of a specialised ASW frigate.

Especially for ASW, most modern frigates have a landing deck and hangar aft to operate helicopters, eliminating the need for the frigate to close with unknown sub-surface threats, and using fast helicopters to attack nuclear submarines which may be faster than surface warships. For this task the helicopter is equipped with sensors such as sonobuoys, wire-mounted dipping sonar and magnetic anomaly detectors to identify possible threats, and torpedoes or depth-charges to attack them. With their onboard radar helicopters can also be used to reconnoitre over-the-horizon targets and, if equipped with anti-ship missiles such as Penguin or Sea Skua, to attack them. The

helicopter is also invaluable for search and rescue operation and has largely replaced the use of small boats or the jackstay rig for such duties as transferring personnel, mail and cargo between ships or to shore. With helicopters these tasks can be accomplished faster and less dangerously, and without the need for the frigate to slow down or change course.

Further developments

De Zeven Provinciën class frigate.

Stealth technology has been introduced in modern frigate design. Frigate shapes are designed to offer a minimal radar cross section, which also lends them good air penetration; the maneuverability of these frigates has been compared to that of sailing ships. Examples are the French *La Fayette*-class with the Aster 15 missile for anti-missile capabilities, the German F125 class and Sachsen class frigates and also the Turkish Milgem type corvettes and TF-2000 type Frigates with the MK-41 VLS.

The modern French Navy applies the term frigate to both frigates and destroyers in service. Pennant numbers remain divided between F-series numbers for those ships internationally recognized as frigates and D-series pennant numbers for those more traditionally recognized as destroyers. This can result in some confusion as certain classes are referred to as frigates in French service while similar ships in other navies are referred to as destroyers. This also results in some recent classes of French ships being among the largest in the world to carry the rating of frigate.

Also in the German Navy frigates were used to replace aging destroyers; however in size and role the new German frigates exceed the former class of destroyers. The future German F125 class frigate will be the largest class of frigates worldwide with a displacement of 7,200 tons. The same was done in the Spanish Navy, which went ahead with the deployment of the first Aegis frigates, the F-100 class frigates.

Some new classes of frigates are optimized for high-speed deployment and combat with small craft rather than combat between equal opponents; an example is the U.S. Littoral Combat Ship.

Gallery

HMS *Swale* of the *River*-class, the original modern frigates

HMS *Monmouth*, a British Type 23-class frigate

USS *Vandegrift*, an American → *Oliver Hazard Perry*-class frigate

HMAS *Darwin*, an Australian *Adelaide*-class frigate

HMCS *Regina*, a Canadian *Halifax*-class frigate

ARC *Almirante Padilla*, a Colombian *Padilla-class* light missile frigate

INS *Shivalik*, an Indian under-construction *Shivalik*-class frigate

Surcouf, a French *La Fayette*-class frigate

F221 *Hessen*, a German *Sachsen*-class frigate

HNLMS *Van Speijk*, a Dutch *Karel Doorman*-class frigate

BAP *Mariátegui*, a Peruvian *Lupo*-class light frigate

Yugoslav Navy frigate VPBR-34 "Pula"

Neustrashimy class frigate from the Russian Navy

Spanish Álvaro de Bazán class frigate

See also

- List of frigate classes
- List of frigate classes by country
- Thomas Cochrane, 10th Earl of Dundonald
- United States Navy 1975 ship reclassification

Lists

Note that Algerian, Tripolitan and Tunisian sail frigates are listed under Turkey. All Italian city-state frigates are listed under Italy.

Sail frigates (1640-1860)	**Steam frigates (1830-1880)**	**Modern frigates (1940-present)**	**Current frigates**
		Australia	Australia
Austria	Austria		
		Canada	Canada
		China	China
Croatia			Croatia
Denmark		Denmark	
Egypt	Egypt		
		Finland	
France			
Germany	Germany	Germany	Germany
	Greece	Greece	Greece
			India

			Iran
Italy	Italy	Italy	Italy
		Malaysia	Malaysia
			Montenegro
Netherlands			Netherlands
		New Zealand	New Zealand
		Norway	Norway
		Pakistan	Pakistan
Peru	Peru	Peru	
Portugal	Portugal	Portugal	Portugal
Romania	Romania	Romania	Romania
Russia	Russia		
			Singapore
Spain	Spain	Spain	Spain
Sweden			
Turkey		Turkey	Turkey
United Kingdom			
United States	United States	United States	United States
		Republic of China (Taiwan)	Taiwan
	Yugoslavia	Yugoslavia	

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- Michael Philips, *Notes on Sailing Warships* [7], 2000.
- Frigates [8] from battleships-cruisers.co.uk - history and pictures of United Kingdom frigates since World War II
- Frigates [9] from Destroyers OnLine - pictures, history, crews of United States frigates since 1963
- The Development of the Full-Rigged Ship From the Carrack to the Full-Rigger [10]

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[8] http://www.battleships-cruisers.co.uk/frigates.htm

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[10] http://www.greatgridlock.net/Sqrigg/squrig2.html

Perry Class Frigates

USS Oliver Hazard Perry (FFG-7)

USS Oliver Hazard Perry (FFG-7) underway during a Great Lakes cruise.

Career (US)	
Ordered:	10 March 1973
Builder:	→ Bath Iron Works
Laid down:	12 June 1975
Launched:	25 September 1976
Commissioned:	17 December 1977
Decommissioned:	20 February, 1997
Struck:	3 May 1999
Homeport:	NS Mayport, Florida (former)
Motto:	Don't Give Up the Ship
Nickname:	Gallant Leader
Fate:	Scrapped
General characteristics	
Displacement:	4,100 tons (4,170 t) full load
Length:	445 ft (136 m) overall
Beam:	45 ft (13.7 m)
Draught:	22 ft (6.7 m)
Propulsion:	2 × → General Electric LM2500-30 gas turbines generating 41,000 shp (31 MW) through a single shaft and → variable pitch propeller; 2 x Auxiliary Propulsion Units, 350 hp (.25 MW) retractable electric → azipods for maneuvering and docking.
Speed:	29+ knots (54+ km/h)
Range:	5,000 nm (9,300 km) at 18 knots (33 km/h)
Complement:	15 officers and 190 enlisted, plus SH-2 detachment of roughly six officer pilots and 15 enlisted maintainers

Sensors and processing systems:	→ AN/SPS-49 air-search radar → AN/SPS-55 surface-search radar CAS and STIR fire-control radar AN/SQS-56 sonar.
Electronic warfare and decoys:	AN/SLQ-32
Armament:	**As built:** One OTO Melara Mk 75 76 mm/62 caliber naval gun two → Mk 32 triple-tube (324 mm) launchers for → Mark 46 torpedoes one Vulcan → Phalanx CIWS; four → .50-cal (12.7 mm) machine guns. one Mk 13 Mod 4 single-arm launcher for → Harpoon anti-ship missiles and → SM-1MR Standard anti-ship/air missiles (40 round magazine) **Note:** As of 2004, Mk13 systems removed from all active US vessels of this class. Note: Unlike other Perry-class frigates, USS Oliver Hazard Perry was not equipped with a Vulcan Phalanx CIWS when built.
Aircraft carried:	1; → SH-2 Seasprite helicopter (ship was to have capability for two helicopters, but never carried more than one due to flight deck and hanger size limitations)

USS *Oliver Hazard Perry* (FFG-7), lead ship of the → Oliver Hazard Perry class of guided-missile → frigates, was named for → Oliver Hazard Perry, American naval hero, who was victorious at the 1813 Battle of Lake Erie. Ordered from → Bath Iron Works on 30 October 1973 as part of the FY73 program, *Oliver Hazard Perry* was laid down on 12 June 1975, launched on 25 September 1976, and commissioned on 17 December 1977. She was ordered as **PFG-109** but was redesignated as **FFG-7** in the 1975 fleet designation realignment on 1 June 1975, before she was laid down. Decommissioned on 20 February 1997, in Mayport, FL under the last Commanding Officer, CDR Robert F. Holman, USNR. Stricken on 3 May 1999, *Oliver Hazard Perry* and scrapped in December 2005 in Philadelphia, Pennsylvania.

Oliver Hazard Perry (FFG-7) was the first ship of that name in the U.S. Navy.

For other ships named for Perry *see*: USS Perry.

External links

- Photos of USS Oliver Hazard Perry (FFG 7) [1]
- MaritimeQuest USS Oliver Hazard Perry FFG-7 pages [2]
- NVR FFG-7 [12]
- FFG-7 Internet Links [3]

References

[1] http://www.navybook.com/nohigherhonor/pic-ffg7.shtml
[2] http://www.maritimequest.com/warship_directory/us_navy_pages/frigates/pages/oliver_hazard_perry_page_1.htm
[3] http://www.usnavylinks.com/FFG-7

USS McInerney (FFG-8)

Career (US)	
Ordered:	27 February 1976
Builder:	→ Bath Iron Works
Laid down:	16 January 1978
Launched:	4 November 1978
Commissioned:	15 December 1979
Homeport:	Mayport, Florida
Motto:	"Fast, Fearless, and Gallant"
Fate:	Active in service as of 2009
General characteristics	
Displacement:	4,100 tons (4,170 t) full load
Length:	453 ft (138.1 m), overall
Beam:	45 ft (13.7 m)
Draught:	22 ft (6.7 m)
Propulsion:	2 × → General Electric LM2500-30 gas turbines generating 41,000 shp (31 MW) through a single shaft and → variable pitch propeller; 2 x Auxiliary Propulsion Units, 350 hp (.25 MW) retractable electric → azipods for maneuvering and docking.
Speed:	29+ knots (54+ km/h)
Range:	5,000 nm (9,300 km) at 18 knots (33 km/h)
Complement:	15 officers and 190 enlisted, plus → SH-60 LAMPS detachment of roughly six officer pilots and 15 enlisted maintainers
Sensors and processing systems:	→ AN/SPS-49 air-search radar → AN/SPS-55 surface-search radar CAS and STIR fire-control radar AN/SQS-56 sonar.
Electronic warfare and decoys:	AN/SLQ-32

Armament:	**As built:** One OTO Melara Mk 75 76 mm/62 caliber naval gun two → Mk 32 triple-tube (324 mm) launchers for → Mark 46 torpedoes one Vulcan → Phalanx CIWS; four → .50-cal (12.7 mm) machine guns. one Mk 13 Mod 4 single-arm launcher for → Harpoon anti-ship missiles and → SM-1MR Standard anti-ship/air missiles (40 round magazine) **Note:** As of 2004, Mk13 systems removed from all active US vessels of this class.
Aircraft carried:	2 × → SH-60 LAMPS III helicopters

USS *McInerney* (FFG-8), second ship of the → *Oliver Hazard Perry* class of guided-missile → frigates, is the first United States Navy ship named for Vice Admiral Francis X. McInerney (1899–1956). Ordered from → Bath Iron Works on 27 February 1976 as part of the FY75 program, *McInerney* was laid down on 16 January 1978, launched on 4 November 1978, and commissioned on 15 December 1979.

1980s

McInerney's mission is to provide multi-threat protection for military and merchant shipping, amphibious task forces and underway replenishment groups. During her first two years of service, *McInerney* was the US Navy test platform for the LAMPS MK-III(SH-60B helicopter) anti-submarine warfare system and the Recovery Assist, Secure, and Traverse (RAST) system. Her efforts during this period earned her a Meritorious Unit Commendation.

McInerney's first major deployment to the Mediterranean Sea and Indian Ocean began in November 1982. During this deployment she embarked a LAMPS Mk-I (SH-2 Seasprite) helicopter detachment. McInerney made brief port visits to Tangiers, Morocco, and Catania, Sicily and supported the Multi-National Force in Beirut, Lebanon (earning her the Navy Expeditionary Medal). After transiting the Suez Canal, McInerney operated in the Indian Ocean and made port calls to Karachi, Pakistan, Columbo, Sri Lanka, and Mombasa, Kenya. She also crossed the equator enroute to Diego Garcia. Following this deployment, *McInerney* operated in the Caribbean and visited Port Limon, Costa Rica and Tela, Hondurus. She received the Coast Guard Operational Meritorious Unit Citation for her efforts in law enforcement during this period.

In October 1984, *McInerney* deployed again to the Middle East in the midst of the Iran/Iraq Tanker War. She had now been fitted with the Phalanx CIWS and also carried a LAMPS Mk-I (SH-2 Seasprite) helicopter detachment. During this deployment she visited ports in United Arab Emirates, Saudi Arabia, Bahrain, Pakistan, and Palma, Spain. *McInerney* returned from this cruise in March 1985, and conducted law enforcement operations and other fleet exercises. In May 1986, *McInerney* began a year-long overhaul (extended Selected Restricted Availability) in Boston, MA. During this yard period she received the AN/SQQ-89(V)2 Anti-Submarine Warfare Suite, fin stabilizers, and the Single Audio System. The RAST equipment was also reinstalled and made operational.

In August 1988, *McInerney* was underway for her third deployment— this one to the Mediterranean. This deployment was highlighted by *McInerney* being awarded the COMSIXTHFLT “Hook ‘Em” Award for excellence in Anti-Submarine Warfare and a Meritorious Unit Commendation. *McInerney* returned from the Mediterranean in February 1989, and departed for the Northern Atlantic in the spring of 1989. Anti-Submarine Warfare operations led the *McInerney* above the Arctic Circle, and *McInerney* returned to Mayport in May 1989.

1990s

McInerney deployed to the Middle East in January 1991 and was awarded her second “Hook ‘Em” Award after a brief ASW operation in the Mediterranean Sea. *McInerney* then entered the Persian Gulf in support of coalition forces against Iraq. *McInerney* performed in every warfare area during the conflict, including convoy escort, mine, anti-air and anti-surface operations. *McInerney* earned the Navy Unit Commendation, the National Service Defense Medal, the Southwest Asia Service Medal with Bronze Star, the Kuwait Liberation Medal (Saudi Arabia) and the Kuwait Liberation Medal (Kuwait) for her wartime service.

The ship returned from the Middle East in July 1991 after escorting more than 50 merchant vessels through the mine-swept waters to Kuwait ports. Her continued, proven prowess earned her the Battle “E” for efficiency, and the COMNAVSURFLANT ASW Award, designating her as the top AN/SQQ-89-configured ASW platform on the East Coast. *McInerney*'s humanitarian efforts include assisting the tug *Taurus* in the Jacksonville Operating Area, transferring a wounded merchant seaman during the Tanker War, rescuing Sailors from the sinking motor vessel *Jenneastar* in the Mediterranean and escorting merchant ships carrying needed supplies to the ports of Kuwait through mine-swept channels in the aftermath of Operation Desert Storm.

In 1999, the USS *McInerney* participated in the UNITAS 40-99 deployment to South America.

2000s

McInerney completed a highly successful SOUTHCOM Counter-Drug Operations Deployment in November 2001. The highlight of the deployment was a drug bust of an Ecuadorian fishing vessel in which nearly 10 tons of cocaine were seized. For her efforts throughout the deployment, *McInerney* was awarded the Humanitarian Award and the Coast Guard Meritorious Unit Commendation.

On September 13, 2008, *McInerney* intercepted a 59-foot self-propelled semisubmersible carrying 7 tons of cocaine off the coast of Guatemala. Four Colombian drug smugglers were captured aboard. The cargo had an estimated street value of $187 million.[1]

On October 5, 2009, *McInerney* left Mayport Naval Station on its final deployment. [2]

Pakistan Transfer

In September 2008 the US Congress approved selling the frigate to Pakistan with a delivery date of August 2010. [3] Sighting the Foreign Assistance Act and the Arms Export Control Act, Pakistan is considered a "major non-NATO ally", able to receive older unneeded US military equipment. Additionally, the 32 year old frigate will be given a 65 million dollar refurbishment including anti-submarine capability paid for with foreign military aid provided by the U.S to friendly countries.[4] [5] The ship will be inactivated by the US Navy on August 31, 2010 in preparation for the transfer to Pakistan.[6]

External links

- USS *McInerney* official website [7]
- navsource.org: USS *McInerney* [8]
- navysite.de: USS *McInerney* [9]
- MaritimeQuest USS McInerney FFG-8 pages [10]

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[3] Bush okays anti-submarine frigate for Pak (http://www.nation.com.pk/pakistan-news-newspaper-daily-english-online/Politics/19-Oct-2008/Bush-okays-antisubmarine-frigate-for-Pak)

[4] U.S. to transfer frigate to Pakistan navy (http://www.stripes.com/m/article.asp?section=104&article=64056)

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[7] http://www.mcinerney.navy.mil/

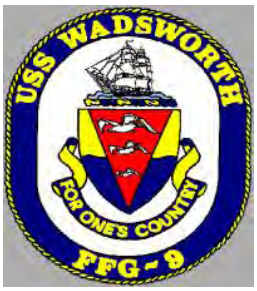
[8] http://www.navsource.org/archives/07/0708.htm

[9] http://www.navysite.de/ffg/FFG8.HTM

[10] http://www.maritimequest.com/warship_directory/us_navy_pages/frigates/pages/mcinerney_ffg8_page_1.htm

USS Wadsworth (FFG-9)

USS *Wadsworth* (FFG-9) underway.

Career (US)	
Ordered:	27 February 1976
Builder:	→ Todd Pacific Shipyards, San Pedro
Laid down:	13 July 1977
Launched:	29 July 1978
Commissioned:	2 April 1980
Decommissioned:	28 June 2002
Struck:	23 July 2002
Homeport:	San Diego, California (former)
Fate:	Transferred to Poland and renamed ORP Generał Tadeusz Kościuszko
Badge:	
General characteristics	
Class and type:	→ *Oliver Hazard Perry*-class → frigate
Displacement:	4,100 tons (4,170 t) full load
Length:	445 ft (136 m) .
Beam:	45 ft (13.7 m)
Draught:	22 ft (6.7 m)
Propulsion:	2 × → General Electric LM2500-30 gas turbines generating 41,000 shp (31 MW) through a single shaft and → variable pitch propeller; 2 x Auxiliary Propulsion Units, 350 hp (.25 MW) retractable electric → azipods for maneuvering and docking.
Speed:	29+ knots (54+ km/h)
Range:	5,000 nm (9,300 km) at 18 knots (33 km/h)

Complement:	15 officers and 190 enlisted, plus → SH-60 LAMPS detachment of roughly six officer pilots and 15 enlisted maintainers
Sensors and processing systems:	→ AN/SPS-49 air-search radar → AN/SPS-55 surface-search radar CAS and STIR fire-control radar AN/SQS-56 sonar.
Electronic warfare and decoys:	AN/SLQ-32
Armament:	**As built:** One OTO Melara Mk 75 76 mm/62 caliber naval gun two → Mk 32 triple-tube (324 mm) launchers for → Mark 46 torpedoes one Vulcan → Phalanx CIWS; four → .50-cal (12.7 mm) machine guns. one Mk 13 Mod 4 single-arm launcher for → Harpoon anti-ship missiles and → SM-1MR Standard anti-ship/air missiles (40 round magazine) **Note:** As of 2004, Mk13 systems removed from all active US vessels of this class.
Aircraft carried:	2 × → SH-60 LAMPS III helicopters

USS *Wadsworth* (FFG-9), third ship of the → Oliver Hazard Perry class of guided-missile frigates, was named for Commodore Alexander S. Wadsworth (1790–1851).

Ordered from → Todd Pacific Shipyards, San Pedro, CA on 27 February 1976 as part of the FY75 program, *Wadsworth* was laid down on 13 July 1977, launched on 29 July 1978, and commissioned on 2 April 1980. Decommissioned on 28 June 2002, *Wadsworth* was handed over to Poland the same day and commissioned as ORP *Generał Tadeusz Kościuszko* , after Tadeusz Kościuszko an American Revolutionary War hero in the United States and an independence hero in Poland. She was formally decommissioned from the US Navy on 23 July 2002.

Wadsworth portrayed the USS *Reuben James* in the 1990 film *The Hunt for Red October*.

External links

- navysite.de: *USS Wadsworth* [1]
- MaritimeQuest USS Wadsworth FFG-9 pages [2]
- NVR FFG-9 [14]

References

[1] http://www.navysite.de/ffg/FFG9.HTM

[2] http://www.maritimequest.com/warship_directory/us_navy_pages/frigates/pages/wadsworth_ffg9_page_1.htm

USS Duncan (FFG-10)

USS *Duncan* (FFG-10) comes about near San Diego, California.

Career (US)	
Ordered:	27 February 1976
Builder:	→ Todd Pacific Shipyards, Seattle
Laid down:	29 April 1977
Launched:	1 March 1978
Commissioned:	15 May 1980
Decommissioned:	17 December 1994
Struck:	5 January 1998
Homeport:	Long Beach, California (former)
Fate:	Disposed of through the Security Assistance Program (SAP)
General characteristics	
Class and type:	→ *Oliver Hazard Perry*-class → frigate
Displacement:	4,100 tons (4,170 t) full load
Length:	453 ft (138.1 m), overall
Beam:	45 ft (13.7 m)
Draught:	22 ft (6.7 m)
Propulsion:	2 × → General Electric LM2500-30 gas turbines generating 41,000 shp (31 MW) through a single shaft and → variable pitch propeller; 2 x Auxiliary Propulsion Units, 350 hp (.25 MW) retractable electric → azipods for maneuvering and docking.
Speed:	29+ knots (54+ km/h)
Range:	5,000 nm (9,300 km) at 18 knots (33 km/h)
Complement:	15 officers and 190 enlisted, plus → SH-60 LAMPS detachment of roughly six officer pilots and 15 enlisted maintainers
Sensors and processing systems:	→ AN/SPS-49 air-search radar → AN/SPS-55 surface-search radar CAS and STIR fire-control radar AN/SQS-56 sonar.

Electronic warfare and decoys:	AN/SLQ-32
Armament:	**As built:** One OTO Melara Mk 75 76 mm/62 caliber naval gun two → Mk 32 triple-tube (324 mm) launchers for → Mark 46 torpedoes one Vulcan → Phalanx CIWS; four → .50-cal (12.7 mm) machine guns. one Mk 13 Mod 4 single-arm launcher for → Harpoon anti-ship missiles and → SM-1MR Standard anti-ship/air missiles (40 round magazine) **Note:** As of 2004, Mk13 systems removed from all active US vessels of this class.
Aircraft carried:	2 × → SH-60 LAMPS III helicopters

USS *Duncan* (FFG-10), fourth ship of the → *Oliver Hazard Perry*-class of guided-missile frigates, was named for Vice Admiral Donald B. Duncan (1896–1975). Ordered from Todd Pacific, Seattle, WA on 27 February 1976 as part of the FY75 program, *Duncan* was laid down on 29 April 1977, launched on 1 March 1978, and commissioned on 15 May 1980. Decommissioned on 17 December 1994 and stricken on 5 January 1998, *Duncan* was sold to Turkey on 5 April 1999 for use as a parts hulk.

References

This article includes information collected from the Naval Vessel Register, which, as a U.S. government publication, is in the public domain. The entry can be found here [15].

External links

- MaritimeQuest USS Duncan FFG-10 pages [1]

References

[1] http://www.maritimequest.com/warship_directory/us_navy_pages/frigates/pages/duncan_ffg_10_page_1.htm

USS Clark (FFG-11)

A starboard bow view of the guided missile frigate USS Clark (FFG-11) underway.

Career (US)	
Ordered:	27 February 1976
Builder:	→ Bath Iron Works
Laid down:	17 July 1978
Launched:	24 March 1979
Commissioned:	9 May 1980
Decommissioned:	15 March 2000
Struck:	15 March 2000
Homeport:	Norfolk, Virginia (former)
Fate:	Disposed of through the Security Assistance Program (SAP)
General characteristics	
Class and type:	→ *Oliver Hazard Perry*-class → frigate
Displacement:	4,100 tons (4,170 t) full load
Length:	453 ft (138.1 m), overall
Beam:	45 ft (13.7 m)
Draft:	22 ft (6.7 m)
Propulsion:	2 × → General Electric LM2500-30 gas turbines generating 41,000 shp (31 MW) through a single shaft and → variable pitch propeller; 2 x Auxiliary Propulsion Units, 350 hp (.25 MW) retractable electric → azipods for maneuvering and docking.
Speed:	29+ knots (54+ km/h)
Range:	5,000 nm (9,300 km) at 18 knots (33 km/h)
Complement:	15 officers and 190 enlisted, plus → SH-60 LAMPS detachment of roughly six officer pilots and 15 enlisted maintainers
Sensors and processing systems:	→ AN/SPS-49 air-search radar → AN/SPS-55 surface-search radar CAS and STIR fire-control radar AN/SQS-56 sonar.

Electronic warfare and decoys:	AN/SLQ-32
Armament:	**As built:** One OTO Melara Mk 75 76 mm/62 caliber naval gun two → Mk 32 triple-tube (324 mm) launchers for → Mark 46 torpedoes one Vulcan → Phalanx CIWS; four → .50-cal (12.7 mm) machine guns. one Mk 13 Mod 4 single-arm launcher for → Harpoon anti-ship missiles and → SM-1MR Standard anti-ship/air missiles (40 round magazine) **Note:** As of 2004, Mk13 systems removed from all active US vessels of this class.
Aircraft carried:	2 × → SH-60 LAMPS III helicopters

USS *Clark* (FFG-11), fifth ship of the → *Oliver Hazard Perry* class of guided-missile frigates, was named for Admiral Joseph James "Jocko" Clark (1893-1971). Ordered from → Bath Iron Works on 27 February 1976 as part of the FY76 program, *Clark* was laid down on 17 July 1978, launched on 24 March 1979, and commissioned on 9 May 1980. Decommissioned and stricken on 15 March 2000, she was handed over to Poland that same day to become the Polish Navy's *Gen. K. Pułaski*, after Kazimierz Pułaski, a Polish soldier who fought in the American Revolutionary War.

References

This article includes information collected from the Naval Vessel Register, which, as a U.S. government publication, is in the public domain. The entry can be found here [16].

External links

- MaritimeQuest USS Clark FFG-11 pages [1]
- Ussclark Blogspot [2]

References

[1] http://www.maritimequest.com/warship_directory/us_navy_pages/frigates/pages/clark_ffg_11_page_1.htm
[2] http://www.ussclark.blogspot.com

USS George Philip (FFG-12)

USS *George Philip* underway during sea trials in 1982

Career (US)	
Ordered:	27 February 1976
Builder:	→ Todd Pacific Shipyards, San Pedro
Laid down:	14 December 1977
Launched:	16 December 1978
Commissioned:	10 October 1980
Decommissioned:	15 March 2003
Struck:	24 May 2004
Homeport:	San Diego, California (former)
Fate:	Stricken, to be disposed of
General characteristics	
Class and type:	→ *Oliver Hazard Perry*-class → frigate
Displacement:	4,100 tons (4,170 t) full load
Length:	453 ft (138.1 m), overall
Beam:	45 ft (13.7 m)
Draught:	22 ft (6.7 m)
Propulsion:	2 × → General Electric LM2500-30 gas turbines generating 41,000 shp (31 MW) through a single shaft and → variable pitch propeller; 2 x Auxiliary Propulsion Units, 350 hp (.25 MW) retractable electric → azipods for maneuvering and docking.
Speed:	29+ knots (54+ km/h)
Range:	5,000 nm (9,300 km) at 18 knots (33 km/h)
Complement:	15 officers and 190 enlisted, plus → SH-60 LAMPS detachment of roughly six officer pilots and 15 enlisted maintainers
Sensors and processing systems:	→ AN/SPS-49 air-search radar → AN/SPS-55 surface-search radar CAS and STIR fire-control radar AN/SQS-56 sonar.
Electronic warfare and decoys:	AN/SLQ-32

Armament:	**As built:** One OTO Melara Mk 75 76 mm/62 caliber naval gun two → Mk 32 triple-tube (324 mm) launchers for → Mark 46 torpedoes one Vulcan → Phalanx CIWS; four → .50-cal (12.7 mm) machine guns. one Mk 13 Mod 4 single-arm launcher for → Harpoon anti-ship missiles and → SM-1MR Standard anti-ship/air missiles (40 round magazine) **Note:** As of 2004, Mk13 systems removed from all active US vessels of this class.
Aircraft carried:	2 × → SH-60 LAMPS III helicopters

USS *George Philip* (FFG-12), sixth ship of the → *Oliver Hazard Perry* class of guided-missile frigates, was named for Commander George Philip, Jr. (1912-1945). Ordered from Todd Shipyards, San Pedro, CA on 27 February 1976 as part of the FY76 program, *George Philip* was laid down on 14 December 1977, launched on 16 December 1978, and commissioned on 10 October 1980. Decommissioned on 15 March 2003, as of June 2003 *George Philip* is in reserve at Naval Inactive Ships Maintenance Facility Bremerton, WA.

The *George Philip* was expected to join the Portuguese Navy in 2006, together with her sister ship → *Sides*, but the Portuguese Navy dropped the offer and chose two Dutch *Karel Doorman*-class frigates instead.

The *George Philip* was expected to join the Turkish Navy in the summer of 2008, together with her sister ship → *Sides*, but the Turkish Navy dropped the offer.

References

This article includes information collected from the Naval Vessel Register, which, as a U.S. government publication, is in the public domain. The entry can be found here [17].

External links

- MaritimeQuest USS George Philip FFG-12 pages [1]

References

[1] http://www.maritimequest.com/warship_directory/us_navy_pages/frigates/pages/george_philip_ffg_12.htm

USS Samuel Eliot Morison (FFG-13)

USS Samuel Eliot Morison (FFG-13)

Career (US)	
Ordered:	27 February 1976
Builder:	→ Bath Iron Works
Laid down:	4 December 1978
Launched:	14 July 1979
Acquired:	1 August 1980
Commissioned:	11 October 1980
Decommissioned:	10 April 2002
Struck:	23 July 2002
Homeport:	San Diego, California (former)
Motto:	The past is prologued
Fate:	sold to Turkey on 11 April 2002, renamed TCG *Gokova* (F 496)
General characteristics	
Displacement:	4,100 tons (4,170 t) full load
Length:	453 ft (138.1 m), overall
Beam:	45 ft (13.7 m)
Draught:	22 ft (6.7 m)
Propulsion:	2 × → General Electric LM2500-30 gas turbines generating 41,000 shp (31 MW) through a single shaft and → variable pitch propeller; 2 x Auxiliary Propulsion Units, 350 hp (.25 MW) retractable electric → azipods for maneuvering and docking.
Speed:	29+ knots (54+ km/h)
Range:	5,000 nm (9,300 km) at 18 knots (33 km/h)
Complement:	15 officers and 190 enlisted, plus → SH-60 LAMPS detachment of roughly six officer pilots and 15 enlisted maintainers
Sensors and processing systems:	→ AN/SPS-49 air-search radar → AN/SPS-55 surface-search radar CAS and STIR fire-control radar AN/SQS-56 sonar.

Electronic warfare and decoys:	AN/SLQ-32
Armament:	**As built:** One OTO Melara Mk 75 76 mm/62 caliber naval gun two → Mk 32 triple-tube (324 mm) launchers for → Mark 46 torpedoes one Vulcan → Phalanx CIWS; four → .50-cal (12.7 mm) machine guns. one Mk 13 Mod 4 single-arm launcher for → Harpoon anti-ship missiles and → SM-1MR Standard anti-ship/air missiles (40 round magazine) **Note:** As of 2004, Mk13 systems removed from all active US vessels of this class.
Aircraft carried:	capable of landing SH-2, SH-3 and SH-60 but was never modified to carry LAMPS (ie "poop deck")Lack of funding for NRF ships.

USS *Samuel Eliot Morison* (FFG-13), the seventh → *Oliver Hazard Perry*-class frigate, was named for Rear Admiral Samuel Eliot Morison (1887–1976), one of America's most distinguished naval historians, who wrote more than 40 books on naval history.

On 11 April 2002, *Samuel Eliot Morison* was decommissioned and transferred to Turkey, where she was renamed **TCG *Gökova* (F 496)** and joined the other G class frigates (→ *Perry* class) that the Turkish Navy has acquired from the United States.

Samuel Eliot Morison (FFG-13) was the first ship of that name in the US Navy.

USS Samuel Eliot Morison (FFG-13)

References

This article includes information collected from the Naval Vessel Register, which, as a U.S. government publication, is in the public domain. The entry can be found here [18].

External links

- MaritimeQuest USS Samuel Eliot Morison FFG-13 pages [1]

References

[1] http://www.maritimequest.com/warship_directory/us_navy_pages/frigates/pages/samuel_e_morison_page_1.htm

USS Sides (FFG-14)

USS *Sides* entering San Francisco harbor in 2002

Career (US)	
Ordered:	27 February 1976
Builder:	→ Todd Pacific Shipyards, San Pedro
Laid down:	7 August 1978
Launched:	19 May 1979
Commissioned:	30 May 1981
Decommissioned:	28 February 2003
Struck:	24 May 2004
Homeport:	NS San Diego, California (former)
Fate:	Stricken, to be disposed of
General characteristics	
Class and type:	→ *Oliver Hazard Perry*-class → frigate
Displacement:	4,100 tons (4,170 t) full load
Length:	453 ft (138.1 m), overall
Beam:	45 ft (13.7 m)
Draught:	22 ft (6.7 m)
Propulsion:	2 × → General Electric LM2500-30 gas turbines generating 41,000 shp (31 MW) through a single shaft and → variable pitch propeller; 2 x Auxiliary Propulsion Units, 350 hp (.25 MW) retractable electric → azipods for maneuvering and docking.
Speed:	29+ knots (54+ km/h)
Range:	5,000 nm (9,300 km) at 18 knots (33 km/h)
Complement:	15 officers and 190 enlisted, plus → SH-60 LAMPS detachment of roughly six officer pilots and 15 enlisted maintainers
Sensors and processing systems:	→ AN/SPS-49 air-search radar → AN/SPS-55 surface-search radar CAS and STIR fire-control radar AN/SQS-56 sonar.

Electronic warfare and decoys:	AN/SLQ-32
Armament:	**As built:** One OTO Melara Mk 75 76 mm/62 caliber naval gun two → Mk 32 triple-tube (324 mm) launchers for → Mark 46 torpedoes one Vulcan → Phalanx CIWS; four → .50-cal (12.7 mm) machine guns. one Mk 13 Mod 4 single-arm launcher for → Harpoon anti-ship missiles and → SM-1MR Standard anti-ship/air missiles (40 round magazine) **Note:** As of 2004, Mk13 systems removed from all active US vessels of this class.
Aircraft carried:	2 × → SH-60 LAMPS III helicopters

USS *Sides* (FFG-14) is a → *Oliver Hazard Perry* class guided-missile frigate of the US Navy.

The eighth ship in the class, it was named for Admiral John H. Sides (died 1978). Ordered from Todd Shipyards, San Pedro, California, on 27 February 1976 as part of the FY76 program, *Sides* was laid down on 7 August 1978, launched on 19 May 1979, and commissioned on 30 May 1981. *Sides* escorted tankers through the Straits of Hormuz during the Tanker War and participated in Operation Praying Mantis, the retaliation for Iranian mining operations.[1] The *Sides* was also part of the Surface Action Group under USS *Vincennes* when Iran Air 655 was shot down. Decommissioned on 28 February 2003, *Sides* is currently laid up in reserve at Naval Inactive Ships Maintenance Facility Bremerton, Washington.

Sides was expected to join the Portuguese Navy in 2006, together with her sister ship → *George Philip*, but the Portuguese Navy dropped the offer and chose two Dutch Karel Doorman Frigates instead.

Sides was expected to join the Turkish Navy in the summer of 2008, together with her sister ship → *George Philip*, but the Turkish Navy dropped the offer.

Further reading

- Wise, Harold Lee (2007). *Inside the Danger Zone: The U.S. Military in the Persian Gulf 1987-88* [67]. Annapolis: Naval Institute Press. ISBN 1-59114-970-3.

References

This article includes information collected from the Naval Vessel Register, which, as a U.S. government publication, is in the public domain. The entry can be found here [19].

External links

- MaritimeQuest USS Sides FFG-14 pages [2]

References

[1] http://www.globalsecurity.org/military/agency/navy/ffg-14.htm

[2] http://www.maritimequest.com/warship_directory/us_navy_pages/frigates/pages/sides_ffg14_page_1.htm

USS Estocin (FFG-15)

USS *Estocin* underway in the Caribbean Sea

Career (US)	
Ordered:	27 February 1976
Builder:	→ Bath Iron Works
Laid down:	2 April 1979
Launched:	3 November 1979
Commissioned:	10 January 1981
Decommissioned:	3 April 2003
Struck:	3 April 2003
Homeport:	Norfolk, Virginia (former)
Fate:	Disposed of through the Security Assistance Program (SAP)
General characteristics	
Displacement:	4,100 tons (4,170 t) full load
Length:	453 ft (138.1 m), overall
Beam:	45 ft (13.7 m)
Draught:	22 ft (6.7 m)
Propulsion:	2 × → General Electric LM2500-30 gas turbines generating 41,000 shp (31 MW) through a single shaft and → variable pitch propeller; 2 x Auxiliary Propulsion Units, 350 hp (.25 MW) retractable electric → azipods for maneuvering and docking.
Speed:	29+ knots (54+ km/h)
Range:	5,000 nm (9,300 km) at 18 knots (33 km/h)
Complement:	15 officers and 190 enlisted, plus → SH-60 LAMPS detachment of roughly six officer pilots and 15 enlisted maintainers
Sensors and processing systems:	→ AN/SPS-49 air-search radar → AN/SPS-55 surface-search radar CAS and STIR fire-control radar AN/SQS-56 sonar.
Electronic warfare and decoys:	AN/SLQ-32

Armament:	**As built:** One OTO Melara Mk 75 76 mm/62 caliber naval gun two → Mk 32 triple-tube (324 mm) launchers for → Mark 46 torpedoes one Vulcan → Phalanx CIWS; four → .50-cal (12.7 mm) machine guns. one Mk 13 Mod 4 single-arm launcher for → Harpoon anti-ship missiles and → SM-1MR Standard anti-ship/air missiles (40 round magazine) **Note:** As of 2004, Mk13 systems removed from all active US vessels of this class.
Aircraft carried:	2 × → SH-60 LAMPS III helicopters

USS *Estocin* (FFG-15), ninth ship of the → *Oliver Hazard Perry* class of guided-missile frigates, was named for Captain Michael John Estocin (1931–1967). Ordered from → Bath Iron Works on 27 February 1976 as part of the FY76 program, *Estocin* was laid down on 2 April 1979, launched on 3 November 1979, and commissioned on 10 January 1981. Decommissioned and stricken on 3 April 2003, *Estocin* was on the same day transferred to Turkey as that nation's **TCG *Göksu* (F 497)**.

Estocin (FFG-15) was the first ship of that name in the US Navy.

References

This article includes information collected from the Naval Vessel Register, which, as a U.S. government publication, is in the public domain. The entry can be found here [20].

External links

- MaritimeQuest USS Estocin FFG-15 pages [1]

References

[1] http://www.maritimequest.com/warship_directory/us_navy_pages/frigates/pages/estocin_ffg15_page_1.htm

USS Clifton Sprague (FFG-16)

USS Clifton Sprague (FFG-16).

Career (US)	
Ordered:	27 February 1976
Builder:	→ Bath Iron Works
Laid down:	30 July 1979
Launched:	16 February 1980
Commissioned:	21 March 1981
Decommissioned:	2 June 1995
Struck:	4 September 1997
Homeport:	Mayport, Florida (former)
Fate:	Disposed of through the Security Assistance Program (SAP)
General characteristics	
Displacement:	4,100 tons (4,170 t) full load
Length:	453 ft (138.1 m), overall
Beam:	45 ft (13.7 m)
Draught:	22 ft (6.7 m)
Propulsion:	2 × → General Electric LM2500-30 gas turbines generating 41,000 shp (31 MW) through a single shaft and → variable pitch propeller; 2 x Auxiliary Propulsion Units, 350 hp (.25 MW) retractable electric → azipods for maneuvering and docking.
Speed:	29+ knots (54+ km/h)
Range:	5,000 nm (9,300 km) at 18 knots (33 km/h)
Complement:	15 officers and 190 enlisted, plus → SH-60 LAMPS detachment of roughly six officer pilots and 15 enlisted maintainers
Sensors and processing systems:	→ AN/SPS-49 air-search radar → AN/SPS-55 surface-search radar CAS and STIR fire-control radar AN/SQS-56 sonar.
Electronic warfare and decoys:	AN/SLQ-32

Armament:	**As built:** One OTO Melara Mk 75 76 mm/62 caliber naval gun two → Mk 32 triple-tube (324 mm) launchers for → Mark 46 torpedoes one Vulcan → Phalanx CIWS; four → .50-cal (12.7 mm) machine guns. one Mk 13 Mod 4 single-arm launcher for → Harpoon anti-ship missiles and → SM-1MR Standard anti-ship/air missiles (40 round magazine) **Note:** As of 2004, Mk13 systems removed from all active US vessels of this class.
Aircraft carried:	2 × → SH-2 LAMPS I helicopters

USS *Clifton Sprague* (FFG-16), is an → *Oliver Hazard Perry*-class guided missile → frigate of the United States Navy, the tenth ship of that class. She was named for Vice Admiral Clifton A. F. Sprague (1896–1955), hero of the Samar action of the Battle of Leyte Gulf, where he received the Navy Cross. The unclassified citation was in the wardroom until shortly before decommissioning. Ordered from → Bath Iron Works on 27 February 1976 as part of the FY76 program, *Clifton Sprague* was laid down 30 July 1979, launched 16 February 1980, and commissioned 21 March 1981. Decommissioned 2 June 1995 at NAVSTA Mayport, Florida, she was transferred to Turkey on 27 August 1997 as that nation's TCG *Gazantiep* (F 490) and then immediately modified into a G class frigate by the Turkish Naval Yard. She was stricken from the US Navy register on 4 September 1997.

Clifton Sprague (FFG-16) was the first ship of that name in the US Navy.

References

This article includes information collected from the Naval Vessel Register, which, as a U.S. government publication, is in the public domain. The entry can be found here [21].

External links

- MaritimeQuest USS Clifton Sprague FFG-16 pages [1]

References

[1] http://www.maritimequest.com/warship_directory/us_navy_pages/frigates/pages/clifton_sprague_ffg_16_page_1.htm

USS John A.Moore (FFG-19)

USS *John A Moore* (FFG-19)

Career (US)	
Ordered:	28 February 1977
Builder:	→ Todd Pacific Shipyards, San Pedro
Laid down:	19 December 1978
Launched:	20 October 1979
Commissioned:	14 November 1981
Decommissioned:	1 September 2000
Struck:	1 September 2000
Homeport:	San Diego, California (former)
Fate:	Disposed of through the Security Assistance Program (SAP)
General characteristics	
Displacement:	4,100 tons (4,170 t) full load
Length:	453 ft (138.1 m), overall
Beam:	45 ft (13.7 m)
Draught:	22 ft (6.7 m)
Propulsion:	2 × → General Electric LM2500-30 gas turbines generating 41,000 shp (31 MW) through a single shaft and → variable pitch propeller; 2 x Auxiliary Propulsion Units, 350 hp (.25 MW) retractable electric → azipods for maneuvering and docking.
Speed:	29+ knots (54+ km/h)
Range:	5,000 nm (9,300 km) at 18 knots (33 km/h)
Complement:	15 officers and 190 enlisted, plus → SH-60 LAMPS detachment of roughly six officer pilots and 15 enlisted maintainers
Sensors and processing systems:	→ AN/SPS-49 air-search radar → AN/SPS-55 surface-search radar CAS and STIR fire-control radar AN/SQS-56 sonar.
Electronic warfare and decoys:	AN/SLQ-32

Armament:	**As built:** One OTO Melara Mk 75 76 mm/62 caliber naval gun two → Mk 32 triple-tube (324 mm) launchers for → Mark 46 torpedoes one Vulcan → Phalanx CIWS; four → .50-cal (12.7 mm) machine guns. one Mk 13 Mod 4 single-arm launcher for → Harpoon anti-ship missiles and → SM-1MR Standard anti-ship/air missiles (40 round magazine) **Note:** As of 2004, Mk13 systems removed from all active US vessels of this class.
Aircraft carried:	2 × → SH-60 LAMPS III helicopters

USS *John A. Moore* (FFG-19), eleventh ship of the → *Oliver Hazard Perry* class of guided-missile frigates, was named for Commander John A. Moore (1910–1944). Ordered from Todd Shipyards, San Pedro, CA on 28 February 1977 as part of the FY77 program, *John A. Moore* was laid down on 19 September 1978, launched on 20 October 1979, and commissioned on 14 November 1981. Decommissioned and stricken on 1 September 2000, she was transferred to Turkey as that nation's **TCG *Gediz* (F 495)**.

John A. Moore (FFG-19) was the first ship of that name in the US Navy.

References

This article includes information collected from the Naval Vessel Register, which, as a U.S. government publication, is in the public domain. The entry can be found here [24].

External links

- MaritimeQuest USS John A. Moore FFG-19 pages [1]

TCG *Gediz* (F495), former USS *John A. Moore*

References

[1] http://www.maritimequest.com/warship_directory/us_navy_pages/frigates/pages/john_a_moore_ffg19.htm

USS Antrim (FFG-20)

Career (US)	
Ordered:	28 February 1977
Builder:	→ Todd Pacific Shipyards, Seattle, Washington
Laid down:	21 June 1978
Launched:	27 March 1979
Acquired:	20 August 1981
Commissioned:	26 September 1981
Decommissioned:	8 May 1996
Fate:	Disposed of through the Security Assistance Program (SAP)
Struck:	4 September 1997
Career (Turkey)	
Acquired:	27 August 1997
Status:	Active in service as of 2009
General characteristics	
Class and type:	→ *Oliver Hazard Perry*-class → frigate
Displacement:	4,100 tons (4,170 t) full load
Length:	453 ft (138.1 m), overall
Beam:	45 ft (13.7 m)
Draft:	22 ft (6.7 m)
Propulsion:	2 × → General Electric LM2500-30 gas turbines generating 41,000 shp (31 MW) through a single shaft and → variable pitch propeller; 2 x Auxiliary Propulsion Units, 350 hp (.25 MW) retractable electric → azipods for maneuvering and docking.
Speed:	29+ knots (54+ km/h)
Range:	5,000 nm (9,300 km) at 18 knots (33 km/h)
Complement:	15 officers and 190 enlisted, plus → SH-60 LAMPS detachment of roughly six officer pilots and 15 enlisted maintainers
Sensors and processing systems:	→ AN/SPS-49 air-search radar → AN/SPS-55 surface-search radar CAS and STIR fire-control radar AN/SQS-56 sonar.

Electronic warfare and decoys:	AN/SLQ-32
Armament:	**As built:** One OTO Melara Mk 75 76 mm/62 caliber naval gun two → Mk 32 triple-tube (324 mm) launchers for → Mark 46 torpedoes one Vulcan → Phalanx CIWS; four → .50-cal (12.7 mm) machine guns. one Mk 13 Mod 4 single-arm launcher for → Harpoon anti-ship missiles and → SM-1MR Standard anti-ship/air missiles (40 round magazine) **Note:** As of 2004, Mk13 systems removed from all active US vessels of this class.
Aircraft carried:	2 × → SH-2 LAMPS helicopters

USS *Antrim* (FFG-20) was the twelfth ship of the → *Oliver Hazard Perry* class of guided-missile frigates. She was named for Rear Admiral Richard Nott Antrim (1907–1969). Ordered from Todd Pacific, Seattle, WA on 28 February 1977 as part of the FY77 program, *Antrim* was laid down on 21 June 1978, launched on 27 March 1979, and commissioned on 26 September 1981.

Decommissioned on 8 May 1996, she was transferred to Turkey on 27 August 1997. She was stricken from the U.S. Naval Vessel Register on 4 September 1997.

TCG *Giresun* (F 491)

The ship serves in the Turkish Navy as **TCG *Giresun* (F 491)**.

On 16 March 2009, TCG *Giresun*, along with HDMS *Absalon* successfully prevented a pirate attack on the Vietnamese cargo ship MV *Diamond Falcon* from succeeding in capturing the target ship.[1] [2]

References

[1] " Đan Mạch, Thổ Nhĩ Kỳ cùng giải cứu tàu hàng Việt Nam (http://vietbao.vn/The-gioi/Dan-Mach-Tho-Nhi-Ky-cung-giai-cuu-tau-hang-Viet-Nam/20836583/159/)" (in Vietnamese). *Viet bao.com*. 16 March 2009. . Retrieved 24 March 2009.

[2] " Vietnamese Cargo Ship Rescued From Pirates - Turkish Army (http://news.morningstar.com/newsnet/ViewNews.aspx?article=/DJ/200903160327DOWJONESDJONLINE000073_univ.xml)". Morningstar.com. 16 March 2009. . Retrieved 24 March 2009.

This article includes information collected from the Naval Vessel Register, which, as a U.S. government publication, is in the public domain. The entry can be found here (http://www.nvr.navy.mil/nvrships/details/FFG20.htm).

External links

- MaritimeQuest USS Antrim FFG-20 (http://www.maritimequest.com/warship_directory/us_navy_pages/frigates/pages/antrim_ffg_20_page_1.htm)

USS Flatley (FFG-21)

Career (US)	
Ordered:	28 February 1977
Builder:	→ Bath Iron Works
Laid down:	11 November 1979
Launched:	15 May 1980
Acquired:	8 May 1981
Commissioned:	20 June 1981
Decommissioned:	11 May 1996
Fate:	Disposed of through the Security Assistance Program (SAP)
Struck:	10 October 2001
Career (Turkey)	
Acquired:	27 August 1998
Status:	Active in service as of 2009
General characteristics	
Class and type:	→ *Oliver Hazard Perry*-class → frigate
Displacement:	4,100 tons (4,170 t) full load
Length:	453 ft (138.1 m), overall
Beam:	45 ft (13.7 m)
Draft:	22 ft (6.7 m)
Propulsion:	2 × → General Electric LM2500-30 gas turbines generating 41,000 shp (31 MW) through a single shaft and → variable pitch propeller; 2 x Auxiliary Propulsion Units, 350 hp (.25 MW) retractable electric → azipods for maneuvering and docking.
Speed:	29+ knots (54+ km/h)
Range:	5,000 nm (9,300 km) at 18 knots (33 km/h)
Complement:	15 officers and 190 enlisted, plus → SH-60 LAMPS detachment of roughly six officer pilots and 15 enlisted maintainers
Sensors and processing systems:	→ AN/SPS-49 air-search radar → AN/SPS-55 surface-search radar CAS and STIR fire-control radar AN/SQS-56 sonar.

Electronic warfare and decoys:	AN/SLQ-32
Armament:	**As built:** One OTO Melara Mk 75 76 mm/62 caliber naval gun two → Mk 32 triple-tube (324 mm) launchers for → Mark 46 torpedoes one Vulcan → Phalanx CIWS; four → .50-cal (12.7 mm) machine guns. one Mk 13 Mod 4 single-arm launcher for → Harpoon anti-ship missiles and → SM-1MR Standard anti-ship/air missiles (40 round magazine) **Note:** As of 2004, Mk13 systems removed from all active US vessels of this class.
Aircraft carried:	2 × → SH-60 LAMPS III helicopters

USS *Flatley* (FFG-21) was the thirteenth ship of the → *Oliver Hazard Perry* class of guided-missile → frigates. She was named for Vice Admiral James H. Flatley (1906–1958), a leading Naval Aviation tactician from World War II who flew the F4F Wildcat in the Battle of Coral Sea and subsequently commanded the VF-10 Grim Reapers taking them into combat for the first time.

Ordered from → Bath Iron Works on 28 February 1977 as part of the FY77 program, *Flatley*'s keel was laid down on 13 November 1979. She was launched on 15 May 1980, and commissioned on 20 June 1981. Decommissioned on 11 May 1996, she was sold to Turkey on 27 August 1998.

TCG *Gemlik* (F 492)

The ship immediately underwent conversion into a Turkish G class frigate. She serves in the Turkish Navy as TCG *Gemlik* (F 492).

Flatley (FFG-21) was the first ship of that name in the US Navy.

References

This article includes information collected from the Naval Vessel Register, which, as a U.S. government publication, is in the public domain. The entry can be found here [26].

External links

- MaritimeQuest USS Flatley FFG-21 pages [1]

References

[1] http://www.maritimequest.com/warship_directory/us_navy_pages/frigates/pages/flatley_ffg21_page_1.htm

USS Fahrion (FFG-22)

USS *Fahrion* (FFG-22)

Career (US)	
Ordered:	28 February 1977
Builder:	→ Todd Pacific Shipyards, Seattle, Washington
Laid down:	1 December 1978
Launched:	24 August 1979
Acquired:	29 December 1981
Commissioned:	16 January 1982
Decommissioned:	31 March 1998
Struck:	31 March 1998
Homeport:	Mayport, Florida (former)
Fate:	Disposed of through the Security Assistance Program (SAP)
General characteristics	
Class and type:	→ *Oliver Hazard Perry*-class → frigate
Displacement:	4,100 tons (4,170 t) full load
Length:	453 ft (138.1 m), overall
Beam:	45 ft (13.7 m)
Draught:	22 ft (6.7 m)
Propulsion:	2 × → General Electric LM2500-30 gas turbines generating 41,000 shp (31 MW) through a single shaft and → variable pitch propeller; 2 x Auxiliary Propulsion Units, 350 hp (.25 MW) retractable electric → azipods for maneuvering and docking.
Speed:	29+ knots (54+ km/h)
Range:	5,000 nm (9,300 km) at 18 knots (33 km/h)
Complement:	15 officers and 190 enlisted, plus → SH-60 LAMPS detachment of roughly six officer pilots and 15 enlisted maintainers
Sensors and processing systems:	→ AN/SPS-49 air-search radar → AN/SPS-55 surface-search radar CAS and STIR fire-control radar AN/SQS-56 sonar.
Electronic warfare and decoys:	AN/SLQ-32

Armament:	**As built:** One OTO Melara Mk 75 76 mm/62 caliber naval gun two → Mk 32 triple-tube (324 mm) launchers for → Mark 46 torpedoes one Vulcan → Phalanx CIWS; four → .50-cal (12.7 mm) machine guns. one Mk 13 Mod 4 single-arm launcher for → Harpoon anti-ship missiles and → SM-1MR Standard anti-ship/air missiles (40 round magazine) **Note:** As of 2004, Mk13 systems removed from all active US vessels of this class.
Aircraft carried:	2 × → SH-60 LAMPS III helicopters

USS *Fahrion* (FFG-22), fourteenth ship of the → *Oliver Hazard Perry* class of guided-missile → frigates, was named for Admiral Frank George Fahrion (1894–1970). Ordered from Todd Pacific, Seattle, WA on 28 February 1977 as part of the FY77 program, *Fahrion* was laid down on 1 December 1978, launched on 24 August 1979, and commissioned on 16 January 1982. Transferred to Egypt on 15 March 1998 as that nation's *Sharm El-Sheik* (F 901), she was formally decommissioned and stricken on 31 March 1998.

Fahrion (FFG-22) was the first ship of that name in the US Navy.

References

This article includes information collected from the Naval Vessel Register, which, as a U.S. government publication, is in the public domain. The entry can be found here [27].

External links

- MaritimeQuest USS Fahrion FFG-22 pages [1]
- GlobalSecurity.org FFG-22 [2]

See also

- List of United States Navy ships
- List of ship launches in 1979
- List of ship commissionings in 1982
- List of ship commissionings in 1998
- List of ship decommissionings in 1998

References

[1] http://www.maritimequest.com/warship_directory/us_navy_pages/frigates/pages/fahrion_ffg_22_page_1.htm
[2] http://www.globalsecurity.org/military/agency/navy/ffg-22.htm

USS Lewis B.Puller (FFG-23)

USS *Lewis B. Puller* (FFG-23)

Career (US)	
Ordered:	28 February 1977
Builder:	→ Todd Pacific Shipyards Los Angeles Division, San Pedro, California
Laid down:	23 May 1979
Launched:	15 March 1980
Acquired:	1 March 1982
Commissioned:	17 April 1982
Decommissioned:	18 September 1998
Struck:	18 September 1998
Homeport:	San Diego, California (former)
Fate:	Disposed of through the Security Assistance Program (SAP)
General characteristics	
Class and type:	→ *Oliver Hazard Perry*-class → frigate
Displacement:	4,100 tons (4,170 t) full load
Length:	453 ft (138.1 m), overall
Beam:	45 ft (13.7 m)
Draught:	22 ft (6.7 m)
Propulsion:	2 × → General Electric LM2500-30 gas turbines generating 41,000 shp (31 MW) through a single shaft and → variable pitch propeller; 2 x Auxiliary Propulsion Units, 350 hp (.25 MW) retractable electric → azipods for maneuvering and docking.
Speed:	29+ knots (54+ km/h)
Range:	5,000 nm (9,300 km) at 18 knots (33 km/h)
Complement:	15 officers and 190 enlisted, plus → SH-60 LAMPS detachment of roughly six officer pilots and 15 enlisted maintainers
Sensors and processing systems:	→ AN/SPS-49 air-search radar → AN/SPS-55 surface-search radar CAS and STIR fire-control radar AN/SQS-56 sonar.

Electronic warfare and decoys:	AN/SLQ-32
Armament:	**As built:** One OTO Melara Mk 75 76 mm/62 caliber naval gun two → Mk 32 triple-tube (324 mm) launchers for → Mark 46 torpedoes one Vulcan → Phalanx CIWS; four → .50-cal (12.7 mm) machine guns. one Mk 13 Mod 4 single-arm launcher for → Harpoon anti-ship missiles and → SM-1MR Standard anti-ship/air missiles (40 round magazine) **Note:** As of 2004, Mk13 systems removed from all active US vessels of this class.
Aircraft carried:	2 × → SH-60 LAMPS III helicopters

USS *Lewis B. Puller* (FFG-23), fifteenth ship of the → *Oliver Hazard Perry* class of guided-missile → frigates, was named for Marine Lieutenant General Lewis B. "Chesty" Puller (1898–1971). Ordered from Todd Shipyards, San Pedro, CA on 28 February 1977 as part of the FY77 program, *Lewis B. Puller* was laid down on 23 May 1979, launched on 15 March 1980, and commissioned on 17 April 1982. Decommissioned and stricken on 18 September 1998, she was transferred to Egypt the same day as that nation's *Toushka* (F 906).

Lewis B. Puller (FFG-23) was the first ship of that name in the US Navy.

References

This article includes information collected from the Naval Vessel Register, which, as a U.S. government publication, is in the public domain. The entry can be found here [28].

External links

- MaritimeQuest USS Lewis B. Puller FFG-23 pages [1]
- GlobalSecurity.org FFG-23 [2]

References

[1] http://www.maritimequest.com/warship_directory/us_navy_pages/frigates/pages/lewis_b_puller_page_1.htm
[2] http://www.globalsecurity.org/military/agency/navy/ffg-23.htm

USS Jack Williams (FFG-24)

USS Jack Williams (FFG-24)

Career (US)	
Name:	USS *Jack Williams*
Ordered:	28 February 1977
Builder:	→ Bath Iron Works
Laid down:	25 February 1980
Launched:	30 August 1980
Commissioned:	19 September 1981
Decommissioned:	13 September 1996
Struck:	13 September 1996
Homeport:	Mayport, Florida
Motto:	*Guardez Bien*
Nickname:	*The Arky*
Fate:	transferred to Bahrain, 1996
General characteristics	
Class and type:	→ *Oliver Hazard Perry*-class → frigate
Displacement:	4,100 tons (4,170 t) full load
Length:	453 ft (138.1 m), overall
Beam:	45 ft (13.7 m)
Draught:	22 ft (6.7 m)
Propulsion:	2 × → General Electric LM2500-30 gas turbines generating 41,000 shp (31 MW) through a single shaft and → variable pitch propeller; 2 x Auxiliary Propulsion Units, 350 hp (.25 MW) retractable electric → azipods for maneuvering and docking.
Speed:	29+ knots (54+ km/h)
Range:	5,000 nm (9,300 km) at 18 knots (33 km/h)
Complement:	15 officers and 190 enlisted, plus → SH-60 LAMPS detachment of roughly six officer pilots and 15 enlisted maintainers

Sensors and processing systems:	→ AN/SPS-49 air-search radar → AN/SPS-55 surface-search radar CAS and STIR fire-control radar AN/SQS-56 sonar.
Electronic warfare and decoys:	AN/SLQ-32
Armament:	**As built:** One OTO Melara Mk 75 76 mm/62 caliber naval gun two → Mk 32 triple-tube (324 mm) launchers for → Mark 46 torpedoes one Vulcan → Phalanx CIWS; four → .50-cal (12.7 mm) machine guns. one Mk 13 Mod 4 single-arm launcher for → Harpoon anti-ship missiles and → SM-1MR Standard anti-ship/air missiles (40 round magazine) **Note:** As of 2004, Mk13 systems removed from all active US vessels of this class.
Aircraft carried:	2 × → SH-60 LAMPS III helicopters

USS *Jack Williams* (FFG-24), sixteenth ship of the → *Oliver Hazard Perry* class of guided-missile → frigates, was named for Pharmacist's Mate Second Class Jack Williams, who was posthumously awarded the Medal of Honor for his heroism in the Battle of Iwo Jima.

Ordered from → Bath Iron Works on 28 February 1977 as part of the FY77 program, *Jack Williams* was laid down on 25 February 1980; launched on 30 August 1980; and commissioned on 19 September 1981.

Decommissioned and stricken on 13 September 1996, she was transferred to Bahrain the same day and recommissioned as the *BANS Sabha* (90).

Jack Williams (FFG-24) was the first ship of that name in the US Navy.

References

This article includes information collected from the Naval Vessel Register, which, as a U.S. government publication, is in the public domain. The entry can be found here [29].

External links

- USS Jack Williams FFG-24 [1] page at NavyVets.com [2]
- navsource.org: USS *Jack Williams* [3]
- navysite.de: USS *Jack Williams* [4]
- MaritimeQuest USS Jack Williams FFG-24 pages [5]

References

[1] http://www.navyvets.com/group/ussjackwilliamsffg24
[2] http://www.navyvets.com
[3] http://www.navsource.org/archives/07/0724.htm
[4] http://www.navysite.de/ffg/FFG24.HTM
[5] http://www.maritimequest.com/warship_directory/us_navy_pages/frigates/pages/jack_williams_page_1.htm

USS Copeland (FFG-25)

USS Copeland (FFG-25)

Career (US)	
Ordered:	28 February 1977
Builder:	→ Todd Pacific Shipyards, San Pedro
Laid down:	24 October 1979
Launched:	26 July 1980
Commissioned:	7 August 1982
Decommissioned:	18 September 1996
Renamed:	Mubarak (F 911)
Struck:	18 September 1996
Homeport:	San Diego, California
Fate:	transferred to Egypt
General characteristics	
Class and type:	→ *Oliver Hazard Perry*-class → frigate
Displacement:	4,100 tons (4,170 t) full load
Length:	453 ft (138.1 m), overall
Beam:	45 ft (13.7 m)
Draught:	22 ft (6.7 m)
Propulsion:	2 × → General Electric LM2500-30 gas turbines generating 41,000 shp (31 MW) through a single shaft and → variable pitch propeller; 2 x Auxiliary Propulsion Units, 350 hp (.25 MW) retractable electric → azipods for maneuvering and docking.
Speed:	29+ knots (54+ km/h)
Range:	5,000 nm (9,300 km) at 18 knots (33 km/h)
Complement:	15 officers and 190 enlisted, plus → SH-60 LAMPS detachment of roughly six officer pilots and 15 enlisted maintainers
Sensors and processing systems:	→ AN/SPS-49 air-search radar → AN/SPS-55 surface-search radar CAS and STIR fire-control radar AN/SQS-56 sonar.

Electronic warfare and decoys:	AN/SLQ-32
Armament:	**As built:** One OTO Melara Mk 75 76 mm/62 caliber naval gun two → Mk 32 triple-tube (324 mm) launchers for → Mark 46 torpedoes one Vulcan → Phalanx CIWS; four → .50-cal (12.7 mm) machine guns. one Mk 13 Mod 4 single-arm launcher for → Harpoon anti-ship missiles and → SM-1MR Standard anti-ship/air missiles (40 round magazine) **Note:** As of 2004, Mk13 systems removed from all active US vessels of this class.
Aircraft carried:	2 × → SH-60 LAMPS III helicopters

USS *Copeland* (FFG-25) was the seventeenth ship of the → *Oliver Hazard Perry*-class of guided-missile → frigates in the United States Navy. She was named for Rear Admiral Robert W. Copeland (1910–1973).

Ordered from → Todd Pacific Shipyards, San Pedro, California on 28 February 1977 as part of the FY77 program, *Copeland* was laid down on 24 October 1979, launched on 26 July 1980, and commissioned on 7 August 1982. Decommissioned and stricken on 18 September 1996, she was transferred to Egypt the same day as that nation's *Mubarak* (F 911).

Copeland (FFG-25) was the first ship of that name in the US Navy.

References

This article includes information collected from the Naval Vessel Register, which, as a U.S. government publication, is in the public domain. The entry can be found here [30].

External links

- MaritimeQuest USS Copeland FFG-25 pages [1]

References

[1] http://www.maritimequest.com/warship_directory/us_navy_pages/frigates/pages/copeland_ffg_25.htm

USS Gallery (FFG-26)

USS *Gallery* (FFG-26)

Career (US)	
Ordered:	28 February 1977
Builder:	→ Bath Iron Works
Laid down:	17 May 1980
Launched:	20 December 1980
Acquired:	10 November 1981
Commissioned:	5 December 1981
Decommissioned:	14 June 1996
Struck:	14 June 1996
Homeport:	Mayport, Florida (former)
Fate:	Disposed of through the Security Assistance Program (SAP)
General characteristics	
Class and type:	→ *Oliver Hazard Perry*-class → frigate
Displacement:	4,100 tons (4,170 t) full load
Length:	453 ft (138.1 m), overall
Beam:	45 ft (13.7 m)
Draught:	22 ft (6.7 m)
Propulsion:	2 × → General Electric LM2500-30 gas turbines generating 41,000 shp (31 MW) through a single shaft and → variable pitch propeller; 2 x Auxiliary Propulsion Units, 350 hp (.25 MW) retractable electric → azipods for maneuvering and docking.
Speed:	29+ knots (54+ km/h)
Range:	5,000 nm (9,300 km) at 18 knots (33 km/h)
Complement:	15 officers and 190 enlisted, plus → SH-60 LAMPS detachment of roughly six officer pilots and 15 enlisted maintainers
Sensors and processing systems:	→ AN/SPS-49 air-search radar → AN/SPS-55 surface-search radar CAS and STIR fire-control radar AN/SQS-56 sonar.
Electronic warfare and decoys:	AN/SLQ-32

Armament:	**As built:** One OTO Melara Mk 75 76 mm/62 caliber naval gun two → Mk 32 triple-tube (324 mm) launchers for → Mark 46 torpedoes one Vulcan → Phalanx CIWS; four → .50-cal (12.7 mm) machine guns. one Mk 13 Mod 4 single-arm launcher for → Harpoon anti-ship missiles and → SM-1MR Standard anti-ship/air missiles (40 round magazine) **Note:** As of 2004, Mk13 systems removed from all active US vessels of this class.
Aircraft carried:	2 × → SH-60 LAMPS III helicopters

USS *Gallery* (FFG-26), eighteenth ship of the → *Oliver Hazard Perry* class of guided-missile → frigates, was named for three brothers: Rear Admiral Daniel V. Gallery (1901–1977), Rear Admiral William O. Gallery (1904–1981), and Rear Admiral Philip D. Gallery (1907–1973). Ordered from → Bath Iron Works on 28 February 1977 as part of the FY77 program, *Gallery* was laid down on 17 May 1980, launched on 20 December 1980, and commissioned on 5 December 1981. Decommissioned and stricken on 14 June 1996, she was transferred to Egypt on 25 September 1996 as that nation's *Taba* (F 916).

Gallery (FFG-26) was the first ship of that name in the US Navy.

References

This article includes information collected from the Naval Vessel Register, which, as a U.S. government publication, is in the public domain. The entry can be found here [31].

External links

- MaritimeQuest USS Gallery FFG-26 pages [1]
- GlobalSecurity.org FFG-26 [2]

References

[1] http://www.maritimequest.com/warship_directory/us_navy_pages/frigates/pages/gallery_ffg26_page_1.htm
[2] http://www.globalsecurity.org/military/agency/navy/ffg-26.htm

USS Mahlon S.Tisdale (FFG-27)

USS *Mahlon S Tisdale* (FFG-27)

Career ((US))	
Ordered:	23 January 1978
Builder:	→ Todd Pacific Shipyards Los Angeles Division, San Pedro, California
Laid down:	19 March 1980
Launched:	7 February 1981
Acquired:	22 October 1982
Commissioned:	27 November 1982
Decommissioned:	27 September 1996
Struck:	20 February 1998
Homeport:	San Diego, California (former)
Fate:	Disposed of through the Security Assistance Program (SAP)
General characteristics	
Class and type:	→ *Oliver Hazard Perry*-class → frigate
Displacement:	4,100 tons (4,170 t) full load
Length:	453 ft (138.1 m), overall
Beam:	45 ft (13.7 m)
Draught:	22 ft (6.7 m)
Propulsion:	2 × → General Electric LM2500-30 gas turbines generating 41,000 shp (31 MW) through a single shaft and → variable pitch propeller; 2 x Auxiliary Propulsion Units, 350 hp (.25 MW) retractable electric → azipods for maneuvering and docking.
Speed:	29+ knots (54+ km/h)
Range:	5,000 nm (9,300 km) at 18 knots (33 km/h)
Complement:	15 officers and 190 enlisted, plus → SH-60 LAMPS detachment of roughly six officer pilots and 15 enlisted maintainers

Sensors and processing systems:	→ AN/SPS-49 air-search radar → AN/SPS-55 surface-search radar CAS and STIR fire-control radar AN/SQS-56 sonar.
Electronic warfare and decoys:	AN/SLQ-32
Armament:	**As built:** One OTO Melara Mk 75 76 mm/62 caliber naval gun two → Mk 32 triple-tube (324 mm) launchers for → Mark 46 torpedoes one Vulcan → Phalanx CIWS; four → .50-cal (12.7 mm) machine guns. one Mk 13 Mod 4 single-arm launcher for → Harpoon anti-ship missiles and → SM-1MR Standard anti-ship/air missiles (40 round magazine) **Note:** As of 2004, Mk13 systems removed from all active US vessels of this class.
Aircraft carried:	2 × → SH-60 LAMPS III helicopters

USS *Mahlon S. Tisdale* (FFG-27), nineteenth ship of the → *Oliver Hazard Perry* class of guided-missile → frigates, was named for Vice Admiral Mahlon Street Tisdale (1890-1972). Ordered from Todd Shipyards, San Pedro, CA on 23 January 1978 as part of the FY78 program, *Mahlon S. Tisdale* was laid down on 19 March 1980, launched on 7 February 1981, and commissioned on 27 November 1982. Decommissioned on 27 September 1996 and stricken on 20 February 1998, she was transferred to Turkey on 5 April 1999 as that nation's **TCG *Gökçeada* (F 494)**.

Mahlon S. Tisdale (FFG-27) was the first ship of that name in the US Navy.

References

This article includes information collected from the Naval Vessel Register, which, as a U.S. government publication, is in the public domain. The entry can be found here [32].

External links

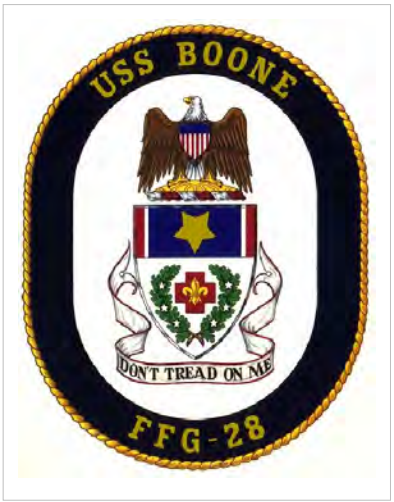
- MaritimeQuest USS Mahlon S. Tisdale FFG-27 pages [1]
- GlobalSecurity.org FFG-27 [2]

References

[1] http://www.maritimequest.com/warship_directory/us_navy_pages/frigates/pages/mahlon_s_tisdale_page_1.htm
[2] http://www.globalsecurity.org/military/agency/navy/ffg-27.htm

USS Boone (FFG-28)

USS *Boone* (FFG-28) passing the Statue of Liberty, Fleet Week, New York 2002

Career (US)	
Name:	USS Boone
Namesake:	Vice Admiral Joel Thompson Boone, M.D.
Ordered:	23 January 1978
Builder:	→ Todd Pacific Shipyards, Seattle
Laid down:	27 March 1979
Launched:	16 January 1980
Commissioned:	15 May 1982
Homeport:	Mayport, Florida
Motto:	*Brave Man, Brave Ship*
Fate:	Active in service as of 2009
Badge:	
General characteristics	
Class and type:	→ *Oliver Hazard Perry*-class → frigate
Displacement:	4,100 tons (4,170 t) full load
Length:	453 ft (138.1 m), overall

Beam:	45 ft (13.7 m)
Draught:	22 ft (6.7 m)
Propulsion:	2 × → General Electric LM2500-30 gas turbines generating 41,000 shp (31 MW) through a single shaft and → variable pitch propeller; 2 x Auxiliary Propulsion Units, 350 hp (.25 MW) retractable electric → azipods for maneuvering and docking.
Speed:	29+ knots (54+ km/h)
Range:	5,000 nm (9,300 km) at 18 knots (33 km/h)
Complement:	15 officers and 190 enlisted, plus → SH-60 LAMPS detachment of roughly six officer pilots and 15 enlisted maintainers
Sensors and processing systems:	→ AN/SPS-49 air-search radar → AN/SPS-55 surface-search radar CAS and STIR fire-control radar AN/SQS-56 sonar.
Electronic warfare and decoys:	AN/SLQ-32
Armament:	**As built:** One OTO Melara Mk 75 76 mm/62 caliber naval gun two → Mk 32 triple-tube (324 mm) launchers for → Mark 46 torpedoes one Vulcan → Phalanx CIWS; four → .50-cal (12.7 mm) machine guns. one Mk 13 Mod 4 single-arm launcher for → Harpoon anti-ship missiles and → SM-1MR Standard anti-ship/air missiles (40 round magazine) **Note:** As of 2004, Mk13 systems removed from all active US vessels of this class.
Aircraft carried:	2 × → SH-60 LAMPS III helicopters

USS *Boone* (FFG-28) is the twentieth ship in the United States Navy's → *Oliver Hazard Perry* class of guided missile → frigates.

The frigate was named for Vice Admiral Joel Thompson Boone, M.D. (1889–1974). FFG-28, the first U.S. ship to bear the Admiral's name, was ordered January 23, 1978, launched 16 January 1980 by → Todd Pacific Shipyards, and commissioned 15 May 1982. She has since racked up numerous awards and commendations.

USS *Boone* is assigned to Destroyer Squadron 14 and was the recipient of the 2005 DESRON 14 Battle "E". On 16 February 2007, *Bunker Hill* was awarded the 2006 Battle "E" award. [1]

Boone is homeported in Mayport, Florida, and is a member of the Navy Reserve.

References

This article includes information collected from the Naval Vessel Register, which, as a U.S. government publication, is in the public domain. The entry can be found here [33].

External links

- USS *Boone* Official site [2]
- navsource.org: USS *Boone* [3]
- navysite.de: USS *Boone* [4]
- MaritimeQuest USS Boone FFG-28 [5]

Further reading

- Milton F. Heller III (2000). *The Presidents' Doctor : An Insider's View of Three First Families*. Vantage Pr; 1st ed edition (August 2000). ISBN 0-533-13159-6.

References

[1] http://www.navy.mil/search/display.asp?story_id=27895

[2] http://www.boone.navy.mil//

[3] http://www.navsource.org/archives/07/0728.htm

[4] http://www.navysite.de/ffg/FFG28.HTM

[5] http://www.maritimequest.com/warship_directory/us_navy_pages/frigates/pages/boone_ffg_28_page_1.htm

USS Stephen W.Groves (FFG-29)

USS *Stephen W.Groves* (FFG-29)

Career (US)	
Namesake:	Ensign Stephen W. Groves (1917-1942), U.S. Navy officer and Navy Cross recipient
Ordered:	23 January 1978
Builder:	→ Bath Iron Works
Laid down:	16 September 1980
Launched:	4 April 1981
Commissioned:	17 April 1982
Homeport:	Mayport, Florida
Motto:	*Dirigo* (I Direct)
Nickname:	*Stevie G*
Fate:	Active in service as of 2009
General characteristics	
Class and type:	→ *Oliver Hazard Perry*-class → frigate
Displacement:	4,100 tons (4,170 t) full load
Length:	453 ft (138.1 m), overall
Beam:	45 ft (13.7 m)
Draught:	22 ft (6.7 m)
Propulsion:	2 × → General Electric LM2500-30 gas turbines generating 41,000 shp (31 MW) through a single shaft and → variable pitch propeller; 2 x Auxiliary Propulsion Units, 350 hp (.25 MW) retractable electric → azipods for maneuvering and docking.
Speed:	29+ knots (54+ km/h)
Range:	5,000 nm (9,300 km) at 18 knots (33 km/h)
Complement:	15 officers and 190 enlisted, plus → SH-60 LAMPS detachment of roughly six officer pilots and 15 enlisted maintainers
Sensors and processing systems:	→ AN/SPS-49 air-search radar → AN/SPS-55 surface-search radar CAS and STIR fire-control radar AN/SQS-56 sonar.

Electronic warfare and decoys:	AN/SLQ-32
Armament:	**As built:** One OTO Melara Mk 75 76 mm/62 caliber naval gun two → Mk 32 triple-tube (324 mm) launchers for → Mark 46 torpedoes one Vulcan → Phalanx CIWS; four → .50-cal (12.7 mm) machine guns. one Mk 13 Mod 4 single-arm launcher for → Harpoon anti-ship missiles and → SM-1MR Standard anti-ship/air missiles (40 round magazine) **Note:** As of 2004, Mk13 systems removed from all active US vessels of this class.
Aircraft carried:	2 × → SH-60 LAMPS III helicopters

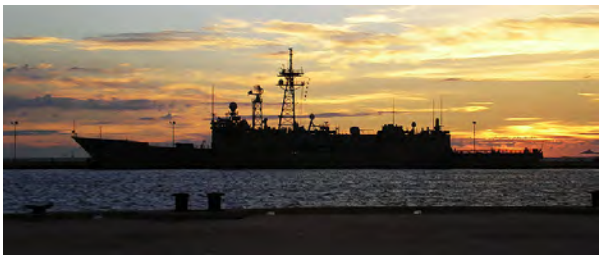
USS *Stephen W. Groves* (FFG-29), twenty-first ship of the → *Oliver Hazard Perry* class of guided-missile → frigates, was named for Ensign Stephen W. Groves (1917–1942), a naval aviator who was posthumously awarded the Navy Cross for his heroism at the Battle of Midway during World War II.

Ordered from → Bath Iron Works on 23 January 1978 as part of the FY78 program, *Stephen W. Groves* was laid down on 16 September 1980, launched on 4 April 1981, and commissioned on 17 April 1982, Commander Philip A. Bozzelli commanding.

On 28 August 2005, she sailed from her then-home port of Pascagoula, Mississippi, along with sister ship → *John L. Hall* (FFG-32) under threat from Hurricane Katrina; Naval Station Pascagoula is now closed as a result of Hurricane Katrina.

As of 2006, she remained active, assigned to Destroyer Squadron 14 and home-ported at Naval Station Mayport, Florida.

Stephen W. Groves (FFG-29) is the first ship of that name in the U.S. Navy. A previous ship named for Ensign Groves, destroyer escort USS *Groves* (DE-543) was cancelled in 1944 prior to completion.



The *Stephen W. Groves* (FFG-29) as seen at sunset in Key West on 22 July 2007.

References

This article includes information collected from the Naval Vessel Register, which, as a U.S. government publication, is in the public domain. The entry can be found here [34].

External links

- USS *Stephen W. Groves* official website [1]
- navsource.org: USS *Stephen W. Groves* [2]
- navysite.de: USS *Stephen W. Groves* [3]
- MaritimeQuest USS Stephen W. Groves FFG-29 pages [4]

References

[1] http://www.groves.navy.mil/

[2] http://www.navsource.org/archives/07/0729.htm

[3] http://navysite.de/ffg/FFG29.HTM

[4] http://www.maritimequest.com/warship_directory/us_navy_pages/frigates/pages/stephen_w_groves_ffg29_page_1.htm

USS Reid (FFG-30)

USS *Reid* (FFG-30)

Career (US)	
Ordered:	23 January 1978
Builder:	→ Todd Pacific Shipyards, San Pedro
Laid down:	8 October 1980
Launched:	27 June 1981
Commissioned:	19 February 1983
Decommissioned:	25 September 1998
Nickname:	*Reidski*
Fate:	transferred to Turkey, 1999
General characteristics	
Class and type:	→ *Oliver Hazard Perry*-class → frigate
Displacement:	4,100 tons (4,170 t) full load
Length:	453 ft (138.1 m), overall
Beam:	45 ft (13.7 m)
Draught:	22 ft (6.7 m)
Propulsion:	2 × → General Electric LM2500-30 gas turbines generating 41,000 shp (31 MW) through a single shaft and → variable pitch propeller; 2 x Auxiliary Propulsion Units, 350 hp (.25 MW) retractable electric → azipods for maneuvering and docking.
Speed:	29+ knots (54+ km/h)
Range:	5,000 nm (9,300 km) at 18 knots (33 km/h)
Complement:	15 officers and 190 enlisted, plus → SH-60 LAMPS detachment of roughly six officer pilots and 15 enlisted maintainers
Sensors and processing systems:	→ AN/SPS-49 air-search radar → AN/SPS-55 surface-search radar CAS and STIR fire-control radar AN/SQS-56 sonar.
Electronic warfare and decoys:	AN/SLQ-32

Armament:	**As built:** One OTO Melara Mk 75 76 mm/62 caliber naval gun two → Mk 32 triple-tube (324 mm) launchers for → Mark 46 torpedoes one Vulcan → Phalanx CIWS; four → .50-cal (12.7 mm) machine guns. one Mk 13 Mod 4 single-arm launcher for → Harpoon anti-ship missiles and → SM-1MR Standard anti-ship/air missiles (40 round magazine) **Note:** As of 2004, Mk13 systems removed from all active US vessels of this class.
Aircraft carried:	2 × → SH-60 LAMPS III helicopters

USS *Reid* (FFG-30), twenty-second ship of the → *Oliver Hazard Perry* class of guided-missile → frigates, was named for Sailing Master Samuel Chester Reid (1783–1861).

Ordered from → Todd Pacific Shipyards, San Pedro, California on 23 January 1978 as part of the FY78 program, *Reid* was laid down on 8 October 1980, launched on 27 June 1981, and commissioned on 19 February 1983.

On on 18 August 1990, *Reid* fired the first shots of Operation Desert Shield when she fired across the bow of an Iraqi tanker who had refused to change course when ordered.

Decommissioned and stricken on 25 September 1998, she was transferred to Turkey on 5 January 1999 as that nation's **TCG *Gelibolu* (F 493)**.

The Reid's unofficial nickname *Reidski*, used during the 1980s, came into use as the *Reid* found herself, more often than not, playing on the side of the "orange" team during fleet exercises.

References

This article includes information collected from the Naval Vessel Register, which, as a U.S. government publication, is in the public domain. The entry can be found here [35].

External links

- MaritimeQuest USS Reid FFG-30 pages [1]

References

[1] http://www.maritimequest.com/warship_directory/us_navy_pages/frigates/pages/reid_ffg_30_page_1.htm

USS Stark (FFG-31)

USS *Stark* (FFG-31)

Career (US)	
Builder:	→ Todd Pacific Shipyards, Seattle, Washington
Laid down:	24 August 1979
Launched:	30 May 1980
Commissioned:	23 October 1982
Decommissioned:	7 May 1999
Struck:	7 May 1999
Homeport:	Mayport, Florida (former)
Motto:	*Strength for Freedom*
Fate:	Disposed of by scrapping - dismantled June 21, 2006
General characteristics	
Class and type:	→ *Oliver Hazard Perry*-class → frigate
Displacement:	4,100 tons (4,170 t) full load
Length:	453 ft (138.1 m), overall
Beam:	45 ft (13.7 m)
Draught:	22 ft (6.7 m)
Propulsion:	2 × → General Electric LM2500-30 gas turbines generating 41,000 shp (31 MW) through a single shaft and → variable pitch propeller; 2 x Auxiliary Propulsion Units, 350 hp (.25 MW) retractable electric → azipods for maneuvering and docking.
Speed:	29+ knots (54+ km/h)
Range:	5,000 nm (9,300 km) at 18 knots (33 km/h)
Complement:	15 officers and 190 enlisted, plus → SH-60 LAMPS detachment of roughly six officer pilots and 15 enlisted maintainers
Sensors and processing systems:	→ AN/SPS-49 air-search radar → AN/SPS-55 surface-search radar CAS and STIR fire-control radar AN/SQS-56 sonar.
Electronic warfare and decoys:	AN/SLQ-32

Armament:	**As built:** One OTO Melara Mk 75 76 mm/62 caliber naval gun two → Mk 32 triple-tube (324 mm) launchers for → Mark 46 torpedoes one Vulcan → Phalanx CIWS; four → .50-cal (12.7 mm) machine guns. one Mk 13 Mod 4 single-arm launcher for → Harpoon anti-ship missiles and → SM-1MR Standard anti-ship/air missiles (40 round magazine) **Note:** As of 2004, Mk13 systems removed from all active US vessels of this class.
Aircraft carried:	2 × → SH-60 LAMPS III helicopters

USS *Stark* (FFG-31), twenty-third ship of the → *Oliver Hazard Perry* class of guided-missile → frigates, was named for Admiral Harold Rainsford Stark (1880–1972). In 1987, Iraqi jet fighters attacked the *USS Stark* under disputed circumstances. 37 Americans sailors died as a result. It is the only successful anti-ship missile attack on a U.S. Navy warship.

Ordered from → Todd Pacific Shipyards, Seattle, Washington on 23 January 1978 as part of the FY78 program, *Stark* was laid down on 24 August 1979, launched on 30 May 1980, and commissioned on 23 October 1982, CDR Terence W. Costello commanding. Decommissioned on 7 May 1999, *Stark* was scrapped in 2006.

Missile attack

The USS *Stark* was deployed to the Middle East Force in 1984 and 1987. Captain Glenn R. Brindel was the commanding officer during the 1987 deployment. The ship was struck on May 17, 1987, by two Exocet antiship missiles fired from an Iraqi F-1 Mirage[1] [2] plane during the Iran–Iraq War. The plane had taken off from Shaibah at 20:00 and had flown south into the Persian Gulf. The fighter fired the first Exocet missile from a range of 22.5 nautical miles, and the second from 15.5 nautical miles, at about the time the fighter was given a routine radio warning by the *Stark*.[3] The frigate did not detect the missiles with radar and warning was given by the lookout only moments before the missiles struck.[4] The first penetrated the port-side hull; it failed to detonate, but spewed flaming rocket fuel in its path. The second entered at almost the same point, and left a 3-by-4-meter gash—then exploded in crew quarters. Thirty-seven sailors were killed and twenty-one were injured.[4]

Stark listing following two hits by Exocet missiles

No weapons were fired in defense of *Stark*. The → Phalanx CIWS remained in standby mode, → Mark 36 SRBOC countermeasures were not armed, and the attacking Exocet missiles and Mirage aircraft were in a blindspot of the defensive STIR (Separate Target Illumination Radar) fire control system, preventing use of the ship's → Standard missile defenses. The ship failed to maneuver to bring its weapons batteries to bear prior to the first missile impact.[4]

On fire and listing, the frigate was brought under control by its crew during the night. The ship made its way to Bahrain where, after temporary repairs by the tender USS *Acadia* (AD-42) to make her seaworthy, she returned to her home port of Mayport, Florida, under her own power. The ship was eventually repaired at Ingalls Shipbuilding in Mississippi for $142 million.

A view of external damage to the port side

The question of whether or not Iraqi leadership authorized the attack is still unanswered. Initial claims by the Iraqi government (that *Stark* was inside the Iran–Iraq War zone) were shown to be false, so the motives and orders of the pilot remain unanswered. Though American officials claimed he had been executed, an ex-Iraqi Air Force commander since stated that the pilot who attacked *Stark* was not punished, and was still alive at the time.[5]

Citing lapses in training requirements and lax procedures, the board of inquiry relieved Captain Brindel of command and recommended him for court-martial, along with Tactical Action Officer Lieutenant Basil E. Moncrief. Instead, Brindel and Mondrief received non-judicial punishment from Admiral Frank B. Kelso II and letters of reprimand. Both opted for early retirement, while Executive Officer, Lieutenant Commander Raymond Gajan Jr. was detached for cause and received a letter of admonition.[6]

1990s

Stark was part of the Standing Naval Forces Atlantic Fleet in 1990 before returning to the Middle East Force in 1991. She was attached to UNITAS in 1993 and took part in Operation Support Democracy and Operation Able Vigil in 1994. In 1995, she returned to the Middle East Force before serving in the Atlantic in 1997 and in 1998.

Stark was decommissioned on May 7, 1999. A scrapping contract was awarded to Metro Machine Corp. of Philadelphia, Pennsylvania, on 7 October, 2005. The ship was reported scrapped on June 21, 2006.[7]

Casualties

USS *Stark* memorial in Mayport, Florida

USS *Stark* casualties		
SN Doran H. Bolduc, Lacey, WA	RMSA Dexter D. Grissett, Macon, GA	FCCS Robert L. Shippee, Adams Center, NY
BM1 Braddi O. Brown, Calera, AL	FC3 William R. Hansen, Reading, MA	SMSA Jeffrey C. Sibley, Metairie, LA
FC3 Jeffrey L. Calkins, Richfield Springs, NY	GMG3 Daniel Homicki, Elizabeth, NJ	OS3 Lee Stephens, Pemberton, OH
SN Mark R. Caouette, Fitchburg, MA	OSSN Kenneth D. Janusik, Jr., Clearwater, FL	BM2 James R. Stevens, Visalia, CA
SN John A. Ciletta, Jr., † Brigantine, NJ	OS3 Steven E. Kendall, Honolulu, HI	ET3 Martin J. Supple, Jacksonville, FL
SR Brian M. Clinefelter, San Bernadino, CA	EMCS Stephen Kiser, Elkhart, IN	FC1 Gregory L. Tweady, Champaign, IL
OS3 Antonio A. Daniels, Greeleyville, SC	SM1 Ronnie G. Lockett, Bessemer, AL	ET3 Kelly R. Quick, Linden, MI
ET3 Christopher DeAngelis, † Dumont, NJ	GMM1 Thomas J. MacMullen, Darby, PA	SN Vincent L. Ulmer, Bay Minette, AL
IC3 James S. Dunlap, Osceola Mills, PA	EW3 Charles T. Moller, Columbus, GA	EW3 Joseph P. Watson, Ferndale, MI
STGSN Steven T. Erwin, † Troy, MI	DS1 Randy E. Pierce, Choctaw, OK	ET3 Wayne R. Weaver, II, New Bethlehem, PA
RM2 Jerri B. Farr, Charleston, SC	SA Jeffrei L. Phelps, Locust Grove, VA	OSSN Terrance Weldon, Coram, NY
QMCS Vernon T. Foster, Jacksonville, FL	GM3 James Plonsky, Van Nuys, CA	IC2 Lloyd A. Wilson, Summerville, SC
	SMSN Earl P. Ryals, † Boca Raton, FL	
† Buried in Arlington National Cemetery		

See also

- KAL 007: The Search in International Waters for the role of the USS Stark

Further reading

- Levinson, Jeffrey L. and Randy L. Edwards (1997). *Missile Inbound*. Annapolis: Naval Institute Press. ISBN 1-55750-517-9.
- Wise, Harold Lee (2007). *Inside the Danger Zone: The U.S. Military in the Persian Gulf 1987-88* [67]. Annapolis: Naval Institute Press. ISBN 1-59114-970-3.

References

[1] http://www.jag.navy.mil/library/investigations/USS%20STARK%20BASIC.pdf
[2] Desert Storm at sea: what the Navy really did by Marvin Pokrant (http://books.google.fr/books?id=erVzmflT2MIC&printsec=frontcover&source=gbs_navlinks_s#v=onepage&q=&f=false), P 43.
[3] Stephen Andrew Kelley (June 2007) (PDF), *Better Lucky Than Good: Operation Earnest Will as Gunboat Diplomacy* (http://www.ccc.nps.navy.mil/research/theses/kelley07.pdf), Naval Postgraduate School, , retrieved 2007-11-09
[4] Formal Investigation into the Circumstances Surrounding the Attack of the USS Stark in 1987 (http://www.dod.mil/pubs/foi/reading_room/65.pdf)
[5] Fisk, Robert (2005). *The Great War For Civilisation: The Conquest of the Middle East*. Knopf Publishing.
[6] " Navy Forgoes Courts-Martial for Officers of Stark (http://query.nytimes.com/gst/fullpage.html?res=9B0DE6DD1439F93BA15754C0A961948260)". *The New York Times*. 1987-07-28. .
[7] Naval Vessel Register. STARK (FFG 31) (http://www.nvr.navy.mil/nvrships/details/FFG31.htm). Accessed April 4, 2007.

This article includes information collected from the Naval Vessel Register, which, as a U.S. government publication, is in the public domain. The entry can be found here (http://www.nvr.navy.mil/nvrships/details/FFG31.htm).

External links

- Photos of the damaged *Stark* (http://www.navybook.com/nohigherhonor/pic-stark.shtml)
- Host page for PDF version of report: Formal Investigation into the Circumstances Surrounding the Attack of the USS Stark in 1987 (http://www.dod.mil/pubs/foi/reading_room/65.pdf)
- US Navy's Damage Control Museum (http://www.dcfp.navy.mil/mc/museum/STARK/Stark3.htm) page on the USS Stark
- navsource.org: USS *Stark* (FFG-31) (http://www.navsource.org/archives/07/0731.htm)
- Information on Operation Earnest Will (http://eightiesclub.tripod.com/id344.htm)
- MaritimeQuest USS Stark FFG-31 pages (http://www.maritimequest.com/warship_directory/us_navy_pages/frigates/pages/uss_stark_ffg_31_page_1.htm)
- Memorial Site for USS Stark casualties (http://www.americanmemorialsite.com/stark.html)
- **NPR The Story Radio Interview with OS2 Gable May 15 2008** (http://thestory.org/archive/search_media?review_state=published&start.query:record:list:date=2008-05-15 23:59:59&start.range:record=max&end.query:record:list:date=2008-05-15 00:00:00&end.range:record=min&month:int=5&year:int=2008)
- **NPR The Story Radio Interview with Michael Tooker June 9 2008** (http://thestory.org/archive/search_media?review_state=published&start.query:record:list:date=2008-06-09 23:59:59&start.range:record=max&end.query:record:list:date=2008-06-09 00:00:00&end.range:record=min&month:int=6&year:int=2008)

USS John L.Hall (FFG-32)

USS *John L. Hall* (FFG-32)

Career (US)	
Owner:	Admiral John L. Hall, Jr.
Ordered:	23 January 1978
Builder:	→ Bath Iron Works
Laid down:	5 January 1981
Launched:	24 July 1981
Commissioned:	26 June 1982
Homeport:	Mayport, Florida
Motto:	*Semper Victores* (Always Victorious)
Nickname:	"The Johnny"
Fate:	Active in service as of 2009
General characteristics	
Class and type:	→ *Oliver Hazard Perry*-class → frigate
Displacement:	4,100 tons (4,170 t) full load
Length:	453 ft (138.1 m), overall
Beam:	45 ft (13.7 m)
Draught:	22 ft (6.7 m)
Propulsion:	2 × → General Electric LM2500-30 gas turbines generating 41,000 shp (31 MW) through a single shaft and → variable pitch propeller; 2 x Auxiliary Propulsion Units, 350 hp (.25 MW) retractable electric → azipods for maneuvering and docking.
Speed:	29+ knots (54+ km/h)
Range:	5,000 nm (9,300 km) at 18 knots (33 km/h)
Complement:	15 officers and 190 enlisted, plus → SH-60 LAMPS detachment of roughly six officer pilots and 15 enlisted maintainers
Sensors and processing systems:	→ AN/SPS-49 air-search radar → AN/SPS-55 surface-search radar CAS and STIR fire-control radar AN/SQS-56 sonar.
Electronic warfare and decoys:	AN/SLQ-32

Armament:	**As built:** One OTO Melara Mk 75 76 mm/62 caliber naval gun two → Mk 32 triple-tube (324 mm) launchers for → Mark 46 torpedoes one Vulcan → Phalanx CIWS; four → .50-cal (12.7 mm) machine guns. one Mk 13 Mod 4 single-arm launcher for → Harpoon anti-ship missiles and → SM-1MR Standard anti-ship/air missiles (40 round magazine) **Note:** As of 2004, Mk13 systems removed from all active US vessels of this class.
Aircraft carried:	2 × → SH-60 LAMPS III helicopters

USS *John L. Hall* (FFG-32), twenty-fourth ship of the → *Oliver Hazard Perry* class of guided-missile → frigates, was named for Admiral John L. Hall, Jr. (1891–1978).

Ordered from → Bath Iron Works, Bath, ME on 23 January 1978 as part of the FY78 program, *John L. Hall* was laid down on 5 January 1981, launched on 24 July 1981, and commissioned on 26 June 1982.

On 28 August 2005, she sailed from her home port, NS Pascagoula, Mississippi, along with sister ship → *Stephen W. Groves* under threat from Hurricane Katrina.

As of 2007, she remains active, commanded by Commander Augustus P. Bennet, assigned to Destroyer Squadron 14, and homeported at NAVSTA Mayport, Florida. In August 2008, while underway to avoid Tropical Storm Fay, the scheduled change of command occurred with Commander Derek Lavan assuming command of the vessel.

John L. Hall (FFG-32) is the first ship of that name in the US Navy.

References

This article includes information collected from the Naval Vessel Register, which, as a U.S. government publication, is in the public domain. The entry can be found here [37].

External links

- USS *John L. Hall* official website [1]
- navsource.org: USS *John L. Hall* [2]
- navysite.de: USS *John L. Hall* [3]
- MaritimeQuest USS John L. Hall FFG-32 pages [4]

References

[1] http://www.hall.navy.mil/
[2] http://www.navsource.org/archives/07/0732.htm
[3] http://www.navysite.de/ffg/FFG32.HTM
[4] http://www.maritimequest.com/warship_directory/us_navy_pages/frigates/pages/john_l_hall_page_1.htm

USS Jarrett (FFG-33)

USS *Jarrett* (FFG-33)

Career (US)	
Namesake:	Vice Admiral Harry B. Jarrett
Ordered:	23 January 1978
Builder:	→ Todd Pacific Shipyards Los Angeles Division, San Pedro, California
Laid down:	11 February 1981
Launched:	17 October 1981
Acquired:	27 May 1983
Commissioned:	2 July 1983
Homeport:	Naval Base San Diego
Motto:	*Valens Et Egregius*
Fate:	Active in service as of 2009
General characteristics	
Class and type:	→ *Oliver Hazard Perry*-class → frigate
Displacement:	4,100 tons (4,170 t) full load
Length:	453 ft (138.1 m), overall
Beam:	45 ft (13.7 m)
Draught:	22 ft (6.7 m)
Propulsion:	2 × → General Electric LM2500-30 gas turbines generating 41,000 shp (31 MW) through a single shaft and → variable pitch propeller; 2 x Auxiliary Propulsion Units, 350 hp (.25 MW) retractable electric → azipods for maneuvering and docking.
Speed:	29+ knots (54+ km/h)
Range:	5,000 nm (9,300 km) at 18 knots (33 km/h)
Complement:	15 officers and 190 enlisted, plus → SH-60 LAMPS detachment of roughly six officer pilots and 15 enlisted maintainers
Sensors and processing systems:	→ AN/SPS-49 air-search radar → AN/SPS-55 surface-search radar CAS and STIR fire-control radar AN/SQS-56 sonar.

Electronic warfare and decoys:	AN/SLQ-32
Armament:	**As built:** One OTO Melara Mk 75 76 mm/62 caliber naval gun two → Mk 32 triple-tube (324 mm) launchers for → Mark 46 torpedoes one Vulcan → Phalanx CIWS; four → .50-cal (12.7 mm) machine guns. one Mk 13 Mod 4 single-arm launcher for → Harpoon anti-ship missiles and → SM-1MR Standard anti-ship/air missiles (40 round magazine) **Note:** As of 2004, Mk13 systems removed from all active US vessels of this class.
Aircraft carried:	2 × → SH-60 LAMPS III helicopters

→ USS *Jarrett* (FFG-33), twenty-fifth ship of the → *Oliver Hazard Perry*-class guided-missile → frigates, was named for Vice Admiral Harry B. Jarrett (1898–1974).

Ordered from → Todd Pacific Shipyards, San Pedro, California on 23 January 1978 as part of the FY78 program, *Jarrett* was laid down on 11 February 1981, launched on 17 October 1981, and commissioned on 2 July 1983.

Operation Desert Storm

During Desert Storm in 1991, *Jarrett* was involved in a friendly fire incident with the *Iowa*-class battleship *Missouri*. Allegedly, *Jarrett*'s Phalanx engaged the chaff fired by *Missouri* as a countermeasure against two incoming Iraqi Silkworm missiles (also known as a Seersucker). Some stray Phalanx rounds struck *Missouri*, one of which penetrated a bulkhead and embedded in an interior passageway of the ship. Another round struck the ship on the forward funnel passing completely through it. One sailor aboard *Missouri* was struck in the neck by some flying shrapnel and suffered minor injuries. Some are skeptical of this account, however, as *Jarrett* was reportedly over two miles away at the time and the characteristics of chaff are such that a Phalanx normally would not regard it as a threat and engage it. There is no dispute that the rounds that struck *Missouri* were fired by the *Jarrett* and that it was an accident. It is possible that a Phalanx operator on *Jarrett* may have accidentally fired some rounds manually. However, no evidence to support this theory has ever been discovered.[1]

One of the Iraqi Silkworm missiles crashed into the sea without being intercepted. The other - heading towards USS *Missouri* - was successfully intercepted by a British Sea Dart missile fired by HMS *Gloucester*.

Current Status

As of early 2007 the *Jarrett* remains active, assigned to Destroyer Squadron 1 and is homeported at San Diego, California.

Jarrett (FFG-33) is the first ship of that name in the US Navy. She was also the first US Navy warship to be commanded by a woman, Commander Kathleen A. McGrath, from 18 December 1998 until 4 September 2000.[2] [3] [4]

References

[1] USS Missouri Frequently Asked Questions (http://www.factplace.com/mightymo.htm#Gulf)

[2] http://www.news.navy.mil/search/display.asp?story_id=8392

[3] http://www.jarrett.navy.mil/coc/cos.shtml

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External links

- USS Jarrett FFG-33 official webpage (http://www.jarrett.navy.mil/)
- MaritimeQuest USS Jarrett FFG-33 pages (http://www.maritimequest.com/warship_directory/us_navy_pages/frigates/pages/jarrett_ffg33_page_1.htm)
- GlobalSecurity.org FFG-33 (http://www.globalsecurity.org/military/agency/navy/ffg-33.htm)

USS Aubrey Fitch (FFG-34)

USS *Aubrey Fitch* {FFG-34}

Career (US)	
Namesake:	Admiral Aubrey Fitch
Ordered:	23 January 1978
Builder:	→ Bath Iron Works
Laid down:	10 April 1981
Launched:	17 October 1981
Acquired:	1 October 1982
Commissioned:	9 October 1982
Decommissioned:	12 December 1997
Struck:	3 May 1999
Homeport:	Mayport, Florida (former)
Fate:	Disposed of by scrapping, dismantling
General characteristics	
Class and type:	→ *Oliver Hazard Perry*-class → frigate
Displacement:	4,100 tons (4,170 t) full load
Length:	453 ft (138.1 m), overall
Beam:	45 ft (13.7 m)
Draught:	22 ft (6.7 m)
Propulsion:	2 × → General Electric LM2500-30 gas turbines generating 41,000 shp (31 MW) through a single shaft and → variable pitch propeller; 2 x Auxiliary Propulsion Units, 350 hp (.25 MW) retractable electric → azipods for maneuvering and docking.
Speed:	29+ knots (54+ km/h)
Range:	5,000 nm (9,300 km) at 18 knots (33 km/h)
Complement:	15 officers and 190 enlisted, plus → SH-60 LAMPS detachment of roughly six officer pilots and 15 enlisted maintainers
Sensors and processing systems:	→ AN/SPS-49 air-search radar → AN/SPS-55 surface-search radar CAS and STIR fire-control radar AN/SQS-56 sonar.

Electronic warfare and decoys:	AN/SLQ-32
Armament:	**As built:** One OTO Melara Mk 75 76 mm/62 caliber naval gun two → Mk 32 triple-tube (324 mm) launchers for → Mark 46 torpedoes one Vulcan → Phalanx CIWS; four → .50-cal (12.7 mm) machine guns. one Mk 13 Mod 4 single-arm launcher for → Harpoon anti-ship missiles and → SM-1MR Standard anti-ship/air missiles (40 round magazine) **Note:** As of 2004, Mk13 systems removed from all active US vessels of this class.
Aircraft carried:	2 × → SH-60 LAMPS III helicopters

USS *Aubrey Fitch* (FFG-34), twenty-sixth ship of the → *Oliver Hazard Perry* class of guided-missile → frigates, was named for Admiral Aubrey Fitch (1883–1978).

Ordered on 23 January 1978 as part of the FY78 program, *Aubrey Fitch* was laid down on 10 April 1981 at Bath, Maine, by the → Bath Iron Works; launched on 17 October 1981 sponsored by Mrs. Francesca Fitch Ferguson, the granddaughter of the late Admiral Fitch, and was commissioned at Bath, Maine, on 9 October 1982, Commander Floyd A. Weeks in command.

The ship was decommissioned on 12 December 1997 and stricken on 3 May 1999.

1982

After commissioning, *Aubrey Fitch* remained at Bath for another five weeks completing her outfitting, propulsion plant examination, and crew inspections. In mid-November, she made the passage from Bath to her home port, Mayport in Florida, where she spent the remainder of 1982.

1983

Early in January of 1983, the guided-missile frigate embarked upon her shakedown cruise to the vicinity of Guantanamo Bay, Cuba. The warship returned to Mayport during the middle of February and then launched into a series of trials, qualifications, and certifications preparatory to her final acceptance by the Navy. She completed final acceptance trials late in May and entered the yard at Bath Iron Works for a three-month, post-shakedown availability. *Aubrey Fitch* completed repalrs and returned to Mayport in September. In October, she commenced refresher training out of Guantanamo Bay.

The guided-missile frigate was so engaged when United States military forces invaded the small Caribbean island nation of Grenada on 25 October in response to a power struggle between leftist factions that endangered the stability of the region as well as the lives of United States citizens attending the medical college there. *Aubrey Fitch* interrupted refresher training to conduct patrols in defense of the base at Guantanamo Bay against possible hostile action by Cuba as a result of the conflict in Grenada where Americans found themselves fighting Cuban "advisors" and "construction workers."

Early in November, however the warship completed refresher training and assumed tactical control of *Aquila* and *Taurus* for the purpose of testing the feasibility of operating guided-missile frigates and guided-missile hydrofoil gunboats together in the same task organization. Demands attendant to the continuing American presence in Grenada, however, overtook the experiment and sent *Aubrey Fitch* and her two consorts south to the tiny republic. Duty in the waters adjacent to Grenada lasted until mid-December when the warship returned to Mayport.

1984

Aubrey Fitch began 1984 in her home port. Later in January, she embarked upon a normal schedule of training operations in the West Indies. That employment occupied her through the month of May and into June. On 22 June, the guided missile frigate put to sea to become a unit of NATO's Standing Naval Force, Atlantic, based at Plymouth, England. That deployment included visits to a number of ports in northern Europe as well as training evolutions in the Baltic Sea. Early in the fall of 1984, the NATO force visited American waters and made calls at Charleston, Savannah, and New Orleans. Late in November, the warships visited *Aubrey Fitch*'s home port in Florida. Early in December, the NATO force headed back to Europe, leaving *Aubrey Fitch* at Mayport.

1985

The warship opened 1985 much the same way as she did 1984. After concluding holiday leave and upkeep at Mayport during the first half of January, she returned to sea for the usual training exercises, equipment operation certifications, and ASW helicopter landing qualifications. These and similar evolutions alternated with periods in port for routine upkeep and availability occupied her time during the first five months of the year. In June, *Aubrey Fitch* began providing escort and plane guard services for *America* and *Saratoga* when the carriers put to sea to conduct landing qualifications.

Near the end of June, she put to sea for special operations off the west coast of the Isthmus of Panama. She transited the Panama Canal and then operated from the base at Rodman, Panama during July, August, and part of September. After passing back through the canal in mid-September, *Aubrey Fitch* arrived back at Mayport on the 21st. Repairs took up the remainder of September as well as October and November. She concluded her restricted availability with sea trials on 5 and 6 December and, after a brief round trip to Charleston and back, settled into the usual year-end holiday routine.

1986

The relative inactivity of holiday standdown carried over into the first three weeks of 1986. On 21 January, *Aubrey Fitch* put to sea for a week of ASW training in the Bahama Islands. On 28 January, she interrupted her return voyage when the Space Shuttle *Challenger* exploded soon after launch. From her position just 50 miles southeast of Cape Canaveral *Aubrey Fitch* rushed to the scene of the tragedy and began recovering debris. She collected several tons of material which she later delivered to Cape Canaveral to be inspected as a part of the investigation into the cause of the disaster. From Cape Canaveral the guided-missile frigate returned to Mayport and remained there until the second week in February. On 10 February, *Aubrey Fitch* resumed training operations out of Mayport, and she continued so employed until the beginning of April at which time the warship began preparations to deploy to the Persian Gulf.

On 4 June, *Aubrey Fitch* stood out of Mayport in company with *Talbot* to rendezvous with *Nicholson* and *Semmes*. She and her traveling companions then laid in a course that took them across the Atlantic Ocean and the Mediterranean Sea, through the Suez Canal, and around the Arabian Peninsula to the Strait of Hormuz. *Aubrey Fitch* and her consorts arrived at Bahrain in the Persian Gulf on 8 July. The guided-missile frigate spent the next four months conducting patrols and escorting merchant ships in the strategic–and troubled–waters of the Persian Gulf, the Gulf of Oman, and the northern portion of the Arabian Sea. No untoward events marred her sojourn in the region, and she concluded her assignment on 30 October by turning her responsibilities over to USS *Sampson*. Retracing her outward-bound voyage via the Red Sea, the Suez Canal, the Mediterranean Sea, and the Atlantic Ocean, *Aubrey Fitch* steamed into Mayport on 4 December. Post-deployment standdown took up the remainder of 1986.

[*1987-1997*]

Aubrey Fitch spent March through July of 1995 touring Western Europe, including Bermuda; Brest, France; Rota, Barcelona and Ibiza, Spain; Casablanca, Morocco; Gibraltar, Portsmouth & Liverpool, UK; Lisbon, Portugal;

Amsterdam, Netherlands; Derry & Portrush, Ireland and Rosyth, Scotland. *Aubrey Fitch* was decommissioned on 12 December 1997 and towed to the former Philadelphia Naval yard as part of the inactive reserve fleet. She was stricken on 3 May 1999, *Aubrey Fitch* was transferred to Metro Machine Corp. for scrapping, on 26 March 2004.

Aubrey Fitch (FFG-34) was the first ship of that name in the US Navy.

References

This article includes information collected from the Naval Vessel Register, which, as a U.S. government publication, is in the public domain. The entry can be found here [32].

External links

- hazegray.org/danfs/: USS *Aubrey Fitch* [1]
- MaritimeQuest USS Aubrey Fitch FFG-34 [2]
- GlobalSecurity.org FFG-27 [2]

References

[1] http://www.hazegray.org/danfs/escorts/ffg34.htm
[2] http://www.maritimequest.com/warship_directory/us_navy_pages/frigates/pages/aubrey_fitch_ffg_34_page_1.htm

USS Underwood (FFG-36)

USS *Underwood* underway in the Caribbean Sea in 2006

Career (US)	
Namesake:	Captain Gordon Waite Underwood
Ordered:	27 April 1979
Builder:	→ Bath Iron Works
Laid down:	30 July 1981
Launched:	6 February 1982
Acquired:	14 January 1983
Commissioned:	29 January 1983
Homeport:	Mayport, Florida
Fate:	Active in service as of 2009
General characteristics	
Class and type:	→ *Oliver Hazard Perry*-class → frigate
Displacement:	4,100 tons (4,170 t) full load
Length:	453 ft (138.1 m), overall
Beam:	45 ft (13.7 m)
Draught:	22 ft (6.7 m)
Propulsion:	2 × → General Electric LM2500-30 gas turbines generating 41,000 shp (31 MW) through a single shaft and → variable pitch propeller; 2 x Auxiliary Propulsion Units, 350 hp (.25 MW) retractable electric → azipods for maneuvering and docking.
Speed:	29+ knots (54+ km/h)
Range:	5,000 nm (9,300 km) at 18 knots (33 km/h)
Complement:	15 officers and 190 enlisted, plus → SH-60 LAMPS detachment of roughly six officer pilots and 15 enlisted maintainers
Sensors and processing systems:	→ AN/SPS-49 air-search radar → AN/SPS-55 surface-search radar CAS and STIR fire-control radar AN/SQS-56 sonar.
Electronic warfare and decoys:	AN/SLQ-32

Armament:	**As built:** One OTO Melara Mk 75 76 mm/62 caliber naval gun two → Mk 32 triple-tube (324 mm) launchers for → Mark 46 torpedoes one Vulcan → Phalanx CIWS; four → .50-cal (12.7 mm) machine guns. one Mk 13 Mod 4 single-arm launcher for → Harpoon anti-ship missiles and → SM-1MR Standard anti-ship/air missiles (40 round magazine) **Note:** As of 2004, Mk13 systems removed from all active US vessels of this class.
Aircraft carried:	2 × → SH-60 LAMPS III helicopters

USS *Underwood* (FFG-36), twenty-seventh ship of the → *Oliver Hazard Perry* class of guided-missile → frigates, was named for Captain Gordon Waite Underwood (1910–1978).

Ordered from → Bath Iron Works, Bath, ME on 27 April 1979 as part of the FY79 program, *Underwood* was laid down on 30 July 1981, launched on 6 February 1982, and commissioned on 29 January 1983. As of December 2006 she remains active, assigned to Destroyer Squadron 14 and homeported at Mayport, FL.

References

This article includes information collected from the Naval Vessel Register, which, as a U.S. government publication, is in the public domain. The entry can be found here [41].

External links

- Official website [1]
- MaritimeQuest USS Underwood FFG-36 pages [2]
- GlobalSecurity.org FFG-36 [3]

Underwood passing under the Cape Cod Canal railroad bridge, June 2006

References

[1] http://www.underwood.navy.mil/
[2] http://www.maritimequest.com/warship_directory/us_navy_pages/frigates/pages/underwood_ffg36_page_1.htm
[3] http://www.globalsecurity.org/military/agency/navy/ffg-36.htm

USS Crommelin (FFG-37)

Sailors aboard *Crommelin* man the rails as the ship passes the *Arizona* Memorial in Pearl Harbor, 12 May 2004.

Career	
Namesake:	Lieutenant Commander Richard Crommelin
Builder:	→ Todd Pacific Shipyards, Seattle
Laid down:	30 May 1980
Launched:	2 July 1981
Commissioned:	18 June 1983
Homeport:	Pearl Harbor, Hawaii
Motto:	"*Munus Bene Factum*" (Job Well Done)
Fate:	Active in service as of 2009
General characteristics	
Class and type:	→ *Oliver Hazard Perry*-class → frigate
Displacement:	4,100 tons (4,170 t) full load
Length:	453 ft (138.1 m), overall
Beam:	45 ft (13.7 m)
Draught:	22 ft (6.7 m)
Propulsion:	2 × → General Electric LM2500-30 gas turbines generating 41,000 shp (31 MW) through a single shaft and → variable pitch propeller; 2 x Auxiliary Propulsion Units, 350 hp (.25 MW) retractable electric → azipods for maneuvering and docking.
Speed:	29+ knots (54+ km/h)
Range:	5,000 nm (9,300 km) at 18 knots (33 km/h)
Complement:	15 officers and 190 enlisted, plus → SH-60 LAMPS detachment of roughly six officer pilots and 15 enlisted maintainers
Sensors and processing systems:	→ AN/SPS-49 air-search radar → AN/SPS-55 surface-search radar CAS and STIR fire-control radar AN/SQS-56 sonar.

Electronic warfare and decoys:	AN/SLQ-32
Armament:	**As built:** One OTO Melara Mk 75 76 mm/62 caliber naval gun two → Mk 32 triple-tube (324 mm) launchers for → Mark 46 torpedoes one Vulcan → Phalanx CIWS; four → .50-cal (12.7 mm) machine guns. one Mk 13 Mod 4 single-arm launcher for → Harpoon anti-ship missiles and → SM-1MR Standard anti-ship/air missiles (40 round magazine) **Note:** As of 2004, Mk13 systems removed from all active US vessels of this class.
Aircraft carried:	2 × → SH-60 LAMPS III helicopters
Badge:	

USS *Crommelin* (FFG-37), twenty-eighth ship of the → *Oliver Hazard Perry*-class of guided-missile → frigates, was named for five brothers: Vice Admiral Henry Crommelin (1904–1971), Rear Admiral John G. Crommelin (died 1997), Captain Quentin Crommelin (died 1997), Commander Charles Crommelin (died 1945), and Lieutenant Commander Richard Crommelin (1917–1945). *Crommelin* (FFG-37) is the first ship of that name in the United States Navy.

Ordered from Todd Pacific Shipyard, Seattle, Washington on 27 April 1979 as part of the Fiscal year 1979 program, *Crommelin* was laid down on 30 May 1980, launched on 2 July 1981, and commissioned on 18 June 1983.

Operational history

Crommelin was assigned to Destroyer Squadron 9 and reached its homeport of Long Beach, California in August 1983.

In 1985, *Crommelin* was assigned to the USS *Constellation* carrier battle group and deployed to the western Pacific and Indian Oceans. During this deployment, *Crommelin* became the first FFG to successfully engage a high-speed, maneuvering target with missiles. It was also the first ship to complete an operational deployment with the LAMPS MK III weapon system. In June 1986, *Crommelin* received the first Chief of Naval Operations LAMPS MK III Safety Award.

In the summer of 1986, *Crommelin* was awarded every departmental and divisional excellence award and won its first Navy "E" award. In 1987, *Crommelin* was assigned to Destroyer Squadron 13 and began an accelerated deployment with the *Constellation* battle group. *Crommelin* was the first FFG to deploy with two LAMPS MK III helicopters embarked. *Crommelin* was assigned to Commander, Middle East Force from 1 July to 25 August 1987, earning a Meritorious Unit Commendation and Armed Forces Expeditionary Medal for the convoy escort of the first five reflagged Kuwaiti tankers in Operation Earnest Will.

On 1 January 1988, *Crommelin* was reassigned to Destroyer Squadron 9, and on 6 March 1988, the ship received a second consecutive Navy "E" award. Upon completion of its second availability period at Todd Pacific Shipyard, *Crommelin* was deployed in March 1989 again to the Persian Gulf. In October 1990 Crommelin was deployed in support of joint service, counternarcotics operations in the Central, South American, and Caribbean theater.

Crommelin was awarded the Joint Services Meritorious Unit Award for its performance during this deployment. In 1991, *Crommelin* received the Navy "E" as well as its fifth consecutive warfare excellence awards for anti-air and anti-surface warfare, navigation and seamanship, damage control, engineering, and communications. On 1 September 1991, *Crommelin* shifted homeports to Pearl Harbor, Hawaii, and joined Destroyer Squadron 31.

Crommelin completed a second four-month counternarcotics deployment in the Central, South American and Caribbean theater from November 1992 to March 1993. Upon return to its homeport of Pearl Harbor, Hawaii, *Crommelin* was assigned to Commander Naval Surface Group, Middle Pacific.

From 6 July to 14 December 1994, *Crommelin* was assigned to the USS *Kitty Hawk* battle group in the Western Pacific for Korean contingency operations. There, *Crommelin* received the Meritorious Unit Commendation Award for the prosecution of a Chinese Han class submarine. Upon completion of this deployment she underwent dry-docking SRA-5 at Pearl Harbor Naval Shipyard, following which she began the cycle for her 1996 Western Pacific deployment with the USS *Carl Vinson* battle group.

After a three month work up cycle, *Crommelin* deployed with the *Carl Vinson* battle group on 20 May 1996. This deployment took *Crommelin* and her crew back to the Persian Gulf for a variety of missions, including escorting ships through the Straits of Hormuz, patrolling the Northern Persian Gulf, and conducting maritime interception operations. *Crommelin* returned from that deployment on 20 November 1996.

Following WESTPAC 96, *Crommelin* entered SRA-6 from January to March 1997. *Crommelin* received upgrades to all major weapons systems as well as the engineering plant. Following this availability, *Crommelin* and her crew began yet another work up cycle to prepare for her fifth deployment to the Persian Gulf as part of the U.S. 5th Fleet. *Crommelin* departed Pearl Harbor on 21 February 1998. During this deployment *Crommelin* distinguished herself by setting a Fifth Fleet record for number of vessels boarded and tonnage of illegal Iraqi petroleum seized and diverted.

Crommelin completed a demanding nine week private sector SRA in early 1999, where she made major repairs and upgrades throughout the ship. Immediately following the SRA, *Crommelin* aggressively entered the inter-deployment training cycle and proceeded to set numerous records throughout her training. Chief among these was condensing what is normally a twelve week training cycle into nine weeks. Other achievements were completing cruise missile test qualification on the first day of training and completing engineering qualification with 100% of drills and 28 of 29 evolutions graded as "satisfactory".

With her training cycle complete, *Crommelin* departed Pearl Harbor on 24 August 1999 for a three month deployment to the Eastern Pacific in support of counter narcotics operations. During this deployment, *Crommelin* steamed 77 of 92 days, flew more than 350 mishap-free SH-60B flight hours, and was a key player in four major cocaine seizures. Upon her return to Pearl Harbor on 24 November 1999, *Crommelin* immediately began the work up cycle for her next deployment with USS *Abraham Lincoln* battle group in August 2000.

In February 2000, *Crommelin* was awarded the Battle "E" for Destroyer Squadron 31 as well as each of the four command excellence awards. Other accomplishments included the 1999 Commander in Chief, Pacific Fleet Retention Excellence Award, 1999, Commander Naval Surface Forces Pacific (COMNAVSURFPAC) Surface Ship Safety Award, COMNAVSURFPAC Self-Sufficient Ship of the Quarter Award (Q4 FY99 and Q2 FY00), and the distinction of being the first Pearl Harbor ship to hoist the Enlisted Surface Warfare Specialist Pennant.

During WESTPAC 2000, eighteen non-compliant vessels were boarded by *Crommelin*'s Visit Board Search and Seizure Team, twelve were found to be smuggling petroleum products from Iraq and diverted to friendly ports for disposal of the ships and their illegal cargo. On the eve of the homecoming from deployment, *Crommelin* received her second consecutive Battle Efficiency Award.

From 18 April 2001 to June 2001, *Crommelin* was dry-docked at Pearl Harbor Naval Shipyard for Dry-dock Selected Restricted Availability. In January 2002 *Crommelin* received the 2001 COMNAVSURFPAC Surface Ship Safety Award.

From 12 May 2004 to 12 November 2004, *Crommelin* was deployed to the SOUTHPAC AOR in support of the war on drugs, conducting counter-narcotics operations in the Pacific Ocean and Caribbean Sea. In that time, she became the most second most successful counter-narcotics ship with the seizure of 44806 lb (20324 kg) of cocaine, including 26,369 pounds from the Belize-flagged vessel San Jose on 23 September 2004. She held that record until the bust of the Panamanian flagged motor vessel Gatun off the coast of Panama in March 2007, carrying approximately 42845 lb (19434 kg) of cocaine. During this deployment, America's Battle Frigate also participated in exercises UNITAS-04 and PANAMAX-04, training the Navies and Coast Guards of various Central- and South-American countries in counter-narcotics and counter-terrorism tactics at sea.

From 5 May 2006 to 15 September 2006, she participated in CARAT-06, along with *Salvor*, *Tortuga*, *Hopper* and USCGC *Sherman*. In that time, Task Group 73.1 trained the Navies of several Southeast Asian countries in Maritime boarding and counter-terrorism tactics. Upon returning to home port, she entered an intensive dry dock period and as of May 2007, is preparing herself for continued operations in the wars on terror and drugs.

In November 2007 Crommelin Deployed to the Southcom AOR insupport of CounterNarco-Terroism Ops (CNT-OPS). On Christmas Eve 2007 Crommelin Stopped a 'go-fast' drug runner near the coast of Columbia carrying 5,200 lbs of cocaine. The Crommelin boarded close to 20 vessels involved in drug running operations during her 7 month deployment. Nearing the end of the deployment the Crommelin was awaiting the arrival of the USS George Washington into the Eastern Pacific AOR for a refueling operation. As the 2 ships came alongside each other the GW had a major fire break out onboard damaging 92 spaces onboard as well as shuting down part of their nuclear reactor. She quickly made for San Diego to conduct repairs while the Crommelin was left short on food and even lower on fuel. The Crommelin had to make an emergency stop in Mexico to refuel both food and fuel to make it back to Hawaii in June 2008. After a successful deployment Crommelin entered dry dock in October 2008 for repairs to keep her operational throughout the next decade.

Ship's crest

The colors blue and gold are traditionally associated with the U.S. Navy. The three interlaced chevronels represent the Crommelin brothers after whom the ship is named. The two winged chevronels refer to the air exploits of Lieutenant Commander Richard and Commander Charles Crommelin who served and died as Naval aviators. The central chevronel over which an anchor is placed alludes to the surface ship career of Vice Admiral Henry Crommelin, the oldest and first to serve of the brothers.

The linked chevronels suggest the strength and determination of U.S. naval forces in their efforts to regain enemy held territories of the Pacific Ocean throughout World War II. It was in this effort that the Crommelin brothers so distinguished themselves.

The rampant sea lion is a symbolic creature associated with valor at sea; its head and mane are scarlet for courage and its body is gold for zeal and achievement. The scarlet sword recalls the fierce conflict of the Pacific war. The wings and silver collar with blue cross signify some of the decorations the brothers received, such as the Navy Cross, the Silver Star and the Distinguished Flying Cross.

References

This article includes information collected from the Naval Vessel Register, which, as a U.S. government publication, is in the public domain. The entry can be found here (http://www.nvr.navy.mil/nvrships/details/FFG37.htm).

Crommelin outward bound past Diamond Head, May 2004

External links

- Official website (http://www.crommelin.navy.mil/)
- navsource.org: USS *Crommelin* (http://www.navsource.org/archives/07/0737.htm)
- united-states-navy.com: USS *Crommelin* (http://www.united-states-navy.com/ffg/FFG37.HTM)
- USS Crommelin Alumni Association (http://www.ffg37.org)
- MaritimeQuest USS Crommelin FFG-37 pages (http://www.maritimequest.com/warship_directory/us_navy_pages/frigates/pages/crommelin_ffg_37_page_1.htm)

USS Curts (FFG-38)

USS *Curts* (FFG-38)

Career (US)	
Namesake:	Admiral Maurice Curts
Ordered:	27 April 1979
Builder:	→ Todd Pacific Shipyards, San Pedro, California
Laid down:	1 July 1981
Launched:	6 March 1982
Acquired:	2 September 1983
Commissioned:	8 October 1983
Homeport:	Naval Base San Diego
Fate:	Naval Reserve Force, Active
General characteristics	
Class and type:	→ *Oliver Hazard Perry*-class → frigate
Displacement:	4,100 tons (4,170 t) full load
Length:	453 ft (138.1 m), overall
Beam:	45 ft (13.7 m)
Draught:	22 ft (6.7 m)
Propulsion:	2 × → General Electric LM2500-30 gas turbines generating 41,000 shp (31 MW) through a single shaft and → variable pitch propeller; 2 x Auxiliary Propulsion Units, 350 hp (.25 MW) retractable electric → azipods for maneuvering and docking.
Speed:	29+ knots (54+ km/h)
Range:	5,000 nm (9,300 km) at 18 knots (33 km/h)
Complement:	15 officers and 190 enlisted, plus → SH-60 LAMPS detachment of roughly six officer pilots and 15 enlisted maintainers
Sensors and processing systems:	→ AN/SPS-49 air-search radar → AN/SPS-55 surface-search radar CAS and STIR fire-control radar AN/SQS-56 sonar.

Electronic warfare and decoys:	AN/SLQ-32
Armament:	**As built:** One OTO Melara Mk 75 76 mm/62 caliber naval gun two → Mk 32 triple-tube (324 mm) launchers for → Mark 46 torpedoes one Vulcan → Phalanx CIWS; four → .50-cal (12.7 mm) machine guns. one Mk 13 Mod 4 single-arm launcher for → Harpoon anti-ship missiles and → SM-1MR Standard anti-ship/air missiles (40 round magazine) **Note:** As of 2004, Mk13 systems removed from all active US vessels of this class.
Aircraft carried:	2 × → SH-60 LAMPS III helicopters

USS *Curts* (FFG-38), twenty-ninth ship of the → *Oliver Hazard Perry* class of guided-missile → frigates, was named for Admiral Maurice Curts (1898–1976).

Ordered from → Todd Pacific Shipyards, San Pedro, California on 27 April 1979 as part of the FY79 program, *Curts* was laid down on 1 July 1981, launched on 6 March 1982, and commissioned on 8 October 1983. As of 2007 she is on active service, assigned to Destroyer Squadron 1 and homeported at San Diego, CA.

1980's

Her first years in commission were focused on anti-submarine warfare (ASW) operations and *Curts* was the first pacific fleet unit with the complete SQQ-89 ASW suite. The ship received the meritorious unit commendation for tactical proficiency in the tracking of Soviet submarines in 1987.

In 1988, *Curts* received the armed forces expeditionary medal for serving with the USS *Missouri* battle group during Operation Earnest Will in the north Arabian Sea and the gulf of Oman. Additionally, *Curts* changed homeport to Yokosuka, Japan, becoming one of the first two FFG's to join the Forward Deployed Naval Force (FDNF). *Curts* was first to bring the lamps MK III helicopters to Naval Air Facility, Atsugi.

Operation Desert Storm

On 24 January 1991, during Operation Desert Storm, the ship and her embarked navy and army helicopters captured an Iraqi garrison on Qaruh Island in the northern Persian Gulf, taking the island and custody of 51 Iraqi prisoners. *Curts* destroyed two mines, sank an Iraqi minelayer and provided support to combat helicopter operations during the battle of Bubiyan Island. The ship received the navy unit commendation for her exceptional operational performance.

1990's

Upon return from combat operations in June 1991, the ship became an important part of Operation Fiery Vigil rescuing numerous refugees to safety when mount Pinatubo erupted near Subic Bay, Republic of The Philippines,

In 1993, *Curts* was upgraded with the 4100-ton class modification, extending her stern another eight feet and enhancing her combat capabilities. *Curts* joined independence battle group to participate with the Japanese Maritime Self-Defense Force in joint anti-submarine warfare exercise MAREX and later that year the ship deployed to the Persian Gulf conducting 89 boardings of merchant vessels in the Red Sea as part of United Nations sanctions enforcement against Iraq. *Curts* material and operational readiness was rewarded with the battle efficiency award for 1994.

In 1995, *Curts* participated in major joint exercises with units of the U.S. Navy and Japanese Maritime Self-Defense Force (JMSDF), and later with the navies of Singapore, Malaysia, and Thailand for 1996 cooperation afloat for readiness and training (CARAT 96).

In 1997, after nine years of forward presence as part of seventh fleet, *Curts* departed Yokosuka, Japan for a homeport change to San Diego, California and in October 1998 *Curts* joined the Naval Reserve Force (NRF).

2000's

In 1999 the ship would deploy on a six-month counter-narcotics deployment to the eastern pacific and Caribbean Sea in the southern command area of operations. *Curts*' aggressive pursuit of drug traffickers led to the interception of over 5 tons of cocaine. During carat cruises in 2001 and 2003, *Curts* conducted multi-lateral exercises with the navies of Singapore, Thailand, Brunei, and the Philippines to continue promoting international training and cooperation.

In 2004 *Curts* again deployed to southern command on a six-month counter-narcotics deployment and received national notoriety for the largest maritime seizure of cocaine (12 tons) in history. The ship received the U.S. Coast Guard Meritorious Unit Commendation for her outstanding performance during deployment.

On 16 February 2007, *Curts* was awarded the 2006 Battle "E" award. [1]

Curts (FFG-38) is the first ship of that name in the US Navy.

References

This article includes information collected from the Naval Vessel Register, which, as a U.S. government publication, is in the public domain. The entry can be found here [43].

External links

- MaritimeQuest USS Curts FFG-38 pages [1]
- GlobalSecurity.org FFG-38 [2]

References

[1] http://www.maritimequest.com/warship_directory/us_navy_pages/frigates/pages/curts_ffg_38_page_1.htm
[2] http://www.globalsecurity.org/military/agency/navy/ffg-38.htm

USS Doyle (FFG-39)

USS *Doyle* (FFG-39)

Career (US)	
Builder:	→ Bath Iron Works
Laid down:	23 October 1981
Launched:	22 May 1982
Commissioned:	21 May 1983
Homeport:	Mayport, Florida
Nickname:	Valiant Mariner
Fate:	Active in service as of 2009
General characteristics	
Class and type:	→ *Oliver Hazard Perry*-class → frigate
Displacement:	4,100 tons (4,170 t) full load
Length:	453 ft (138.1 m), overall
Beam:	45 ft (13.7 m)
Draught:	22 ft (6.7 m)
Propulsion:	2 × → General Electric LM2500-30 gas turbines generating 41,000 shp (31 MW) through a single shaft and → variable pitch propeller; 2 x Auxiliary Propulsion Units, 350 hp (.25 MW) retractable electric → azipods for maneuvering and docking.
Speed:	29+ knots (54+ km/h)
Range:	5,000 nm (9,300 km) at 18 knots (33 km/h)
Complement:	15 officers and 190 enlisted, plus → SH-60 LAMPS detachment of roughly six officer pilots and 15 enlisted maintainers
Sensors and processing systems:	→ AN/SPS-49 air-search radar → AN/SPS-55 surface-search radar CAS and STIR fire-control radar AN/SQS-56 sonar.
Electronic warfare and decoys:	AN/SLQ-32

Armament:	**As built:** One OTO Melara Mk 75 76 mm/62 caliber naval gun two → Mk 32 triple-tube (324 mm) launchers for → Mark 46 torpedoes one Vulcan → Phalanx CIWS; four → .50-cal (12.7 mm) machine guns. one Mk 13 Mod 4 single-arm launcher for → Harpoon anti-ship missiles and → SM-1MR Standard anti-ship/air missiles (40 round magazine) **Note:** As of 2004, Mk13 systems removed from all active US vessels of this class.
Aircraft carried:	2 × → SH-60 LAMPS III helicopters

USS *Doyle* (FFG-39) was the 30th ship to be constructed in the → *Oliver Hazard Perry*-class of guided missile → frigates of the United States Navy. The Doyle was named after Vice Admiral James Henry Doyle (1897-1982) Vice Admiral Doyle was most known for his contributions during the Korean War as Commander Amphibious Group One.

Her keel was laid down by → Bath Iron Works Corporation of Bath, Maine, on 23 October 1981. She was launched on 22 May 1982 and commissioned on 21 May 1983.

accessdate=2007-08-17}}</ref>

References

This article includes information collected from the Naval Vessel Register, which, as a U.S. government publication, is in the public domain. The entry can be found here (http://www.nvr.navy.mil/nvrships/details/FFG39.htm).

External links

- www.doyle.navy.mil (http://www.doyle.navy.mil/), official USS Doyle website
- MaritimeQuest USS Doyle FFG-39 pages (http://www.maritimequest.com/warship_directory/us_navy_pages/frigates/pages/doyle_ffg_39_page_1.htm)

USS Halyburton (FFG-40)

USS *Halyburton* (FFG-40)

Career (US)	
Namesake:	Pharmacist's Mate Second Class William D. Halyburton, Jr.
Builder:	→ Todd Pacific Shipyards, Seattle, Washington
Laid down:	26 September 1980
Launched:	13 October 1981
Commissioned:	7 January 1984
Homeport:	Mayport, Florida
Motto:	*Non sibi, sed Patriae* (Not for self, but for Country)
Fate:	Active in service as of 2009
General characteristics	
Class and type:	→ *Oliver Hazard Perry*-class → frigate
Displacement:	4,100 tons (4,170 t) full load
Length:	453 ft (138.1 m), overall
Beam:	45 ft (13.7 m)
Draught:	22 ft (6.7 m)
Propulsion:	2 × → General Electric LM2500-30 gas turbines generating 41,000 shp (31 MW) through a single shaft and → variable pitch propeller; 2 x Auxiliary Propulsion Units, 350 hp (.25 MW) retractable electric → azipods for maneuvering and docking.
Speed:	29+ knots (54+ km/h)
Range:	5,000 nm (9,300 km) at 18 knots (33 km/h)
Complement:	15 officers and 190 enlisted, plus → SH-60 LAMPS detachment of roughly six officer pilots and 15 enlisted maintainers
Sensors and processing systems:	→ AN/SPS-49 air-search radar → AN/SPS-55 surface-search radar CAS and STIR fire-control radar AN/SQS-56 sonar.
Electronic warfare and decoys:	AN/SLQ-32

Armament:	**As built:** One OTO Melara Mk 75 76 mm/62 caliber naval gun two → Mk 32 triple-tube (324 mm) launchers for → Mark 46 torpedoes one Vulcan → Phalanx CIWS; four → .50-cal (12.7 mm) machine guns. one Mk 13 Mod 4 single-arm launcher for → Harpoon anti-ship missiles and → SM-1MR Standard anti-ship/air missiles (40 round magazine) **Note:** As of 2004, Mk13 systems removed from all active US vessels of this class.
Aircraft carried:	2 × → SH-60 LAMPS III helicopters

USS *Halyburton* (FFG-40), an → *Oliver Hazard Perry*-class → frigate, is a ship of the United States Navy named for Pharmacist's Mate Second Class William D. Halyburton, Jr. (1924–1945). Halyburton was posthumously awarded the Medal of Honor for his heroism while serving with the 5th Marines, during the Battle of Okinawa.

Construction

Halyburton was laid down on 26 September 1980 by the → Todd Pacific Shipyards Co., Seattle Division, Seattle, Wash.; launched on 13 October 1981; and commissioned on 7 January 1984.

Operations

Over its commissioned service, *Halyburton* earned numerous Battle 'E' awards for combat readiness. *Halyburton* was also one of the escorts for the USS *Constitution* on July 21, 1997 as "Old Ironsides" celebrated her 200th birthday and her first unassisted sail in 116 years.

As of 2008, *Halyburton* is homeported at NS Mayport, Florida, and is part of Destroyer Squadron 14.

In April, 2009 the *Halyburton* was part of a U.S. Navy rescue mission off the Horn of Africa where the captain of the U.S.-flagged merchant vessel *Maersk Alabama* was held captive by pirates in a lifeboat. U.S. Navy SEALs brought the standoff to an end by shooting and killing three of the four pirates. The fourth was on board the USS *Bainbridge* at the time of the shooting, negotiating the hostage's release, and was taken into custody.[1]

Constable's Dues ritual

On July 16, 2009, *Halyburton* visited the Port of London, mooring in South Dock, West India Quay for three nights. On Saturday 18th, she became the first non-British ship to take part in the Tower of London's Constable's Dues ritual. Dating back to the 14th century, it involved the crew being challenged for entry into the British capital, mirroring an ancient custom in which a ship had to unload some of its cargo for the sovereign to enter the city. Commander Michael P Huck and Ship's Officer LCDR Tony Mortimer led the crew to the Tower's West Gate, where after being challenged for entry by the Yeoman Gaoler armed with his axe, they were marched to Tower Green accompanied by Beefeaters, where they delivered a keg of Castillo Silver Rum, representing the dues, to the Tower's Constable, Sir Roger Wheeler.[2]

Commander Huck said: "Halyburton and her crew are honoured to be invited to take part in a tradition with such rich history. It is an excellent opportunity for my crew to not only enjoy London culture, but to be an active part of it."

He admitted neither the cask nor the rum was actually cargo from the ship.

"The wine cask has been provided to us by the Tower authorities," he said. "It will actually be filled with Castillo Silver Rum. Unfortunately, since we do not typically carry alcohol on-board, that was also provided to us."

References

[1] " American captain rescued, pirates killed, U.S. official says (http://www.cnn.com/2009/WORLD/africa/04/12/somalia.pirates/index.html)". CNN. . Retrieved 2009-04-12.

[2] " US ship in ancient Tower ceremony (http://news.bbc.co.uk/1/hi/england/london/8157286.stm)". BBC News. 2009-07-18. . Retrieved 2009-07-18.

This article includes information collected from the Naval Vessel Register, which, as a U.S. government publication, is in the public domain. The entry can be found here (http://www.nvr.navy.mil/nvrships/details/FFG40.htm).

External links

- USS *Halyburton* official website (http://www.halyburton.navy.mil/)
- navsource.org: USS *Halyburton* (http://www.navsource.org/archives/07/0740.htm)
- navysite.de: USS *Halyburton* (http://www.navysite.de/ffg/FFG40.HTM)
- MaritimeQuest USS Halyburton FFG-40 pages (http://www.maritimequest.com/warship_directory/us_navy_pages/frigates/pages/halyburton_ffg40_page_1.htm)

USS McClusky (FFG-41)

USS *McClusky* (FFG-41)

Career (US)	
Namesake:	Rear Admiral C. Wade McClusky
Builder:	→ Todd Pacific Shipyards, San Pedro
Laid down:	18 October 1981
Launched:	18 September 1982
Commissioned:	10 December 1983
Homeport:	Naval Base San Diego
Motto:	*Persistent, Courageous, Victorious*
Nickname:	Mighty Mac
Fate:	Active in service as of 2009
General characteristics	
Class and type:	→ *Oliver Hazard Perry*-class → frigate
Displacement:	4,100 tons (4,170 t) full load
Length:	453 ft (138.1 m), overall
Beam:	45 ft (13.7 m)
Draught:	22 ft (6.7 m)
Propulsion:	2 × → General Electric LM2500-30 gas turbines generating 41,000 shp (31 MW) through a single shaft and → variable pitch propeller; 2 x Auxiliary Propulsion Units, 350 hp (.25 MW) retractable electric → azipods for maneuvering and docking.
Speed:	29+ knots (54+ km/h)
Range:	5,000 nm (9,300 km) at 18 knots (33 km/h)
Complement:	15 officers and 190 enlisted, plus → SH-60 LAMPS detachment of roughly six officer pilots and 15 enlisted maintainers
Sensors and processing systems:	→ AN/SPS-49 air-search radar → AN/SPS-55 surface-search radar CAS and STIR fire-control radar AN/SQS-56 sonar.

Electronic warfare and decoys:	AN/SLQ-32
Armament:	**As built:** One OTO Melara Mk 75 76 mm/62 caliber naval gun two → Mk 32 triple-tube (324 mm) launchers for → Mark 46 torpedoes one Vulcan → Phalanx CIWS; four → .50-cal (12.7 mm) machine guns. one Mk 13 Mod 4 single-arm launcher for → Harpoon anti-ship missiles and → SM-1MR Standard anti-ship/air missiles (40 round magazine) **Note:** As of 2004, Mk13 systems removed from all active US vessels of this class.
Aircraft carried:	2 × → SH-60 LAMPS III helicopters

USS *McClusky* (FFG-41), an → *Oliver Hazard Perry*-class → frigate, is a ship of the United States Navy named for Rear Admiral C. Wade McClusky (1902–1976). In the Battle of Midway, then-Lieutenant Commander McClusky led USS *Enterprise*'s air group, which sank the Japanese carriers *Kaga* and *Akagi*.

McClusky was laid down on 18 October 1981 by the → Todd Pacific Shipyards Co., Los Angeles Division, San Pedro, Ca.; launched on 18 September 1982; and commissioned on 10 December 1983 in Long Beach, California, Commander Lynch in command.

Important Events

- 1986 — Involved in the patrolling of Taiwan International Waters during Chinese large scale exercises in region.
- 1991 — Changed homeports to Yokosuka, Japan; assisted in Operation Fiery Vigil, the evacuation of civilians from the Philippines during eruption of Mount Pinatubo.
- 1992 — The ship visited Vladivostok, Russia, the first ship to do so after the break up of the Soviet Union.
- 1996 — After three Persian Gulf Deployments, 15 Bilateral exercises and over 40 port visits, *McClusky* departs Yokosuka for homeport shift back to San Diego.
- 2000 — First Counter Narcotics Ops — numerous busts and drug seizures
- 2002 — Counter Drug Ops, and Rescue of Richard Van Pham, Shift ISIC from Destroyer Squadron 7 (DesRon 7) to DesRon 1.
- 2003 — INSURV and Battle “E” Winner — Counter Drug OPS

As of 2009, *McClusky* is commanded by CDR Mark Lakamp.

References

This article includes information collected from the Naval Vessel Register, which, as a U.S. government publication, is in the public domain. The entry can be found here [46].

External links

- USS *McClusky* official website [1]
- navsource.org: USS *McClusky* [2]
- united-states-navy.com: USS *McClusky* [3]
- MaritimeQuest USS McClusky FFG-41 pages [4]

USS *McClusky* (FFG-41)

References

[1] http://www.mcclusky.navy.mil/main.html
[2] http://www.navsource.org/archives/07/0741.htm
[3] http://www.united-states-navy.com/ffg/FFG41.HTM
[4] http://www.maritimequest.com/warship_directory/us_navy_pages/frigates/pages/mcclusky_ffg41_page_1.htm

USS Klakring (FFG-42)

Career	
Namesake:	Rear Admiral Thomas B. Klakring
Builder:	→ Bath Iron Works
Laid down:	19 February 1982
Launched:	18 September 1982
Commissioned:	20 August 1983
Homeport:	Mayport, Florida
Motto:	*Freedom Through Vigilance*
Nickname:	*Special K*
Status:	Naval Reserve Force, active in service
General characteristics	
Class and type:	→ *Oliver Hazard Perry*-class → frigate
Displacement:	4,100 tons (4,170 t) full load
Length:	453 ft (138.1 m), overall
Beam:	45 ft (13.7 m)
Draft:	22 ft (6.7 m)
Propulsion:	2 × → General Electric LM2500-30 gas turbines generating 41,000 shp (31 MW) through a single shaft and → variable pitch propeller; 2 x Auxiliary Propulsion Units, 350 hp (.25 MW) retractable electric → azipods for maneuvering and docking.
Speed:	29+ knots (54+ km/h)
Range:	5,000 nm (9,300 km) at 18 knots (33 km/h)
Complement:	15 officers and 190 enlisted, plus → SH-60 LAMPS detachment of roughly six officer pilots and 15 enlisted maintainers
Sensors and processing systems:	→ AN/SPS-49 air-search radar → AN/SPS-55 surface-search radar CAS and STIR fire-control radar AN/SQS-56 sonar.
Electronic warfare and decoys:	AN/SLQ-32

Armament:	**As built:** One OTO Melara Mk 75 76 mm/62 caliber naval gun two → Mk 32 triple-tube (324 mm) launchers for → Mark 46 torpedoes one Vulcan → Phalanx CIWS; four → .50-cal (12.7 mm) machine guns. one Mk 13 Mod 4 single-arm launcher for → Harpoon anti-ship missiles and → SM-1MR Standard anti-ship/air missiles (40 round magazine) **Note:** As of 2004, Mk13 systems removed from all active US vessels of this class.
Aircraft carried:	2 × → SH-60 LAMPS III helicopters

USS *Klakring* (FFG-42), an → *Oliver Hazard Perry*-class → frigate, is a ship of the United States Navy named for Rear Admiral Thomas B. Klakring (1904–1975), who was awarded three Navy Crosses as commander of the submarine USS *Guardfish* (SS-217) during World War II.

Klakring was laid down on 19 February 1982 by the → Bath Iron Works Corp. Bath, Maine; launched on 18 September 1982; sponsored by Beverly Bohen, a niece of R.Adm. Klakring; and commissioned on 20 August 1983 at Bath, Commander Leonard O. Wahlig in command.

As of 2006, *Klakring* is homeported at NAVSTA Mayport, Florida, and is part of Destroyer Squadron 14. In March of 2008 and 2009, the ship was the subject of protests in Sevastapol, Ukraine when it visited the port for five-day "friendly" visits.[1]

Klakring participated in Operation Earnest Will in the Persian Gulf in 1987 as the first air-capable, air-embarked ship. *Klakring* participated in Operation Prime Chance in the Persian Gulf during the "Tanker War". *Klakring* is one of the surface combatants in Larry Bond's 1993 technothriller *Cauldron.*

References

[1] The Times, "US Frigate's 'Friendly Visit' Gets A Furious Reception", March 26, 2009.

This article includes information collected from the Naval Vessel Register, which, as a U.S. government publication, is in the public domain. The entry can be found here (http://www.nvr.navy.mil/nvrships/details/FFG42.htm).

External links

- USS *Klakring* official website (http://www.klakring.navy.mil/)
- navsource.org: USS *Klakring* (http://www.navsource.org/archives/07/0742.htm)
- navysite.de: USS *Klakring* (http://www.navysite.de/ffg/FFG42.HTM)
- MaritimeQuest USS Klakring FFG-42 pages (http://www.maritimequest.com/warship_directory/us_navy_pages/frigates/pages/klakring_ffg42_page_1.htm)

Klakring in the Pacific, 2002

USS Thach (FFG-43)

USS *Thach* in the Persian Gulf, 2003

Career (US)	
Namesake:	Admiral John Thach
Builder:	→ Todd Pacific Shipyards, San Pedro
Laid down:	6 March 1981
Launched:	18 December 1982
Commissioned:	17 March 1983
Homeport:	Naval Base San Diego
Motto:	*Ready and Able*
Fate:	Active in service as of 2009
General characteristics	
Class and type:	→ *Oliver Hazard Perry*-class → frigate
Displacement:	4,100 tons (4,170 t) full load
Length:	453 ft (138.1 m), overall
Beam:	45 ft (13.7 m)
Draught:	22 ft (6.7 m)
Propulsion:	2 × → General Electric LM2500-30 gas turbines generating 41,000 shp (31 MW) through a single shaft and → variable pitch propeller; 2 x Auxiliary Propulsion Units, 350 hp (.25 MW) retractable electric → azipods for maneuvering and docking.
Speed:	29+ knots (54+ km/h)
Range:	5,000 nm (9,300 km) at 18 knots (33 km/h)
Complement:	15 officers and 190 enlisted, plus → SH-60 LAMPS detachment of roughly six officer pilots and 15 enlisted maintainers
Sensors and processing systems:	→ AN/SPS-49 air-search radar → AN/SPS-55 surface-search radar CAS and STIR fire-control radar AN/SQS-56 sonar. AN/SQR-19 Towed Array Sonar System [1] AN/SQQ-89 ASW Integration System [1]

Electronic warfare and decoys:	AN/SLQ-32 Mk36 SRBOC Decoy System [1]
Armament:	**As built:** One OTO Melara Mk 75 76 mm/62 caliber naval gun two → Mk 32 triple-tube (324 mm) launchers for → Mark 46 torpedoes one Vulcan → Phalanx CIWS; four → .50-cal (12.7 mm) machine guns. one Mk 13 Mod 4 single-arm launcher for → Harpoon anti-ship missiles and → SM-1MR Standard anti-ship/air missiles (40 round magazine) **Note:** As of 2004, Mk13 systems removed from all active US vessels of this class.
Aircraft carried:	2 × → SH-60 LAMPS III helicopters

USS *Thach* (FFG-43), an → *Oliver Hazard Perry*-class → frigate, is a ship of the United States Navy named for Admiral John Thach (1905–1981), a naval aviator during World War II, who invented the Thach Weave dogfighting tactic.

Thach was laid down on 6 March 1981 by the → Todd Pacific Shipyards Co., Los Angeles Division, San Pedro, Ca.; launched on 18 December 1982; and commissioned on 17 March 1983.

Thach mission is to provide anti-air, anti-surface, and anti-submarine protection for carrier battle groups, naval expeditionary forces, replenishment groups, convoys, and other military and merchant shipping. The new direction for the naval service remains focused on the ability to project power from the sea in the critical littoral regions for the world.

Success in the warfare environment of the 1990s and beyond will require thorough evaluation, rapid decision-making and almost instantaneous response to any postulated threat. The systems aboard *Thach* have been designed to meet these demanding and dynamic prerequisites, and to do so with minimum human interface. The LAMPS MK III video data link system brings state-of-the-art computer technology to the warfare arena, as well as integrating sensors and weapons to provide a total offensive and defensive weapons system.

In addition, computers control and monitor the gas turbine engines (the same engines installed on DC-10 aircraft) and electrical generators. Digital electronic logic circuits and remotely-operated valves are monitored in Central Control Station which initiate engine start and result in a "ready to go" status in less than ten minutes.

The heart of the ship, though, is the crew. High technology systems demand skilled technicians and professional leadership to be effective. The concept of "minimum manning" means, simply, that with professional sailors, *Thach* can meet the challenges of modern naval warfare with approximately half the crew found on other ships comparable size and capability.

In late 2006 while deployed to the Southern Pacific, *Thach* caught fire as she attempted to put out a fire on a drug smuggling ship.

As of 2008, *Thach* is captained by Commander David W. Haas, homeported at San Diego, California; and is part of Destroyer Squadron 7.

References

[1] (http://www.fas.org/man/dod-101/sys/ship/ffg-7.htm), FAS .

This article includes information collected from the Naval Vessel Register, which, as a U.S. government publication, is in the public domain. The entry can be found here (http://www.nvr.navy.mil/nvrships/details/FFG43.htm).

External links

- USS *Thach* official website (http://www.thach.navy.mil/)
- navsource.org: USS *Thach* (http://www.navsource.org/archives/07/0743.htm)
- navysite.de: USS *Thach* (http://www.navysite.de/ffg/FFG43.HTM)
- MaritimeQuest USS Thach FFG-43 pages (http://www.maritimequest.com/warship_directory/us_navy_pages/frigates/pages/thach_ffg_43_page_1.htm)
- Navy Times Article 4 Mar 2008 re: incident during drug interdiction (http://www.navytimes.com/news/2008/02/navy_thach_sack_022908/?source=nletter-?_AdditionalEmailAttribute1?0D/)
- Navy.mil March 2006 article on Bahamas goodwill mission (http://www.news.navy.mil/search/display.asp?story_id=25878/)

USS *Thach* (FFG-43)

USS *Thach* entering San Diego Bay, 2004

USS De Wert (FFG-45)

USS *De Wert* (FFG-45)

Career (US)	
Namesake:	Hospitalman Richard De Wert
Builder:	→ Bath Iron Works
Laid down:	14 June 1982
Launched:	18 December 1982
Commissioned:	19 November 1983
Homeport:	Mayport, Florida
Motto:	*Daring, Dauntless, Defiant*
Fate:	Active in service as of 2009
General characteristics	
Class and type:	→ *Oliver Hazard Perry*-class → frigate
Displacement:	4,100 tons (4,170 t) full load
Length:	453 ft (138.1 m), overall
Beam:	45 ft (13.7 m)
Draught:	22 ft (6.7 m)
Propulsion:	2 × → General Electric LM2500-30 gas turbines generating 41,000 shp (31 MW) through a single shaft and → variable pitch propeller; 2 x Auxiliary Propulsion Units, 350 hp (.25 MW) retractable electric → azipods for maneuvering and docking.
Speed:	29+ knots (54+ km/h)
Range:	5,000 nm (9,300 km) at 18 knots (33 km/h)
Complement:	15 officers and 190 enlisted, plus → SH-60 LAMPS detachment of roughly six officer pilots and 15 enlisted maintainers
Sensors and processing systems:	→ AN/SPS-49 air-search radar → AN/SPS-55 surface-search radar CAS and STIR fire-control radar AN/SQS-56 sonar.
Electronic warfare and decoys:	AN/SLQ-32

Armament:	**As built:** One OTO Melara Mk 75 76 mm/62 caliber naval gun two → Mk 32 triple-tube (324 mm) launchers for → Mark 46 torpedoes one Vulcan → Phalanx CIWS; four → .50-cal (12.7 mm) machine guns. one Mk 13 Mod 4 single-arm launcher for → Harpoon anti-ship missiles and → SM-1MR Standard anti-ship/air missiles (40 round magazine) **Note:** As of 2004, Mk13 systems removed from all active US vessels of this class.
Aircraft carried:	2 × → SH-60 LAMPS III helicopters

USS *De Wert* (FFG-45), an → *Oliver Hazard Perry*-class → frigate, is a ship of the United States Navy named for Hospitalman Richard De Wert (1931–1951). De Wert was posthumously awarded the Medal of Honor for his heroism while serving with the 7th Marines during the Korean War.

De Wert was laid down on 14 June 1982 by the → Bath Iron Works, in Bath, Maine; launched on 18 December 1982; and commissioned on 19 November 1983.

As of May 2009, *De Wert* is captained by Commander Sean G. McLaren; she is part of the Atlantic Fleet's Destroyer Squadron 14 and homeported at NS Mayport, Florida.

On 16 February 2007, *De Wert* was awarded the 2006 Battle "E" award. [1]

References

This article includes information collected from the Naval Vessel Register, which, as a U.S. government publication, is in the public domain. The entry can be found here [49].

External links

- USS *De Wert* official website [1]
- navsource.org: USS *De Wert* [2]
- navysite.de: USS *De Wert* [3]
- MaritimeQuest USS DeWert FFG-45 pages [4]

References

[1] http://www.dewert.navy.mil/
[2] http://www.navsource.org/archives/07/0745.htm
[3] http://www.navysite.de/ffg/FFG45.HTM
[4] http://www.maritimequest.com/warship_directory/us_navy_pages/frigates/pages/dewert_ffg_45_page_1.htm

USS Rentz (FFG-46)

USS *Rentz* (FFG-46)

Career (US)	
Namesake:	Chaplain George S. Rentz
Builder:	→ Todd Pacific Shipyards, San Pedro
Laid down:	18 September 1982
Launched:	16 July 1983
Commissioned:	30 June 1984
Homeport:	Naval Base San Diego
Motto:	*Dread Nought*
Fate:	Active in service as of 2009
Badge:	
General characteristics	
Class and type:	→ *Oliver Hazard Perry*-class → frigate
Displacement:	4,100 tons (4,170 t) full load
Length:	453 ft (138.1 m), overall
Beam:	45 ft (13.7 m)
Draught:	22 ft (6.7 m)
Propulsion:	2 × → General Electric LM2500-30 gas turbines generating 41,000 shp (31 MW) through a single shaft and → variable pitch propeller; 2 x Auxiliary Propulsion Units, 350 hp (.25 MW) retractable electric → azipods for maneuvering and docking.
Speed:	29+ knots (54+ km/h)

Range:	5,000 nm (9,300 km) at 18 knots (33 km/h)
Complement:	15 officers and 190 enlisted, plus → SH-60 LAMPS detachment of roughly six officer pilots and 15 enlisted maintainers
Sensors and processing systems:	→ AN/SPS-49 air-search radar → AN/SPS-55 surface-search radar CAS and STIR fire-control radar AN/SQS-56 sonar.
Electronic warfare and decoys:	AN/SLQ-32
Armament:	**As built:** One OTO Melara Mk 75 76 mm/62 caliber naval gun two → Mk 32 triple-tube (324 mm) launchers for → Mark 46 torpedoes one Vulcan → Phalanx CIWS; four → .50-cal (12.7 mm) machine guns. one Mk 13 Mod 4 single-arm launcher for → Harpoon anti-ship missiles and → SM-1MR Standard anti-ship/air missiles (40 round magazine) **Note:** As of 2004, Mk13 systems removed from all active US vessels of this class.
Aircraft carried:	2 × → SH-60 LAMPS III helicopters

USS *Rentz* (FFG-46) is an → *Oliver Hazard Perry*-class of guided missile → frigate, of the United States Navy, the 40th ship to be constructed of its class. The *Rentz* was named after World War II Navy Chaplain George S. Rentz (1882–1942). Chaplain Rentz was posthumously awarded the Navy Cross for selfless bravery following the loss of USS *Houston* in the Battle of Sunda Strait. He was the only Navy chaplain to be so honored during World War II.

History

The keel of the *Rentz* was laid on 18 September 1982 at → Todd Pacific Shipyards in San Pedro, California. She was launched 16 July 1983, and commissioned at Naval Station Long Beach on 30 June 1984 under the command of CDR Martin Jules Mayer (b. 1944).[1] In attendance were survivors of the *Houston*, as well as Chaplain Rentz's surviving daughter.

In December, 1985, The USS Rentz moved from Long Beach, California to its current (2007) location in San Diego, California. Following initial shakedown cruises and operations, *Rentz* was assigned to the USS *Ranger* aircraft carrier group. As part of that group, the ship regularly cruised the Southern California Operations Area off the coast of San Clemente Island with a pair of fuzzy dice dangling above the ship's computerized helm. During "breakaways" after underway replenishment (UNREP) at sea, *Rentz* blasted the Beach Boys song "Little Deuce Coupe" as its inaugural "UNREP breakaway song."

On 5 November 1986, *Rentz* was part of an historic visit to Qingdao (Tsing Tao; 青岛) China—the first US Naval visit to China since 1949. *Rentz* was accompanied by two other ships, the *Reeves* and *Oldendorf*. The visit was officially hosted by the Chinese People's Liberation Army Navy (PLAN) ("After 37-year absence, U.S. vessels visit China," *New York Times* Nov. 6, 1986, Sec. A, p. 3). Previously, the USS *Dixie* was the last ship to moor in China, departing in 1949 when the communists forced the Americans to leave the Chinese mainland.

In July 1987, *Rentz* was sent to the Persian Gulf as part of Operation Earnest Will. Her primary duties consisted of escorting commercial vessels through the Strait of Hormuz. *Rentz* has been deployed to the Gulf numerous times since 1987.

Commanding Officers

- June 30, 1984 - 1987(?) Commander Martin Jules Mayer, USS *Ranger* aircraft carrier group.
- May 1994 - July 1995: CAPT Robert E. Johnston Destroyer Squadron 21 (San Diego)
- 2005 - April 2006: Commander Dominic DeScisciolo, Destroyer Squadron 21 (San Diego).
- April 2006 - April 2008 : Commander Mark Johnson (Destroyer Squadron 21 and Destroyer Squadron 1).
- April 2008 - November 2009 : Commander Dave Glenister, Destroyer Squadron 1 (San Diego).
- November 2009 - forward : Commander Jeffrey Miller, Destroyer Squadron 1 (San Diego).

Awards

- "outstanding food service" in the Pacific Fleet, 1997 Ney [2] Award winner "Small Afloat."
- "outstanding food service" in the Pacific Fleet, 2000 Ney [3] runner-up "Small Afloat."
- *2003 Mobility Energy Efficiency* [4] award from the Federal Emergency Management Agency.

About the Ship's Crest

The colors blue and gold are traditionally associated with the U.S. Navy. The vertical trident represents the sea god Neptune. The crossed missiles indicate the type of ship "Frigate with Guided Missiles." The cross on the shield symbolizes the ship's namesake, Chaplain Rentz. The motto "Dread Nought" tells all to have no fear for the ship is watched over by higher powers.

References

[1] Nguyen, Lisa. " Martin Mayer Collection (AFC/2001/001/49389), Veterans History Project (http://lcweb2.loc.gov/diglib/vhp/bib/49389)". Library of Congress. . Retrieved 2008-09-18.

[2] http://www.seabeecook.com/today/news/archive.01/cook0027.htm

[3] http://www.seabeecook.com/today/news/cook0083.htm

[4] http://www1.eere.energy.gov/femp/services/awards_fewm2004.html#mobilorg

This article includes information collected from the Naval Vessel Register, which, as a U.S. government publication, is in the public domain. The entry can be found here (http://www.nvr.navy.mil/nvrships/details/FFG46.htm).

External links

- USS *Rentz* official website (http://www.rentz.navy.mil/)
- navsource.org: USS *Rentz* (http://www.navsource.org/archives/07/0746.htm)
- navysite.de: USS *Rentz* (http://www.navysite.de/ffg/FFG46.HTM)
- USS *Rentz* at Destroyer History (http://www.destroyerhistory.org/desron21/ussrentz.html)
- *Rentz* Everything2 Writeup (http://www.everything2.com/index.pl?node_id=1338000&lastnode_id=124)
- U.S. NAVY HELO CREW RESCUED BY USS RENTZ, COMNAVAIRPAC Press Release 1997: PR97-015 (http://www.airpac.navy.mil/news/pr1997/pr97-015.asp)
- MaritimeQuest USS Rentz FFG-46 pages (http://www.maritimequest.com/warship_directory/us_navy_pages/frigates/pages/rentz_ffg46_page_1.htm)
- Defense Visual Information Center (search for "Rentz") (http://www.dodmedia.osd.mil/)

Gallery

USS "Rentz" (FFG-46)

Chaplain Rentz

80 percent built

Sea trials

Visit to Qingdao China

CV-61}}

Putting out fire set by cocaine smugglers

Ecuadorian refugees rescued by *Rentz*

Returning to San Diego

USS Nicholas (FFG-47)

USS *Nicholas* (FFG-47)

Career (US)	
Namesake:	Major Samuel Nicholas
Builder:	→ Bath Iron Works
Laid down:	27 September 1982
Launched:	23 April 1983
Commissioned:	10 March 1984
Homeport:	Norfolk, Virginia
Motto:	"Carrying On A Proud Tradition"
Fate:	Active in service as of 2009
General characteristics	
Class and type:	→ *Oliver Hazard Perry*-class → frigate
Displacement:	4,100 tons (4,170 t) full load
Length:	453 ft (138.1 m), overall
Beam:	45 ft (13.7 m)
Draught:	22 ft (6.7 m)
Propulsion:	2 × → General Electric LM2500-30 gas turbines generating 41,000 shp (31 MW) through a single shaft and → variable pitch propeller; 2 x Auxiliary Propulsion Units, 350 hp (.25 MW) retractable electric → azipods for maneuvering and docking.
Speed:	29+ knots (54+ km/h)
Range:	5,000 nm (9,300 km) at 18 knots (33 km/h)
Complement:	15 officers and 190 enlisted, plus → SH-60 LAMPS detachment of roughly six officer pilots and 15 enlisted maintainers
Sensors and processing systems:	→ AN/SPS-49 air-search radar → AN/SPS-55 surface-search radar CAS and STIR fire-control radar AN/SQS-56 sonar.
Electronic warfare and decoys:	AN/SLQ-32

Armament:	**As built:** One OTO Melara Mk 75 76 mm/62 caliber naval gun two → Mk 32 triple-tube (324 mm) launchers for → Mark 46 torpedoes one Vulcan → Phalanx CIWS; four → .50-cal (12.7 mm) machine guns. one Mk 13 Mod 4 single-arm launcher for → Harpoon anti-ship missiles and → SM-1MR Standard anti-ship/air missiles (40 round magazine) **Note:** As of 2004, Mk13 systems removed from all active US vessels of this class.
Aircraft carried:	2 × → SH-60 LAMPS III helicopters

USS *Nicholas* (FFG-47), an → *Oliver Hazard Perry*-class → frigate, was the third ship of the United States Navy to be named for Major Samuel Nicholas, the first commanding officer of the United States Marines.A third-generation guided missile frigate of the Oliver Hazard Perry class, she was laid down as → Bath Iron Works hull number 388 on 27 September 1982 and launched 23 April 1983. Sponsor at her commissioning there on 10 March 1984 was the same Mrs. Edward B. Tryon who sponsored DD 449 in 1942.

Nicholas was designed to provide in-depth protection for military and merchant shipping, amphibious task forces, and underway replenishment groups. Her 453-foot (loa) hull displaces 4,100 tons and her gas turbine power develops 41000 shp (31000 kW) for a single screw, giving a top speed of 29 plus knots.

USS *Nicholas* during her Acceptance Trials in 1984.

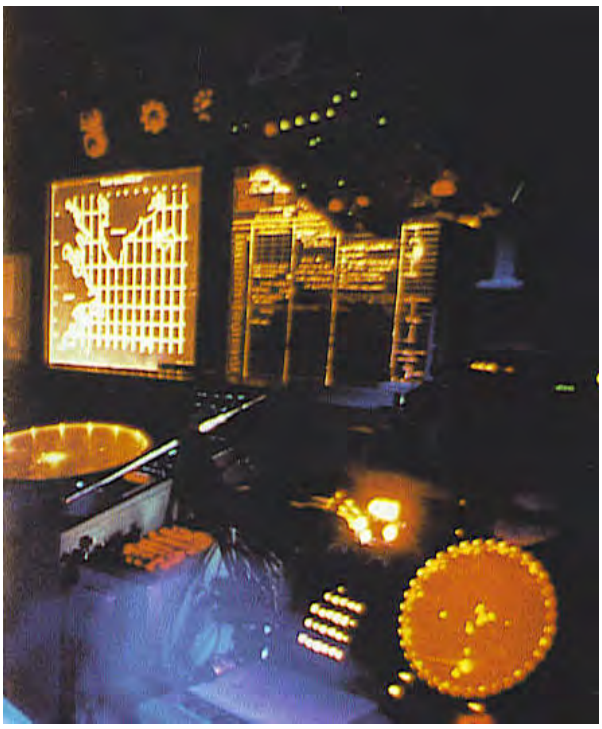
Since her commissioning, *Nicholas* has deployed to the Persian Gulf, Mediterranean and North Sea, as well as participating in maritime interdiction operations and various fleet exercises. During her first four years as a commissioned vessel, she earned three Battle Efficiency "E" awards, and the Battenberg Cup as the best ship in the Atlantic Fleet. She earned the Top Ship award from Commander Battle Force Sixth Fleet during her first deployment to the Mediterranean.


Standard Missile Shot against supersonic target in Puerto Rico OPAREAS 1984

During her first years, *Nicholas* was part of Destroyer Squadron Six in Charleston, South Carolina. Her sister ships in DESRON SIX included → USS *Taylor* and *O'Bannon*, which harkened back to the World War II *Fletcher*-class destroyers *Nicholas*, *Taylor*, and *O'Bannon*. These ships had such distinguished records in World War II, especially in the Solomons Island campaign, that Admiral Halsey ordered all three ships present with USS *Missouri* at the Japanese surrender in Tokyo Bay.

In July 1987, *Nicholas*, together with DESRON SIX sister ship *Deyo*, deployed with the *Iowa* Battleship Battlegroup to the Mediterranean and Persian Gulf. She earned her first Armed Forces Expeditionary Medal.

When hostilities with Iraq broke out during the Gulf War on 17 January 1991, *Nicholas* was serving in the extreme Northern Persian Gulf as an advance Combat Search and Rescue platform, more than 70 miles (110 km) forward of the nearest allied warship. During the first few weeks of the war she distinguished herself in action by attacking Iraqi positions off the coast of Kuwait, capturing the first of 23 Iraqi prisoners of war, sinking or damaging seven Iraqi patrol boats, destroying eight drifting mines and successfully rescuing a downed USAF F-16 pilot from the waters off the Kuwaiti coast. *Nicholas* also escorted the battleships *Missouri* and *Wisconsin* during naval gunfire support operations near Khafji off the coast of the Saudi Arabia and Kuwait.



ATACO area of Combat Information Center(CIC)

In her 1993 six-month deployment, *Nicholas* conducted operations in the Red Sea, Mediterranean, Ionian Sea and Adriatic Sea. This deployment was in support of the United Nations sanctions against the governments of Iraq and the Former Republic of Yugoslavia. During these operations, she safely conducted over 170 boardings of merchant vessels to inspect for illegal cargo shipments.

WCO area of CIC

In 1995, *Nicholas* deployed to the Adriatic and was assigned to the Standing NATO Force Atlantic, again operating in support of United Nations resolutions in Operation Sharp Guard. She intercepted over 120 vessels in enforcing sanctions against the Former Republic of Yugoslavia. Additionally *Nicholas* located and rescued 16 Albanian citizens from a capsized fishing boat.

The 2001 deployment took *Nicholas* to the Mediterranean and Persian Gulf. While in the Mediterranean, she conducted numerous boardings in support of United Nations sanctions. On 11 September, *Nicholas* sortied on an emergency basis from Valletta, Malta and conducted sustained underway operations until returning to her home port of Norfolk, Virginia six months later.

Bow of USS *Nicholas* plowing through a wave.

The year 2003 saw another deployment for *Nicholas*. During this historic deployment she hosted COMNAVEURCENT, Ambassadors and many high ranking dignitaries in St. Petersburg, Russia. Later she became the first warship to enter Neum, Bosnia since 1917, and the first U.S. warship ever. While there, *Nicholas* hosted the Bosnian Tri-Presidency and numerous government and military officials.

Nicholas operated as the sole US warship in the Mediterranean for her six month deployment and acted as a surrogate for the Argentina ship *Sarandi*, enhancing international relations and building new alliances. She participated in multiple exercises and operations and achieved historic distinction when she tracked and assisted in the interception of a merchant ship loaded with nuclear centrifuges bound for Libya. US Government officials directly linked the interception of this vessel to the abandonment of Libya's nuclear weapons program.

Nicholas has earned the Combat Action Ribbon, Southwest Asia Service Medal (with three bronze stars), Armed Forces Expeditionary Medal, the NATO Medal, Kuwait Liberation Medal, Armed Forces Service Medal, Sea Service Ribbon (with seven bronze stars), Meritorious Unit Commendation, a Coast Guard Meritorious Unit Commendation (with O for Law Enforcement), and six Battle Efficiency "E" awards as top ship in her squadron.

She continues today to be ready for the next call her government makes on her, allowing another chance to live up to her motto of "Carrying On A Proud Tradition."

References

This article includes information collected from the Naval Vessel Register, which, as a U.S. government publication, is in the public domain. The entry can be found here [51].

External links

- USS *Nicholas* official website [1]
- navsource.org: USS *Nicholas* [2]
- navysite.de: USS *Nicholas* [3]
- MaritimeQuest USS *Nicholas* FFG-47 pages [4]

References

[1] http://www.nicholas.navy.mil/
[2] http://www.navsource.org/archives/07/0747.htm
[3] http://www.navysite.de/ffg/FFG47.HTM
[4] http://www.maritimequest.com/warship_directory/us_navy_pages/frigates/pages/nicholas_ffg_47_page_1.htm

USS Vandegrift (FFG-48)

USS *Vandegrift* (FFG-48) launching a missile, circa 15 March 1996.

Career (US)	
Namesake:	General Alexander A. Vandegrift
Builder:	→ Todd Pacific Shipyards, Seattle, Washington
Laid down:	13 October 1981
Launched:	15 October 1982
Commissioned:	24 November 1984
Homeport:	Naval Base San Diego
Motto:	*Exercitatus, Conservatus, Paratus*
Nickname:	Dandy Vandy
Fate:	Active in service as of 2009
General characteristics	
Class and type:	→ *Oliver Hazard Perry*-class → frigate
Displacement:	4,100 tons (4,170 t) full load
Length:	453 ft (138.1 m), overall
Beam:	45 ft (13.7 m)
Draught:	22 ft (6.7 m)
Propulsion:	2 × → General Electric LM2500-30 gas turbines generating 41,000 shp (31 MW) through a single shaft and → variable pitch propeller; 2 x Auxiliary Propulsion Units, 350 hp (.25 MW) retractable electric → azipods for maneuvering and docking.
Speed:	29+ knots (54+ km/h)
Range:	5,000 nm (9,300 km) at 18 knots (33 km/h)
Complement:	15 officers and 190 enlisted, plus → SH-60 LAMPS detachment of roughly six officer pilots and 15 enlisted maintainers
Sensors and processing systems:	→ AN/SPS-49 air-search radar → AN/SPS-55 surface-search radar CAS and STIR fire-control radar AN/SQS-56 sonar.
Electronic warfare and decoys:	AN/SLQ-32

Armament:	**As built:** One OTO Melara Mk 75 76 mm/62 caliber naval gun two → Mk 32 triple-tube (324 mm) launchers for → Mark 46 torpedoes one Vulcan → Phalanx CIWS; four → .50-cal (12.7 mm) machine guns. one Mk 13 Mod 4 single-arm launcher for → Harpoon anti-ship missiles and → SM-1MR Standard anti-ship/air missiles (40 round magazine) **Note:** As of 2004, Mk13 systems removed from all active US vessels of this class.
Aircraft carried:	2 × → SH-60 LAMPS III helicopters

USS *Vandegrift* (FFG-48) is an → *Oliver Hazard Perry*-class → frigate of the United States Navy. The ship was named for General Alexander A. Vandegrift (1887–1973), 18th Commandant of the Marine Corps.

Vandegrift was built at → Todd Pacific Shipyards, Seattle, Washington, launched on 15 October 1982, and commissioned on 24 November 1984.

The ship's inaugural cruise began on 5 January 1987. During the course of this around-the-world cruise, she sailed three oceans, seven seas and visited four continents. The plank owners also crossed the International Date Line, Equator, Greenwich Meridian, and sailed through the Strait of Gibraltar, and the Suez and Panama Canals. *Vandegrift* conducted operations with USS *Kitty Hawk* in the Arabian Sea and Indian Ocean. These operations were highlighted by an air and sea power demonstration for President Muhammad Zia-ul-Haq of Pakistan. Port visits included Pearl Harbor; Subic Bay in the Republic of the Philippines; Karachi, Pakistan; Mombasa, Kenya; Maxime, France; Roosevelt Roads, Puerto Rico; and St. Croix and St. Thomas, U.S. Virgin Islands. *Vandegrift* returned home to Long Beach in June, 1987.

The ship's second deployment began in June, 1988, returning her to operations in the Persian Gulf shortly after the cease-fire between Iran and Iraq. *Vandegrift*'s mission while on patrol in the northern Persian Gulf focused on providing protection and logistic support for joint forces in the area. *Vandegrift* also participated in numerous Earnest Will missions, escorting U.S. and reflagged Kuwaiti tankers. Port visits included Pearl Harbor; Subic Bay, Republic of the Philippines; Bahrain; Pattaya Beach, Thailand and Hong Kong. *Vandegrift* returned home in December, 1988.

The ship's third deployment to the Persian Gulf began in March, 1990. *Vandegrift* patrolled the Northern Persian Gulf and conducted Earnest Will escort missions. As the senior ship on station in the Persian Gulf during the invasion of Kuwait, *Vandegrift* served as the Anti-Air Warfare Commander and Electronic Warfare Coordinator. *Vandegrift* participated in Operation Desert Shield's Maritime Interception Operations with units from United Kingdom, Saudi Arabia, the United Arab Emirates and France. Ports of call included Pearl Harbor; Subic Bay; Phuket, Thailand; Singapore and Hong Kong.

Vandegrift returned home after an extended deployment in October, 1990. On 22 April 1992, *Vandegrift* began her fourth deployment to the Persian Gulf. *Vandegrift* participated in exercises with India, Qatar and Pakistan, helping to strengthen U.S. relations in that area. Ports of call included Doha, Qatar; Dubai, Jebel Ali and Abu Dhabi, United Arab Emirates; Karachi, Pakistan; Phuket, Thailand; Goa, India; Bahrain; Hong Kong; Singapore and Guam, and earned the Chief of Naval Operations LAMPS Helicopter Safety Award. *Vandegrift* returned home on 22 October 1992.

Vandegrift changed homeport to San Diego in February, 1993, and earned the COMNAVSURFPAC Food Service Award in March, 1994. The fifth deployment to the Persian Gulf began on 25 October 1994. *Vandegrift*'s mission was the enforcement of U.N. sanctions against Iraq in the Northern Persian Gulf. The most memorable event was conducting a non-permissive boarding of a sanctions violator on 25 December. During the return transit, *Vandegrift* played host to a major diplomatic reception in Muscat, Oman, to better diplomatic relations. Ports of call included Sasebo, Japan; Manila, Republic of the Philippines; Jebel Ali, United Arab Emirates; Bahrain; Singapore and Hong Kong. *Vandegrift* returned home on 25 April 1995.

On 19 November 2003, the frigate became the first US warship to enter Vietnamese waters in 30 years, when she made a four-day port call at Ho Chi Minh City.

The ship's decorations include the Meritorious Unit Commendation, National Defense Service Medal, Armed Forces Expeditionary Medal; Southwest Asia Service Medal, and five Sea Service Ribbons.

As of 2006, *Vandegrift* is based in San Diego, California.

References

This article includes information collected from the Naval Vessel Register, which, as a U.S. government publication, is in the public domain. The entry can be found here (http://www.nvr.navy.mil/nvrships/details/FFG48.htm).

External links

- USS *Vandegrift* homepage (http://www.vandegrift.navy.mil/)
- navsource.org: USS *Vandegrift* (http://www.navsource.org/archives/07/0748.htm)
- navysite.de: USS *Vandegrift* (http://www.navysite.de/ffg/FFG48.HTM)
- MaritimeQuest USS Vandegrift FFG-48 pages (http://www.maritimequest.com/warship_directory/us_navy_pages/frigates/pages/vandegrift_ffg48_page_1.htm)
- In pictures: US frigate's historic Vietnam visit (BBC News) (http://news.bbc.co.uk/2/hi/in_depth/photo_gallery/3283263.stm)

USS Robert G.Bradley (FFG-49)

USS *Robert G. Bradley* (FFG-49)

Career (US)	
Namesake:	Lt. Robert G. Bradley
Builder:	→ Bath Iron Works
Laid down:	28 December 1982
Launched:	13 August 1983
Commissioned:	30 June 1984
Homeport:	Mayport, Florida
Fate:	Active in service as of 2009
General characteristics	
Class and type:	→ *Oliver Hazard Perry*-class → frigate
Displacement:	4,100 tons (4,170 t) full load
Length:	453 ft (138.1 m), overall
Beam:	45 ft (13.7 m)
Draught:	22 ft (6.7 m)
Propulsion:	2 × → General Electric LM2500-30 gas turbines generating 41,000 shp (31 MW) through a single shaft and → variable pitch propeller; 2 x Auxiliary Propulsion Units, 350 hp (.25 MW) retractable electric → azipods for maneuvering and docking.
Speed:	29+ knots (54+ km/h)
Range:	5,000 nm (9,300 km) at 18 knots (33 km/h)
Complement:	15 officers and 190 enlisted, plus → SH-60 LAMPS detachment of roughly six officer pilots and 15 enlisted maintainers
Sensors and processing systems:	→ AN/SPS-49 air-search radar → AN/SPS-55 surface-search radar CAS and STIR fire-control radar AN/SQS-56 sonar.
Electronic warfare and decoys:	AN/SLQ-32

Armament:	**As built:** One OTO Melara Mk 75 76 mm/62 caliber naval gun two → Mk 32 triple-tube (324 mm) launchers for → Mark 46 torpedoes one Vulcan → Phalanx CIWS; four → .50-cal (12.7 mm) machine guns. one Mk 13 Mod 4 single-arm launcher for → Harpoon anti-ship missiles and → SM-1MR Standard anti-ship/air missiles (40 round magazine) **Note:** As of 2004, Mk13 systems removed from all active US vessels of this class.
Aircraft carried:	2 × → SH-60 LAMPS III helicopters

USS *Robert G. Bradley* (FFG-49), an → *Oliver Hazard Perry*-class → frigate, is a ship of the United States Navy named for Lieutenant Robert G. Bradley (1921–1944), who was awarded the Navy Cross posthumously for his heroism on USS *Princeton* (CVL-23) during the Battle of Leyte Gulf.

Robert G. Bradley's keel was laid down by → Bath Iron Works Corp., Bath, Maine, on 28 December 1982. She was launched 13 August 1983; commissioned 30 June 1984. Ship is homeported in Mayport, Florida.

References

This article includes information collected from the Naval Vessel Register, which, as a U.S. government publication, is in the public domain. The entry can be found here [53].

External links

- USS *Robert G. Bradley* official website [1]
- [2]
- navsource.org: USS *Robert G. Bradley* [3]
- navysite.de: USS *Robert G. Bradley* [4]
- MaritimeQuest USS Robert G. Bradley FFG-49 pages [5]

References

[1] http://www.bradley.navy.mil/
[2] http://www.bradley.navy.mil/Site%20Images/Ship_Pic.jpg
[3] http://www.navsource.org/archives/07/0749.htm
[4] http://www.navysite.de/ffg/FFG49.HTM
[5] http://www.maritimequest.com/warship_directory/us_navy_pages/frigates/pages/robert_g_bradley_ffg49_page_1.htm

USS Taylor (FFG-50)

USS *Taylor* (FFG-50) refuels from USS *John F. Kennedy* (CV-67)

Career (US)	
Namesake:	Commander Jesse J. Taylor
Builder:	→ Bath Iron Works
Laid down:	5 May 1983
Launched:	5 November 1983
Commissioned:	1 December 1984
Homeport:	Mayport, Florida
Motto:	Proud Defender
Fate:	Active in service as of 2009
General characteristics	
Class and type:	→ *Oliver Hazard Perry*-class → frigate
Displacement:	4,100 tons (4,170 t) full load
Length:	453 ft (138.1 m), overall
Beam:	45 ft (13.7 m)
Draught:	22 ft (6.7 m)
Propulsion:	2 × → General Electric LM2500-30 gas turbines generating 41,000 shp (31 MW) through a single shaft and → variable pitch propeller; 2 x Auxiliary Propulsion Units, 350 hp (.25 MW) retractable electric → azipods for maneuvering and docking.
Speed:	29+ knots (54+ km/h)
Range:	5,000 nm (9,300 km) at 18 knots (33 km/h)
Complement:	15 officers and 190 enlisted, plus → SH-60 LAMPS detachment of roughly six officer pilots and 15 enlisted maintainers
Sensors and processing systems:	→ AN/SPS-49 air-search radar → AN/SPS-55 surface-search radar CAS and STIR fire-control radar AN/SQS-56 sonar.
Electronic warfare and decoys:	AN/SLQ-32

Armament:	**As built:** One OTO Melara Mk 75 76 mm/62 caliber naval gun two → Mk 32 triple-tube (324 mm) launchers for → Mark 46 torpedoes one Vulcan → Phalanx CIWS; four → .50-cal (12.7 mm) machine guns. one Mk 13 Mod 4 single-arm launcher for → Harpoon anti-ship missiles and → SM-1MR Standard anti-ship/air missiles (40 round magazine) **Note:** As of 2004, Mk13 systems removed from all active US vessels of this class.
Aircraft carried:	2 × → SH-60 LAMPS III helicopters

USS *Taylor* (FFG-50), an → *Oliver Hazard Perry*-class → frigate, is a ship of the United States Navy named for Commander Jesse J. Taylor (1925–1965), a naval aviator who was awarded the Navy Cross posthumously for his heroism in the Vietnam War.

Taylor's keel was laid down by → Bath Iron Works Corp., Bath, Maine, on 5 May 1983. She was launched 5 November 1983, and commissioned 1 December 1984.

Participated in Operation Earnest Will in the Persian Gulf in 1988.

As of 2005, *Taylor* is homeported at NS Mayport, Florida, and is part of Destroyer Squadron 24.

In August 2008 *Taylor* entered the Black Sea "conducting a pre-planned routine visit to the Black Sea region to interact and exercise with our Nato partners Romania and Bulgaria". It joined ships from Poland, Germany and Spain. [1]

References

[1] " Russia suspends military cooperation with Nato (http://www.guardian.co.uk/world/2008/aug/21/russia.nato)". *Guardian*. 2008-08-21. . Retrieved 2008-08-21.

This article includes information collected from the Naval Vessel Register, which, as a U.S. government publication, is in the public domain. The entry can be found here (http://www.nvr.navy.mil/nvrships/details/FFG50.htm).

External links

- USS *Taylor* official website (http://www.taylor.navy.mil/)
- navsource.org: USS *Taylor* (http://www.navsource.org/archives/07/0750.htm)
- navysite.de: USS *Taylor* (http://www.navysite.de/ffg/FFG50.HTM)
- MaritimeQuest USS Taylor FFG-50 pages (http://www.maritimequest.com/warship_directory/us_navy_pages/frigates/pages/taylor_ffg50_page_1.htm)

USS Gary (FFG-51)

USS *Gary* (FFG-51)

Career (US)	
Namesake:	Commander Donald A. Gary
Builder:	→ Todd Pacific Shipyards, San Pedro, California
Laid down:	18 December 1982
Launched:	19 November 1983
Commissioned:	17 November 1984
Homeport:	Naval Base San Diego
Motto:	"Freedom's Foremost Guardian"
Nickname:	"Two Guns"
Fate:	Active in service as of 2009
General characteristics	
Class and type:	→ *Oliver Hazard Perry*-class → frigate
Displacement:	4,100 tons (4,170 t) full load
Length:	453 ft (138.1 m), overall
Beam:	45 ft (13.7 m)
Draught:	22 ft (6.7 m)
Propulsion:	2 × → General Electric LM2500-30 gas turbines generating 41,000 shp (31 MW) through a single shaft and → variable pitch propeller; 2 x Auxiliary Propulsion Units, 350 hp (.25 MW) retractable electric → azipods for maneuvering and docking.
Speed:	29+ knots (54+ km/h)
Range:	5,000 nm (9,300 km) at 18 knots (33 km/h)
Complement:	15 officers and 190 enlisted, plus → SH-60 LAMPS detachment of roughly six officer pilots and 15 enlisted maintainers
Sensors and processing systems:	→ AN/SPS-49 air-search radar → AN/SPS-55 surface-search radar CAS and STIR fire-control radar AN/SQS-56 sonar.

Electronic warfare and decoys:	AN/SLQ-32
Armament:	**As built:** One OTO Melara Mk 75 76 mm/62 caliber naval gun two → Mk 32 triple-tube (324 mm) launchers for → Mark 46 torpedoes one Vulcan → Phalanx CIWS; four → .50-cal (12.7 mm) machine guns. one Mk 13 Mod 4 single-arm launcher for → Harpoon anti-ship missiles and → SM-1MR Standard anti-ship/air missiles (40 round magazine) **Note:** As of 2004, Mk13 systems removed from all active US vessels of this class. **However, the Mk 13 Mod 4 single-arm launcher has been removed (as with all other US Navy frigates) due to the weapons system becoming obsolete.
Aircraft carried:	2 × → SH-60 LAMPS III helicopters

USS *Gary* (FFG-51) is an → *Oliver Hazard Perry*-class → frigate in the United States Navy. She was named for Commander Donald A. Gary (1903–1977).

Gary was laid down on 18 December 1982 at San Pedro, CA, by the → Todd Pacific Shipyards Co., Los Angeles Division; launched on 19 November 1983; and commissioned on 17 November 1984.

History

USS *Gary* (FFG-51).

Recent news

Gary is homeported at Naval Station San Diego, CA as of July 2007, when the USS *McCampbell* replaced her at Yokosuka Naval Base in Yokosuka, Japan and part of Destroyer Squadron 15 [1]and the U.S. Navy's Forward Deployed Naval Forces.

On 9 February 2007 *Gary* docked at the Cambodian port of Sihanoukville. It is the first time since the Vietnam War that an American warship has docked in Cambodia.

Gary has an active VBSS team onboard to facilitate its new homeport with Maritime Interdiction Operations, anti-drug, and anti-smuggling missions.

External links

- USS *Gary* official website [2]
- Yokosuka Naval Base Community Website [3]
- navsource.org: USS *Gary* [4]
- navysite.de: USS *Gary* [5]
- MaritimeQuest USS Gary FFG-51 pages [6]
- USS Gary leaves Cambodia after historic visit [7]
- U.S. ship makes historic return to Cambodia [8]
- Eye on the Fleet Photo Gallery [9]
- USS Gary News [10]

This article includes text from the public domain Dictionary of American Naval Fighting Ships. *This article includes information collected from the Naval Vessel Register, which, as a U.S. government publication, is in the public domain. The entry can be found here* [53].

References

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[2] http://www.gary.navy.mil/
[3] http://www.yokosukabase.com
[4] http://www.navsource.org/archives/07/0751.htm
[5] http://www.navysite.de/ffg/FFG51.HTM
[6] http://www.maritimequest.com/warship_directory/us_navy_pages/frigates/pages/gary_ffg51_page_1.htm
[7] http://stripes.com/article.asp?section=104&article=42540&archive=true
[8] http://stripes.com/article.asp?section=104&article=42461&archive=true
[9] http://www.navy.mil/view_single.asp?id=42992
[10] http://www.yokosukabase.com/News/tabid/79/articleType/CategoryView/categoryId/33/USS-Gary.aspx

USS Carr (FFG-52)

USS *Carr* (FFG-52)

Career (US)	
Name:	USS Carr
Namesake:	Gunner's Mate 3rd Class Paul H. Carr
Builder:	→ Todd Pacific Shipyards, Seattle
Laid down:	26 March 1982
Launched:	26 February 1983
Commissioned:	27 July 1985
Homeport:	Norfolk, Virginia
Motto:	*Courage, Will, Determination*
Nickname:	*Unofficially, The Carr-Toon or the Carr-tel*
Fate:	Active in service as of 2009
General characteristics	
Class and type:	→ *Oliver Hazard Perry*-class → frigate
Displacement:	4,100 tons (4,170 t) full load
Length:	453 ft (138.1 m), overall
Beam:	45 ft (13.7 m)
Draught:	22 ft (6.7 m)
Propulsion:	2 × → General Electric LM2500-30 gas turbines generating 41,000 shp (31 MW) through a single shaft and → variable pitch propeller; 2 x Auxiliary Propulsion Units, 350 hp (.25 MW) retractable electric → azipods for maneuvering and docking.
Speed:	29+ knots (54+ km/h)
Range:	5,000 nm (9,300 km) at 18 knots (33 km/h)
Complement:	15 officers and 190 enlisted, plus → SH-60 LAMPS detachment of roughly six officer pilots and 15 enlisted maintainers
Sensors and processing systems:	→ AN/SPS-49 air-search radar → AN/SPS-55 surface-search radar CAS and STIR fire-control radar AN/SQS-56 sonar.

Electronic warfare and decoys:	AN/SLQ-32
Armament:	**As built:** One OTO Melara Mk 75 76 mm/62 caliber naval gun two → Mk 32 triple-tube (324 mm) launchers for → Mark 46 torpedoes one Vulcan → Phalanx CIWS; four → .50-cal (12.7 mm) machine guns. one Mk 13 Mod 4 single-arm launcher for → Harpoon anti-ship missiles and → SM-1MR Standard anti-ship/air missiles (40 round magazine) **Note:** As of 2004, Mk13 systems removed from all active US vessels of this class.
Aircraft carried:	2 × → SH-60 LAMPS III helicopters

USS *Carr* (FFG-52), an → *Oliver Hazard Perry*-class → frigate, is a ship of the United States Navy named for Gunner's Mate 3rd Class Paul H. Carr (1924–1944). Carr was awarded a posthumous Silver Star for his heroism on the destroyer escort *Samuel B. Roberts* during the Battle off Samar.

Carr was laid down on 26 March 1982 by the → Todd Pacific Shipyards Co., Seattle Division, Seattle, Wash.; launched on 26 February 1983; sponsored by Mrs. Goldie Carr Bensilhe, GM3 Carr's widow; and commissioned on 27 July 1985, Commander Robert J. Horne in command.

Service history

Operation Earnest Will

Carr's original homeport was Charleston, S.C. Her first operational deployment was to the Persian Gulf, where *Carr* was involved in Operation Earnest Will, escorting re-flagged oil tankers through the Strait of Hormuz. While Commander, Destroyer Squadron 14, was the senior officer present, Commander Wade C. Johnson, the captain of the *Carr*, was the next senior officer in the area and was routinely assigned the duties of Convoy Commander during escort missions. During one of these, Iranian small boats approached the tankers and were chased off by bullets from *Carr*'s deck-mounted → M2 .50-caliber machine guns and the Bushmaster 25mm chain gun on the starboard main deck.

Bonefish disaster

Carr returned to Charleston in late March 1988, and 31 days later, was ordered underway to replace another ship that had been unable to get underway. Sent to sea to conduct anti-submarine exercises with the aircraft carrier *John F. Kennedy* and submarine *Bonefish*. On 24 April, 1988, *Carr* was first on the scene to help rescue the crew of the attack submarine *Bonefish*, which had suffered a battery fire while submerged. Deploying her 26-foot whaleboat and five inflatable life rafts, *Carr* helped rescue 89 of the *Bonefish's* crew, using the whaleboat, life rafts, its embarked → SH-60B Seahawk of Helicopter Squadron (Light) 44, and the SH-3H Sea King helicopters from the *John F. Kennedy*. The ship communicated to the land-based Commander, Atlantic Fleet watch center using the Joint Operational Tactical System's (JOTS) "opnote" capability. Crew muster lists were sent ashore as rescued crew members where identified. For her professionalism in the rescue, the *Carr* was awarded a Meritorious Unit Commendation.

Exercises in the Caribbean

In October 1988, *Carr* made a port visit to Tampa, Florida, at the request of the local Navy League chapter, mooring at Harbor Island pier. Public tours were held for several days in celebration of Navy Week, honoring the Navy's birthday. The commissioning commanding officer, Captain Robert Horne, was stationed at MacDill Air Force Base in Tampa and was there to greet the ship.

In March 1989, *Carr* was sent to Fleet Training Group, Guantanamo Bay, Cuba, for Refresher Training (REFTRA). While the ship conducted exercises in all departments, Mikhail Gorbachev was making a visit to Havana, Cuba. News crews from NBC, headed by Henry Champ, and ABC, by Bob Zelnic, each spent a day aboard *Carr* to observe the training.

In summer 1989, while the *Carr* was heading to the Puerto Rican Operation Area (PROA) for the Middle East Force Exercise (MEFEX), both of the ship's laundry washers broke down. With the permission of the Squadron Commodore running MEFEX, the *Carr's* Seahawk helicopter flew into Naval Station Roosevelt Roads, PR, and the Supply Officer purchased a household washing machine from the Navy Exchange. The washer was unboxed on the ramp at the airfield, loaded in the helicopter and flown to the ship, where it was plumbed in to the water system and served as the crew laundry for the next several weeks.

Hurricane Hugo

On 1989-09-18, *Carr* sailed from Charleston to be on station off the Naval Station Mayport for the week to provide a practice flight deck for the SH-60B Seahawk squadrons. That night, an officer of HSL-44 came aboard and informed the captain that the helicopters would be flying to Georgia the following day in preparation for the impending arrival of Hurricane Hugo. On the morning of Sept. 19, *Carr* entered Naval Station Mayport and moored, awaiting further instructions. At midnight on the 19th/20th, *Carr* got underway and headed south to the Strait of Florida to avoid the storm. Once the hurricane was safely past, the captain ordered the ship to sail towards Charleston.

Carr was the first Navy vessel to return to the port of Charleston the morning after Hurricane Hugo made landfall there. *Carr* remained anchored for three days, unable to enter port, as essentially all navigation aids were moved or destroyed by the hurricane. One of the Coast Guard ships at anchor sent a small boat to the USCG Station in Charleston, taking along *Carr*'s Sonar Technician Chief Petty Officer Steven Hatherly. STGC Hatherly made his way to the Naval Station, where he phoned most of the crew's families and reported their status to the ship via bridge-to-bridge VHF radio that evening. From their anchorage, the crew could easily see the bridge between the Isle of Palms and the mainland in the air, as well as the demolished houses along the shore. Local television stations were returning the transmitting and the crew had little to do besides consider the condition of their families and possessions ashore.

Carr was ordered to proceed to Naval Station Mayport. Arriving the next morning, the local community had staged relief supplies to be taken to Charleston. The next day, *Carr* was directed to return to her homeport. Upon arrival, there were no shore services, so the Engineering Department kept the engineering plant on line to provide power, air-conditioning, fresh water and other support services. Crew members were dispatched, during the day, to assist in the clean up of the Naval Station, the Naval Weapons Station and the local community. As time permitted, they also helped each other's families secure their belongings and clean up their homes. For this response the natural disaster, *Carr* was awarded the Humanitarian Service Medal.

Change of command and return to the Persian Gulf

In early October, the first formal ceremony of any type at the Naval Station held was the change of command for *Carr*, with Commander Edward "Ned" Bagley, III, USN relieving Commander Wade C. Johnson, USN. The Change of Command was held in the morning and that afternoon, Commander, Destroyer Squadron 4 held their change of command.

On 31 October, *Carr* sailed from Charleston for her second operation deployment, assigned to the Commander, Middle East Force. En route the Persian Gulf, *Carr* made port visits to the Azores, Palma Majorca, Spain, then transited the Suez Canal. During this deployment, *Carr* spend the first half assigned to tanker escort duties in the Strait of Hormuz. The later part of the cruise was spent operating in the Northern Persian Gulf, conducting electronic surveillance and early warning duties for the units operating to the south. *Carr* left the Persian Gulf the end of March 1990 and returned to Charleston a month later.

As of 2005, *Carr* is homeported at NS Norfolk, Virginia, and is part of Destroyer Squadron 2.

References

This article includes information collected from the Naval Vessel Register, which, as a U.S. government publication, is in the public domain. The entry can be found here [56].

External links

- USS *Carr* official website [1]
- navsource.org: USS *Carr* [2]
- navysite.de: USS *Carr* [3]
- MaritimeQuest USS Carr FFG-52 pages [4]

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[4] http://www.maritimequest.com/warship_directory/us_navy_pages/frigates/pages/carr_ffg_52_page_1.htm

USS Hawes (FFG-53)

USS *Hawes* (FFG-53)

Career ((US))	
Namesake:	Rear Admiral Richard E. Hawes
Builder:	→ Bath Iron Works
Laid down:	26 August 1983
Launched:	18 February 1984
Commissioned:	9 February 1985
Homeport:	Norfolk, Virginia
Motto:	"Ever Ready, Ever Fearless"
Fate:	Active in service as of 2009
General characteristics	
Class and type:	→ *Oliver Hazard Perry*-class → frigate
Displacement:	4,100 tons (4,170 t) full load
Length:	453 ft (138.1 m), overall
Beam:	45 ft (13.7 m)
Draught:	22 ft (6.7 m)
Propulsion:	2 × → General Electric LM2500-30 gas turbines generating 41,000 shp (31 MW) through a single shaft and → variable pitch propeller; 2 x Auxiliary Propulsion Units, 350 hp (.25 MW) retractable electric → azipods for maneuvering and docking.
Speed:	29+ knots (54+ km/h)
Range:	5,000 nm (9,300 km) at 18 knots (33 km/h)
Complement:	15 officers and 190 enlisted, plus → SH-60 LAMPS detachment of roughly six officer pilots and 15 enlisted maintainers
Sensors and processing systems:	→ AN/SPS-49 air-search radar → AN/SPS-55 surface-search radar CAS and STIR fire-control radar AN/SQS-56 sonar.
Electronic warfare and decoys:	AN/SLQ-32

Armament:	**As built:** One OTO Melara Mk 75 76 mm/62 caliber naval gun two → Mk 32 triple-tube (324 mm) launchers for → Mark 46 torpedoes one Vulcan → Phalanx CIWS; four → .50-cal (12.7 mm) machine guns. one Mk 13 Mod 4 single-arm launcher for → Harpoon anti-ship missiles and → SM-1MR Standard anti-ship/air missiles (40 round magazine) **Note:** As of 2004, Mk13 systems removed from all active US vessels of this class.Mark 13 launcher was removed from Hawes in 2004.
Aircraft carried:	2 × → SH-60 LAMPS III helicopters

USS *Hawes* (FFG-53) is a later model → *Oliver Hazard Perry*-class guided missile → frigate. She is named for Rear Admiral Richard E. Hawes (1894–1968) who was twice decorated with the Navy Cross for submarine salvage operations.

The contract to build *Hawes* was awarded to → Bath Iron Works 22 May 1981, and her keel was laid 26 August 1983. She was launched 18 February 1984, delivered 1 February 1985, and commissioned 9 February 1985.

On 12 October 2000, USS *Hawes* was involved, along with USS *Donald Cook* (DDG-75), in providing repair and logistics support to the USS *Cole* (DDG-67), shortly after she was attacked in Aden, Yemen.

As of 2006, *Hawes* is homeported at NAVSTA Norfolk, Virginia; she is part of Destroyer Squadron 26.

On 28 April, 2008, Commander Kristen E. Jacobsen became the commanding officer of the USS *Hawes.*

References

This article includes information collected from the Naval Vessel Register, which, as a U.S. government publication, is in the public domain. The entry can be found here [57].

External links

- USS *Hawes* official website [1]
- navsource.org: USS *Hawes* [2]
- navysite.de: USS *Hawes* [3]
- *Boothbay Register* story, 6/24/1999 [4]
- MaritimeQuest USS Hawes FFG-53 pages [5]

References

[1] http://www.hawes.navy.mil/
[2] http://www.navsource.org/archives/07/0753.htm
[3] http://www.navysite.de/ffg/FFG53.HTM
[4] http://boothbayregister.maine.com/1999-06-24/navy_ship.html
[5] http://www.maritimequest.com/warship_directory/us_navy_pages/frigates/pages/hawes_ffg53_page_1.htm

USS Ford (FFG-54)

Career	
Name:	USS *Ford*
Namesake:	Gunner's Mate Patrick O. Ford
Builder:	→ Todd Pacific Shipyards, San Pedro, California
Laid down:	11 July 1983
Launched:	23 June 1984
Commissioned:	29 June 1985
Homeport:	Naval Station Everett, Washington
Motto:	*Tenacious*
Fate:	Active in service as of 2009
General characteristics	
Class and type:	→ *Oliver Hazard Perry*-class → frigate
Displacement:	4100 long tons (4166 t) full load
Length:	453 ft (138 m) o/a
Beam:	45 ft (14 m)
Draft:	22 ft (6.7 m)
Propulsion:	2 × → General Electric LM2500-30 gas turbines generating 41000 shp (31 MW) through a single shaft and variable-pitch propeller
Speed:	29 knots (54 km/h; 33 mph)+
Range:	5000 nmi (9300 km) at 18 kn (33 km/h; 21 mph)
Complement:	15 officers and 190 enlisted, plus → SH-60 LAMPS detachment of roughly six officer pilots and 15 enlisted maintainers
Armament:	• 1 × → OTO Melara Mk.75 76 mm/62 caliber naval gun • 2 × → Mk.32 triple-tube (324 mm) launchers for → Mark 46 torpedoes • 1 × Vulcan → Phalanx CIWS • 4 × .50-cal (12.7 mm) machine guns
Aircraft carried:	2 × → SH-60 LAMPS III helicopters

USS *Ford* (FFG-54), an → *Oliver Hazard Perry*-class → frigate, is a ship of the United States Navy named for Gunner's Mate Patrick O. Ford (1942–1968). Ford was awarded the Navy Cross posthumously for his heroism as a patrol river boatman in the Vietnam War.

Ford was laid down by → Todd Pacific Shipyards Corp., in San Pedro, California on 11 July 1983. She was launched on 23 June 1984, and commissioned 29 June 1985, captained by Commander J. F. Eckler.

On 16 February 2007, *Ford* was awarded the 2006 Battle "E" award.[1]

Ford completed a Cooperation Afloat Readiness and Training (CARAT) deployment starting May 4, 2007 and returning home on September 20, 2007. *Ford* made port visits to Japan, Philippines, Thailand, Malaysia, Singapore, Indonesia, Saipan, and Guam.

References

[1] Surface Force Ships, Crews Earn Battle "E" (http://www.navy.mil/search/display.asp?story_id=27895)

This article includes information collected from the Naval Vessel Register, which, as a U.S. government publication, is in the public domain. The entry can be found here (http://www.nvr.navy.mil/nvrships/details/FFG54.htm).

External links

- USS *Ford* official website (http://www.ford.navy.mil/)
- navsource.org: USS *Ford* (http://www.navsource.org/archives/07/0754.htm)
- navysite.de: USS *Ford* (http://www.navysite.de/ffg/FFG54.HTM)
- MaritimeQuest USS Ford FFG-54 pages (http://www.maritimequest.com/warship_directory/us_navy_pages/frigates/pages/ford_ffg_54_page_1.htm)

USS Elrod (FFG-55)

Career (US)	
Name:	USS *Elrod* (FFG-55)
Namesake:	Major Henry T. Elrod
Ordered:	22 May 1981
Builder:	→ Bath Iron Works
Laid down:	21 November 1983
Launched:	12 May 1984
Commissioned:	21 September 1985
Homeport:	NS Norfolk, Virginia
Fate:	Active in service as of 2009
General characteristics	
Class and type:	→ *Oliver Hazard Perry*-class → frigate
Displacement:	4,100 tons (4,170 t) full load
Length:	453 ft (138 m)
Beam:	45 ft (14 m)
Draft:	22 ft (6.7 m)
Propulsion:	2 × → General Electric LM2500-30 gas turbines generating 41,000 bhp (31 MW) through a single shaft and → controllable pitch propeller
Speed:	29+ knots
Range:	5,000 nm at 18 knots (33 km/h)
Complement:	15 officers and 190 enlisted, plus → SH-60 LAMPS detachment of roughly six officer pilots and 15 enlisted maintainers
Armament:	1 × OTO Melara Mk 75 76 mm/62 caliber naval gun 2 × Mk 32 triple-tube (324 mm) launchers for → Mark 46 torpedoes 1 × Mk 15 Vulcan → Phalanx CIWS 4 × .50-caliber → M2HB machine guns
Aircraft carried:	2 × → SH-60B LAMPS III helicopters
Motto:	*War Ready to Preserve Peace*

Nickname:	*Hammerin' Hank*

USS *Elrod* (FFG-55), an → *Oliver Hazard Perry*-class → frigate, is a ship of the United States Navy named for Captain Henry T. Elrod (1905–1941), a Marine aviator who was posthumously awarded the Medal of Honor for his heroism in the defense of Wake Island in World War II.

Elrod was built at the → Bath Iron Works in Maine, and was commissioned on 18 May 1985. The ship was originally home ported in Charleston, SC and shifted to Norfolk, VA in March, 1995. *Elrod* has completed five deployments to the Persian Gulf, three to the Mediterranean Sea, and one to the Adriatic Sea, and has participated in numerous operations in the Atlantic Ocean, the Mediterranean Sea, the Black Sea and the Caribbean Sea.

Elrod's third Persian Gulf deployment followed Operation Desert Storm and supported aggressive air and surface surveillance operations. *Elrod* conducted naval exercises with units of Gulf Cooperation Council nations to strengthen and further develop the bonds that were forged during Desert Shield and Desert Storm. The ship participated in TEAMWORK '92, NATO's Arctic Ocean anti-submarine exercise, and Operation Sharp Guard, in support of multi-national enforcement of United Nations sanctions and embargoing war materials to the Balkans. *Elrod* demonstrated America's commitment to her NATO allies by providing a presence among the Standing Naval Forces Mediterranean (SNFM) and Standing Naval Forces Atlantic (SNFL) during Operation Enduring Freedom. Recently, *Elrod* completed another NATO deployment in 2004 in support of Operation Active Endeavor, and helped protect the 2004 Summer Olympics in Athens, Greece, in Operation Distinguished Games.

Elrod crew members have served with pride and distinction as ambassadors of America and spokesmen for the US Navy, hosting official and unofficial visits for foreign military, business and civilian dignitaries throughout the world, including Bahrain, Saudi Arabia, Qatar, Kuwait, the United Arab Emirates, Spain, Bulgaria, Turkey, Israel, Greece, Italy, France and Croatia. *Elrod* has sailed the major oceans of the world, transited the Panama and Suez canals, crossed the equator and the Arctic Circle.

In addition to a reputation for operational readiness and fighting skills, *Elrod* has earned a reputation for community support and participation in charitable projects. The ship has been recognized for the crew's contributions by designation as a Presidential "Point of Light". *Elrod* has also earned numerous awards during her commissioned service, including the Joint Meritorious Unit Award, Navy Meritorious Unit Commendation, Coast Guard Meritorious Unit Commendation, Armed Force Expeditionary Medal, several Battle Efficiency Excellence Awards, Secretary of the Navy Energy Conservation Award, Armed Forces Recreation Society Award and various departmental and mission-specific awards for excellence.

References

This article includes information collected from the Naval Vessel Register, which, as a U.S. government publication, is in the public domain. The entry can be found here [59].

External links

- USS *Elrod* official website [1]
- navsource.org: USS *Elrod* [2]
- navysite.de: USS *Elrod* [3]
- MaritimeQuest USS Elrod FFG-55 pages [4]

Elrod underway, January 2004

References

[1] http://www.elrod.navy.mil/
[2] http://www.navsource.org/archives/07/0755.htm
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USS Simpson (FFG-56)

Career (US)	
Namesake:	Rodger W. Simpson
Ordered:	22 March 1982
Builder:	→ Bath Iron Works
Laid down:	27 February 1984
Launched:	31 August 1984
Acquired:	13 September 1985
Commissioned:	21 September 1985
Homeport:	NS Mayport, Florida
Motto:	*Attaquer en Vigueur* ("Attack with Vigor")
Fate:	Naval Reserve Force, Active in service as of 2009.
General characteristics	
Class and type:	→ *Oliver Hazard Perry*-class → frigate
Displacement:	4,100 tons (4,170 t) full load
Length:	453 ft (138 m)
Beam:	45 ft (13.7 m)
Draft:	22 ft (6.7 m)
Propulsion:	2 × → General Electric LM2500-30 gas turbines generating 41,000 shp (31 MW) through a single shaft and → variable pitch propeller; 2 x Auxiliary Propulsion Units, 350 hp (.25 MW) retractable electric → azipods for maneuvering and docking.
Speed:	29+ knots (54+ km/h)
Range:	5,000 nm (9,300 km) at 18 knots (33 km/h)
Complement:	15 officers and 190 enlisted, plus air detachment of roughly six officer pilots and 15 enlisted maintainers
Sensors and processing systems:	→ AN/SPS-49 air-search radar → AN/SPS-55 surface-search radar CAS and STIR fire-control radar AN/SQS-56 sonar.

Electronic warfare and decoys:	AN/SLQ-32V5 with Sidekick → Mark 36 SRBOC → AN/SLQ-25 Nixie
Armament:	**As built:** One OTO Melara Mk 75 76 mm/62 caliber naval gun two → Mk 32 triple-tube (324 mm) launchers for → Mark 46 torpedoes one Vulcan → Phalanx CIWS; four → .50-cal (12.7 mm) machine guns. one Mk 13 Mod 4 single-arm launcher for → Harpoon anti-ship missiles and → SM-1MR Standard anti-ship/air missiles (40 round magazine) **Note:** As of 2004, Mk13 systems removed from all active US vessels of this class. Currently: 1 × → OTO Melara Mk 75 mod 2 76 mm/62 caliber naval gun 2 × → Mk 32 12.75 in (324 mm) triple-torpedo-tube launchers for Mark 46, → Mark 50, and Mark 54 torpedoes 1 × Block 1B Mk 15 Phalanx 20 mm CIWS 2 × Mk 38 25 mm cannons (only while deployed overseas) 8 × mounts for crew served weapons
Aircraft carried:	2 × → SH-60B LAMPS III helicopter

USS *Simpson* (FFG-56) is an → *Oliver Hazard Perry*-class guided missile → frigate of the United States Navy, named for Rear Admiral Rodger W. Simpson.

History

Simpson was laid down at → Bath Iron Works, Maine, on 27 February 1984, launched on 31 August 1984 sponsored by Mrs. Gloria Fowles-Simpson[1] widow of Rodger W. Simpson and commissioned on 21 September 1985[2] in Newport, Rhode Island, Cmdr. H. Wyman Howard Jr. in command. The ship was delivered 13 September 1985. BIW plans called for delivery to occur 9 August 1985, but that date slipped due to an extended strike at Bath Iron Works that began 30 June 1985.[3] *Simpson* was homeported at Naval Station Newport until switching to Naval Station Norfolk on 31 March 1994. *Simpson* moved to Naval Station Mayport in July 2001.[4]

In January 1986, *Simpson* participated in search and recovery operations following the Space Shuttle Challenger disaster.[4]

Beginning January 1988, *Simpson*'s first overseas deployment was to the Persian Gulf as part of Operation Earnest Will, to escort reflagged Kuwaiti oil tankers during the Iran–Iraq War. On 17 April 1988, *Simpson* took part in Operation Praying Mantis, the U.S. response to the mining of the → frigate → *Samuel B. Roberts*, which hit an Iranian M-08 mine on 14 April 1988.

On 18 April, *Simpson*, along with *Wainwright* and *Bagley*, destroyed Iranian naval and intelligence facilities on the oil platform Sirri in the Persian Gulf. Later that day, the ships encountered the Iranian Kaman Class (Combatte II type) missile patrol boat *Joshan*, which launched a → Harpoon missile. *Simpson* immediately returned missile fire, striking *Joshan* in her superstructure. *Joshan* was then sunk by combined gunfire. *Simpson* was awarded the Joint Meritorious Unit Award and the Combat Action Ribbon for this operation, and the Armed Forces Expeditionary Medal for the deployment.

Simpson is one of two[5] presently commissioned ships in the US Navy to have sunk an enemy vessel with her shipboard weaponry (as opposed to aircraft). Another is the USS *Constitution*.[6]

1990s

20 February 1990, *Simpson* rescued 22 crew members from MV *Surf City*, a reflagged Kuwaiti tanker carrying $9 million in naphtha and gas oil. *Surf City* was transiting near the Iranian island of Abu Musa when it exploded killing two and forcing the crew to abandon ship. According to Central Command, *Simpson* was not escorting the tanker, but was monitoring its progress from 3 nautical miles (5.6 km) away and responded immediately to rescue the crew.[7] The fire was so intense that US ships could not approach it and *Surf City* would burn for two weeks. At the time it was feared to be the result of an attack or a mine, but the NTSB later determined it to be an accident.[8]

In March 1992, during *Simpson*'s third deployment, *Simpson* and USS *Normandy* (CG-60) escorted USS *America* (CV-66) and two supply ships into the Persian Gulf. At the time, Iraq was refusing to comply with UN weapons inspection and the ships departed the Persian Gulf in early April after inspections resumed.[9] [10]

In August 1993 on *Simpson*'s fourth deployment she was again assigned to *America*'s battlegroup. During the deployment *Simpson* participated in Operation Deny Flight and Operation Provide Promise in the Adriatic Sea and U.N. Operation Continue Hope off Somalia. *Simpson* returned to homeport in February 1994.[11] [12]

In May 1994, *Simpson* was one of the ships enforcing United Nations sanctions on Haiti.[13]

Simpson deployed to the Caribbean Sea for counter drug operations in late 1994 and again in February 1995.[11]

In November 1995, *Simpson* deployed to the Mediterranean joining the United States Sixth Fleet NATO's Standing Naval Force Atlantic. *Simpson* operated in the Adriatic Sea enforcing UN arms embargo against Croatia and Bosnia-Herzegovina and participating in Operation Sharp Guard. *Simpson* returned to Norfolk 8 May 1996.[11]

2000s

Capt. Gerald F. DeConto, *Simpson*'s commanding officer from September 1998 to April 2000 was killed at the Pentagon during the September 11, 2001 attacks.[14]

In July 2002, *Simpson* responded to Malpelo Island to medevac a wounded Colombian Marine who had received three gunshot wounds.[15]

Simpson arriving in New York Harbor, October 2004 prior to removal of Mk 13 launcher, but after removal of the STIR missile guidance radar.

Simpson deployed with HSL-44, Det. 10 as part of NATO's Standing Naval Forces Atlantic on 22 September 2004 returning 20 December 2004. *Simpson* visited New York City 12 October 2004 during this deployment.[16] *Simpson*'s → Mk 13 missile launcher was removed sometime in 2005 prior to her next deployment.

On 3 January 2006, *Simpson* deployed with HSL-42, Det. 9, joining Standing NRF Maritime Group 1 and participated in a number of international naval exercises in the North Sea, Norwegian Sea and Eastern Mediterranean Sea returning to Mayport 24 June 2006.[17]

On 5 October 2007, *Simpson* deployed with HSL-46, Det. 7, to the western Pacific for counter narcotics operations returning April 2008. During the deployment *Simpson* captured 16 metric tons of cocaine. On 29 November 2007, *Simpson* interdicted a self-propelled semi-submersible (SPSS) capable of carrying 5-8 metric tons of cocaine. The sub was sunk by its crew, but the crew was captured and turned over to Colombia.[18]

Simpson and Algerian frigate El Kirch, June 2006, after removal of missile launcher.

As of 2008, *Simpson* was homeported at Naval Station Mayport, Florida, and is part of Destroyer Squadron 14.[19] [18] *Simpson* has been part of the Active Naval Reserve Force, Category A since 2002.[20]

Notes

[1] Maritime Quest (http://www.maritimequest.com/warship_directory/us_navy_pages/frigates/pages/simpson_ffg_56_data.htm).

[2] NVR (http://www.nvr.navy.mil/nvrships/details/FFG56.htm) lists commissioning as 20 September 1985 while Ships history page (http://www.simpson.navy.mil/site pages/history.aspx) lists 21 September 1985. DoD image captions such as Image:USS Simpson (FFG-56) during commissioning.jpg list 9 November 1985 leading some websites to use that date for commissioning.

[3] *BATH IRON STRIKERS TAKING A HARD LINE*; John Milne, Globe Staff. Boston Globe. Boston, Mass.: 27 August 1985. pg. 37

[4] Commander, Naval Surface Force, Atlantic. Simpson (http://www.cnsl.surfor.navy.mil/Fact FIles/SIMPSON.pdf).

[5] " USS SIMPSON (FFG 56) (http://www.surflant.navy.mil/FactFiles/simpson.pdf)". Naval Surface Force Atlantic. . Retrieved 2009-05-07.

[6] USS Constitution Timeline. US Navy. http://www.ussconstitution.navy.mil/historyupdate.htm (accessed 1 June 2008).

[7] Captain and Massachusetts Man Die in Persian Gulf Blast; Mary Curtius, Globe Staff and Tina Cassidy, Contributing Reporter. Boston Globe. Boston, Mass.: Feb 23, 1990. pg. 2

[8] NTSB. Safety Recommendation M-92-22 through -24 (http://www.ntsb.gov/recs/letters/1992/M92_22_24.pdf). 29 April 1992.

[9] U.S. CARRIER STIRS TENSION IN GULF; MARK THOMPSON - Knight-Ridder News Service. The Oregonian. Portland, Or.: Mar 14, 1992. pg. A.10

[10] BUSH WITHDRAWS FORCES, CITING IRAQI COMPLIANCE; Stewart M. Powell Hearst News Service. Seattle Post - Intelligencer. Seattle, Wash.: Apr 1, 1992. pg. a.2

[11] Navysite.de FFG-56 (http://www.navysite.de/ffg/FFG56.HTM). History.

[12] NORFOLK-BASED CARRIER HEADING TO SOMALI COAST. Richmond Times - Dispatch. Richmond, Va.: Oct 28, 1993. pg. B-4

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[14] Mayport Mirror. Ensign Rebecca L. Rebarich. Honoring Fallen Sailor, Former Simpson CO (http://www.mayportmirror.com/stories/102804/may_usssipmpson001.shtml). 28 October 2004.

[15] US Navy. Simpson Rescues Wounded Colombian Marine (http://www.news.navy.mil/search/display.asp?story_id=2867). 29 July 2002.

[16] US Navy. USS Simpson Returns From Deployment (http://www.navy.mil/search/display.asp?story_id=16349). 16 December 2004.

[17] Mayport Mirror. USS Simpson Is Back In Town (http://www.mayportmirror.com/stories/062906/may_usssimpson001.shtml). 29 June 2006.

[18] Mayport Mirror. USS Simpson, HSL-46 Detachment 7 Are Back (http://www.mayportmirror.com/stories/041008/may_USSsimpson.shtml). 09 April 2008.

[19] " DesRon 14 (http://www.cds14.surfor.navy.mil/default.aspx)". U.S. Navy. . Retrieved 2008-03-06.

[20] United States Navy Naval Vessel Register. FFG-56 (http://www.nvr.navy.mil/nvrships/details/FFG56.htm).

This article includes information collected from the Naval Vessel Register, which, as a U.S. government publication, is in the public domain. The entry can be found here (http://www.nvr.navy.mil/nvrships/details/FFG56.htm).

See also

- List of ship launches in 1984
- List of ship commissionings in 1985
- List of United States Navy ships

External links

- USS *Simpson* official website (http://www.simpson.navy.mil/)
- navsource.org: USS *Simpson* (http://www.navsource.org/archives/07/0756.htm)
- navysite.de: USS *Simpson* (http://www.navysite.de/ffg/FFG56.HTM) - History section appears to duplicate old versions of the official *Simpson* web site Pre-1998 history (http://web.archive.org/web/20000530010318/www.spear.navy.mil/ships/ffg56/ussbio.htm) 1998-1999 history (http://web.archive.org/web/20000709182423/www.spear.navy.mil/ships/ffg56/98history.htm) 2000 history (http://web.archive.org/web/20010807193653/http://www.spear.navy.mil/ships/ffg56/)
- History of the Frigate (http://www.fas.org/man/dod-101/sys/ship/ffg-7.htm)
- Maritime Quest - *Simpson* (http://www.maritimequest.com/warship_directory/us_navy_pages/frigates/pages/simpson_ffg_56_page_1.htm)

USS Reuben James (FFG-57)

Career	
Ordered:	22 March 1982
Builder:	→ Todd Pacific Shipyards, San Pedro, California
Laid down:	19 November 1983
Launched:	8 February 1985
Commissioned:	22 March 1986
Homeport:	Pearl Harbor, Hawaii
Status:	Active in service as of 2009
Badge:	
General characteristics	
Class and type:	→ *Oliver Hazard Perry*-class → frigate
Displacement:	4,100 tons (4,170 t) full load
Length:	453 ft (138.1 m), overall
Beam:	45 ft (13.7 m)
Draft:	22 ft (6.7 m)
Propulsion:	2 × → General Electric LM2500-30 gas turbines generating 41,000 shp (31 MW) through a single shaft and → variable pitch propeller; 2 x Auxiliary Propulsion Units, 350 hp (.25 MW) retractable electric → azipods for maneuvering and docking.
Speed:	29+ knots (54+ km/h)
Range:	5,000 nm (9,300 km) at 18 knots (33 km/h)
Complement:	15 officers and 190 enlisted, plus → SH-60 LAMPS detachment of roughly six officer pilots and 15 enlisted maintainers

Sensors and processing systems:	→ AN/SPS-49 air-search radar → AN/SPS-55 surface-search radar CAS and STIR fire-control radar AN/SQS-56 sonar.
Electronic warfare and decoys:	AN/SLQ-32
Armament:	**As built:** One OTO Melara Mk 75 76 mm/62 caliber naval gun two → Mk 32 triple-tube (324 mm) launchers for → Mark 46 torpedoes one Vulcan → Phalanx CIWS; four → .50-cal (12.7 mm) machine guns. one Mk 13 Mod 4 single-arm launcher for → Harpoon anti-ship missiles and → SM-1MR Standard anti-ship/air missiles (40 round magazine) **Note:** As of 2004, Mk13 systems removed from all active US vessels of this class.
Aircraft carried:	2 × → SH-60 LAMPS III helicopters
Motto:	"Back With A Vengeance"

USS *Reuben James* (FFG-57), an → *Oliver Hazard Perry*-class guided missile → frigate, is the third ship of the U.S. Navy named for Reuben James, a boatswain's mate who distinguished himself fighting the Barbary pirates. Her crew totals 201 enlisted, 18 chief petty officers and 26 officers.[1]

Ship history

1980s

The contract to build *Reuben James* was awarded on 22 March 1982 to → Todd Shipyard of San Pedro, California. Her keel was laid on 19 November 1983, she was launched on 8 February 1985, she was delivered to the Navy on 3 March 1986 and commissioned a few days later on 22 March. She was faster than 30 knots (30 mph; 60 km/h) and powered by two gas turbine engines. Armed with anti-air and anti-ship missiles, an automated three-inch (76 mm) gun, an anti-missile defense system, and two → SH-60 Seahawk anti-submarine helicopters, *Reuben James* was tasked with hunting submarines as well as battle group escort and maritime interception. *Reuben James* joined the Red Stallions of Destroyer Squadron Thirty-One in June 1987.

Assigned to Mideast Force on her maiden deployment, *Reuben James* participated in twenty-two Operation Earnest Will convoy missions, serving as the convoy commander's flagship on ten of those missions. As a unit of the Pacific Fleet Anti-Submarine Warfare Readiness Squadron, she was a key participant in the continuing research and development of anti-submarine tactics and equipment, a fitting role in tribute to the men of the first *Reuben James*.

1990s

On 10 September 1990 *Reuben James* was reported to be in Vladivostok, U.S.S.R.[2]

In August 1991, *Reuben James* moved from Long Beach, California to Pearl Harbor, Hawaii. On 1 October 1998, she joined the "Ke Koa O Ke Kai", Destroyer Squadron Thirty-One.

On a WestPac deployment in 1995-1996, the ship's rudder fell off. The ship docked in Bahrain for repairs.

2000s

Reuben James participated in the CARAT 2000 exercises, including phases in the Philippines, Thailand, Indonesia, Brunei, Malaysia and Singapore. The first phase of CARAT began in the Philippines on June 14 and the final phase, conducted in Singapore, ended September 22. CARAT 2000 demonstrated U.S. commitment to security and stability in Southeast Asia while increasing the operational readiness and capabilities of U.S. forces. The exercise also promoted interoperability and cooperation with U.S. regional friends and allies by offering a broad spectrum of

mutually beneficial training opportunities.

In Malaysia, CARAT 2000 encompassed two weeks of extensive training to promote interoperability between U.S. naval forces and the Royal Malaysian Navy and Army. The Strait of Malacca was the setting for several exercises. These included anti-submarine warfare, anti-air warfare and gunnery exercises. One of the exercises was a final battle problem, or night encounter exercise. The two navies' task groups steamed together in formation for more than 25 hours. The Malaysian-U.S. naval task group was divided into two opposing forces. The Blue Forces consisted of *Reuben James*, *Germantown*, *Mount Vernon*, and the Malaysian ships, KD *Sri Indera Sakti* and KD *Lekir*. The Blue Forces were supported by U.S. helicopters from Helicopter Squadron Light 37, Detachment Four, from Hawaii. The Orange Forces consisted of the frigate → *Sides*, the Malaysian ships, KD *Perkasa*, KD *Laksamana Tun Abdul Jamil*, and a U.S. Navy P-3C Orion aircraft. USS *Columbus*, homeported in Pearl Harbor, Hawaii, and USS *Helena*, homeported in San Diego, also joined the task group in individual phases.[3]

For nine months from July 2002 to April 2003, *Reuben James* deployed to the Persian Gulf and participated in Operation Enduring Freedom and Operation Iraqi Freedom[4] as part of the *Abraham Lincoln* Battle Group. After serving approximately six months in theater, *Reuben James* started to make its way back to Pearl Harbor. At a stop in Brisbane, Australia the ship was turned around to go back to the Persian Gulf[5] and the deployment was extended indefinitely.[6] Finally, after an extended deployment of almost nine months, the *Abraham Lincoln* Battle Group was relieved by USS *Nimitz*.[7] This deployment was extremely long, breaking a number of records,[8] including the longest deployment ever for a nuclear-powered aircraft carrier.[5]

In July 2003, *Reuben James* hosted the Japanese destroyer JDS *Shimakaze* (DDG 172) for exercises in Pearl Harbor.[9] On 23 October 2003 the crew of the *Reuben James* dressed ship and manned the rails to render honors to President George W. Bush as he toured Pearl Harbor and visited the USS *Arizona* Memorial.[10]

From February to April 2004, she deployed to the Eastern Pacific in support of counter-drug operations.[11] [12]

Between July and December 2004, *Reuben James* went through an extensive modernization and maintenance program, ensuring that she will always be ready to respond when the mission bell tolls.[13] In October 2004, *Reuben James* participated in PASSEX exercises with the French frigate FS *Prairial* (F 371).

As part of Expeditionary Strike Group 3 (ESG 3), *Reuben James* deployed on 15 February 2006 on a WESTPAC mission to the Persian Gulf in support of Operation Iraqi Freedom and Operation Enduring Freedom[14] . The strike group also consisted of Amphibious Squadron (COMPHIBRON) 3, the 11th Marine Expeditionary Unit (Special Operations Capable), USS *Peleliu*, the guided-missile cruiser *Port Royal*, the guided-missile destroyer *Gonzalez*, the amphibious transport dock *Ogden*, the dock landing ship *Germantown*, Tactical Air Control Squadron(TACRON) 11, and the "Black Jacks" of Helicopter Sea Combat Squadron (HSC) 21.[15]

En route to the Persian Gulf, *Reuben James* stopped in New Caledonia.[16] The strike group relieved USS *Tarawa* on station in early April 2006 and began its mission of conducting maritime security operations. During operations, *Reuben James* performed services such as providing medical assistance to Sri Lankan fishermen[17] and rescuing Kenyan sailors.[18] Expeditionary Strike Group 3 was relieved on 9 July 2006 and *Reuben James* returned to Pearl Harbor in August, 2006.

Cultural references

Reuben James appeared in the 1990 movie, *The Hunt for Red October* (although her appearance in the film was anachronistic given that she was commissioned about a year after the events in the film), and played a significant role in the book *Red Storm Rising*, both by Tom Clancy. The Reuben James is one of the few US Navy ships in film history to actually portray herself.

Woody Guthrie wrote the song "The Sinking of the Reuben James" [19] about USS *Reuben James* (DD-245), the first U.S. warship lost to enemy action during World War II which was torpedoed by the German submarine *U-552* while on convoy escort operations.[20] He performed the song with Pete Seeger and the other Almanac Singers. The Guthrie song has an original tune for its chorus, but its verses are set to the tune of the song "Wildwood Flower".

See also

- List of frigates of the United States Navy
- *Abraham Lincoln* Battle Group
- Current United States Navy ships

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This article includes information collected from the Naval Vessel Register, which, as a U.S. government publication, is in the public domain. The entry can be found here (http://www.nvr.navy.mil/nvrships/details/FFG57.htm).

External links

- USS *Reuben James* official website (http://www.reuben-james.navy.mil/)
- navsource.org: USS *Reuben James* (http://www.navsource.org/archives/07/0757.htm)
- navysite.de: USS *Reuben James* (http://www.navysite.de/ffg/FFG57.HTM)
- MaritimeQuest USS *Reuben James* (FFG-57) pages (http://www.maritimequest.com/warship_directory/us_navy_pages/frigates/pages/reuben_james_ffg57_page_1.htm)
- CARAT at GlobalSecurity.org (http://www.globalsecurity.org/military/ops/carat.htm)
- USS *Reuben James* at WikiMapia (http://www.wikimapia.org/#y=21350409&x=-157943706&z=19&l=0&m=a&v=2)
- Crew List at navysite.de (http://navysite.de/crew.php?action=ship&squad=false&starty=1985&endy=2001&ship=FFG 57)
- WWE Divas Tour Pearl Harbor (http://www.news.navy.mil/search/display.asp?story_id=16868)
- Helicopter Squadron Light 37 official website (http://www.mcbh.usmc.mil/HSL37-New/main.html)

USS Samuel B.Roberts (FFG-58)

Career (US)	
Namesake:	Samuel B. Roberts
Builder:	→ Bath Iron Works
Laid down:	21 May 1984
Launched:	8 December 1984
Commissioned:	12 April 1986
Homeport:	Mayport, Florida
Motto:	*No Higher Honor*
Fate:	Active in service as of 2009
Badge:	
General characteristics	
Class and type:	→ *Oliver Hazard Perry*-class → frigate
Displacement:	4,100 tons (4,170 t) full load
Length:	453 ft (138.1 m), overall
Beam:	45 ft (13.7 m)
Draught:	22 ft (6.7 m)
Propulsion:	2 × → General Electric LM2500-30 gas turbines generating 41,000 shp (31 MW) through a single shaft and → variable pitch propeller; 2 x Auxiliary Propulsion Units, 350 hp (.25 MW) retractable electric → azipods for maneuvering and docking.
Speed:	29+ knots (54+ km/h)
Range:	5,000 nm (9,300 km) at 18 knots (33 km/h)

Complement:	15 officers and 190 enlisted, plus → SH-60 LAMPS detachment of roughly six officer pilots and 15 enlisted maintainers
Sensors and processing systems:	→ AN/SPS-49 air-search radar → AN/SPS-55 surface-search radar CAS and STIR fire-control radar AN/SQS-56 sonar.
Electronic warfare and decoys:	AN/SLQ-32; → Mark 36 SRBOC
Armament:	1×OTO Melara Mk 75 76 mm/62 caliber naval gun delivered with 1×Mk 13 Mod 4 single-arm launcher for → Harpoon anti-ship missiles and → SM-1MR Standard anti-ship/air missiles (40 round magazine) currently removed 1× 2×Mk 32 triple-tube (324 mm) launchers for → Mark 46 torpedoes 1×Vulcan → Phalanx CIWS 4×.50-cal (12.7 mm) machine guns.
Aircraft carried:	2 × → SH-60 LAMPS III helicopters

USS *Samuel B. Roberts* (FFG-58) is one of the final ships in the United States Navy's → *Oliver Hazard Perry* class of guided missile → frigates (FFG). The ship was severely damaged by an Iranian mine in 1988, leading U.S. forces to respond with Operation Praying Mantis.

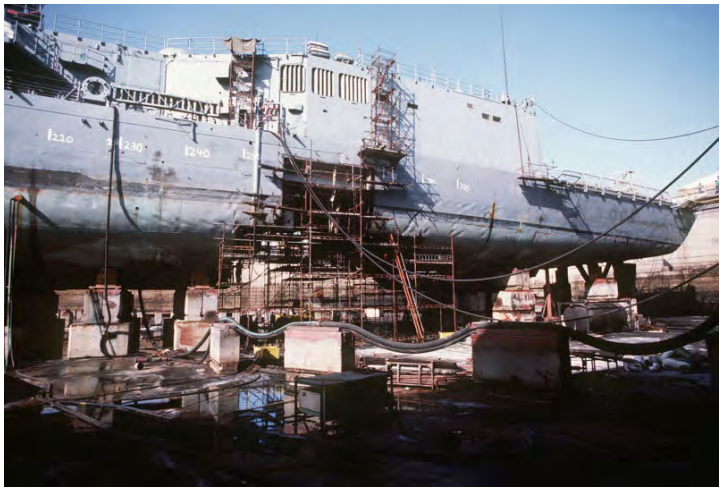
Commissioning and namesake

The frigate was named for Samuel B. Roberts, a Navy coxswain who was killed evacuating US Marines during the battle of Guadalcanal in 1942. FFG-58, the third U.S. ship to bear the coxswain's name, was launched in December 1984 by → Bath Iron Works (BIW) and sponsored by the wife of Jack Yusen, a sailor who served in World War II and in the battle of Leyte Gulf on the former Samuel B Roberts (DE-413). Put in commission in April 1986 under the command of Commander Paul X. Rinn, the ship racked up numerous awards and commendations even before its first deployment.

1988 deployment and mine strike

The frigate deployed from its home port in Newport, Rhode Island in January 1988, heading for the Persian Gulf to participate in Operation Earnest Will, the escort of reflagged Kuwaiti tankers during the Iran–Iraq War. The Roberts had arrived in the Persian Gulf and was heading for a refueling rendezvous on April 14 when the ship struck an M-08 naval mine in the central Persian Gulf, an area it had safely transited a few days previously. The mine blew a 15-foot (5 m) hole in the hull, flooded the engine room, and knocked the two gas turbines from their mounts. The blast also broke the keel of the ship; such structural damage is almost always fatal to most vessels. The crew fought fire and flooding for five hours and saved the ship. Ten sailors were medevaced for injuries sustained in the blast, six returned to the *Roberts* in a day or so. Four burn victims were sent for treatment to a military hospital in Germany,and eventually to medical facilities in the United States.[1]

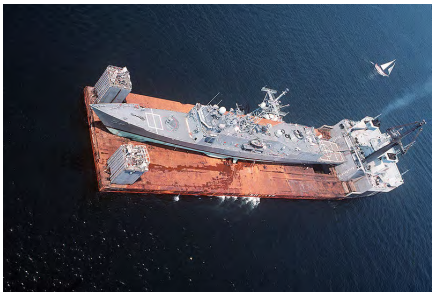
When U.S. divers recovered several unexploded mines, they found that their serial numbers matched the sequence on mines seized the previous September aboard an Iranian mine-layer named Iran Ajr. Four days later, U.S. forces retaliated against Iran in Operation Praying Mantis, a one-day campaign that was the largest American surface engagement since World War II.[2] U.S. ships, aircraft, and troops destroyed two Iranian oil platforms used to control Iranian naval forces in the Persian Gulf, sank one Iranian → frigate, damaged another, and sent at least three armed, high-speed boats to the bottom. The U.S. lost one Marine helicopter and its crew of two airmen in what appeared to be a night maneuver accident rather than a result of hostile operations.



In 1988, an Iranian M-08 mine made a 25-foot (8 m) hole in the hull of the → USS *Samuel B. Roberts* (FFG-58), forcing the ship to seek temporary repairs in a dry dock in Dubai, UAE.

Closeup of the → *Roberts*' damaged hull.

Repairs



MV *Mighty Servant 2* carrying mine-damaged *Roberts* on 31 July 1988

On 27 June 1988, *Roberts* was loaded onto the *Mighty Servant 2*, a semi-submersible heavy-lift ship owned by Dutch shipping firm Wijsmuller Transport and carried back to Newport for $1.3 million.[3] The frigate arrived at BIW's Portland, Maine, yard on 6 October 1988 for repairs. The repair job was unique: the entire engine room was cut out of the hull, and a 315-ton replacement module was jacked up and welded into place.[4] She undocked 1 April 1989 for sea trials. *Roberts* returned to service after a ceremony on 16 October 1989 after 13 months of repairs. She was completed three weeks ahead of schedule at a cost of $89.5 million, $3.5 million less than expected.[5] By comparison, USS *Princeton* set off a bottom moored mine during the

1991 Gulf War and its repair cost $24 million.[6] However, she was not directly struck by the mine and the cruiser's displacement is nearly twice that of *Roberts*. The mine that nearly sank *Roberts* had an estimated cost of $1500.[6]

After repair

Roberts would make her second deployment in 1990 for Operation Desert Storm and Operation Desert Shield. On 28 March 1991, she returned to Newport after conducting operations with the Red Sea Maritime Interception Force working cooperatively with an international force of ships to enforce U.N. sanctions against Iraq. The frigate alone conducted over 100 boardings of merchant ships to prevent cargo shipments to or from Iraq.[7]

On 30 August 1991, Joseph A. Sestak took command of *Roberts*, which was named the Atlantic Fleet's best surface combatant in the 1993 Battenberg Cup competition.

"Sammy B", as the ship is sometimes called, is homeported in Mayport, Florida.

Sources

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- *This article includes information collected from the Naval Vessel Register, which, as a U.S. government publication, is in the public domain. The entry can be found here* [62].

Further reading

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- Wise, Harold Lee (2007). *Inside the Danger Zone: The U.S. Military in the Persian Gulf 1987-88* [67]. Annapolis: Naval Institute Press. ISBN 1-59114-970-3.

External links

- USS *Samuel B. Roberts* official site [8]
- navsource.org: USS *Samuel B. Roberts* [9]
- navysite.de: USS *Samuel B. Roberts* [10]
- *Samuel B. Roberts* narrative and timeline [11]
- Photos of *Samuel B. Roberts* during February 1986 sea trials [12]
- Photos of *Samuel B. Roberts* being commissioned in April 1986 [13]
- Photos of *Samuel B. Roberts* being hauled from the Persian Gulf to Newport, R.I. aboard *Mighty Servant 2* in 1988 [14]
- MaritimeQuest USS Samuel B. Roberts FFG-58 pages [15]

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USS Kauffman (FFG-59)

USS *Kauffman*

Career (US)	
Namesake:	Vice Admiral James L. Kauffman and Rear Admiral Draper L. Kauffman
Builder:	→ Bath Iron Works
Laid down:	8 April 1985
Launched:	29 March 1986
Commissioned:	28 February 1987
Homeport:	NS Norfolk, Virginia
Status:	Active in service as of 2009
General characteristics	
Class and type:	→ Oliver Hazard Perry class frigate
Displacement:	4,100 tons (4,165 t) full load
Length:	453 ft (138 m) overall
Beam:	45 ft (14 m)
Draft:	22 ft (6.7 m)
Propulsion:	2 × → General Electric LM2500-30 gas turbines generating 41,000 shp (31 MW) through a single shaft and controllable-pitch propeller
Speed:	29+ knots (54+ km/h)
Range:	5,000 nm (9,300 km) at 18 knots (33 km/h)
Complement:	15 officers and 190 enlisted, plus → SH-60 LAMPS detachment of roughly six officer pilots and 15 enlisted maintainers
Armament:	One OTO Melara Mk 75 76 mm/62 caliber naval gun; one Mk 13 Mod 4 single-arm launcher for Harpoon anti-ship missiles and → SM-1MR Standard anti-ship/air missiles (40 round magazine); two Mk 32 triple-tube (324 mm) launchers for → Mark 46 torpedoes; one Vulcan → Phalanx CIWS; four .50-cal (12.7 mm) machine guns.
Aircraft carried:	2 × → SH-60 LAMPS III helicopters
Motto:	*Toujous en Vedette* ("Always in the Lead")
Nickname:	Special K

USS *Kauffman* (FFG-59), an → *Oliver Hazard Perry*-class → frigate, is a ship of the United States Navy named for Vice Admiral James L. Kauffman (1887–1963) and his son, Rear Admiral Draper L. Kauffman (1911–1979), both experts in sub-surface naval missions.

Kauffman was laid down on 8 April 1985 by the → Bath Iron Works, Bath, Maine; launched on 29 March 1986; sponsored by Mrs. Elizabeth Kauffman Bush the daughter of Vice Admiral James L. Kauffman; and commissioned on 28 February 1987 at Bath, Maine, Commander John C. Dranchak, USN in command.

As of 2009, *Kauffman* is captained by Commander Dale. W. Maxey, USN, homeported at NS Norfolk, Virginia, and assigned to Destroyer Squadron 26.

Milestones

Note: the milestones are extracted from the official command histories [1] and no other sources. The set of command histories available is not complete, resulting in the partial record following.

1988 [2]

- 6 January — 28 May: 4100 ton modifications by → Bath Iron Works in Bath, Maine
- 12 August: BM3 Kerekgyarto died instantly when the Slewing Arm Davit broke from its mount and fell on him.

1989 [3]

- 7 April: Commander Ronald C. Bogle, USN relieves Commander John C. Dranchak, USN
- 31 May — 10 November: Maiden deployment, Med 3-89
- 4—7 August: Sevastapol, USSR port visit
- 13 September — 3 October: NATO exercise Display Determination-89

1990 [4]

- 9 January: presented with Battle 'E'
- 15 January — 15 March: ships restricted availability, #1A gas turbine generator and the Mk. 75 76mm gun mount are replaced
- 8 — 15 June: BALTOPS-90

1991 [5]

- 5 April: Commander James H. Chapman Jr., USN relieves Commander Ronald C. Bogle, USN
- 26 April — 26 October: deployment, MEF 2-91
- 4 June — 16 September: Middle East Force (MEF) operations in the Persian Gulf

1992 [6]

- 6 January — 21 February: counter narcotic operations, Caribbean Sea
  - towed a vessel that had lost propulsion 250 NM to Guantanamo Bay, Cuba
  - rescued the crew from the striken 237 feet (72 m) coastal freighter Ramsli just before she sank
- 2 August — 23 October: Ships Restricted Availability (Drydock), by → Bath Iron Works Bath, Maine
- 15 September: presented with Battle 'E'
- 18 December: Commander James F. Deppe, USN relieves Commander James H. Chapman Jr., USN

1993 [7]

- 11 March — 8 September: deployed, Med 2-93
- 29 April — 18 June: Operation Deny Flight in the Adriatic Sea, Operation Maritime Guard
- 22 June — 17 August: Maritime Interdiction Operations enforcing United Nations sanctions agains Iraq, North Red Sea
- 7 November: provided assistance to the Argentine frigate ARA Granville (P-33) while in port at Roosevelt Roads Naval Station, Puerto Rico
- 9 November — 6 December: counter drug operations, Caribbean Sea

1994 [8]

- 13 May — 3 June: Maritime Interception Operations enforcing United Nations sanctions against Haiti
- 6 June: Homeport shift from Newport, Rhode Island to Norfolk, Virginia
- 1 July — 1 August: Operation Support Democracy, Haiti with 3 US Army OH-58 Kiowa helicopters
- 5—6 July: rescued 787 migrants from Haitian waters, transported to Guantanamo Bay, Cuba
- 20—21 July: towed the Motor Vessel Valerie I from the south coast of Haiti to Guantanamo Bay, Cuba
- 9 September: Commander David F. Britt, USN relives Commander James F. Deppe, USN

1996 [9]

- 24 April: completion of an extended ships restricted availability period beginning September 1995, including installation of Mod 6 to the Mk 92 Guided Missile Fire Control System
- 8 July — 24 August: counter drug operations, Caribbean Sea
- 20 September: Commander John A. Kunert, USN relives Commander David F. Britt, USN
- 10—31 December: Operation Carib Shield - counter drug operations, Caribbean Sea

1997 [10]

- 1—17 January: Operation Carib Shield - counter drug operations, Caribbean Sea
- 4 March — 24 June: ships restricted availability (drydock) by Norfolk Shipbuilding and Drydock Company

1998 [11]

- 6 March: Commander George J. Karol II, USN relieves Commander John A. Kunert, USN
- 13 March — 11 September: deployed, Med (originally tasked to Middle East Force)
- 12 October — 11 December: planned restricted availability

1999 [12]

- 27 August: Commander Rigoberto Sáez-Ortiz, USN relieves Commander John A. Kunert, USN
- 15—18 September: sortied for Hurricane Dennis

2004 [13]

- 15 July — 22 September: ships restricted availability, installed Mk 53 "Nulka" Decoy Launching System (DLS)
- 31 August: Commander Kenneth A. Krogman, USN relieves Commander John P. Gelinne, USN

Commanders

Note: unless otherwise referenced, information has been sourced from the official command histories [1].

- 28 February 1987 [14] — 7 April 1989: Commander John C. Dranchak, USN
- 7 April 1989 — 5 April 1991: Commander Ronald C. Bogle, USN

- 5 April 1991 — 18 December 1992: Commander James H. Chapman Jr., USN
- 18 December 1992 — 9 September 1994: Commander James F. Deppe, USN
- 9 September 1994 — 20 September 1996: Commander David F. Britt, USN
- 20 September 1996 — 6 March 1998: Commander John A. Kunert, USN
- 6 March 1998 — 27 August 1999: Commander George J. Karol III, USN
- 27 August 1999 — (unknown): Commander Rigoberto Sáez-Ortiz, USN
- May 2001 (est) — 28 February 2003: Commander Mark Reagan Hagerott [15]
- 28 February 2003 [15] — 31 August 2004: Commander John P. Gelinne, USN
- 31 August 2004 — (unknown), at 30 September 2005 [16]: Commander Kenneth A. Krogman, USN
- at 27 November 2006 [17] and at 12 March 2007: Commander Chris Rhoden, USN [18]
- at 7 April 2008 [17] and at 16 November 2008 [19]: Commander Robert Cepek
- present: Commander Dale. W. Maxey, USN [20]

References

This article includes information collected from the Naval Vessel Register, which, as a U.S. government publication, is in the public domain. The entry can be found here [63].

External links

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- navsource.org: USS *Kauffman* [22]
- navysite.de: USS *Kauffman* [23]
- MaritimeQuest USS Kauffman FFG-59 pages [24]

Kauffman in Souda Bay, Crete, 2002

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[15] http://www.spongobongo.com/em/em9683.htm

[16] http://www.defendamerica.mil/articles/sep2005/a093005tj2.html
[17] http://www.uscarriers.net/ffg59history.htm
[18] http://www.defenseimagery.mil/imagery.html#guid=fbfc2ab445e466285768ffd96dfa1c1d1ad7d046
[19] http://www.navyleague.org/public_relations/Nov08/112108-Broward-County-Veterans-Salute-USS-Kauffman-16Nov08.php
[20] http://www.kauffman.navy.mil/pages/CO.aspx
[21] http://www.kauffman.navy.mil/
[22] http://www.navsource.org/archives/07/0759.htm
[23] http://www.navysite.de/ffg/FFG59.HTM
[24] http://www.maritimequest.com/warship_directory/us_navy_pages/frigates/pages/kauffman_ffg59_page_1.htm

USS Rodney M.Davis (FFG-60)

Career	
Name:	USS *Rodney M. Davis*
Namesake:	Sergeant Rodney M. Davis
Builder:	→ Todd Pacific Shipyards, San Pedro, California
Laid down:	28 October 1982
Launched:	11 January 1986
Commissioned:	9 May 1987
Homeport:	Naval Station Everett, Washington
Motto:	*By Valor and Arms*
Nickname:	The RMD. "Ruin My Day", Repair Me Daily, Rodney M. Different, Rodney M. Difficult
Fate:	Active in service as of 2009
General characteristics	
Class and type:	→ *Oliver Hazard Perry*-class → frigate
Displacement:	4100 long tons (4166 t) full load
Length:	453 ft (138 m) o/a
Beam:	45 ft (14 m)
Draft:	22 ft (6.7 m)
Propulsion:	2 × → General Electric LM2500-30 gas turbines generating 41000 shp (31 MW) through a single shaft and variable-pitch propeller
Speed:	29 knots (54 km/h; 33 mph)+
Range:	5000 nmi (9300 km) at 18 kn (33 km/h; 21 mph)
Complement:	15 officers and 190 enlisted, plus → SH-60 LAMPS detachment of roughly six officer pilots and 15 enlisted maintainers
Armament:	• 1 × → OTO Melara Mk 75 76 mm/62 caliber naval gun • 2 × → Mk 32 triple-tube (324 mm) launchers for → Mark 46 torpedoes • 1 × Vulcan → Phalanx CIWS • 4 × .50-cal (12.7 mm) machine guns
Aircraft carried:	2 × → SH-60 LAMPS III helicopters

USS *Rodney M. Davis* (FFG-60) is an → *Oliver Hazard Perry*-class → frigate of the United States Navy named for Marine Sergeant Rodney M. Davis (1942–1967), who was posthumously awarded the Medal of Honor for his

heroism in the Vietnam War.

Rodney M. Davis was laid down on 28 October 1982 by the → Todd Pacific Shipyards Co., Los Angeles Division, San Pedro, Ca.; launched on 11 January 1986; and commissioned on 9 May 1987.

The ship was homeported at Yokosuka, Japan for several years while assigned to Destroyer Squadron 15. As of 2005, *Rodney M. Davis* is homeported at NS Everett, Washington, and assigned to Destroyer Squadron 9.

History

On 28 April 2001 a Law Enforcement Detachment (LEDET) assigned to the *Rodney M. Davis*, with later assistance from the US Coast Guard Cutter *Active* (based in Port Angeles, WA) made the largest cocaine seizure in maritime history when they boarded and seized the Belizean F/V *Svesda Maru* 1,500 miles south of San Diego. The fishing vessel was carrying 26,931 pounds of cocaine.

In the summer of 2005, *Davis* participated in the 11th annual Cooperation Afloat Readiness and Training (CARAT) exercise. CARAT is an annual series of bilateral military training exercises designed to enhance cooperative working partnerships with several Southeast Asian nations. Ensuring freedom of the seas by increasing maritime security efforts in the region is a primary focus of the CARAT series.

In the summer of 2006, with the help of the crew from the *Rodney M. Davis*, 11 tons of creosote logs were removed from the beaches of NAVMAG *Indian Island*. The project was completed with no labor cost, due to the support of the *Davis* crew on this shoreline enhancement project. Removal of creosote contaminant source from the beaches enhances shoreline habitat and marine water quality.

2006-2007 Deployment

Davis departed Naval Station (NAVSTA) Everett for a deployment to the Southern Pacific, November 28, 2006.

On March 3, 2007, Sailors from *Davis* participated in two community relations (COMREL) projects during the ship's visit to Panama in February. The *Davis* Sailors' COMREL efforts included visits to local orphanages and maintenance/improvements at a library in the Cinco de Mayo district of the city. Sailors spent their day cleaning, repairing, and painting chairs and cabinets at the Eusebio Morales Library. Five more *Davis* sailors visited a local orphanage, Hogar Divino Nino, to spend time with infants and toddler orphans to give them some much needed human contact. The *Davis* sailors took diapers, formula, baby wipes and other child care supplies to aid the staff at the orphanage. The two groups reassembled at another orphanage, Nutre Hogar, to hand out Spanish-language Disney movies to the children, which were part of a generous donation made through the Jacksonville, Fla., area office of the United Service Organizations (USO).

Davis completed her transit of the Panama Canal on March 25, 2007 from the Caribbean Sea to the Pacific Ocean.

The Sailors of *Davis* completed their third community relations (COMEL) project in Panama City, Panama on April 3, 2007. During the ship's three-day port visit, 21 members of the crew spent a day helping to improve Hogar Nuevo Pacto, a home for abused children in Panama City. The crew raised $1,100 in donations to pay for supplies and improvements for the home. *Davis* sailors bought equipment to repaint the inside of the house, as well as groceries, new shower curtains, bed sheets, and light fixtures for the children's living areas. The home, previously U.S. military housing, was greatly in need of some modernization and assistance from able hands. Despite rainy weather outside, the crew spent the day productively inside, painting hallways and bedrooms, installing conveniences like toilet paper dispensers and toothbrush holders in the bathrooms, and replacing lights and correcting electrical safety problems.

On the evening of April 19, 2007, *Davis* intercepted the fishing vessel *Mariana de Jesus* in international waters. The 33-foot vessel was overcrowded with 31 migrants. *Davis* gave the migrants food and water and they were all examined by the ship's medical personnel. Some were treated for mild dehydration and headaches, but overall they were found to be in good physical condition. The migrants were then transferred to the El Salvadoran Navy.

On April 23, 2007, the Costa Rican Coast Guard vessel *Juan Rafael Mora* (JRM) and *Davis* intercepted the fishing vessel *Kuerubin* with 61 Chinese migrants, all of whom were transferred to the JRM. *Davis* was tasked to ensure their health and safety was maintained by providing food, water, and medical supplies. All were malnourished and dehydrated for they had been without food or water for four days.

The frigate returned to Everett naval base on June 12, 2007 after a six-month deployment in the war on drugs.

The first maritime seizure of liquid cocaine occurred April 25 when the *Davis* located the fishing vessel *Emperador* from Ecuador in the Eastern Pacific. A Coast Guard law enforcement team boarded the *Emperador* and located 3,850 gallons of liquid cocaine. Each gallon of the liquid is the equivalent of 1.3 kilograms of processed cocaine. The Coast Guard boarding team detained the 17 crewmembers of the vessel. Sixteen of the crewmembers were from Ecuador, and one of the crewmembers was Colombian. The Coast Guard boarding team and crew of the *Davis* transported the vessel to Guayaquil, Ecuador, for further examination by officials from the Drug Enforcement Administration and Ecuadorian authorities. The majority of the liquid cocaine, 3,600 gallons, was turned over to Ecuadorian authorities for destruction.[1]

Rodney M. Davis was again underway in late spring, 2008. In the course of conducting workups for a fall deployment, the *Davis* was ordered to participate in RIMPAC 2008 off Hawaii. While docked in Pearl Harbor prior to the exercise, an unusual helicopter detachment embarked the *Davis*. For the first time in 10 years, USS *Kitty Hawk* (CV-63) was in Hawaii. She had been the Navy's only forward deployed aircraft carrier until that spring, and she was on her way to San Diego to crossdeck Carrier Air Wing Five to USS *George Washington* (CVN-73) prior to her decommissioning. Onboard *Kitty Hawk* was a detachment from HS-14 out of NAF Atsugi, Japan. The detachment went underway with RMD for the entire exercise, providing a force multiplying ASW capability to a ship that was soon surrounded by "enemy" submarines during the exercise. The RMD/HS-14 Team performed flawlessly, easily allowing her to claim the title of "most deadly" ASW ship in the exercise task group.

2008-2009 Deployment

While on patrol in the Eastern Pacific Ocean, units assigned to the U.S. Navy's 4th Fleet and the U.S. Coast Guard intercepted a fishing vessel carrying more than 4 metric tons of cocaine, December 5. The combined team of USS *Rodney M. Davis* (FFG 60), with embarked Helicopter Anti-Submarine Squadron Light (HSL-43) Det. 2, and U.S. Coast Guard Law Enforcement Detachment (LEDET) 106 intercepted the fishing vessel in an early morning interdiction, capturing nine suspected narcotics smugglers and the large cargo of cocaine with an estimated import value of $90 million. A search of the vessel revealed the large amount of cocaine. The narcotics were seized under the authority of the US Navy and the Coast Guard LEDET. The coordinated actions of the U.S. Navy, U.S. Coast Guard and Joint Interagency Task Force-South (JIATF-S) were instrumental to the successful interdiction of narcotics.

Rodney M. Davis, homeported in Everett, Wash., returned from its 6 month CNT deployment on April 21st 2009 during which it was operating in Latin America under the operational control of U.S. Naval Forces Southern Command (NAVSO) and U.S. 4th Fleet, conducting counter illicit trafficking operations in support of JIATF-South, U.S. law enforcement and U.S. and participating nations' drug control policy.

Rodney M. Davis is also supporting the U.S. Maritime Strategy by conducting theater security cooperation (TSC) events in the Caribbean and Latin America. TSC encompasses a robust strategy that includes military-to-military exchanges, multi-national exercises and training, diplomatic port visits, community relations activities and Project

Handclasp distributions. [2]

References

[1] COAST GUARD, NAVY TO OFFLOAD 9,000 POUNDS OF COCAINE; 250 GALLONS OF LIQUID COCAINE (http://www.piersystem.com/go/doc/586/177337/&printerfriendly=1)

[2] USS Rodney M. Davis Intercepts 4.5 Metric Tons of Cocaine (http://www.globalsecurity.org/military/library/news/2008/12/mil-081209-nns01.htm=2)

This article includes information collected from the Naval Vessel Register, which, as a U.S. government publication, is in the public domain. The entry can be found here (http://www.nvr.navy.mil/nvrships/details/FFG60.htm).

External links

- USS *Rodney M. Davis* official website (http://www.davis.navy.mil/)
- navsource.org: USS *Rodney M. Davis* (http://www.navsource.org/archives/07/0760.htm)
- navysite.de: USS *Rodney M. Davis* (http://www.navysite.de/ffg/FFG60.HTM)
- MaritimeQuest USS Rodney M. Davis FFG-60 pages (http://www.maritimequest.com/warship_directory/us_navy_pages/frigates/pages/rodney_m_davis_ffg60_page_1.htm)

USS Ingraham (FFG-61)

The USS *Ingraham* in 2008

Career (US)	
Namesake:	Captain Duncan Ingraham
Builder:	→ Todd Pacific Shipyards, San Pedro, California
Laid down:	30 March 1987
Launched:	25 June 1988
Commissioned:	5 August 1989
Homeport:	NS Everett, Washington
Motto:	Heritage of Gallantry
Status:	Active in service as of 2009
Badge:	
General characteristics	
Class and type:	→ *Oliver Hazard Perry*-class → frigate
Displacement:	4,100 tons (4,165 t) full load
Length:	453 ft (138.1 m), overall
Beam:	45 ft (13.7 m)
Draft:	22 ft (6.7 m)
Propulsion:	2 × → General Electric LM2500-30 gas turbines generating 41,000 shp (31 MW) through a single shaft and controllable-pitch propeller
Speed:	29+ knots (54+ km/h)
Range:	5,000 nm (9,300 km) at 18 knots (33 km/h)
Complement:	15 officers and 190 enlisted, plus → SH-60 LAMPS detachment of roughly six officer pilots and 15 enlisted men

Armament:	1 ×OTO Melara Mk 75 76 mm/62 caliber naval gun 2 × Mk 32 triple-tube (324 mm) launchers for → Mark 46 torpedoes 1 × Vulcan → Phalanx CIWS 4 × .50-cal (12.7 mm) machine guns.
Aircraft carried:	2 × → SH-60 LAMPS III helicopters
Nickname:	"The Ham" or The Mighty "I"

The **USS *Ingraham* (FFG-61)**, the last American → *Oliver Hazard Perry*-class → frigate to be built, was the fourth ship of the United States Navy to be named for Captain Duncan Ingraham (1802–1891).

The USS *Ingraham* was laid down on 30 March 1987 at the → Todd Pacific Shipyards Co., Los Angeles Division, San Pedro, California. She was launched on 25 June 1988.

As of September 2009, *Ingraham* is commanded by CDR Matthew Ovios, USN, is homeported at NS Everett, Washington, and is assigned to Destroyer Squadron 9.[1]

On 6 January 2008, the destroyer USS *Hopper*, the guided-missile cruiser USS *Port Royal*, and the frigate USS *Ingraham* were entering the Persian Gulf through the Strait of Hormuz when five Iranian motor boats approached them at high speed and in a reportedly threatening manner. The American ships had been in the Arabian Sea searching for a sailor who had been missing from the USS *Hopper* for one day. The U.S. Navy reported that the Iranian boats made "threatening" moves toward the U.S. vessels, coming as close as 200 yards (180 m). The U.S. Navy ships received a radio transmission saying, "I am coming at you. You will explode in a couple of minutes." While the American ships prepared to open fire, the Iranians abruptly turned away, the U.S. Navy officials said. Before leaving, the Iranians dropped white boxes into the water in front of the American ships. The American ships did not investigate the boxes. Officials from the two countries differed on their assessments of the severity of the incident. The Iranians claimed that they were conducting normal maneuvers, whereas American officials claimed that an imminent danger to American naval vessels existed.[2]

On 29 September 2009, the *Ingraham* was sent to American Samoa to assist in the recovery efforts following the 2009 Samoa earthquake.[3]

See also

- United States-Iran relations

References

[1] " CO's Bio (http://www.ingraham.navy.mil/site pages/CO.aspx)". *United States Navy*. . Retrieved 2009-18-09.

[2] " Iranian boats 'harass' U.S. Navy, officials say (http://www.cnn.com/2008/WORLD/meast/01/07/iran.us.navy/index.html)". *CNN*. 2008-01-07. . Retrieved 2008-01-07.

[3] " Hawaii Guard, Navy bound for American Samoa (http://www.navytimes.com/news/2009/09/guard_samoa_093009w/)". Navy Times. 2009-10-01. . Retrieved 2009-10-01.

External links

- USS *Ingraham* official website (http://www.ingraham.navy.mil/)
- navsource.org: USS *Ingraham* (http://www.navsource.org/archives/07/0761.htm)
- navysite.de: USS *Ingraham* (http://www.navysite.de/ffg/FFG61.HTM)
- MaritimeQuest USS Ingraham FFG-61 pages (http://www.maritimequest.com/warship_directory/us_navy_pages/frigates/pages/ingraham_ffg61_page_1.htm)
- Video of January 2008 incident in the Straight of Hormuz (http://www.defenselink.mil/dodcmsshare/briefingslide/320/080107-D-6570C-001.wmv)

Construction Sites

Bath Iron Works

Bath Iron Works (BIW) is a major American shipyard located on the Kennebec River in Bath, Maine. Since its founding in 1884 (as Bath Iron Works, Limited), BIW has built private, commercial and military vessels, most of which have been ordered by the United States Navy. The shipyard has built and sometimes designed battleships, → frigates, cruisers and destroyers, including the *Arleigh Burke* class, which are among the world's most advanced surface warships.

Bath Iron Works from NAS Brunswick photo gallery

Since 1995, Bath Iron Works has been a subsidiary of General Dynamics, the fifth-largest defense contractor in the world (as of 2008). During World War II, ships built at BIW were considered to be of superior toughness, giving rise to the phrase *"Bath-built is best-built."* [1]

History

Bath Iron Works was incorporated in 1884 by General Thomas W. Hyde, a native of Bath who served in the American Civil War. After the war, Hyde bought a local shop that helped make windlasses and other iron hardware for the wooden ships built in Bath's many shipyards. He expanded the business by improving its practices, entering new markets, and acquiring other local businesses.

By 1882, Hyde Windlass eyeing the new and growing business of iron shipbuilding; two years later, it incorporated as Bath Iron Works. On February 28, 1890, BIW won its first contract for complete vessels, two iron gunboats for the U.S. Navy. The *Machias*, one of these 190-foot (58 m) gunboats, was the first ship launched by the company. (Historian Snow (see "Further Reading") says the gunboat was commanded during World War I by Chester Nimitz, an assertion that is not supported by Nimitz's biographers.)

In 1892, the yard won its first commercial contract for a steel vessel, the 2,500-ton steel passenger steamer *City of Lowell*. In the 1890s, the company built several yachts for wealthy sailors.

In 1899, General Hyde, suffering from the Bright's Disease that would kill him later that year, resigned from management of the shipyard, leaving his sons Edward and John in charge. That year the shipyard began construction of the *Georgia*, the only battleship to be built in Bath. The ship dominated the yard for five years until its launching in 1904, and was at times the only ship under construction. The yard faced numerous challenges because of the weight of armor and weapons. In sea trials, the *Georgia* averaged 19.26 knots (35.67 km/h) for four hours, making her the fastest ship in her class and the fastest battleship in the Navy.

The company continued to rely on Navy contracts, which provided 86% of the value of new contracts between 1905 and 1917. The yard also produced fishing trawlers, freighters, and yachts throughout the first half of the century.

At peak production during World War II (1943–1944), the shipyard launched a destroyer every 17 days.

In 1981, Falcon Transport ordered two tankers, the last commercial vessels built by BIW.

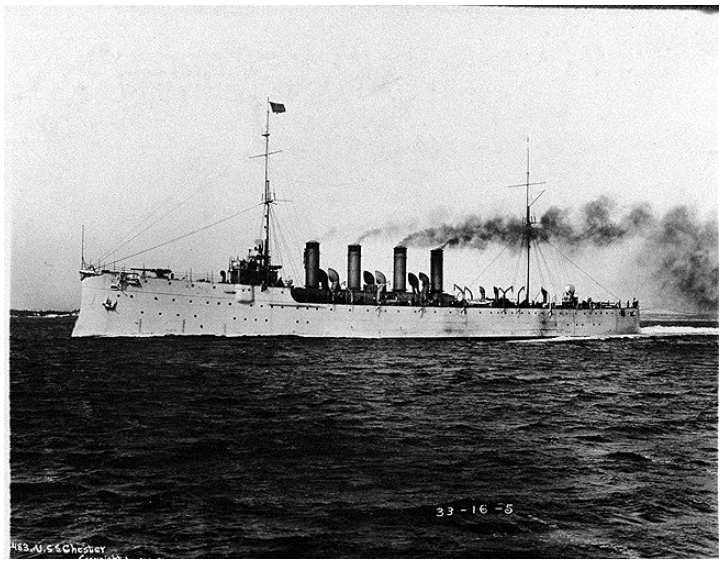
MV *Mighty Servant 2* carrying mine-damaged *Roberts* on 31 July 1988

In 1988, the → USS *Samuel B. Roberts* (FFG-58), commissioned two years earlier at Bath, survived a mine explosion that tore a hole in its engine room and flooded two compartments. Over the next two years, BIW repaired the *Roberts* in unique fashion. The guided missile frigate was towed to the company's dry dock in Portland, Maine, and put up on blocks, where its damaged engine room was cut out of the ship. Meanwhile, workers in Bath built a 315-ton replacement. When it was ready, the module was floated south to Portland, placed on the dry dock, slid into place under the *Roberts,* jacked up, and welded into place.[2] By surviving a hit that Naval Sea Systems Command engineers thought should have sunk her, the *Roberts* validated the penny-pinching design of the → *Oliver Hazard Perry* class, the U.S. Navy's largest post-WWII class until the *Burkes* ; and validated the Navy's against-the-odds decision to have picked BIW to design it.

In 2001, BIW wrapped up a four-year effort to build an enormous concrete platform, the Land Level Transfer Facility, for final assembly of its ships. Instead of being built on a sloping way so that they could slide into the Kennebec at launch, hulls were henceforth moved by rail from the platform horizontally onto a moveable dry dock. This greatly reduced the work involved in building and launching the ships.[3] The 750-foot, 28,000-ton dry dock was built by China's Jiangdu Yuchai Shipbuilding Company for $27 million.[4]

Notable ships built

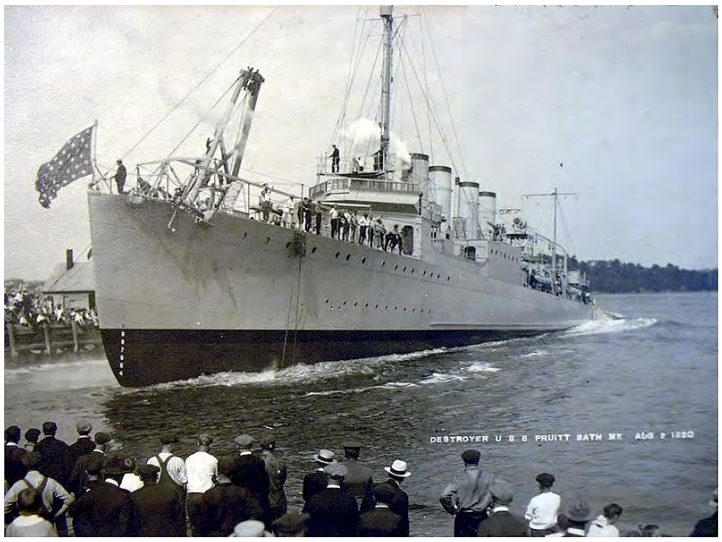
- Lightvessels
  - Nantucket Lightship 66
  - Nantucket Lightship 106
- *Virginia*-class battleship
  - USS *Georgia* (BB-15), launched in 1904
- Chester class cruiser
  - USS *Chester* (CL-1) World War I
- Smith class destroyers
  - USS *Flusser* (DD-20) World War I
  - USS *Reid* (DD-21) World War I
- Paulding class destroyers
  - USS *Paulding* (DD-22) World War I - Rum Patrol
  - USS *Drayton* (DD-23) World War I
  - USS *Trippe* (DD-33) World War I - Rum Patrol



USS Chester was the first United States cruiser of the numbering series used through the first half of the 20th century.

- USS *Jouett* (DD-41) World War I - Rum Patrol
- USS *Jenkins* (DD-42) World War I

- Cassin class destroyers
  - USS *Cassin* (DD-43) World War I - Rum Patrol
  - USS *Cummings* (DD-44) World War I - Rum Patrol
- O'Brien class destroyer
  - USS *McDougal* (DD-54) World War I - Rum Patrol
- Tucker class destroyer
  - USS *Wadsworth* (DD-60) World War I
- Sampson class destroyers
  - USS *Davis* (DD-65) World War I - Rum Patrol
  - USS *Allen* (DD-66)[5] World War I - Attack on Pearl Harbor
- Caldwell class destroyer
  - USS *Manley* (DD-74)[6] World War I - Guadalcanal Campaign - Operation Flintlock - Battle of Saipan - Philippines campaign (1944-45)
- Wickes class destroyers
  - USS *Wickes* (DD-75)[7] World War I - Destroyers for Bases Agreement
  - USS *Philip* (DD-76)[7] World War I - Destroyers for Bases Agreement
  - USS *Woolsey* (DD-77)[7] World War I
  - USS *Evans* (DD-78)[7] Destroyers for Bases Agreement
  - USS *Buchanan* (DD-131)[7] Destroyers for Bases Agreement - St. Nazaire Raid
  - USS *Aaron Ward* (DD-132)[7] Destroyers for Bases Agreement
  - USS *Hale* (DD-133)[7] Destroyers for Bases Agreement
  - USS *Crowninshield* (DD-134)[7] Destroyers for Bases Agreement
- Clemson class destroyers
  - USS *Preble* (DD-345)[8] Attack on Pearl Harbor - Guadalcanal Campaign
  - USS *Sicard* (DD-346)[8] Attack on Pearl Harbor - Battle of Empress Augusta Bay
  - USS *Pruitt* (DD-347)[8] Attack on Pearl Harbor



The last of the "four-stack" destroyers, USS *Pruitt*, being launched from Bath Iron Works in 1920.


Two of the seven Bath Iron Works destroyers transferred to the Royal Navy in the Destroyers for Bases Agreement. The outboard ship made the St. Nazaire Raid.

- Thetis class patrol boat
  - USCGC *Aurora* (WPC-103)[9]
  - USCGC *Calypso* (WPC-104)[9]
  - USCGC *Daphne* (WPC-106)[10]
  - USCGC *Hermes* (WPC-109)[10]
  - USCGC *Icarus* (WPC-110)[10] sank *U-352*
  - USCGC *Perseus* (WPC-114)[10]
  - USCGC *Thetis* (WPC-115)[10] sank *U-157*
- Farragut class destroyer (1934)
  - USS *Dewey* (DD-349)[11] Attack on Pearl Harbor - Battle of the Coral Sea[12] - Battle of Midway - Guadalcanal Campaign - Battle of the Eastern Solomons - Battle of the Philippine Sea[13]

USCGC Icarus (WPC-110) delivers prisoners from *U-352* to Charleston Navy Yard on 10 May 1942.

- Mahan class destroyers
  - USS *Drayton* (DD-366)[14] Battle of Tassafaronga[15] Philippines campaign (1944-45)
  - USS *Lamson* (DD-367)[14] Battle of Tassafaronga[15] - Philippines campaign (1944-45) - sunk in test *Able* of Operation Crossroads
- Somers class destroyers
  - USS *Sampson* (DD-394)[14]
  - USS *Davis* (DD-395)[14]
  - USS *Jouett* (DD-396)[14] Invasion of Normandy
- Sims class destroyers
  - USS *Sims* (DD-409)[16] Battle of the Coral Sea[17]
  - USS *Hughes* (DD-410)[16] Battle of Midway[18] - Battle of Santa Cruz[19] - Naval Battle of Guadalcanal[20] - Philippines campaign (1944-45)
- Gleaves class destroyers
  - USS *Gleaves* (DD-423)[16] invasions of Sicily, Italy and Southern France
  - USS *Niblack* (DD-424)[16] invasions of Sicily, Italy and Southern France
  - USS *Livermore* (DD-429)[21] invasions of North Africa and Southern France
  - USS *Eberle* (DD-430)[21] invasions of North Africa and Southern France
  - USS *Woolsey* (DD-437)[21] invasions of North Africa, Sicily and Italy
  - USS *Ludlow* (DD-438)[21] invasions of North Africa, Sicily, Italy and Southern France
  - USS *Emmons* (DD-457)[22] invasions of North Africa, Normandy, Southern France and Okinawa
  - USS *Macomb* (DD-458)[22] invasions of North Africa, Southern France and Okinawa

- Fletcher class destroyers
  - USS *Nicholas* (DD-449)[23] Guadalcanal campaign - Philippines campaign (1944-45) - Korean War - Vietnam War
  - USS *O'Bannon* (DD-450)[23] Naval Battle of Guadalcanal[24] Guadalcanal campaign - Naval Battle of Vella Lavella[25] - Philippines campaign (1944-45) - Korean War - Vietnam War
  - USS *Chevalier* (DD-451)[23] Guadalcanal campaign - Naval Battle of Vella Lavella[25]
  - USS *Strong* (DD-467)[23] Guadalcanal campaign
  - USS *Taylor* (DD-468)[23] Guadalcanal campaign - Philippines campaign (1944-45) - Korean War - Vietnam War
  - USS *De Haven* (DD-469)[23] Guadalcanal campaign
  - USS *Conway* (DD-507)[26] Guadalcanal campaign - Philippines campaign (1944-45) - Korean War
  - USS *Cony* (DD-508)[26] Guadalcanal campaign - Philippines campaign (1944-45) - Battle of Surigao Strait - Korean War
  - USS *Converse* (DD-509)[26] Guadalcanal campaign - Battle of Empress Augusta Bay[27] Battle of Cape St. George[28] - Battle of the Philippine Sea[13] - Philippines campaign (1944-45)
  - USS *Eaton* (DD-510)[26] Guadalcanal campaign - Philippines campaign (1944-45)
  - USS *Foote* (DD-511)[26] Guadalcanal campaign - Battle of Empress Augusta Bay[27] - Philippines campaign (1944-45) - Battle of Okinawa
  - USS *Spence* (DD-512)[26] Guadalcanal campaign - Battle of Empress Augusta Bay[27] - Battle of Cape St. George[28] - Battle of the Philippine Sea[13] - Philippines campaign (1944-45)
  - USS *Terry* (DD-513)[26] Guadalcanal campaign - Battle of the Philippine Sea[13] - Battle of Iwo Jima
  - USS *Thatcher* (DD-514)[26] Guadalcanal campaign - Battle of Empress Augusta Bay[27] - Battle of the Philippine Sea[13] - Philippines campaign (1944-45) - Battle of Okinawa
  - USS *Anthony* (DD-515)[26] Guadalcanal campaign - Battle of the Philippine Sea[13] - Battle of Okinawa
  - USS *Wadsworth* (DD-516)[26] Guadalcanal campaign - Battle of the Philippine Sea[13] - Philippines campaign (1944-45) - Battle of Okinawa
  - USS *Walker* (DD-517)[26] Philippines campaign (1944-45) - Battle of Okinawa - Korean War - Vietnam War
  - USS *Abbot* (DD-629)[29] Philippines campaign (1944-45)
  - USS *Braine* (DD-630)[29] Battle of the Philippine Sea[13] - Philippines campaign (1944-45) - Battle of Okinawa
  - USS *Erben* (DD-631)[29] Philippines campaign (1944-45) - Battle of Okinawa - Korean War
  - USS *Hale* (DD-642)[29] Philippines campaign (1944-45) - Battle of Okinawa
  - USS *Sigourney* (DD-643)[29] Guadalcanal campaign - Philippines campaign (1944-45) - Battle of Surigao Strait
  - USS *Stembel* (DD-644)[29] Philippines campaign (1944-45) - Battle of Okinawa - Korean War
  - USS *Caperton* (DD-650)[29] Battle of the Philippine Sea[13] - Philippines campaign (1944-45)
  - USS *Cogswell* (DD-651)[29] Battle of the Philippine Sea[13] - Philippines campaign (1944-45) - Vietnam War
  - USS *Ingersoll* (DD-652)[29] Philippines campaign (1944-45)[13] - Vietnam War
  - USS *Knapp* (DD-653)[29] Battle of the Philippine Sea[13] - Philippines campaign (1944-45)

Nicholas holds the United States Navy record for battle stars with 16 from World War II, 5 from the Korean War and 9 from the Vietnam War

- USS *Remey* (DD-688)[30] Battle of Saipan - Philippines campaign (1944-45) - Battle of Surigao Strait - Battle of Okinawa
- USS *Wadleigh* (DD-689)[30] Battle of Saipan
- USS *Norman Scott* (DD-690)[30] Battle of Saipan
- USS *Mertz* (DD-691)[30] Philippines campaign (1944-45)

- Allen M. Sumner class destroyers
  - USS *Barton* (DD-722)[31] Invasion of Normandy - Philippines campaign (1944-45) - Korean War
  - USS *Walke* (DD-723)[31] Invasion of Normandy - Philippines campaign (1944-45) - Battle of Okinawa - Korean War - Vietnam War
  - USS *Laffey* (DD-724)[31] Invasion of Normandy - Philippines campaign (1944-45) - Battle of Okinawa - Korean War - preserved National Historic Landmark in Charleston, South Carolina
  - USS *O'Brien* (DD-725)[31] Invasion of Normandy - Philippines campaign (1944-45) - Korean War - Vietnam War
  - USS *Meredith* (DD-726)[31] Invasion of Normandy
  - USS *De Haven* (DD-727)[31] Philippines campaign (1944-45) - Battle of Okinawa - Korean War
  - USS *Mansfield* (DD-728)[31] Philippines campaign (1944-45) - Korean War - Vietnam War
  - USS *Lyman K. Swenson* (DD-729)[31] Philippines campaign (1944-45) - Battle of Okinawa - Korean War - Vietnam War
  - USS *Collett* (DD-730)[31] Philippines campaign (1944-45) - Korean War
  - USS *Maddox* (DD-731)[31] Battle of Okinawa - Korean War - Gulf of Tonkin Incident - Vietnam War
  - USS *Hyman* (DD-732)[31] Battle of Okinawa - Korean War
  - USS *Mannert L. Abele* (DD-733)[31] Battle of Okinawa
  - USS *Purdy* (DD-734)[31] Battle of Okinawa - Korean War
  - USS *Robert H. Smith* (DM-23)[8] Battle of Okinawa
  - USS *Thomas E. Fraser* (DM-24)[8] Battle of Okinawa
  - USS *Shannon* (DM-25)[8] Battle of Okinawa
  - USS *Harry F. Bauer* (DM-26)[8] Battle of Okinawa
  - USS *Adams* (DM-27)[8] Battle of Okinawa
  - USS *Tolman* (DM-28)[8] Battle of Okinawa
  - USS *Drexler* (DD-741)[31] Battle of Okinawa

Maddox fires upon three P-4 torpedo boats during the Gulf of Tonkin Incident

Agerholm launched an ASROC anti-submarine rocket armed with a nuclear depth bomb during the Swordfish test of 1962

- Gearing class destroyers
  - USS *Frank Knox* (DD-742)[32] World War II - Korean War - Vietnam War
  - USS *Southerland* (DD-743)[32] World War II - Korean War - Vietnam War
  - USS *Chevalier* (DD-805)[33] Korean War
  - USS *Higbee* (DD-806)[33] World War II - Korean War - Vietnam War - Battle of Dong Hoi
  - USS *Benner* (DD-807)[33] World War II - Vietnam War
  - USS *Dennis J. Buckley* (DD-808)[33] Vietnam War
  - USS *Agerholm* (DD-826)[33] Korean War - Vietnam War
  - USS *Robert A. Owens* (DD-827)[33]
  - USS *Timmerman* (DD-828)[33] (Experimental ship completed with aluminum superstructure and high-horsepower engines)
  - USS *Myles C. Fox* (DD-829)[33] Vietnam War
  - USS *Everett F. Larson* (DD-830)[33] Vietnam War
  - USS *Goodrich* (DD-831)[33]
  - USS *Hanson* (DD-832)[33] Korean War - Vietnam War
  - USS *Herbert J. Thomas* (DD-833)[33] Korean War - Vietnam War
  - USS *Turner* (DD-834)[33]
  - USS *Charles P. Cecil* (DD-835)[33] Vietnam War
  - USS *George K. MacKenzie* (DD-836)[33] Korean War - Vietnam War
  - USS *Sarsfield* (DD-837)[33] Vietnam War
  - USS *Ernest G. Small* (DD-838)[33] Korean War
  - USS *Power* (DD-839)[33] Vietnam War
  - USS *Glennon* (DD-840)[33]
  - USS *Noa* (DD-841)[33] Recovered astronaut John Glenn in Friendship 7 on 20 February 1962
  - USS *Fiske* (DD-842)[33] Korean War - Vietnam War
  - USS *Warrington* (DD-843)[33]
  - USS *Perry* (DD-844)[33] Vietnam War
  - USS *Bausell* (DD-845)[33] Korean War - Vietnam War
  - USS *Ozbourn* (DD-846)[33] Korean War - Vietnam War
  - USS *Robert L. Wilson* (DD-847)[33] Vietnam War
  - USS *Witek* (DD-848)[34] (no overseas deployments - used exclusively for ASW research)
  - USS *Richard E. Kraus* (DD-849)[34] Vietnam War
- Dealey class destroyer escorts
  - USS *Dealey* (DE-1006)[35]
  - USS *Cromwell* (DE-1014)[35]
  - USS *Hammerberg* (DE-1015)[35]

- Mitscher class destroyers
  - USS *Mitscher* (DL-2)[36]
  - USS *John S. McCain* (DL-3)[36] Vietnam War
- Forrest Sherman class destroyers
  - USS *Forrest Sherman* (DD-931)[37]
  - USS *John Paul Jones* (DD-932)[37]
  - USS *Barry* (DD-933)[37] Vietnam War
  - USS *Manley* (DD-940)[37] Vietnam War
  - USS *Dupont* (DD-941)[37]
  - USS *Bigelow* (DD-942)[37] Vietnam War
  - USS *Hull* (DD-945)[37] Vietnam War
  - USS *Edson* (DD-946)[37] Vietnam War
  - USS *Somers* (DD-947)[37] Vietnam War
- Charles F. Adams class destroyers
  - USS *Charles F. Adams* (DDG-2)[38]
  - USS *John King* (DDG-3)[38]
  - USS *Sampson* (DDG-10)[38]
  - USS *Sellers* (DDG-11)[38]
- Farragut class destroyers
  - USS *Dewey* (DDG-45)[39]
  - USS *Preble* (DDG-46)[39] Vietnam War
- Leahy class cruisers
  - USS *Leahy* (CG-16)[40]
  - USS *Harry E. Yarnell* (CG-17)[40]
  - USS *Worden* (CG-18)[40] Vietnam War
- Belknap class cruisers
  - USS *Belknap* (CG-26)[41]
  - USS *Josephus Daniels* (CG-27)[41]
  - USS *Wainwright* (CG-28)[41] Vietnam War
  - USS *William H. Standley* (CG-32)[41] Vietnam War
  - USS *Biddle* (CG-34)[41] Vietnam War
- Garcia class frigate
  - USS *Glover* (FF-1098)[42]
- Brooke class frigates
  - USS *Talbot* (FFG-4)[43]
  - USS *Richard L. Page* (FFG-5)[43]
  - USS *Julius A. Furer* (FFG-6)[43]
- → *Oliver Hazard Perry*-class → frigates
  - → USS *Oliver Hazard Perry* (FFG-7)[44]
  - → USS *McInerney* (FFG-8)[44]

The second Cold War destroyer built by Bath Iron Works was named for the grandfather of Republican 2008 presidential candidate John S. McCain III.

- → USS *Clark* (FFG-11)[44]
- → USS *Samuel Eliot Morison* (FFG-13)[44]
- → USS *Estocin* (FFG-15)[44]
- → USS *Clifton Sprague* (FFG-16)[44]
- → USS *Flatley* (FFG-21)[44]
- → USS *Jack Williams* (FFG-24)[44]
- → USS *Gallery* (FFG-26)[44]
- → USS *Stephen W. Groves* (FFG-29)[44]
- → USS *John L. Hall* (FFG-32)[44]
- → USS *Aubrey Fitch* (FFG-34)[44]
- → USS *Underwood* (FFG-36)[44]
- → USS *Doyle* (FFG-39)[44]
- → USS *Klakring* (FFG-42)[44]
- USS *Dewert* (FFG-45)[44]
- → USS *Nicholas* (FFG-47)[44]
- → USS *Robert G. Bradley* (FFG-49)[44]
- → USS *Taylor* (FFG-50)
- → USS *Hawes* (FFG-53)
- → USS *Elrod* (FFG-55)
- → USS *Simpson* (FFG-56), launched August 31,1984. One of four U.S. Navy ships in commission to have sunk an enemy vessel with shipboard weaponry, the others being the USS *Constitution*, USS *Porter* (DDG-78), and USS *Carter Hall* (LSD-50),
- → USS *Samuel B. Roberts* (FFG-58), launched in 1984 and repaired after being punctured by a mine in 1988
- → USS *Kauffman* (FFG-59)

- *Arleigh Burke*-class destroyers
  - USS *Arleigh Burke* (DDG-51), commissioned July 4, 1991.
  - USS *John Paul Jones* (DDG-53)
  - USS *Curtis Wilbur* (DDG-54)
  - USS *John S McCain* (DDG-56)
  - USS *Laboon* (DDG-58)
  - USS *Paul Hamilton* (DDG-60)
  - USS *Fitzgerald* (DDG-62)
  - USS *Carney* (DDG-64)
  - USS *Gonzalez* (DDG-66)
  - USS *The Sullivans* (DDG-68)
  - USS *Hopper* (DDG-70)
  - USS *Mahan* (DDG-72)
  - USS *Decatur* (DDG-73)
  - USS *Donald Cook* (DDG-75)
  - USS *Higgins* (DDG-76)
  - USS *O'Kane* (DDG-77)
  - USS *Oscar Austin* (DDG-79)
  - USS *Winston S Churchill* (DDG-81)
  - USS *Howard* (DDG-83)
  - USS *McCampbell* (DDG-85)
  - USS *Mason* (DDG-87)
  - USS *Chafee* (DDG-90)

  - USS *Momsen* (DDG-92)
  - USS *Nitze* (DDG-94)
  - USS *Bainbridge* (DDG-96), launched in 2005
  - USS *Farragut* (DDG-99)
  - USS *Gridley* (DDG-101), launched in 2006
  - USS *Sampson* (DDG-102)
  - USS *Sterett* (DDG-104)
  - USS *Stockdale* (DDG-106)
  - USS *Wayne E Meyer* (DDG-108)
- *Zumwalt*-class destroyers
  - USS *Zumwalt* (DDG-1000)

External links

- Bath Iron Works website [45]
- USS *Samuel B. Roberts* (FFG-58) under repair at BIW's Portland dry dock [46]

Geographical coordinates: 43°54′16″N 69°48′53″W

Further reading

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- Peniston, Bradley (2006). *No Higher Honor: Saving the USS Samuel B. Roberts in the Persian Gulf* [66]. Annapolis: Naval Institute Press. ISBN 1-59114-661-5. (Describes the construction of a → *Perry*-class guided missile frigate, the training of its precommissioning crew at BIW, and the complex repair job that returned it to duty.)
- Sanders, Michael S. (1999). *The Yard: Building a Destroyer at the Bath Iron Works*. New York: HarperCollins. ISBN 0-06-019246-1. (Describes the construction of USS Donald Cook (DDG-75) at BIW.)
- Snow, Ralph L. (1987). *Bath Iron Works: The First Hundred Years*. Bath, Maine: Maine Maritime Museum. ISBN 0-9619449-0-0. (The definitive work on BIW from 1884-1987.)
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References

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[2] http://www.navybook.com/nohigherhonor/pic-ffg58repair.shtml No Higher Honor: FFG 58 Repair
[3] http://www.gdbiw.com/company_overview/history/default.htm
[4] " Bath Iron Works picks Chinese firm (http://www.highbeam.com/doc/1P1-17538952.html)". United Press International. 1998-09-14. . Retrieved 2008-10-18.
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[7] Fahey, James C. *The Ships and Aircraft of the United States Fleet* Ships and Aircraft (1939) p.17
[8] Silverstone, Paul H. *U.S. Warships of World War II* Doubleday & Company (1968) p.212
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[10] Silverstone, Paul H. *U.S. Warships of World War II* Doubleday & Company (1968) p.383
[11] Silverstone, Paul H. *U.S. Warships of World War II* Doubleday & Company (1968) p.114
[12] Oftsie, R.A., RADM USN *The Campaigns of the Pacific War* United States Government Printing Office (1946) p.55
[13] Tillman, Barrett *Clash of the Carriers* (2005) ISBN 978-0-451-21965-5 pp.301-306
[14] Silverstone, Paul H. *U.S. Warships of World War II* Doubleday & Company (1968) p.118
[15] Oftsie, R.A., RADM USN *The Campaigns of the Pacific War* United States Government Printing Office (1946) p.140
[16] Silverstone, Paul H. *U.S. Warships of World War II* Doubleday & Company (1968) p.126

[17] Oftsie, R.A., RADM USN *The Campaigns of the Pacific War* United States Government Printing Office (1946) p.54
[18] Oftsie, R.A., RADM USN *The Campaigns of the Pacific War* United States Government Printing Office (1946) p.74
[19] Oftsie, R.A., RADM USN *The Campaigns of the Pacific War* United States Government Printing Office (1946) p.122
[20] Oftsie, R.A., RADM USN *The Campaigns of the Pacific War* United States Government Printing Office (1946) p.128
[21] Silverstone, Paul H. *U.S. Warships of World War II* Doubleday & Company (1968) p.129
[22] Silverstone, Paul H. *U.S. Warships of World War II* Doubleday & Company (1968) p.132
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[35] Blackman, Raymond V. B. *Jane's Fighting Ships* (1970/71) p.458
[36] Blackman, Raymond V. B. *Jane's Fighting Ships* (1970/71) p.435
[37] Blackman, Raymond V. B. *Jane's Fighting Ships* (1970/71) p.439
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[41] Blackman, Raymond V. B. *Jane's Fighting Ships* (1970/71) p.429
[42] Blackman, Raymond V. B. *Jane's Fighting Ships* (1970/71) p.456
[43] Blackman, Raymond V. B. *Jane's Fighting Ships* (1970/71) p.452
[44] Clement, Janet Ann, LT USNR "The FFG-7 Program: A Shipbuilding Status Report" *United States Naval Institute Proceedings* (June 1981) p.109
[45] http://www.gdbiw.com/
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Todd Pacific Shipyards

Todd Pacific Shipyards Corporation was founded in 1916 as the William H. Todd Corporation through the merger of Robins Dry Dock & Repair Company of Erie Basin, Brooklyn, New York, the Tietjen & Long Dry Dock Company of Hoboken, New Jersey, and the Seattle Construction & Dry Dock Company. The Seattle shipyard could trace its history back to 1882, when Robert Moran opened a marine repair shop at Yesler's Wharf. This shop became the Moran Brothers Shipyard in 1906 and the Seattle Construction & Dry Dock Company at the end of 1911.

→ USS *Halyburton* (FFG-40) and other ships under construction at Todd Shipyards in Seattle, 1983.

Todd has performed building and maintenance work for, among others, the U.S. and Royal Australian Navies, the United States Coast Guard, and the Washington State Ferries. Its headquarters and operations are on Harbor Island at the mouth of Seattle's Duwamish Waterway.

Todd's shares trade on the New York Stock Exchange under the ticker symbol TOD.

The 105-foot-long hull of Disneyland's Mark Twain Riverboat was built at Todd Shipyards in San Pedro, California in 1955.

Divisions

- Seattle Division, Seattle, Washington. (47°35′10″N 122°21′25″W)
- Los Angeles Division, San Pedro, California. (33°45′11″N 118°16′48″W) Formerly Los Angeles Shipbuilding & Dry Dock Corporation, closed in 1989 following completion of its → Oliver Hazard Perry class frigate contract and after failing to win an Arleigh Burke class destroyer contract.[1] Property is now part of the Port of Los Angeles, and has been completely converted into Berth 100 / West Basin Container Terminal.[2]
- San Francisco Division, Alameda, California. (37°47′N 122°17′W) Opened 1901, by United Engineering Company, later named Bethlehem-Alameda Shipyard, then Todd San Francisco Division, 1949. Now closed.[3] Documented by the Historic American Engineering Record as United Engineering Company Shipyard, survey HAER CA-295 [4].
  - Mostly used as a repair or conversion facility

Master of Ceremonies and Vice President of Todd Pacific Shipyards Corporation, Hans K. Schaefer, speaks during christening and launching ceremonies for the guided missile frigate → USS *Reid* (FFG-30) at the Todd Pacific Shipyards Corp., Los Angeles Division, 1981.

External links

- Todd Pacific Shipyards homepage [5]
- Todd Pacific Shipyards - FAS.org [6]
- Todd Shipyard's Graving Dock Named to Seven to Save List [7]
- Todd Shipyard's Graving Dock preservation efforts [8] - Contains inks to historical background about Todd Shipyards Corporation.

References

[1] GlobalSecurity.org. Todd Los Angeles Division (http://www.globalsecurity.org/military/facility/san-pedro-todd.htm).
[2] Port of Los Angeles. Container Facilities (http://www.portoflosangeles.org/facilities_Container.htm). Shows an aerial view of Berth 100, the former location of Todd - San Pedro.
[3] GlobalSecurity.org. Todd San Francisco Division (http://www.globalsecurity.org/military/facility/alameda-todd.htm).
[4] http://hdl.loc.gov/loc.pnp/hhh.ca3043
[5] http://www.toddpacific.com
[6] http://www.fas.org/man/company/shipyard/todd.htm
[7] http://www.preservenys.org/7S05_toddshipyard.html
[8] http://www.preservenys.org/7S05_toddshipyard_updates.html

Power Plant and Propulsion

General Electric LM2500

An LM2500 on → USS Ford (FFG-54).

The **General Electric LM2500** industrial and marine turboshaft gas turbine is a derivative of GE Aircraft Engines' CF6-6 aircraft engine.

Current versions of the LM2500 deliver 33,600 shaft horsepower (25.1 MW) with a thermal efficiency of 37 percent at ISO conditions. It has been used in various applications such as in U.S. Navy warships (as well as those belonging to other navies), hydrofoils, hovercraft and fast ferries. As of 2004, more than one thousand LM2500 gas turbines have been in service for more than 29 international navies.[1]

Many of the military LM2500 installations place the engine inside a metal container of the same dimensions as a standard 40-foot (12 m) intermodal shipping container - 8 feet (2.4 m) wide, 8.5 feet (2.6 m) tall, and 40 feet (12 m) long. The containerized LM2500s may be designed for easy removal from their ships if the air intake ducting is shaped appropriately.

The LM2500+ is an evolution of the LM2500, delivering up to 40200 shp (30000 kW) or 28.6 MW of electric energy when combined with an electrical generator. Two of such turbo-generators have been installed in the superstructure near the funnel of *Queen Mary 2*, the world's largest transatlantic cruise liner, for additional electric energy when the ship's four diesel-generators are working at maximum capacity or fail. Celebrity Cruises uses two LM2500+ engines in their *Millennium*-class ships in a COGAS cycle.

The LM2500 is license-built in Japan by Ishikawajima-Harima, and in Italy by Avio, and in India by Hindustan Aeronautics Limited.

The LM2500/LM2500+ can often be found as turbine part of CODAG or CODOG propulsion systems or in pairs as powerplants for COGAG systems.

The latest development in the LM2500 family is the LMS100. The LMS100 offers superior value not available in other 80 - 160 MW gas turbines, including high part-power efficiency, cycling capability without impacting maintenance intervals, 10 minute starts, dispatch reliability, turndown and load following capability and low mass emissions.

History

The LM2500 was first used in US Navy warships in the *Spruance* class of destroyers and the related *Kidd* class, which were constructed from 1970. In this configuration it was rated to 21500 shp (16000 kW). This configuration was subsequently used into the 1980s in the → *Oliver Hazard Perry* class frigates, and *Ticonderoga* class cruisers. It was also used by one of People Republic of China's Type 052 Luhu Class Missile Destroyer (Harbin 112) acquired before the embargo.

The LM2500 was uprated to 26500 shp (19800 kW) for the *Arleigh Burke* class destroyers, which were initiated in the 1980s and started to see service in the early 1990s, and the T-AOE-6 class of fast combat tanker.

The current generation was uprated in the late 1990s to over 30000 shp (22000 kW).

A heavy lift lowers the main propulsion module into the hull of USS Bunker Hill (CG-52) during construction at Ingalls Shipbuilding. The module consists of two General Electric LM2500 gas turbine engines and a Westinghouse gear reduction unit.

Related engines

General Electric also offers a larger engine, the LM6000. While similar in configuration, the LM6000 has up to twice the power output of current models of LM2500.

See also

- LM6000
- LMS100
- Rolls-Royce_Trent#MT30

External links

- Official site (GEAE) [2].
- FAS information page on US Navy LM2500 usage [3]

References

[1] "GE Marine to Supply IHI with LM2500 Gas Turbines to Power Japan's 15DDG AEGIS Destroyer" (http://www.geae.com/aboutgeae/presscenter/marine/marine_20040506.html). GE Aviation Press Release. May 6, 2004.

[2] http://www.geae.com/engines/marine/lm2500.html

[3] http://www.fas.org/man/dod-101/sys/ship/eng/lm2500.htm

Azimuth thruster

An **azimuth thruster** is a configuration of ship propellers placed in pods that can be rotated in any horizontal direction, making a rudder unnecessary. These give ships better maneuverability than a fixed propeller and rudder system. Primary advantages are electrical efficiency, better use of ship space, and lower maintenance costs. Ships with azimuth thrusters do not need tugs to dock, though they still require tugs to maneuver in difficult places.

Siemens *Schottel* azimuth thrusters

There are two major variants, based on the location of the motor:

1. Mechanical transmission, where a motor inside the ship is connected to the pod by gearing. The motor may be diesel or diesel-electric. Depending on the shaft arrangement the mechanical azimuth thruster are divided into L-drive and Z-drive. An L-drive thruster has a vertical input shaft and a horizontal output shaft with one right-angle gear. A Z-drive thruster has an horizontal input shaft, vertical shaft in the rotating column and a horizontal output shaft with two right-angle gears.
2. Electrical transmission, where an electric motor is in the pod itself, connected directly to the propeller without gears. The electricity is produced by an onboard engine, usually diesel or gas turbine. Invented in 1955 by Mr. F.W. Pleuger and Mr. F. Busmann (*Pleuger Unterwasserpumpen GmbH*), ABB *Azipod* was the first product using this technology.

Types of mechanical azimuth thrusters

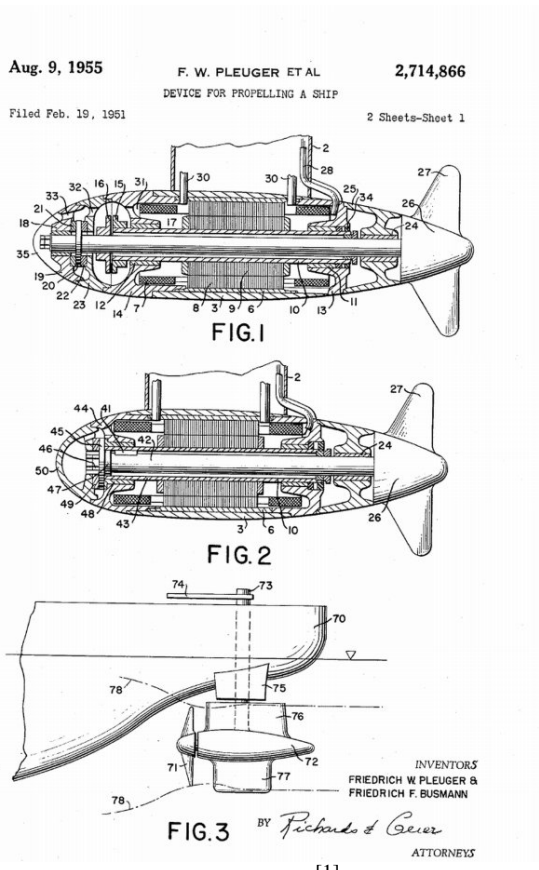
Mechanical azimuth thrusters are available as fixed installed, retractable and underwater-mountable. Mechanical azimuth thrusters are available with fixed pitch propellers (FPP) and controllable pitch propellers (CPP).

1. Fixed installed thrusters are used for tugs, ferries and supply-boats.
2. Retractable thrusters are used as auxiliary propulsion for DP-vessels and take-home propulsion for military vessels.
3. Underwater-mountable thrusters are used as DP-propulsion for very large vessels such as semi-submersible drill rigs.

History

The first azimuth thrusters, using the mechanical Z-drive transmission, were built by Hollming in Finland in the 1960s under the *Aquamaster* brand name.[2] The business was later sold to Rolls-Royce, after the merger of Finnish shipyards into Finnyards.

Later, subsidiaries of ABB, also based in Finland, developed the *Azipod* thruster, with the motor located in the pod itself. This kind of propulsion was first patented in 1955 by Pleuger of Germany.



U.S. Patent 2714866 [1] from 1955

See also

- Azipod
- Pleuger rudder
- The Voith-Schneider marine propulsion system can also quickly change the direction of thrust.

External links

- http://www.oysthrusters.com
- http://www.youtube.com/user/OYSthrusters
- http://www.schottel.de
- *Ulstein Aquamaster azimuth thrusters* [3], Rolls-Royce plc, including videos of operation
- *Propulsion system for LNG Carriers* [4], Google Answers thread, April 2003
- *1990 - World's first podded propulsion system* [5], ABB
- *Azimuth Thrusters* [6], Ship-Technology.com
- *Azimuth Thrusters Types and Configurations* [7], Thrustmaster of Texas
- *Flowserve* [8], L-drive Flowserve Pleuger thruster from flowserve.com
- *Youtube* [9], movie azimuth thruster L-drive from flowserve.com
- http://www.hrp.nl", *hrp.nl*
- http://www.steerprop.com, *Steerprop Azimuth Propulsors*

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[1] http://www.google.com/patents?vid=2714866
[2] Hollming Group - History (http://www.hollming.fi/english/history_business.html)
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[4] http://answers.google.com/answers/threadview?id=186174
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Controllable pitch propeller

A **controllable pitch propeller** (CPP) or **variable pitch propeller** is a special type of propeller with blades that can be rotated around their long axis to change their pitch. If the pitch can be set to negative values, the **reversible propeller** can also create reverse thrust for braking or going backwards without the need of changing the direction of shaft revolutions.

Aircraft

Such propellers are used in propeller aircraft to adapt the propeller to different thrust levels and air speeds so that the propeller blades don't stall, hence degrading the propulsion system's efficiency. Especially for cruising, the engine can operate in its most economical range of rotational speeds. With the exception of going into reverse for braking after touch-down, the pitch is usually controlled automatically without the pilot's intervention. A propeller with a controller that adjusts the blades' pitch so that the rotational speed always stays the same is called a *constant speed propeller*.

The most common type of controllable pitch propeller is hydraulically actuated; it was originally developed by Frank W. Caldwell of the Hamilton Standard Division of the United Aircraft Company. This design led to the award of the Collier Trophy of 1933. [1]

One of a C-130 Hercules' four controllable and reversible pitch propellers

Ships

Controllable pitch propellers (CPP) for marine propulsion systems have been designed to give the highest propulsive efficiency for any speed and load condition. When the vessel is fully loaded with cargo the propulsion required at a given ship speed is much higher than when the vessel is empty. By adjusting the blade pitch, the optimum efficiency can be obtained and fuel can be saved. Also, the controllable pitch propeller has a "vane"-stance, which is useful with combined sailing / motor vessels as this stance gives the least water resistance when not using the propeller (eg when the sails are used instead).

While it is true that a fixed pitch propeller (FPP) can be more efficient than a controllable pitch propeller, it can only be so at one rotational speed and the designed load condition. At that one rotational speed and load, it is able to absorb all the power that the engine can produce. At any other rotational speed, or any other vessel loading, the FPP cannot, either being over pitched or under pitched. A correctly sized controllable pitch propeller can be efficient for a wide range of rotational speeds, since pitch can be adjusted to absorb all the power that the engine is capable of producing at nearly any rotational speed.

A ship's controllable pitch propeller

The CPP also improves maneuverability of a vessel. When maneuvering the vessel the advantage of the CPP is the fast change of propulsion direction. The direction of thrust can be changed without slowing down the propeller and depending on the size of the CPP can be changed in approximately 15 to 40 seconds. The increased maneuverability can eliminate the need for docking tugs while berthing.

A reversing gear or a reversible engine is not necessary anymore, saving money to install and service these components. Depending on the main engine rotational speed and the size of the CPP, a reduction gear may still be required. A CPP does require a hydraulic system to control the position of the blades. A CPP does not produce more or less wear or stress on the propeller shaft or propulsion engine than an FPP. Therefore this will not be an argument to choose between an FPP or a CPP.

Most ships that wouldn't take a CPP are large vessels that make long trips at a constant service speed, for example crude oil tankers or the largest container ships which have so much power that a CPP is not yet designed for them. A CPP can mostly be found on harbor or ocean-going tugs, dredgers, cruise ships, ferries and cargo vessels that sail to ports with limited or no tug assistance.

At the moment the range of CPP goes up to 44000 kW (60,000 hp).

See also

- Document from Wärtsilä [2]

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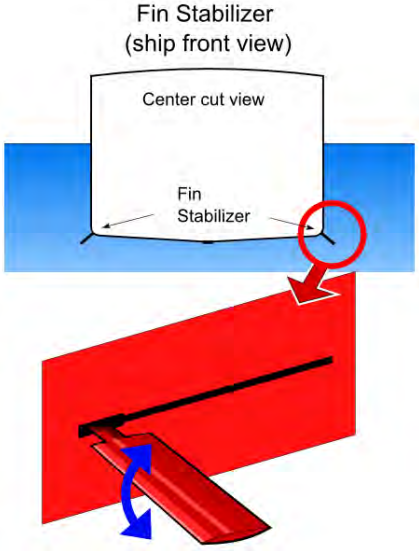
Stabilizer (ship)

This article refers to the nautical term. For other uses, see stabilizer.

Ship **stabilizers** are fins mounted beneath the waterline and emerging laterally. In contemporary vessels, they may be gyroscopically controlled active fins, which have the capacity to change their angle of attack to counteract roll caused by wind or waves acting on the ship.

The bilge keel is an early 20th century predecessor. Although not as effective at reducing roll, bilge keels are cheaper, easier to install, and do not require dedicated internal space inside the hull.

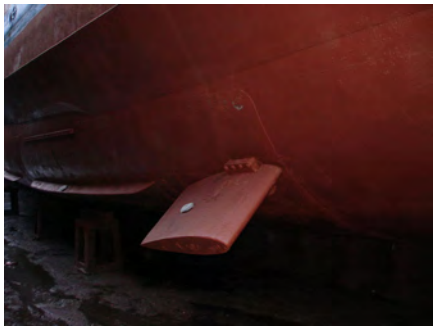


Location and diagram of retractable fin stabilizers on a ship.

External links

- Arcturus Marine [1] - manufacturers of ride control, thrusters, digital stabilizers and integrated hydraulics
- Blohm + Voss Industries [2] - manufacturers of ship stabilizers
- Halcyon International [3] - manufacturers of ship stabilizers including gyro-stabilisers
- Naiad Marine [4] - manufacturers of roll stabilizers, stabilization at anchor systems, interceptors, bow and stern thrusters, integrated hydraulic systems
- Rolls Royce [5] manufacturers of ship stabilizers

- Seakeeper Inc. [6] - manufacture of stabilization products for ships including control moment gyro roll stabilizers
- Ship Dynamics [7] - manufacturers of ship stabilizers inc. first active gyroscopic stabilisers, interceptored foils (patented), control systems
- Sperry Marine [8] - manufacturers of ship stabilizers
- Pinfabb [9] - manufacturers of ship stabilizer control
- Foure Lagadec [10] - manufacturer of ship stabilizers



Photograph of a ship's stabilizer.

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Aircraft

SH-2 Seasprite

SH-2 Seasprite	
	
SH-2F Seasprite of the US Navy	
Role	ASW helicopter
Manufacturer	Kaman Aircraft Corporation
First flight	2 July 1959 (HU2K-1)
Introduction	December 1962
Primary user	United States Navy
Unit cost	$16 million (SH-2F)
Variants	SH-2G Super Seasprite

The **Kaman SH-2 Seasprite** is a ship-based helicopter with anti-submarine, anti-surface threat capability, including over-the-horizon targeting. This aircraft extends and increases shipboard sensor and weapon capabilities against several types of enemy threats, including submarines of all types, surface ships, and patrol craft that may be armed with anti-ship missiles. It was developed for the United States Navy beginning in the late 1950s.

Design and development

A UH-2A on plane guard duty hovers over the USS *Kitty Hawk* in March 1966.

A UH-2C aboard the USS *Hancock* between July 1968 and March 1969

To meet its requirements for a fast, all-weather utility helicopter the US Navy held a competition in 1956.[1] Kaman's K-20 model was selected as the winner.[2] Kaman was awarded a contract for four prototype and 12 production **HU2K-1** helicopters in late 1957.[1] The Kaman design featured four blades on the main rotor and three blades on the tail rotor with a single General Electric T58-GE-8F turboshaft engine. Trials ran for a few years and the helicopter entered service in late 1962.[2]

When the aircraft numbering system was changed in 1962, the HU2K-1 was redesignated the **UH-2A** and the **HU2K-1U** was redesignated **UH-2B**. The UH-2 was primarily deployed aboard aircraft carriers in a Search-and-Rescue (SAR) role. The airframe continued to undergo upgrades, such as the addition of external stores stations. Beginning in 1968, remaining UH-2s were upgraded to use two T58 engines.[3]

The UH-2 was selected to be the airframe for the interim Light Airborne Multi-Purpose System (LAMPS) helicopter in October 1970.[3] LAMPS evolved in the late 1960s from an urgent requirement to develop a manned helicopter that would support a non-aviation ship and serve as its tactical Anti-Submarine Warfare arm. Known as LAMPS Mark I, the advanced sensors, processors, and display capabilities aboard the helicopter enabled ships to extend their situational awareness beyond the line-of-sight limitations that hamper shipboard radars and the short distances for acoustic detection and prosecution of underwater threats associated with hull-mounted sonars. H-2s reconfigured for the LAMPS mission were redesignated **SH-2D**.[3] The first operational SH-2D LAMPS helicopter embarked on the USS Belknap (CG-26) in December 1971.

The full LAMPS I system was equipped on the **SH-2F**. The SH-2F was delivered to the Navy beginning in 1973. This variant had upgraded engines, longer life rotor, and higher take-off weight. In 1981, the Navy ordered 60 production SH-2Fs. Beginning in 1987, 16 SH-2Fs were upgraded with chin mounted Forward Looking Infrared Sensors (FLIR), Chaff (AIRBOC)/Flares, dual rear mounted IR scramblers, and Missile/Mine detecting equipment.[4]

Eventually all but two H-2s then in Navy inventory were remanufactured into SH-2Fs. The final production procurement of the SH-2F was in Fiscal Year 1986. The last six orders for production SH-2Fs were switched to the SH-2G Super Seasprite variant.[4]

Operational history

SH-2Fs were utilized to enforce Operation Ernest Will (July 1987) and later Operation Praying Mantis (April 1988) and Desert Storm (January 1991) in the Persian Gulf region. The added countermeasures and equipment gave the SH-2F's enhanced survivability while taking on more surface related combat tasking in an environment of limited submarine threat. The SH-2F was retired from active service in October 1993, at roughly the same time that the Navy retired and/or sold the last of its (Viet Nam era) Knox Class Frigates that could not accommodate the newly acquired (and larger) SH-60 Sea Hawk.

New Zealand

Prior to receiving SH-2Gs, the RNZN replaced its Westland Wasps with SH-2Fs. RNZN Seasprites have seen service in East Timor. RNZAF also has six Kaman SH-2F Seasprite training helicopters. They are stationed at the RNZAF Ground Training Wing (GTW) at Woodbourne near Blenheim

Variants

YHU2K-1

Four test and evaluation prototypes.[1]

HU2K-1

Utility transport helicopter, powered by a 1,250-shp (932-kW) General Electric T58-GE-8B turboshaft engine. Initial production version. Later redesignated **UH-2A** in 1962. 88 built.[1]

UH-2B

Utility transport helicopter. 102 built.

UH-2C

UH-2A and UH-2B helicopters fitted with two General Electric T58-GE-8B turboshaft engines.[1] One former UH-2A acted as a prototype and was followed by 40 conversions from UH-2A and UH-2B.

NUH-2C

One test and evaluation helicopter. One UH-2C helicopter was equipped to carry and fire, AIM-9 Sidewinder and AIM-7 Sparrow III air-to-air missiles.[1]

NUH-2D

Redesignation of the NUH-1C test and evaluation helicopter.[1]

HH-2C

Search and rescue helicopter, armed with a single Minigun in a chin-mounted turret. Six conversions.[1]

HH-2D

Search and rescue helicopter, without any armament or armor. 67 conversions from UH-2A and UH-2Bs.[1]

SH-2D

Anti-submarine warfare helicopter, 20 conversions from earlier models.[1]

YSH-2E

Two test and evaluation helicopters, fitted with an advanced radar and LAMPS equipment.[1]

SH-2F

Anti-submarine warfare helicopter, powered by two 1,350 shp (1,007 kW) General Electric T58-GE-8F turboshaft engines. Improved version. Conversions from SH-2Ds and earlier models.

YSH-2G

1 SH-2G prototype converted from an SH-2F.

SH-2G Super Seasprite

Anti-submarine warfare helicopter, powered by two 1,723 shp (1,285 kW) General Electric T700-GE-401 turboshaft engines.

Operators

New Zealand

- Royal New Zealand Air Force[5]
  - No. 6 Squadron RNZAF (Naval Support Flight)

United States

- United States Navy (SH-2F retired in 1993)

See SH-2G Super Seasprite for SH-2G operators.

Aircraft on display

- The only remaining U.S. Navy HH-2D, bureau number 149031 / callsign "Copyright 14", is currently on display outside at the American Helicopter Museum & Education Center in West Chester, Pennsylvania.
- An SH-2F, bureau number unknown, is on outside display at the National Museum of Naval Aviation on board Naval Air Station Pensacola, Florida
- An SH-2F is on outside display at the intersection of Tow Way Road and Quentin Roosevelt Blvd aboard Naval Air Station North Island, Coronado, California.
- An SH-2F is preserved in the Royal New Zealand Air Force Museum.
- The cockpit section of an SH-2F, is on display in Hangar Bay 104, Marine Corps Base Hawaii. Home of the U.S. Navy's oldest LAMPS Mk III squadron HSL-37, "THE EASYRIDERS".
- SH-2F, bureau number 151321 is currently on display at the Evergreen Aviation & Space Museum in McMinnville, Oregon.

Specifications

UH-2A

Data from Carrier Aviation Air Power Directory[6]

General characteristics

- **Length:** 52 ft 2 in (15.90 m)
- **Rotor diameter:** 44 ft 0 in (13.41 m)
- **Height:** 13 ft 6 in (4.11 m)
- **Disc area:** 1520.53 sq ft (141.26 sq m)
- **Empty weight:** 6,100 lb (2,127 kg)
- **Max takeoff weight:** 10,200 lb (4,627 kg)
- **Powerplant:** 1× General Electric T58-GE-8B turboshaft, 1,525 shp (1,137 kW)
- **Rotor systems:** 4 blades on main rotor and 3 on tail rotor

Performance

- **Never exceed speed:** 150 knots (278 km/h, 173 mph)
- **Maximum speed:** 141 knots (162 mph, 261 km/h)
- **Cruise speed:** 120 knots (138 mph, 222 km/h)
- **Range:** 582 nmi (670 mi, 1,080 km)
- **Service ceiling:** 17,400 ft (5,305 m)

SH-2F

Data from The Encyclopedia of World Military Aircraft[7]

General characteristics

- **Crew:** 3 (Pilot, Co-pilot/Tactical Coordinator (TACCO), Sensor Operator (SENSO))
- **Length:** 52 ft 7 in (15.9 m)
- **Rotor diameter:** 44 ft 0 in (13.41 m)
- **Height:** 15 ft 6 in (4.72 m)
- **Disc area:** 1520.53 sq ft (141.26 sq m)
- **Empty weight:** 7,040 lb (3,193 kg)
- **Max takeoff weight:** 12,800 lb (5,805 kg)
- **Powerplant:** 2× General Electric T58-GE-8F turboshaft, 1,350 shp (1,007 kW) each
- **Rotor systems:** 4 blades on main rotor and tail rotor

Performance

- **Maximum speed:** 143 knots (165 mph, 265 km/h)
- **Cruise speed:** 130 knots (150 mph, 241 km/h)
- **Range:** 366 nmi (422 mi, 679 km)
- **Service ceiling:** 22,500 ft (6,860 m)
- **Rate of climb:** ft/min (m/s)**Armament**
- **Missiles:** Non-US aircraft carry a variety of guided missiles, including the AGM-65 Maverick (often used in the anti-ship role) and dedicated anti-ship missiles.
- 2 Mk 46 or Mk 50 torpedoes

See also

Related development

- SH-2G Super Seasprite

Comparable aircraft

- → SH-60 Seahawk
- Westland Lynx

Related lists

- List of military aircraft of the United States

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External links

- Kaman Aerospace Seasprite page (manufacturer) [8]
- List of all SH-2 helicopters used by Polish Air Force [9]
- SH-2 Seasprite on Globalsecurity.org [10]
- SH-2G Super Seasprite page on Naval-Technology.com [11]
- SH-2F Seasprite on Naval Officer Ray Trygstad's site [12]
- Kiwi Aircraft Images: Kaman SH-2 Seasprite [13]
- Seasprite Central [14]

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SH-60 Seahawk

SH-60 / MH-60 Seahawk	
	
U.S. Navy SH-60F with external fuel tank.	
Role	Multimission maritime helicopter
Manufacturer	Sikorsky Aircraft
First flight	12 December 1979
Introduced	1984
Status	Active service
Primary user	United States Navy
Produced	1970s–present
Unit cost	USD$28 million (MH-60S)[1]
Developed from	UH-60 Black Hawk
Variants	HH-60 Jayhawk Mitsubishi SH-60

The **Sikorsky SH-60/MH-60 Seahawk** is a twin turboshaft engine, multi-mission United States Navy helicopter based on the airframe of the United States Army UH-60 Black Hawk and a member of the Sikorsky S-70 family. The most significant modification is a hinged tail to reduce its footprint aboard ships.

The U.S. Navy uses the H-60 airframe under the model designations **SH-60B**, **SH-60F**, **HH-60H**, **MH-60R**, and **MH-60S**. Able to deploy aboard any air-capable → frigate, destroyer, cruiser, fast combat support ship, amphibious assault ship, or aircraft carrier, the Seahawk can handle antisubmarine warfare (ASW), undersea warfare (USW), anti-surface warfare (ASUW), naval special warfare (NSW) insertion, search and rescue (SAR), combat search and rescue (CSAR), vertical replenishment (VERTREP), and medical evacuation (MEDEVAC). All Navy H-60s carry either the Lucas Western or Breeze Eastern rescue hoist for SAR/CSAR missions.

Design and development

Origins

During the 1970s the US Navy began looking for new helicopter to replace the Kaman → SH-2 Seasprite.[2] The SH-2 Seasprite was used by the Navy as its platform for the Light Airborne Multi-Purpose System (LAMPS) Mark I avionics suite for the maritime warfare and a secondary search and rescue capability. Advances in sensor and avionic technology lead to LAMPS Mk II suite, but the SH-2 was not large enough to carry the Navy's required equipment. In the mid-1970s the Army was evaluating of the Sikorsky YUH-60 and Boeing-Vertol YUH-61 for its Utility Tactical Transport Aircraft System (UTTAS) competition.[3] The Navy based its requirements on the Army's UTTAS specification to decrease costs from commonality.[2] Sikorsky and Boeing-Vertol submitted proposals for Navy versions of their Army UTTAS helicopters in April 1977 for review. The Navy also looked at helicopters being produced by Bell, Kaman, Westland and MBB, but these were too small for the mission. In early 1978 the Navy selected Sikorsky's S-70B design,[2] which was designated "SH-60B Seahawk".

SH-60B Seahawk

The SH-60B maintained 83% commonality with the UH-60A.[4] The main changes are corrosion protection, more powerful T700 engines, shifting the tail landing gear 13 ft forward, replacing left side door with fuselage structure, and adding two weapon pylons. Other changes included larger fuel cells, an electric blade folding system, folding horizontal stabilators for storage, and adding a 25-tube pneumatic sonobuoy launcher on left side. Shifting the tail landing gear reduced the footprint for shipboard landing.[5]

SH-60B Seahawk.

Five YSH-60B Seahawk LAMPS III prototypes were ordered. The first flight of a YSH-60B occurred on 12 December 1979. The first production version SH-60B achieved its first flight on 11 February 1983. The SH-60B entered operational service in 1984 with first operational deployment in 1985.[3]

The SH-60B LAMPS Mk III is deployed primarily aboard → frigates, destroyers, and cruisers. The primary missions of the SH-60B are surface warfare and anti-submarine warfare.

The SH-60B carries a complex system of sensors including a towed Magnetic Anomaly Detector (MAD) and air-launched sonobuoys. Other sensors include the APS-124 search radar, ALQ-142 ESM system and optional nose-mounted forward looking infrared (FLIR) turret. It carries the → Mk 46, → Mk 50, or Mk 54 torpedo, AGM-114 Hellfire missile, and a single cabin-door-mounted M60D/M240 7.62 mm (0.30 in) machine gun or GAU-16 .50 in (12.7 mm) machine gun.

A standard crew for a SH-60B is one pilot, one ATO/Co-Pilot (Airborne Tactical Officer), and an enlisted aviation systems warfare operator (sensor operator). Operating squadrons are designated Helicopter Anti-submarine Light (HSL).

The SH-60J is a version of the SH-60B for the Japan Maritime Self-Defense Force. The SH-60K is a modified version of the SH-60J. The SH-60J and SH-60K are built under license by Mitsubishi in Japan.[6] [7]

A Seahawk waits above the ground to evacuate a simulated casualty as fellow MARSOC operators bring the Marine on a stretcher.

SH-60F "Oceanhawk"

After the SH-60B entered service, the Navy began development of the SH-60F variant to replace the SH-3 Sea King.[8] Development of this variant began with the award of a contract to Sikorsky in March 1985. An early SH060B was modified to serve as a SH-60F prototype. The company was contracted to produce seven SH-60Fs in January 1986 and the first example flew on 19 March 1987.[9]

The SH-60F serves as the carrier battle group's primary anti-submarine warfare (ASW) and search and rescue (SAR) aircraft. It hunts submarines with the AN/AQS-13F dipping sonar, and carries 14 sonobuoys. The SH-60F carries the Mk 46 torpedo and a choice of cabin-mounted machine guns, including the M60D, M240, and GAU-16 for defense. Standard crew complement is one pilot, one copilot, one enlisted tactical sensor operator (TSO), and one enlisted acoustic sensor operator (ASO).

The SH-60F first entered operational service in 22 June 1989 with Helicopter Antisubmarine Squardron 10 (HS-10) at NAS North Island.[10] SH-60F squadrons will shift from the SH-60F to the MH-60S beginning in 2009, they will be redesignated Helicopter Sea Combat (HSC).[11]

HH-60H "Rescue Hawk"

An HH-60H deploying a SAR swimmer.

The HH-60H was developed beginning in September 1986 with a contract for the first five helicopters. The variant's first flight occurred on 17 August 1988. The HH-60H was developed in conjunction with the US Coast Guard's HH-60J. Deliveries of the HH-60H began in 1989. The variant earned initial operating capability in April 1990.[9]

Based on the SH-60F, the HH-60H is the primary combat search and rescue (CSAR), naval special warfare (NSW) and anti-surface warfare (ASUW) helicopter. It carries a variety of defensive and offensive sensors making it one of the most survivable helicopters in the world. Sensors include a FLIR turret with laser designator and the Aircraft Survival Equipment (ASE) package including the ALQ-144 Infrared Jammer, AVR-2 Laser Detectors, APR-39(V)2 Radar Detectors, AAR-47 Missile Launch Detectors and ALE-47 chaff/flare dispensers. Additionally, airframe improvements in engine exhaust deflectors provide infrared thermal reduction reducing the threat of heat-seeking missiles. The HH-60H can carry up to four AGM-114 Hellfire missiles on an extended wing using the M299 launcher and a variety of cabin and port window mounted guns including M60D, M240, GAU-16 and GAU-17/A machine guns. The standard crew for a Rescue Hawk is one pilot, one copilot, and two door gunners. HH-60H are operated in Helicopter Antisubmarine (HS) squadrons with a standard dispersal of four F-models and three H-models.

MH-60S "Knighthawk"


An MH-60S Knighthawk conducts VERTREP

The Navy decided to replace the venerable CH-46 Sea Knight helicopter in 1997. After sea demonstrations by a converted UH-60, the Navy awarded production contract for the CH-60S in 1998. The variant first flew in 27 January 2000 and it began flight testing later that year. The CH-60S was redesignated MH-60S in February 2001 to reflect its planned multi-mission use.[10]

The MH-60S is based on the UH-60L and has many naval SH-60 features.[12] It is deployed aboard amphibious assault ships and fast combat supply ships. It has two missions: troop transport and vertical replenishment (VERTREP), but can also perform search and rescue (SAR). The MH-60S has no offensive sensors but can carry the ALQ-144 Infrared Jammer. The MH-60S will, in the near future, deploy with the AQS-20A Mine Detection System and an Airborne Laser Mine Detection System (ALMDS) for identifying submerged objects in coastal waters. The S-model is the first US Navy helicopter to field the glass cockpit where-by the flight data information is relayed to pilots using four digital screens rather than electromechanical gauges and dials. The primary means of defense is with the M60D, M240 or GAU-17/A guns. A "batwing" refit (Armed Helo Kit) based on the Army's UH-60L was developed to accommodate Hellfire, Hydra 70 2.75" rockets, or a larger guns or cannon.

The MH-60S is unofficially known as the "Knighthawk", reflecting its role as the designated successor of the Sea Knight, though this name was formally disapproved in favor of the "Seahawk" name.[13] [14] A standard crew for the "Knighthawk" is one pilot, one copilot and two others depending on mission. With the retirement of the Sea Knight, the squadron designation of Helicopter Combat Support Squadron (HC) was also retired from the Navy. Operating MH-60S squadrons were re-designated Helicopter Sea Combat (HSC).[15]

Unlike all other Navy H-60s, the MH-60S is not based on the original S-70B/SH-60B platform with its forward-mounted twin tail-gear and single starboard sliding cabin door. Instead, the S-model is a hybrid, featuring the main fuselage of the S-70A/UH-60, with large sliding doors on both sides of the cabin and a single aft-mounted tail wheel; and the engines, drivetrain and rotors of the S-70B/SH-60.[16]

In July 2009, the Republic of Korea requested eight MH-60S helicopters, 16 GE T700-401C engines, and related sensor systems to be sold in a Foreign Military Sale.[17]

MH-60R Seahawk


An MH-60R conducts sonar operations.

The MH-60R was originally referred to as "LAMPS Mark III Block II Upgrade" when it began development in 1993. Two SH-60Bs were converted by Sikorsky for the project. The first modified SH-60 made its maiden flight on 22 December 1999. These conversions, designated YSH-60S, were delivered to NAS Patuxent River in 2001 for flight testing. The production variant was redesignated MH-60S to match its multi-mission capability.[18]

The MH-60R is designed to combine the features of the SH-60B and SH-60F.[19] Its sensors include the ASE package, MTS-FLIR, an advanced airborne fleet data link, and a more advanced airborne active sonar. It does not carry the MAD suite. Pilot instrumentation will be based on the MH-60S's glass cockpit, using several digital monitors instead of the complex array of dials and gauges in Bravo and Foxtrot aircraft. Offensive capabilities are improved by the addition of new Mk-54 air-launched torpedoes and Hellfire missiles. All Helicopter Anti-Submarine Light (HSL) squadrons that receive the Romeo will be redesignated Helicopter Maritime Strike (HSM).[15]

The Fleet Replacement Squadron (FRS), HSM-41, received the R-model aircraft in December 2005 and has begun training the first set of pilots. In 2007, the MH-60R successfully underwent final testing for incorporation into the fleet. As of August 2008, the first 11 combat-ready examples equipped HSM-71, a squadron assigned to the USS John C. Stennis (CVN-74). According to Lockheed Martin, "secondary missions include search and rescue, vertical replenishment, naval surface fire support, logistics support, personnel transport, medical evacuation and communications and data relay."[20]

Variants

US versions

- **YSH-60B Seahawk**: Developmental version, led to SH-60B.[21]
- **SH-60B Seahawk**
- **NSH-60B Seahawk**: Permanently configured for flight testing.[21]
- **SH-60F Oceanhawk**
- **NSH-60F Seahawk**: Modified SH-60F to support the VH-60N Cockpit Upgrade Program.[21]
- **HH-60H Rescue Hawk**:
- **YSH-60R Seahawk**:
- **MH-60R Seahawk**:
- **YCH-60S "Knighthawk"**:
- **MH-60S "Knighthawk"**:

Export versions

- **S-70B Seahawk**: Sikorsky's designation for Seahawk. Designation is often used for exports.
  - S-70B-1 Seahawk: Anti-submarine version for the Spanish Navy. The Seahawk is configured with the LAMPS(Light Airbone Multipurpose System)
  - S-70B-2 Seahawk: Anti-submarine version for the Royal Australian Navy, similar to the SH-60B Seahawk in US Navy operation.
  - S-70B-3 Seahawk: Anti-submarine version for the Japanese Maritime Self Defence Force. Also known as the SH-60J, the JMSDF ordered a total of 101 units, with deliveries starting in 1991.
  - S-70B-6 Aegean Hawk: the Greek military variant which is a blend of the SH-60B and F models, based on Taiwan's S-70C(M)1/2.
  - S-70B-7 Seahawk: Export version for the Royal Thai Navy.
  - S-70C(M)-1/2 Thunderhawk: Export version for the Republic of China (Taiwan) Navy.
  - S-70A (N) Naval Hawk: Maritime variant that blends the S-70A Black Hawk and S-70B Seahawk designs.

Operators

- United States Navy

MH-60S "Knighthawk" with tail and rotors folded on the USS *Mount Whitney*.

Operational US Navy squadrons

SH-60B

- HSL-37 "Easyriders" [22]
- HSL-40 "Airwolves" [23]
- HSL-42 "Proud Warriors" [24]
- HSL-43 "Battle Cats" [25]
- HSL-44 "Swamp Fox" [26]
- HSL-45 "Wolfpack" [27]
- HSL-46 "Grandmasters" [28]
- HSL-48 "Vipers" [29]
- HSL-49 "Scorpions" [30]
- HSL-51 "Warlords"
- HSL-60 "Jaguars" [31]
- HSL-84 "Thunderbolts" [32]

SH-60F/HH-60H

MH-60S Seahawk hoisting up a SAR swim pair.

- HS-4 "Black Knights" [33]
- HS-5 "Nightdippers" [34]
- HS-6 "Indians" [35]
- HS-7 "Dusty Dogs" [36]
- HS-10 "Warhawks" [37]
- HS-11 "Dragonslayers" [38]
- HS-14 "Chargers"
- HS-15 "Red Lions" [39]
- HS-75 "Emerald Knights" [40] (US Navy Reserve)

- HCS-4 "Red Wolves" [41] - redesignated HSC-84 in 2006
- HCS-5 "Firehawks" - disestablished in 2006
- VX-31 "Dust Devils"

MH-60R

- HSM-41 Seahawks [42]"
- HSM-70 Spartans [43]
- HSM-71 Raptors [44]
- HSM-77 "Saberhawks" [45]

MH-60S

- HSC-2 "Fleet Angels" [46]
- HSC-3 "Merlins" [47]
- HSC-8 "Eightballers"
- HSC-9 "Tridents" [48] redesignated from HS-3 on 1 June 2009
- HSC-12 "Golden Falcons" [49] redesignated from HS-2 on 6 August 2009.[50]
- HSC-21 "Blackjacks" [51]
- HSC-22 "Sea Knights" [52]
- HSC-23 "Wild Cards" [53]

- HSC-25 "Island Knights" [54]
- HSC-26 "Chargers" [55]
- HSC-28 "Dragon Whales" [56]
- HSC-85 "High Rollers" [57]

Non-US operators

An SH-60J on the hangar deck of the Japanese Asagiri class destroyer JDS *Umigiri* (DD-158).

Australia

- Royal Australian Navy - received 16 S-70B-2 Seahawks,[58] and has 16 S-70Bs in service as of 2008.[59]
- No. 816 Squadron RAN

Brazil

- Brazilian Navy - 4 S-70B Seahawks to be delivered in 2009.

Greece

- Received 11 S-70B-6 Aegean Hawks,[60] and has 11 S-70Bs in service as of 2008.[59]

Japan

- See SH-60J/K

Spain

- Spanish Navy - received 12 S-70B-1 Seahawks[61] and has 12 S-70Bs in service as of 2008.[59]

Republic of China (Taiwan)

- Republic of China Navy - received 21 S-70C (10 S-70C(M)-1 and 11 S-70C(M)-2) Thunderhawks,[62] and has 19 S-70Cs in service as of 2008[59] in 701st and 702nd Helicopter Squadron (Light).[63]

Thailand

- Royal Thai Navy - received 6 S-70B-7 Seahawks,[64] and has 6 MH-60S Seahawks order.[65] It has 6 S-70Bs in use as of 2008.[59]

Turkey

- Turkish Naval Forces - has received 8 S-70B-28 Seahawks with 17 more on order.[66] It has 7 S-70Bs in use as of 2008.[59]

Specifications (SH-60B)

Data from Brassey's World Aircraft & Systems Directory,[67] Navy fact file,[13] and Sikorsky S-70B[68] [69]

General characteristics

- **Crew:** 3–4
- **Capacity:** 5 passengers in cabin or slung load of 6,000 lb or internal load of 4,100 lb for -B, -F and -H models and 11 passengers or slung load of 9,000 lb for -S
- **Length:** 64 ft 8 in (19.75 m)
- **Rotor diameter:** 53 ft 8 in (16.35 m)
- **Height:** 17 ft 2 in (5.2 m)
- **Disc area:** 2,262 ft² (210 m²)
- **Empty weight:** 15,200 lb (6,895 kg)
- **Loaded weight:** 17,758 lb (8,055 kg)
- **Useful load:** 6,684 lb (3,031 kg)
- **Max takeoff weight:** 21,884 lb (9,927 kg)

- **Powerplant:** 2× General Electric T700-GE-401C turboshaft, 1,890 shp (1,410 kW) take-off power each

Performance

- **Maximum speed:** 180 knots (333 km/h, 207 mph)
- **Cruise speed:** 146 knots
- **Range:** 450 nmi (834 km) at cruise speed
- **Service ceiling:** 12,000 ft (3,580 m)
- **Rate of climb:** 1,650 ft/min (8.38 m/s)**Armament**
- Up to three → Mark 46 torpedos *or* → Mark 50 torpedos,
- AGM-114 Hellfire missile, 4 Hellfire missiles for SH-60B and HH-60H, 8 Hellfire missiles for MH-60S Block III.
- AGM-119 Penguin missile (being phased out),
- M60 machine gun *or*, M240 machine gun *or* GAU-16/A machine gun *or* GAU-17/A Minigun
- Rapid Airborne Mine Clearance System (RAMICS) using Mk 44 Mod 0 30 mm Cannon

See Main Article: U.S. Helicopter Armament Subsystems

See also

- List of United States Navy aircraft squadrons
- US Helicopter Armament Subsystems

Related development

- Sikorsky S-70
- UH-60 Black Hawk
- HH-60 Pave Hawk
- HH-60 Jayhawk
- Mitsubishi SH-60
- Piasecki X-49
- Sikorsky S-92/CH-148 Cyclone

Comparable aircraft

- Boeing-Vertol YUH-61
- Kamov Ka-27
- Harbin Z-9
- NHI NH90
- Westland Lynx

Related lists

- List of helicopters
- List of military aircraft of the United States

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External links

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- SH-60 fact file [71] and SH-60 history page on US Navy site [72]
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Armament

Otobreda 76 mm

Otobreda 76 mm	
	
Type	Naval gun
Place of origin	Italy
Service history	
In service	1964 - present
Used by	See *users*
Production history	
Designer	Oto Melara
Designed	Compact: 1963 Super Rapid: 1985
Manufacturer	Oto Melara (1963–2001) OtoBreda (2001 onwards)
Produced	Compact: 1964 Super Rapid: 1988
Variants	See *variants*
Specifications	
Weight	7500 kg (without ammunition) 12.34 kg (complete round)
Shell	76 mm × 900mm (complete round)
Caliber	62 caliber 76 mm
Elevation	-15°/+85° speed:35°/s (acceleration: 72°/s²)
Traverse	360° speed: 60°/s (acceleration: 72°/s²)
Rate of fire	Compact: 85 round/min Super Rapid: 120 round/min
Muzzle velocity	925 m/s
Maximum range	Compact: 20,000 m (HE round at 45°) Super Rapid: 30,000 m (HE round at 45°)

Feed system	Magazine: Compact: 80 ready rounds on gun mount Super Rapid: 85 ready rounds on gun mount

The **Otobreda 76 mm** gun is a widely used naval artillery piece built by the Italian company Otobreda. A vehicle-mounted version known as the Otomatic was built for the SPAAG role, although this was not put into production.

It is capable of very high rates of fire, making it suitable for short-range anti-missile point defence. Its calibre also gives it abilities for anti-aircraft, anti-surface and ground shelling. Specialised ammunition is available for armour piercing, incendiary and directed fragmentation. A new stealth cupola has been designed in recent years.

The system is compact enough to be installed on relatively small warships, like corvettes, avisos, or patrol boats. It has been widely exported and is in use with 53 navies.

It has recently been favoured over the French 100 mm naval gun for the new Horizon CNGF frigates.

On 27 September 2006 Iran announced it has started mass production of a marine artillery gun, named the Fajr-27, which is a reverse-engineered Oto Melara 76 mm gun.[1]

OTO-Melara 76 mm gun onboard F221 *Hessen*, a Sachsen class frigate.

On the Norwegian *Fridtjof Nansen*–class frigates, the Oto Melara is equipped with a stealth cupola to reduce radar cross section/

The OTO-Melara 76mm mounting is seen in this photograph of the Japanese Asagiri class destroyer *Asagiri*, formerly DD 156, renumbered TV 3516, seen here on 28 July 2008 departing from Portsmouth Naval Base, UK.

Other specifications

- **Cooling:** sea water—fresh water for flushing
- **Electrical Power supply**
  - 440 V, 3-phase, 60 Hz, main circuit;
  - 115 V, 1-phase, 400 Hz, servo and synchro network

Users

Platforms using the Oto melara 76 mm include:

Asia

Australia

- Adelaide class → Frigate

Bangladesh

- DW Class Frigate

Indonesia

- Van Speijk class frigate
- Sigma class corvette

India

Israel

- Saar 3 class missile boat
- Saar 4 class missile boat
- Saar 4.5 class missile boat

Japan

- Hatsuyuki class destroyer
- Murasame class destroyer
- Asagiri class destroyer
- Ishikari class destroyer escort

Malaysia

- Laksamana Class Corvette
- Kedah Class NGPV

Philippines

- Jacinto class offshore patrol vessel

Singapore : Republic of Singapore Navy

- Endurance class LST
- Formidable class frigate
- Victory class corvette
- Fearless class patrol vessel

Sri Lanka

- Saar 4 class fast missile vessel
  - SLNS Nandimithra
  - SLNS Suranimala

Thailand

- Pattani class offshore patrol vessel
- Ratanakosin class corvette
- Ratcharit missile boat
- Chuburi patrol boats
- Tapi class large patrol corvette
- Khamronsin corvette

Republic of China (Taiwan)

- Cheng Kung class frigate
- Kang Ding class frigate

Africa

Egypt

- Descubierta class corvette
- Oliver Hazard Perry class frigates
- Ramadan class fast attack missile boats
- Type-143 Tiger class fast attack missile boats

Morocco

- Descubierta class corvette
- Floreal class frigate
- OPV70 Class patrol vessel

South Africa

- Warrior class strike craft
- Valour class frigate

Kenya

Europe

Belgium

- Karel Doorman class frigate

Denmark

- Flyvefisken class patrol vessel
- Thetis class patrol frigates
- Ivar Huitfeldt class frigate (In service from 2012)

France

- FREMM multipurpose frigate
- Horizon Common New Generation Frigate

Germany

- Brandenburg class frigate
- Bremen class frigate
- Sachsen class frigate
- Braunschweig class corvette
- Gepard class fast attack craft

Greece

- Elli class frigate
- FACM Class La Combattante III
- FACM Class La Combattante IIIb
- FACM Class La Combattante IIa
- Osprey 55 class gunboat
- HSY-55 class gunboat
- Osprey HSY-56A class gunboat
- Super-Vita
- Jason Class (LST)

Ireland

- Peacock class patrol vessels

- Róisín class Offshore Patrol Vessels

Italy

- Audace class destroyer
- Durand de La Penne class destroyer
- San Giorgio class amphibious transport dock
- Cassiopea class patrol vessel
- Minerva class corvette
- FREMM multipurpose frigate
- Horizon Common New Generation Frigate
- Cavour

Netherlands

- Karel Doorman class frigate

Norway

- Fridtjof Nansen class frigate
- Skjold class patrol boat

Romania

- Regele Ferdinand frigate
- Regina Maria frigate

Spain

- Santa Maria class frigate
- Descubierta class patrol vessel
- Buque de Accion Maritima (BAM) Class

Turkey

- Doğan class fast attack craft
- Kılıç class fast attack craft
- Kılıç-II class fast attack craft
- Yıldız fast attack craft
- New Generation Frigate

North America

Canada

- Iroquois class destroyer after TRUMP modifications (Canada)

United States

- *Bear*-class medium endurance cutter (USCG)
- *Hamilton*-class high endurance cutter (USCG)
- → *Oliver Hazard Perry*–class frigate (USN)
- *Pegasus*-class hydrofoil (now de-commissioned) (USN)

Mexico

- Oaxaca class Offshore Patrol Vessel(Mexican Navy)

South America

Argentina

The Mk 75 in use aboard USCGC *Gallatin*, 2005.

- Espora class frigate

Chile

- Karel Doorman class frigate
- Saar 4 class missile boat
- S 148 class missile boat

Ecuador

- Quito class missile boat (Ecuador)

Peru

- PR-72P class corvette (Peru)

Colombia

- Almirante Padilla class frigate

External links

- Oto Melara products: medium calibres [2]
- 76/62 Oto Melara Compact Gun Mount [3] at Thales Australia
- Italian 76 mm/62 (3") Compact, SR and USA 76 mm/62 (3") Mark 75 [4] at NavWeaps

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M2 Browning machine gun

This article is about the .50 caliber M2 machine gun. For the .30-06 M2 machine gun, see M1919 Browning machine gun.

Browning Machine Gun, Cal. .50, M2, HB	
 M2HB heavy machine gun on M3 tripod	
Type	Heavy machine gun
Place of origin	United States
Service history	
In service	1921 M2HB from 1933–present
Used by	United States, and list of users
Wars	World War II Korean War Vietnam War Cambodian Civil War Cambodian-Vietnamese War Falklands War South African Border War Gulf War Somali Civil War War in Afghanistan Iraq War
Production history	
Designed	1918[1]
Manufacturer	Current: General Dynamics, Fabrique Nationale, US Ordnance, and Manroy Engineering Former: Colt's Patent Fire Arms Company, High Standard Company, Savage Arms Corporation, Buffalo Arms Corporation, General Motors Corporation (Frigidaire, AC Spark Plug, Saginaw Steering, and Brown-Lipe-Chappin Divisions), Kelsey Hayes Wheel Company, Springfield Armory, Wayne Pump Company, ERMCO, and Ramo Manufacturing
Produced	1933–present (M2HB)
Specifications	
Weight	38 kg (83.78 lb), 58 kg (127.87 lb) with tripod and T&E
Length	1650 mm (65 in)
Barrel length	1143 mm (45.0 in)
Cartridge	.50 BMG
Action	Short recoil-operated

Rate of fire	450-575 rounds/min (M2HB) 750–850 rounds/min (AN/M2) 1,200 rounds/min (AN/M3)
Muzzle velocity	2,910 feet per second (M33 Ball) (887.1 m/s)
Feed system	Belt-fed (M2 or M9 links)

The **M2 Machine Gun**, **Browning .50 Caliber Machine Gun**, or "Ma Deuce" is a heavy machine gun designed towards the end of World War I by John Browning. The M2 uses the .50 BMG cartridge, and is the source of its name (BMG standing for Browning Machine Gun). The M2 was nicknamed *Ma Deuce* by U.S. Military personnel or simply called "fifty-cal." in reference to its caliber. The design has had many specific designations; the official designation for the current infantry type is **Browning Machine Gun, Cal. .50, M2, HB, Flexible**. It is effective against infantry, unarmored or lightly-armored vehicles and boats, light fortifications, and low-flying aircraft.

The Browning .50 caliber machine gun has been used extensively as a vehicle weapon and for aircraft armament by the United States from the 1920s to the present day. It was heavily used during World War II, the Korean War, the Vietnam War, as well as during operations in Iraq in the 1990s and 2000s. It is the primary heavy machine gun of NATO countries, and has been used by many other countries as well. It is still in use today, with only a few modern improvements. The M2 has been in use longer than any other small arm in U.S. inventory. It was very similar in design to the smaller Browning Model 1919 machine gun. The M2 is currently manufactured by General Dynamics and FNH for the United States government. FNH has been the manufacturer since John Browning worked for them in the 1910s and '20s to develop the machine gun. [2]

History

A variant without a water jacket, but with a thicker-walled, air-cooled barrel superseded it (air-cooled barrels had already been used on variants for use on aircraft, but these quickly overheated in ground use). This new variant was then designated the M2 HB (*HB* for *Heavy Barrel*). The added mass and surface area of the new barrel compensated, somewhat, for the loss of water-cooling, while reducing bulk and weight (the M2 weighed 121 lb (55 kg), with water, whereas the M2 HB weighs 84 lb). Due to the long procedure for changing the barrel, an improved system was developed called QCB (quick change barrel). A lightweight version, weighing a mere 60 lb (27 kg) was also developed.[3]

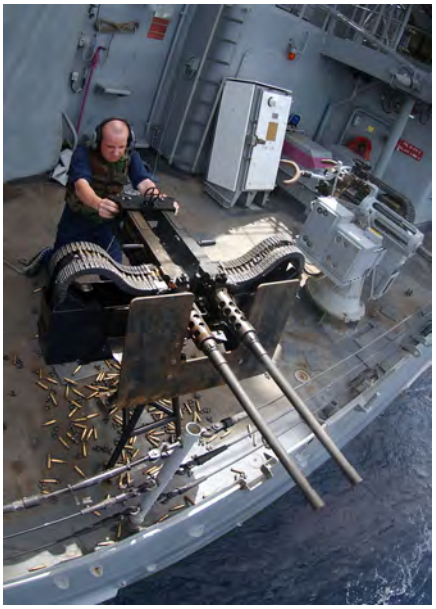
Design details

The Browning M2 is an air-cooled, belt-fed machine gun. The M2 fires from a closed bolt, operated on the short recoil principle. The M2 fires the .50 BMG cartridge, which offers long range accuracy and good stopping power.

The M2 is a scaled-up version of John Browning's M1917 .30 caliber machine gun (even using the same timing gauges).

Features

The M2 has varying cyclic rates of fire, depending upon the model. The M2HB (heavy barrel) air-cooled ground gun has a cyclic rate of 450-575 rounds per minute.[4] The early M2 water-cooled AA guns had a cyclic rate of around 450-600 rpm.[5] The AN/M2 aircraft gun has a cyclic rate of 750-850 rpm; this increases to 1,200 rpm or more for AN/M3 aircraft guns fitted with electric or mechanical feed boost mechanisms.[6] These maximum rates of fire are generally not achieved in use, as sustained fire at that rate will wear out the bore within a few thousand rounds, necessitating replacement. The M2HB's sustained rate of fire is considered to be anything less than 400 rounds per minute.



Twin M2HB .50 caliber machine gun during a Pre-aimed Calibration Fire (PACFIRE) exercise.

The M2 has a maximum range of 7.4 kilometers (4.55 miles), with a maximum effective range of 1.8 kilometers (1.2 miles) when fired from the M3 tripod. In its ground-portable, crew-served role as the M2HB, the gun itself weighs in at a hefty 84 pounds (38 kg), and the assembled M3 tripod another 44 pounds (20 kg). In this configuration, the V-shaped "butterfly" trigger is located at the very rear of the weapon, with a "spade handle" hand-grip on either side of it and the bolt release the center. The spade handles are gripped and the butterfly trigger is depressed with one or both thumbs. Recently new rear buffer assemblies have used squeeze triggers mounted to the hand grips, doing away with the butterfly triggers.

When the bolt release is locked down by the bolt latch release lock on the buffer tube sleeve, the gun functions in fully automatic mode. Conversely, the bolt release can be unlocked into the up position resulting in single-shot firing (the gunner must press the bolt latch release to send the bolt forward). Unlike virtually all other modern machine guns, it has no safety (although a sliding safety switch has recently been fielded to USMC armorers for installation on their weapons). Troops in the field have been known to add an improvised safety measure against accidental firing by slipping an expended shell casing under the butterfly trigger.[7]

Because the M2 was intentionally designed to be fit into many configurations, it can be adapted to feed from the left or right side of the weapon by exchanging the belt-holding pawls, the belt feed pawl, and the front and rear cartridge stops, then reversing the bolt switch. The conversion can be completed in under a minute with no tools.

Ammunition

There are several different types of ammunition used in the M2HB and AN aircraft guns. From World War II through the Vietnam War, the big Browning was used with standard ball, armor-piercing (AP), armor-piercing incendiary (API), and armor-piercing incendiary tracer (APIT) rounds. All .50 ammunition designated "armor-piercing" was required to completely perforate 0.875" (22.2 mm) of hardened steel armor plate at a distance of 100 yards (91 m), and 0.75" (19 mm) at 547 yards (500 m).[8] The API and APIT rounds left a flash, report, and smoke on contact, useful in detecting strikes on enemy targets; they were primarily intended to incapacitate thin-skinned and lightly armored vehicles and aircraft, while igniting their fuel tanks.[9]

Current ammunition types include: M33 Ball (706.7 grain) for personnel and light material targets, M17 tracer, M8 API (622.5 grain), M20 API-T (619 grain), and M962 SLAP-T. The latter ammunition along with the M903 SLAP (Saboted Light Armor Penetrator) round can perforate 1.34 in (34 mm) of HHA (high hard armor, or face-hardened steel plate) at 500 meters, 0.91 in (23 mm) at 1,200 meters, and 0.75 in (19 mm) at 1,500 meters. This is achieved by using a .30 inch diameter tungsten penetrator. The SLAP-T adds a tracer charge to the base of the ammunition. This ammunition was type classified in 1993.[10] [11]

When firing blanks, a large blank-firing adapter (BFA) must be used to keep the gas pressure high enough to allow the action to cycle. The adapter is very distinctive, attaching to the muzzle with three rods extending back to the base. The BFA can often be seen on M2s during peacetime operations.

Deployment

The M2 .50 Browning machine gun has been used for various roles:

- A medium infantry support weapon
- As an anti-aircraft (AA) gun in some ships; up to six M2 guns could be mounted on the same turret.
- As an anti-aircraft gun on the ground. The original water-cooled version of the M2 was used on a tall AA tripod or vehicle-mounted anti-aircraft weapon on a sturdy pedestal mount. In later variants, twin and quadruple M2HB Brownings were used, such as the M45 Quadmount used on the US M16 half-track carrier. Twin or quad-mount .50 M2 guns normally used alternating left-hand and right-hand feed.
- Primary or secondary weapon on an armored fighting vehicle.
- Primary or secondary weapon on a naval patrol boat.
- Spotting for the primary weapon on some armored fighting vehicles.
- Secondary weapon for anti-boat defense on large naval vessels (corvettes, frigates, destroyers, cruisers, etc).
- Coaxial gun or independent mounting in some tanks.
- Fixed-mounted primary armament in World War II-era U.S. aircraft such as the P-47 Thunderbolt, P-51 Mustang, and the Korean-era U.S. F-86 Sabre.
- Fixed or flexible-mounted defensive armament in World War II-era bombers such as the B-17 Flying Fortress, and B-24 Liberator.
- A M2 modified to fire single shots and hold a scope was used by Carlos Hathcock as a sniper weapon during the Vietnam War, proving the .50 caliber round's usefulness as an effective anti-personnel/anti-material round. Carlos Hathcock used his modified M2 to create the record for the longest sniper kill, a record that stood until the current War in Afghanistan.

An M2 fired from a rigid-hulled inflatable boat.

A U.S. Marine mans a .50 caliber machine gun as part of a security force during an exercise

United States

At the outbreak of the Second World War the United States had versions of the M2 in service as fixed aircraft guns, anti-aircraft defensive guns (on aircraft, ships, or boats), infantry (tripod-mounted) guns, and as dual purpose anti-aircraft and anti-vehicular weapons on vehicles.[12] [13]

The .50 AN/M2 light-barrel aircraft Browning was used in planes had a rate of fire of approximately 800 rounds per minute, and was used singly or in groups of up to eight guns for aircraft ranging from the P-47 Thunderbolt to the B-25 Mitchell bomber.

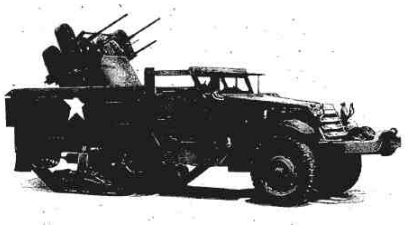
A U.S. soldier in Normandy stands guard with the M2HB installed on a dual-purpose mounting.

In the dual-purpose vehicle mount, the M2HB (heavy barrel) proved extremely effective in U.S. service: the Browning's .50 caliber AP and API rounds could easily penetrate the engine block or fuel tanks of a German Bf 109 fighter attacking at low altitude,[14] or perforate the hull plates and fuel tanks of a German half-track or light armored car.[8] [15] [16] While the dual-purpose mounting was undeniably useful, it did normally require the operator to stand when using the M2 in a ground role, exposing him to return fire.[17] Units in the field often modified the mountings on their vehicles, especially tanks and tank destroyers, to provide more operator protection in the anti-vehicular and anti-personnel role.[18] The weapon was particularly hated by the Germans, whose attacks against otherwise helpless stalled motor convoys were frequently broken up by .50 caliber machine gun fire.[19] [20]

Besides vehicle-mounted weapons, the heavy weapons companies in a WWII Army infantry battalion or regiment were each issued one M2 Browning with tripod (ground) mount.[21] Mounted on a heavily-sandbagged tripod, the M2HB proved very useful in either a defensive role or to interdict or block road intersections from use by German infantry and motorized forces.[22] The hammering of a heavy Browning could usually be relied upon to put a German infantry company face-down in the dirt.[23] There are numerous instances of the M2 Browning being used against enemy personnel, particularly infantry assaults[24] or for interdiction or elimination of enemy artillery observers or snipers at distances too great for ordinary infantry weapons.[25] [26] [27]

A quadruple mount of four .50 M2HB guns with a single gunner situated behind an armored housing was used by U.S. AA battalions in either a towed trailer or mounted in a half-track carrier (M16 AA half-track). With 200 rounds per gun in a powered tracking mount, the guns proved very effective against low-flying aircraft. Towards the end of the war, as Luftwaffe attacks grew more infrequent, the quad .50 (nicknamed the *Meat Chopper*) was increasingly used in an anti-personnel role, similarly to the more powerful German 20mm Flakvierling. Snipers firing from trees were engaged by the quad gunner at trunk level - the weapon would cut down and destroy the entire tree, and the sniper with it.[23] [28]

The M2HB was not widely used in the Pacific campaign, due to several factors, including weight, the inherent nature of infantry jungle combat, and because road intersections were usually easily outflanked.[29] However, it was used by fast-moving motorized forces in the Philippines to destroy Japanese blocking units on the advance to Manila.[22] The quad mount .50 was also used to destroy Japanese emplacements.[28]



M16 .50 AA Quad aka the 'Meat Chopper'

The M2HB saw service in both Korea and Vietnam. In 2003, during the Iraq War, U.S. Army SFC Paul Ray Smith used his M2HB mounted on an M113 armored personnel carrier to kill twenty to fifty enemy who were attacking a U.S. Army outpost. Saving an aid station from being overrun and allowing wounded soldiers to be evacuated,[30] SFC Smith gave his life to save his fellow soldiers and was posthumously awarded the Medal of Honor.

Commonwealth forces

Commonwealth use of the M2 Browning .50 caliber machine gun (known as the .5 Browning in British and Commonwealth service) was limited in the Second World War, though from 1942 it was standard armament on US-built AFVs provided under lend-lease such as the M4 Sherman, M7 Priest, M8 Greyhound, or M10 Wolverine variously used by British, Canadian, Australian, South African and New Zealand units. Nevertheless, the heavy Browning's effectiveness was praised by many British and Commonwealth soldiers in infantry, armored, and ordnance branches.[31] [32] Many commanders thought the .50 Browning the best weapon in its class, certainly the best of the American weapons, including the M1 Garand and carbine.[32] [33] In North Africa, after Commonwealth units began to obtain sufficient parts, manuals, gauges, and ammunition for the new weapon, the .50 Browning was increasingly used, eventually replacing the 15 mm Besa,[32] but in Italy was often deleted from top turret mountings because the mount exposed the operator to low branches and enemy fire.[34] Some SAS units used the aircraft

(AN/M2) version of the gun, while turret-mounted .5 Brownings were used later in the war in such aircraft as the Lancaster bomber.

After the Second World War, the .50 Browning continued to see action in Korea and other theaters, in aircraft, tripod (ground), ground AA (hip-ring), and vehicle mounts. One of its most notable actions in a ground role was in a fierce battle with a nine-man SAS team at the Battle of Mirbat in Oman in July 1972, where the heavy Browning and its API ammunition was used to help repulse an assault by 250 Yemeni Adoo guerrillas, though the more famous weapon from the battle is a 25 pounder gun.[35]

.50 caliber Brownings were fitted, with a .30 caliber, in the compact one-man turrets on M113 APCs used by the Royal Australian Armoured Corps in South Vietnam.

M2 as a sniper rifle

The M2 machine gun has been used in a single confirmed instance as a long-range sniper rifle, when equipped with a telescopic sight. Soldiers during the Korean War used scoped M2s in the role of a sniper rifle, but the practice was most notably used by US Marine Corps sniper Carlos Hathcock during the Vietnam War. Using an Unertl telescopic sight and a mounting bracket of his own design, Hathcock could quickly convert the M2 into a sniper rifle, using the traversing-and-elevating (T & E) mechanism attached to the tripod to assist in aiming at stationary targets. When firing semi-automatically, Hathcock could accurately hit man-size targets beyond 2000 yards—twice the range of a standard-caliber sniper rifle of the time (a .30-06 Winchester Model 70). In fact, Hathcock set the record for the longest confirmed kill at 2,250 m (2,460 yd), a record which he held until 2002.[36] [37]

Variants and derivatives

M2 variants

An M2HB in the French Foreign Legion's 2nd Infantry Regiment during an exercise

The basic M2 was deployed in US service in a number of subvariants, all with separate complete designations as per the US Army system. The basic designation as mentioned in the introduction is Browning Machine Gun, Cal. .50, M2, with others as described below.

The development of the M1921 water-cooled machine gun which led to the M2, meant that the initial M2s were in fact water-cooled. These weapons were designated Browning Machine Gun, Cal. .50, M2, Water-Cooled, Flexible. There was no fixed water-cooled version.

An M2

Improved air-cooled heavy barrel versions came in three subtypes. The basic infantry model, Browning Machine Gun, Cal. .50, M2, HB, Flexible, a fixed developed for use on the M6 Heavy Tank designated Browning Machine Gun, Cal. .50, M2, HB, Fixed, and a "turret type" whereby "Flexible" M2s were modified slightly for use in tank turrets. The subvariant designation Browning Machine Gun, Cal. .50, M2, HB, Turret was only used for manufacturing, supply, and administration identification and separation from flexible M2s.

A number of additional subvariants were developed after the end of the Second World War. The Caliber .50 Machine Gun, Browning, M2, Heavy Barrel, M48 Turret Type was developed for the commander's cupola on the M48 Patton tank. The cupola mount on the M48-A3 was thoroughly disliked by most tankers, as it proved unreliable in service.[38] A cupola-mounted M2 was later adopted for the commander's position on the M1 Abrams tanks. Three subvariants were also developed for used by the US Navy on a variety of ships and watercraft. These included the Caliber .50 Machine Gun, Browning, M2, Heavy Barrel, Soft Mount (Navy) and the Caliber .50 Machine Gun,

Browning, M2, Heavy Barrel, Fixed Type (Navy). The fixed types fire from a solenoid trigger and come in left or right hand feed variants for use on the Mk 56 Mod 0 dual mount and other mounts.

M2 E-50 (M2E50)

A long overdue upgrade program for existing infantry M2HBs and other M2s currently in U.S. Army service, the E50 provides a: Quick Change Barrel (QCB) capability, a rail accessory mount, an improved flash hider and a manual safety.

The E50 designation initially appeared to be within the bounds of the normal U.S. Army designation system. However, it later turned out that the term was in fact a developmental project that stands for Enhanced 50, as in enhanced .50 caliber machine gun. Developed primarily as a conversion kit for existing weapons, it is likely that new production machine guns will be built to this standard. In later U.S. Army briefings, this variant has been referenced as the M2E2 or M2A1.

Aircraft guns

AN/M2 and AN/M3

U.S. Marines man pintle-mounted M2HB machine guns

The M2 machine gun was widely used during World War II and in later postwar conflicts as a remote or flexible aircraft gun. For fixed (offensive) or flexible (defensive) guns used in aircraft, a dedicated M2 version was developed called the .50 Browning AN/M2. The AN/M2 had a cyclic rate of 750-850 rounds per minute, with the ability to be fired from a electrically-operated remote-mount solenoid trigger when installed as a fixed gun. Cooled by the aircraft's slip-stream, the air-cooled AN/M2 was fitted with a substantially lighter barrel, which also had the effect of increasing the rate of fire. The official designation for this weapon was Browning Machine Gun, Aircraft, Cal. .50, AN/M2 (Fixed) or (Flexible). During World War II, a faster-firing .50-inch aircraft Browning was developed, the AN/M3, using a mechanical or electrically-boosted feed mechanism to increase the rate of fire to around 1,200 rounds per minute. The AN/M3 was widely used in Korea on such planes as the F-86 Sabre and in Vietnam in the XM14/SUU-12/A gun pod, and currently in the Embraer EMB 314 Super Tucano.

The XM296/M296 is a further development of the AN/M2 machine gun for remote firing applications, and is currently only used in an armament system for the OH-58 Kiowa Warrior helicopter. The M296 differs from previous remote firing variants in that it has adjustable maximum firing rate (500-850 rpm), while lacking a bolt latch (allowing single-shot operation).[39] As an air-cooled aircraft gun used aboard a relatively slow rotary-wing aircraft, the M296 has a burst restriction rate of 50 rounds per minute; combat firing which exceeds this limit mandates a ten-minute cooling period to avoid malfunctions due to overheating.[40]

XM213/M213, XM218, GAU-15/A, GAU-16/A, and GAU-18/A

M2 machine gun demonstration for U.S. President George W. Bush in 2002

The XM213/M213 was a modernization and adaptation of existing .50 caliber AN/M2s in inventory for use as a pintle mounted door gun on helicopters using the M59 armament subsystem.

The GAU-15/A, formerly identified as the XM218, is a lightweight member of the M2/M3 family. The GAU-16/A was an improved GAU-15/A with modified grip and sight assemblies for similar applications. Both of these weapons were used as a part of the A/A49E-11 armament subsystem (Also known as the Defensive Armament System).

The GAU-18/A, is a lightweight variant of the M2/M3, and is used on the USAF's MH-53 Pave Low and HH-60 Pave Hawk helicopters. These weapons do not utilize the heavy barrel, and are typically set up as left-hand feed, right-hand charging weapons, but on the HH-60 Pavehawks that use the EGMS (External Gun Mount System) all weapons are set up as right hand charge but vary between left and right hand feed depending on what side of the aircraft it is on. In this configuration the gun is fitted with a chute adapter attached to its left hand feed pawl bracket. Thus, the weapon can receive ammunition through a feed chute system connected to internally-mounted or externally-mounted ammunition cans. Originally designed to accommodate 1,700 rounds, these cans have since been modified due to space constraints, and now hold about half that amount with the external cans of the EGMS system holding 600 rounds each. However, many aerial gunners find the chute system cumbersome, and opt to install a bracket accommodating the 100-round cans instead. The GAU-18/A began to be supplanted by the GAU-21/A in 2006.

GAU-21/A and M3P

The FN produced M3 series is also in U.S. military service in two versions. The fixed remote firing version, the FN M3P, is used by the U.S. Army on the Avenger Air Defense System. The M3M flexible machine gun has been adopted by the USAF and the USN under the designation GAU-21/A for use on helicopters.

The M3P is currently being used to upgrade the US Army's OH-58D; replacing the M2 and XM296 .50 cal machine guns for the aircraft.[41]

Users

The M2 family has been widely used abroad, primarily in its basic infantry configuration. A brief listing of designations for M2 family weapons follows:

Country	NATO Member	Designation	Description
Afghanistan	No	M2HB	12.7 Browning Heavy Machine Gun
Argentina	No	M2HB	12.7 × 99 mm Browning M2HB machine gun
Australia	No	M2HB-QCB[42]	
Austria	No	üsMG M2	12.7 × 99 mm Browning M2HB machine gun
Belgium	Yes	FN M2HB-QCB	12.7 × 99 mm Browning M2HB machine gun, used as infantry weapon, IFV mounted gun and as tank's AA gun
Bosnia and Herzegovina	No		
Brazil	No	Mtr .50 M2 HB "BROWNING"	12.7 × 99 mm Browning M2HB machine gun
Bulgaria	Yes	Mtr .50 M2HB "BROWNING"	12.7 × 99 mm Browning M2HB machine gun
Cambodia	No	M2, M2HB	12.7 × 99 mm Browning M2HB machine gun
Canada	Yes	FN M2HB-QCB	12.7 × 99 mm Browning M2HB machine gun
Chile	No	FN M2HB-QCB	12.7 × 99 mm Browning M2HB machine gun
Colombia	No		
Croatia	Yes		
Denmark	Yes	M/50 TMG	12.7 × 99 mm Browning M2HB machine gun
		?	12.7 x 99 mm FNH M3M machine gun[43]
Egypt	No	Known as "DOBSH"	12.7 × 99 mm Browning M2HB machine gun, used as Crew served infantry weapon, on M113, on YPR-765IFV, on some HMMWV and as tank's Commander's/AA gun
El Salvador	No		
Estonia	Yes	M2HB QCB	
Finland	No		Known as 12,7 RSKK 2005 or 12,7 ITKK M2 and only operated on Patria AMV vehicles.
France	Yes	MIT-12,7, MIT-12,7 CRC (QCB)	12.7 × 99 mm Browning M2HB or FN QCB
Germany	Yes	MG50-1, M3M	12.7 × 99 mm Browning M2HB or M3M machine gun
India	No	M2HB	12.7 × 99 mm Browning M2HB machine gun in limited quantities
Israel	No	מק"כ ("MAKACH")	12.7 × 99 mm Browning M2HB machine gun, used as infantry weapon, on M113 Armored Personnel Carrier, Nammer IFV, on some HMMWV, on tank as external coaxial gun and on patrol boats of Israeli Navy
Iraq	No		
Ireland	No	Infantry Support, HMG & Air Defence.	
Italy	Yes	Browning M2 12.7 mm	12.7 × 99 mm Browning M2HB machine gun
Japan	no	12.7 mm重機関銃M2 (Licensed by Sumitomo Heavy Industries)	12.7 × 99 mm Browning M2HB machine gun, used as IFV mounted gun and as tank's coaxial gun

Lithuania	Yes	M2HB	12.7 × 99 mm Browning M2HB machine gun in limited quantities
Lebanon	No		Mounted on MUTT and M-113 vehicles, including some MBT's. Also used by infantry.
Malaysia	No	50.5 mm M2HB	12.7 × 99 mm Browning M2HB machine gun
Malta	No	M2 Browning .50 HMG	
Mexico	No	M-2 HB, M-2 E-50 Licence produced by SEDENA	12.7 × 99 mm Browning M2HB Machine gun mounted on military vehicles
The Netherlands	Yes	MIT-12,7, MIT-12,7 CRC (QCB)	12.7 × 99 mm Browning M2HB or FN QCB
New Zealand	No	M2HB	0.50 cal heavy machine gun
Norway	Yes	M/50	12.7 × 99 mm Browning M2HB machine gun
The Philippines	No	M2HB	0.50 cal heavy machine gun
Poland	Yes	M2HB-QCB	Used by Polish special forces
Portugal	Yes	Metralhadora 12,7 mm Browning m/55	12.7 × 99 mm Browning M2HB machine gun
Serbia	No	Teški mitraljez M2	Used alongside M87 heavy machine gun.
Singapore	No	12.7 mm M2HB	12.7 × 99 mm Browning M2HB machine gun (replaced by the newer CIS 50MG firing the same cartridges of the M2HB).
South Africa	No	M2HB (Licensed by ARAM (Pty) Ltd)	12.7 × 99 mm Browning M2HB machine gun
South Korea	No	K6	modified 12.7 × 99 mm Browning M2HB QCB machine gun (manufactured by S&T Dynamics)
Spain	Yes	Ametralladora Pesada M-2 HB	12.7 × 99 mm Browning M2HB machine gun
Slovenian Army	Yes	FN M2HB-QCB	12.7 × 99mm M2HB machine gun; used by infatry and mounted on vehicles
Sweden	No	Tksp 12,7 (Licensed by Bofors)	12.7 × 99 mm Browning M2HB machine gun
Switzerland	No	Mg 64	12.7 × 99 mm Browning M2 HB machine gun
Republic Of China (Taiwan)	No	Browning Caliber .50 M2, M2HB FN M2HB-QCB T90	
Thailand	No	ปืนกล 93	12.7 × 99 mm Browning M2HB machine gun
Turkey	Yes	Browning 12.7 mm M2, M2HB	12.7 × 99 mm Browning M2 HB machine gun

United Kingdom	Yes	L2A1	12.7 × 99 mm Browning M2HB machine gun
		L6, L6A1	12.7 × 99 mm Browning M2 HB machine gun; ranging gun for the L7 105 mm tank gun on the Centurion tank
		L11, L11A1	12.7 × 99 mm Browning M2HB machine gun; ranging gun
		L21A1	12.7 × 99 mm Browning M2HB machine gun; ranging gun for the 120 mm tank gun on the Chieftain tank
		L111A1[44])	
United States	Yes	Browning Caliber .50 M2, M2HB	Browning Caliber .50 M2 Heavy Barrel machine gun
Uruguay	No	Browning Caliber .50 M2, M2HB	
Vietnam	No	M2, M2HB	12.7 × 99 mm Browning M2HB machine gun

See also

- MG 131 machine gun, WWII German aircraft-mounted gun
- List of individual weapons of the U.S. Armed Forces
- List of crew-served weapons of the U.S. Armed Forces
- DShK, NSV & Kord 12.7 mm machine guns, Soviet/Russian equivalents.
- M45 Quadmount

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External links

- Aircraft Gunnery_.50 cal. [48]
- M2 .50 Caliber Machine Gun [49] at Federation of American Scientists [50]
- Browning M2HB & M2HQCB (USA) [51]
- M2 .50 cal. Machine Gun [52] at Olive-Drab.com [53]
- Quad-50 M2 .50 cal. Machine Gun [54] at Olive-Drab.com [53]
- Video of a CG M2 showing the inner workings as it goes through the firing cycle. [55]
- Browning M2 .50 Caliber Machine Gun [56] at Gary's Olive Drab Page [57]
- Browning M2 HB .50 Caliber Heavy Machine Gun [58], "Ambush in Mogadishu", *Frontline*, PBS

Preceded by "	**Longest confirmed combat sniper-shot kill** 1967–2002 1.42 mi (2,286 m) using .50 BMG by Carlos Hathcock	Succeeded by **Canadian Long Range Sniper Weapon (LRSW) .50**

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Phalanx CIWS

Phalanx CIWS	
 Phalanx (Block 1a) live fire test, USS Monterey (CG-61)	
Type	Close-in weapon system
Place of origin	United States
Service history	
In service	1980-Present
Used by	See Operators
Production history	
Designer	General Dynamics (now Raytheon)
Manufacturer	General Dynamics (now Raytheon)
Produced	1978[1]
Specifications	
Weight	12500 lb (5700 kg), later models 13600 lb (6200 kg) [2]
Height	4.7 m
Crew	Automated, with human oversight
Shell	*Naval* - Armor-piercing tungsten penetrator rounds with discarding sabots. *Land* - High-Explosive Incendiary Tracer, Self-Destruct.
Caliber	20 mm
Barrels	6
Elevation	*Block 0:* -10 / +80 degrees *Block 1:* -20 / +80 degrees *Block 1B:* -25 / +85 degrees[3]
Traverse	-150 / +150 degrees[3]
Rate of fire	3,000-4,500 rounds/minute.
Muzzle velocity	1,100 m/s
Effective range	Classified [4] [5]

Primary armament	1 x 20 mm M61 Vulcan Gatling gun autocannon.[6]
Guidance system	Ku-band radar and FLIR[7]

The **Phalanx Close-in weapon system** (CIWS) is an anti-Anti-ship missile system that was designed and manufactured by the General Dynamics Corporation, Pomona Division.[6] , now Raytheon. Consisting of a radar-guided 20mm Gatling gun mounted on a swivelling base, the Phalanx is used by the United States Navy on every class of surface combat ship, by the United States Coast Guard aboard its *Hamilton* and *Legend* class cutters and the navies of 23 allied nations. Because of their distinctive barrel-shaped radome and their automated nature of operation, Phalanx CIWS units are sometimes nicknamed "**R2-D2**" in the US Navy, after the famous droid from *Star Wars*,[8] and as **Daleks** in the Royal Navy, after the aliens from *Doctor Who*. A land based variant known as **C-RAM** has recently been deployed in a short range missile defense role, to counter incoming rockets and artillery fire.[9] .

History

Developed as the final line of defense (terminal defense or point defense) against anti-ship missiles (AShMs), including high-*g* and maneuvering sea-skimmers, the first system was offered to the U.S. Navy for evaluation on USS *King* (DDG-41) in 1973. It was accepted and production started in 1978, the first ship fully fitted out was USS *Coral Sea* (CV-43) in 1980. The Navy began placing CIWS systems on noncombatant vessels in 1984.

Design

The basis of the system is the 20 mm M61 Vulcan Gatling gun autocannon, used since the 1960s by the United States military in nearly all fighter aircraft (and one land mounting, the M163 VADS), linked to a Ku-band radar system for acquiring and tracking targets. This proven system was combined with a purpose-made mounting, capable of fast elevation and traverse speeds, to track incoming targets. An entirely self-contained unit, the mounting houses the gun, an automated fire control system and all other major components, enabling it to automatically search for, detect, track, engage and confirm kills using its computer-controlled radar system. Due to this self-contained nature, Phalanx is ideal for support ships which lack integrated targeting systems and generally have limited sensors. The entire unit has a mass between 5,500 and 6,100 kg (12,400 to 13,500 lb).

Upgrades

Block 1B Phalanx, displaying the FLIR and improved barrel

Due to the continuing evolution of both threats and computer technology, the Phalanx system has, like most military systems, been developed through a number of different configurations. The basic (original) style is the Block 0, equipped with first generation solid state electronics and with marginal capablity against surface targets. The Block 1 (1988) upgrade offered various improvements in radar, ammunition, rate of fire, increasing engagement elevation to +70 degrees, and computing. These improvements were intended to increase the system's capability against emerging Soviet supersonic anti-ship missiles. Block 1A introduced a new computer system to counter more maneuverable targets. The Block 1B PSuM (Phalanx Surface Mode, 1999) adds a forward looking infrared (FLIR) sensor to allow the weapon to be used against surface targets[10] . This addition was developed to provide ship defense against small vessel threats and other "floaters" in littoral waters and to improve the weapon's performance against slower low-flying aircraft. The FLIR's capability is also of use against low-observability missiles and can be linked with the RIM-116 Rolling Airframe Missile (RAM) system to increase RAM engagement range and accuracy. The Block 1B also allows for an operator to visually identify and target threats.[11]

The U.S. and Canada are in the process of upgrading all their Phalanx systems to the Block 1B configuration. The Block 1B is also used by other navies such as Portugal, Japan, Egypt, Bahrain and the Royal Navy[12]

In May 2009 the US Navy awarded a $260 million contract to Raytheon Missile Systems to perform upgrades and other work on the Phalanx. The work is to be completed by September 2012.[13]

Operation

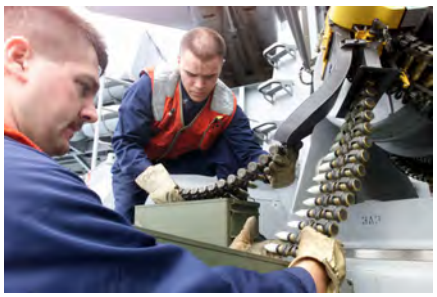
The CIWS is designed to be the last line of defense against anti-ship missiles. Due to its design criteria its effective range is very short relative to the range of modern ASMs, from 1 to 5 nautical miles (9 km). The gun mount moves at a very high speed and with great precision. The system takes minimal inputs from the ship, making it capable of functioning despite potential damage to the ship. The only inputs required for operation are 440 V AC at 60 Hz and water for electronics cooling. For full operation including some non-essential functions, it also has inputs for true compass ship's heading and 115 V AC for the PASS and tape drive subsystems.

A technician checks over the RADAR transmitter and microwave assemblies of a Phalanx CIWS, most likely a Block 0. The search radar can be seen at the top with the vertical, orange-peel shaped, tracking radar below it.

Radar subsystems

The CIWS has two antennas that work together to engage targets. The first antenna, for searching, is located inside the radome on the weapon control group (top of the white-painted portion). The search subsystem provides bearing, range, velocity, heading, and altitude information of potential targets to the CIWS computer. This information is analyzed to determine whether the detected object should be engaged by the CIWS system. Once the computer identifies a valid target (see details below), the mount moves to face the target and then hands the target over to the track antenna. The track antenna is extremely precise, but can only view a much smaller area. The tracking subsystem observes the target until the computer determines that the probability of a successful hit is maximized and then, depending on the operator conditions, the system will either fire automatically or will recommend fire to the operator. While firing, the system tracks outgoing rounds and 'walks' them onto the target.

Gun and ammunition handling system



U.S. Navy sailors load tungsten ammunition (white sabot at right) and off-load dummy ammunition (left).

The Block 0 CIWS mounts (hydraulic driven) fired at a rate of 3,000 rounds per minute and they could only hold 989 rounds in the magazine drum.[6] The Block 1 CIWS mounts (hydraulic) also fired at 3,000 rounds per minute with an extended magazine drum holding 1,550 rounds. The Block 1A and newer (pneumatic driven) CIWS mounts fire at a rate of 4,500 rounds per minute and also had the larger 1,550 round magazine. The velocity of the rounds once fired is approximately 3600 feet per second (1100 m/s). The rounds are armor-piercing tungsten penetrator rounds or depleted uranium with discarding sabots. The kinetic projectiles are designed to pierce and explode an incoming missile's warhead. The ammunition handling system has two conveyor belt systems. The first takes the rounds out of the magazine drum and to the gun; the second takes either the empty shells or non-fired rounds and routes them back to the opposite end of the drum.

CIWS contact target identification

The CIWS does not recognize identification friend or foe, also known as IFF. The CIWS has only the data it collects in real time from the radars to decide if the target is a threat and to engage it. A contact has to meet multiple criteria for it to be considered a target. Some of the criteria are listed below.

A sailor sits in front of a CIWS Local Control Panel (LCP) during a general quarters drill.

1. Is the range of the target increasing or decreasing in relation to the ship? The CIWS search radar will see contacts that are out-bound and discard them. The CIWS will only engage a target if it is approaching the ship.
2. Is the contact capable of making a maneuver to hit the ship? If a contact is not heading directly at the ship, the CIWS looks at its heading in relation to the ship and its velocity. It then decides if the contact can still perform a maneuver to hit the ship.
3. Is the contact traveling between the minimum and maximum velocities? The CIWS has the ability to engage targets that travel in a wide range of speeds, however it is not an infinitely wide range. The system has a target maximum velocity limit. If a target exceeds this velocity, the CIWS will not engage it. It also has a minimum target velocity limit. Any contact below that velocity will not be engaged by the CIWS. The operator also has the option to adjust the minimum and maximum limits within the limits of the system.

There are many other subsystems which together ensure proper operation, such as environmental control, transmitter, mount movement control, power control and distribution and so on. It takes 6 to 8 months to train a technician to maintain, operate, and repair the CIWS.

Phalanx incidents in combat

Japanese destroyer *Yügiri*

On February 25 1991, during the first Gulf War, the Phalanx-equipped → USS *Jarrett* (FFG-33) was a few miles from the USS *Missouri* (BB-63) and the British destroyer HMS *Gloucester* (D96). The ships were attacked by an Iraqi Silkworm missile (often referred to as the *Seersucker*), at which *Missouri* fired its → SRBOC chaff. The Phalanx system on *Jarrett*, operating in the automatic target-acquisition mode, fixed upon *Missouri*'s chaff, releasing a burst of rounds. From this burst, four rounds hit *Missouri* which was two to three miles (about 5 km) from *Jarrett* at the time. There were no injuries.[14] A Sea Dart missile was then launched from the *Gloucester*, which destroyed the Iraqi missile, achieving the first successful engagement of a missile by a missile during combat at sea.

On June 4 1996, a Japanese Phalanx accidentally shot down a US A-6 Intruder that was towing a radar target during gunnery exercises. A Phalanx aboard the Asagiri class destroyer *Yūgiri* locked onto the Intruder instead of the target. Both pilots ejected safely.[15] A post-accident investigation concluded that the Yūgiri's gunnery officer gave the order to fire before the A-6 was out of the CIWS engagement envelope.[16]

21st century

Centurion C-RAM

Centurion C-CRAM

Seeking a solution to constant rocket and mortar attacks on bases in Iraq, the United States Army requested a quick-to-field anti-projectile system in May 2004, as part of its Counter-Rocket, Artillery, Mortar initiative[17] . The end result of this program was 'Centurion'. For all intents and purposes a terrestrial version of the Navy's CIWS, the Centurion was developed in record time[18] , with a proof of principle test in November that same year, and deployment to Iraq in 2005.[19] [20] Currently it protects forward operating bases and other high-value sites in and around Baghdad and is deployed by the British in the south of the country.[21] Israel has purchased a single system for testing purposes, and is reported[22] to be considering buying the system to counter rocket attacks and defend point military installations, though it's investment in an indigenous system known as Iron Dome has hindered these efforts.[23] [24]

Each system uses consisted of a modified Phalanx 1B CIWS, powered by an attached generator and mounted of a trailer for mobility. Armed with a 20 mm M61A1 Gatling gun the unit is capable of firing 3,000 or 4,500 M-246 or M-940 rounds per minute.[25] [26] In 2008 there were more than twenty CIWS systems protecting bases in the U.S. Central Command area of operations. A Raytheon spokesman told *Navy Times* that 105 attacks were defeated by the systems, most of those involved mortars. Based on the success of Centurion, 23 additional systems were ordered in September 2008.[27]

Like the naval (1B) version, Centurion uses Ku-band radar and FLIR[28] to detect and track incoming projectiles, and is also capable of engaging surface targets, with the system able to reach a -25 degree elevation.[28] The Centurion is reportedly capable of defending a 1.2 km/s area. [29] One major difference between the land and sea based variants is the choice of ammunition. Whereas naval Phalanx systems fire tungsten armor-piercing rounds, the C-RAM uses the M246 or M940 HEIT-SD (High-Explosive Incendiary Tracer, Self-Destruct) ammunition, originally developed for the M163 Vulcan Air Defense System.[30] [31] These rounds explode on impact with the target, or upon tracer burnout, thereby eliminating the risk of collateral damage, should any rounds fail to hit their target.[32] [33]

SeaRam

SeaRAM

Utilising the armament of the RIM-116 Rolling Airframe Missile, and based on the mounting and targeting systems of the Phalanx, SeaRAM was developed in response to concerns about the performance of gun-based systems against modern anti-surface missiles. Designed as a companion self-defense system to Phalanx[34] , the SeaRAM is equipped with an 11 cell RAM launcher, and provides defense at a longer range. Due to the common mounting, SeaRAM inherits the relatively easy installation characteristics of its gun-based sibling, with Raytheon stating that "[SeaRAM] fits the exact shipboard installation footprint of the Phalanx, uses the same power and requires minimal shipboard modification"[35] . Currently in the trial stages, SeaRAM is fitted to the Independence Class Littoral Combat Ship. [36]

Operators

- Australia[37]
- Bahrain[37]
- Belgium
- Canada[37]
- Egypt[37]
- Israel[37]
- Japan[37]
- Morocco
- New Zealand[37]
- Poland[37]
- Pakistan[38]
- Portugal[38]
- Saudi Arabia[37]
- Taiwan[37]
- United States[38]
- United Kingdom[38]

Specifications

(For Block 1A/B)

- **Gun**: 20 mm M61 Vulcan Gatling gun autocannon.[6]
- **Height**: 4.7 m.
- **Weight**: 12500 lb (5700 kg), later models 13600 lb (6200 kg) [39]
- **Elevation** +82 to −25 degrees.
- **Muzzle velocity**: 1,100 m/s.
- **Rate of fire**: 4,500 rounds/minute.
- **Maximum burst size**: 1000 rounds.
- **Ammunition**: 1,550 rounds.
- **Radar**: Ku band.
- **100% Kill distance**: Unknown
- **Cost**: Unknown

Similar systems

- AK-630, Russian CIWS
- Kashtan, Russian CIWS
- Goalkeeper CIWS, Dutch CIWS
- Meroka CIWS, Spanish navy
- SeaRAM, U.S. missile-based CIWS
- Type 730 CIWS, Chinese CIWS
- Stamp CIWS,Turkish CIWS

External links

- Official United States Navy Warfighters Encyclopedia CIWS page [40]
- GlobalSecurity.org fact file [41]
- Raytheon Company Phalanx CIWS product page. [42]
- Ground based Phalanx in action (video). [43]

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[41] http://www.globalsecurity.org/military/systems/ship/systems/mk-15.htm
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Mark 32 Surface Vessel Torpedo Tubes

The **Mark 32 Surface Vessel Torpedo Tubes** (Mk 32 SVTT) system is a pair of launchers fitted to warships. Each launcher carries three tubes capable of discharging a lightweight torpedo like the → Mk 46, → Mk 50 or Mk 54. Designed for close-in anti-submarine action, compressed air in a rear flask propels the weapon; the flask also acts as the tube's breech door. Depending on the modification (MOD) number of a particular tube, the mount may be manually or remotely operated from stowed to firing positions and may also be within the structure of the ship. Normal launch is electrically initiated by the fire control panel located in the combat information center of the ship. All of the torpedoes launched are fire-and-forget weapons.

A crewman closes the breach of a Mark 32 12.75-inch torpedo launcher aboard the → *Oliver Hazard Perry*-class guided missile frigate → USS *Curts* (FFG-38) during anti-submarine warfare operations off the coast of Southern California

The Mk 32 SVTT, made of fiberglass and aluminum, was originally designed to be weatherproof and capable of protecting loaded torpedoes from the elements; however, the tubes required extensive maintenance to do so. Beginning with the *Spruance*-class destroyer, designers placed Mk 32s inside the superstructure, usually within spaces that allowed additional weapon storage. In a fully ready condition, these tubes could be trained and fired remotely without any direct contact.

The breech device on the Mk 32 consists of a high pressure airflask that could be charged and stowed either on the tube or separately (on inside mounts only). When installed and with the muzzle cover removed, the tube is fired either remotely (electrical) or manually by opening the firing valve and allowing the flask to discharge its "air slug" directly into the tube. A small portion of this air operates a retraint latch and the torpedo is ejected clear of the ship's side where gravity drops it in the water.

See also

- List of Naval Weapon Systems

Mark 46 torpedo

Designed to attack high-performance submarines, the **Mark 46 torpedo** is the backbone of the U.S. Navy's lightweight ASW torpedo inventory, and is the current NATO standard. These aerial torpedoes, such as the Mark 46 Mod 5, are expected to remain in service until the year 2015. In 1989, a major upgrade program for the Mod 5 began to improve its shallow-water performance, resulting in the Mod 5A and Mod 5A(S).

A French *Lynx* helicopter carrying a mk46 torpedo

General characteristics, Mark 46 Mod 5

A MK-46 exercise torpedo launched from *USS Mustin*

- Primary Function: Air and ship-launched lightweight torpedo[1]
- Contractor: Alliant Techsystems
- Power Plant: Two-speed, reciprocating external combustion; Mono-propellant (Otto fuel II)
- Length: 8 ft 6 in (2.59 m) tube launch configuration (from ship)[2] , 14 ft 9 in (4.5 m) with ASROC rocket booster[1]
- Weight: 508 lb (231 kg)[1] (warshot configuration)
- Diameter: 12.75 in (324 mm)[2]
- Range: 12,000 yd (11 km)[1]
- Depth: > 1,200 ft (365 m)
- Speed: > 40 knots (46 mph, 74 km/h)[1]
- Guidance System: Homing mode: Active or passive/active acoustic homing[2]
- Launch/search mode: Snake or circle search
- Warhead: 96.8 lb (44 kg)[1] of PBXN-103 high explosive (bulk charge)
- Date Deployed: 1967 (Mod 0);[1] 1979 (Mod 5)

Yu-7 Torpedo

The Chinese Yu-7 torpedo is said to be based on the Mk 46 mod 1 block 2.[3] Currently the Chinese navy use the Yu-7 primarily as an ASW torpedo, deployed on ships and ASW helicopters.[4]

See also

- CAPTOR mine (a sea mine which incorporates a Mk 46 torpedo)
- MU90 Impact torpedo

External links

- Unofficial U.S. Navy Site: MK-46 Torpedo [5]
- FAS: MK-46 Torpedo [6]

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[3] Chinese Defence Today, “YU-7 Anti-Submarine Torpedo” (http://www.sinodefence.com/navy/weapon/yu7.asp)
[4] (Chinese language) (http://mil.jschina.com.cn/huitong/missile1.htm)
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[6] http://www.fas.org/man/dod-101/sys/ship/weaps/mk-46.htm

Mark 50 torpedo

Mark 50 Advanced Lightweight Torpedo	
 Mark 50 torpedo being fired	
Type	Torpedo
Place of origin	United States of America
Service history	
Used by	United States Navy
Production history	
Designer	Honeywell[1]
Designed	1974
Manufacturer	Alliant Techsystems
Produced	1991-
Specifications	
Weight	750 lb (340 kg)
Length	112 in (2.84 m)
Width	12.75 in (0.32 m)
Warhead	HE shaped charge[1]
Warhead weight	100 lb (45 kg)[1]
Engine	Stored Chemical Energy Propulsion System
Operational range	Classified
Speed	40+ knots (74+ km/h)[1]
Guidance system	Active/passive acoustic homing[1]

The **Mark 50 torpedo** is a U.S. Navy advanced lightweight torpedo for use against fast, deep-diving submarines. The Mk-50 can be launched from all ASW aircraft, and from torpedo tubes aboard surface combatant ships. The Mk-50 was intended to replace the → Mk-46 as the fleet's lightweight torpedo.[1] Instead the Mark 46 will be replaced with the Mark 54 LHT.

The torpedo's Stored Chemical Energy Propulsion System (SCEPS) uses a small tank of sulfur hexafluoride gas which is sprayed over a block of solid lithium, which generates enormous quantities of heat, in turn used to generate steam from seawater. The steam propels the torpedo in a closed Rankine cycle, supplying power to a pump-jet.

General characteristics, Mk-50

Mark 50 propulsor.

- Primary function: air and ship-launched lightweight torpedo[1]
- Contractor: Alliant Techsystems, Westinghouse
- Length: 2.84 m (112 in)
- Weight: 340 kg (750 lb)
- Diameter: 324 mm (12.75 in)
- Speed: > 85 kn
- Power Plant: Stored Chemical Energy Propulsion System[1]
- Guidance system: Active/passive acoustic homing[1]
- Warhead: approximately 45 kg (100 lb) high explosive (shaped charge)[1]

Comparable Weapons

- Sting Ray torpedo

References

- MK-50 Advanced Lightweight Torpedo [2] via FAS
- USA Torpedoes since World War II - navweaps.com [3]

References

[1] Thomas, Vincent C. *The Almanac of Seapower 1987* Navy League of the United States (1987) ISBN 0-9610724-8-2 p.190
[2] http://www.fas.org/man/dod-101/sys/ship/weaps/mk-50.htm
[3] http://www.navweaps.com/Weapons/WTUS_PostWWII.htm

Mk 13 missile launcher

The **Mk-13 guided missile launching system (GMLS)** is a single-arm missile launcher designed for use on → frigates and other military vessels.

A → RIM-66 Standard missile on the **Mk 13 missile launcher** aboard the the French frigate *Cassard*

The Mark 13 is equipped to fire the → RIM-66 Standard, RGM-84 Harpoon, and RIM-24 Tartar missiles for anti-air and anti-ship defense, and is capable of firing the Standard at a rate of one every eight seconds.[1] Its 40-round magazine consists of two concentric rings of vertically-stored missiles, 24 in the outer ring and 16 in the inner. In case of a fire, the system is equipped with magazine sprinkling, CO_2 suppression and booster suppression.

The Mk13 launcher is most typically employed as part of the Mk74 Guided Missile Launch System, or the Mk92 Fire Control System. Though the launcher was original armament on US → *Perry*-class frigates (and their derivatives), in order to save costs on an obsolete system, by 2004 all active US vessels have had the system removed.[2] It was also fitted on *Cassard*-class frigates, as well as the last ten American Charles F. Adams class destroyers, the American California class cruisers, the German Lütjens class destroyers and Australian Perth class destroyers.

Because of its distinctive single-armed design, the Mk 13 is often referred to as the "one-armed bandit."

The **Mk-22 guided missile launching system (GMLS)** is a variation of the Mk-13 launcher which has only the inner 16 round storage ring of the Mk-13 launcher.[1]

External links

- FAS Mk 13 GMLS [3]

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RIM-66 Standard

RIM-66 Standard MR	
 A RIM-66 Standard MR on an Mk-26 launcher	
Type	Medium range surface-to-air missile
Place of origin	United States
Service history	
In service	1967 (RIM-66A SM-1MR Block I) 1979 (RIM-66C SM-2MR)[1]
Used by	United States Navy, Japanese Maritime Self-Defense Force, Royal Netherlands Navy, German Navy, Chilean Navy, and Others
Production history	
Manufacturer	Raytheon and others
Produced	1967 Onwards
Specifications	
Weight	SM-2 – 1558 lb (707 kg)
Length	15 ft 6 in (4.7 m)
Diameter	13.5 in (340 mm)
Warhead	blast fragmentation warhead
Detonation mechanism	radar and contact fuze
Engine	dual thrust, solid fuel rocket
Wingspan	3 ft 6 in (1.1 m)
Operational range	40 to 90 nmi (74 to 170 km)
Flight ceiling	> 24400 m (80000 ft)
Speed	Mach 3.5
Guidance system	SM-2 Block IIIA Command and Inertial midcourse guidance with monopulse semi-active radar homing in the terminal phase of the interception. Block IIIB missiles have additionally dual infrared/semi-active terminal homing. SM-1 missiles have monopulse semi-active radar homing without command and inertial midcourse guidance. [2]

Launch platform	Surface Ship

The **RIM-66 Standard MR** (SM-1MR/SM-2MR) is a medium range surface-to-air missile (SAM) originally developed for the United States Navy (USN). The SM-1 was developed as a replacement for the RIM-2 Terrier and RIM-24 Tartar deployed in the 1950s on a variety of USN ships. It is similar to the RIM-67 Standard (SM-1ER/SM-2ER), but has no rocket booster.

Description

The Standard missile program was started in 1963 to produce a family of missiles to replace existing guided missiles used by the Terrier, Talos, and Tartar guided missile launch systems. The intention was to produce a new generation of guided missiles that could be retrofit to existing vessels.[3]

Standard missile 1

The RIM-66A is the medium ranged version of the Standard missile and was initially used as a replacement for the earlier RIM-24C as part of the Mk74 "Tartar" Guided Missile Fire Control System. It used the same fuselage as the earlier Tartar missile, for easier use with existing launchers and magazines for that system. The RIM-66A/B is a semi-active radar homing missile like the earlier RIM-24C, but with many improvements that make it more capable than its predecessor. The RIM-66A/B Standard MR, (SM-1MR Block I to V) was used during the Vietnam War. The only remaining version in service is the RIM-66E (SM-1MR Block VI). In service with Tartar Guided Missile Fire Control System equipped vessels and Mk 92 Guided Missile Fire Control System equipped vessels.

Standard missile 2

The RIM-66C/D Standard MR (SM-2MR Block I), was developed in the 1970s and was a key part of the Aegis combat system and New Threat Upgrade (NTU). The SM-2MR introduced inertial and command mid-course guidance. The missile's autopilot is programmed to fly the most efficient path to the target and can receive course corrections from the ground. Target illumination for semi-active homing is needed only for a few seconds in the terminal phase of the interception. This capability enables the Aegis combat system and the New Threat Upgrade equipped vessels to time share illumination radars, greatly increasing the number of targets that can be engaged at one time. In the middle 1980s, the SM-2MR was deployed via Mk 41 Vertical Launch System (VLS) aboard the USS *Bunker Hill*, the first U.S. Navy ship to deploy a vertical launcher. VLS is now the predominant launcher used with the Standard missile in the U.S. Navy aboard *Ticonderoga*-class cruisers and *Arleigh Burke*-class destroyers.

The SM-1 and SM-2 were continuously upgraded through Blocks (see below).

The Standard can also be used against ships, either at line-of-sight range using its semi-active homing mode, or over the horizon using inertial guidance and terminal infrared homing.[4]

Contractors

Standard missiles were constructed by General Dynamics Pomona Division until 1992, when it became part of the Hughes Missile Systems Company. Hughes formed a joint venture with Raytheon called Standard Missile Company (SMCo). Hughes Missile Systems was eventually sold to Raytheon making it the sole contractor.[5]

Operational history

The Standard missile one became operational in 1968. The missile was utilized by ships equipped with the Tartar Guided Missile Fire Control System. The missile saw its first combat use in the early 1970s in the Vietnam war. The Standard missile two became operational in the late 1970s and was deployed operationally with the Aegis Combat System in 1983. Both Standard one and two were used against both surface and air targets during Operation Praying Mantis. On July 3, 1988, USS *Vincennes* (CG-49) shot down Iran Air Flight 655, an Airbus A300B2, using two SM-2MR missiles from her forward launcher.[6]

Deployment history

The Standard missile is designated by blocks depending upon their technological package.

SM-1 Medium Range Block I/II/III/IV, RIM-66A

The First Standard missiles entered service in the USN in 1967. Blocks I, II, and III were preliminary versions. Block IV was the production version. This missile was a replacement for the earlier RIM-24C Tartar missile.

Deployment

In the US Navy, RIM-66 Standard was deployed on ships of the following classes, replacing RIM-24 Tartar in some cases:

A RIM-66 being assembled.

- *Charles F. Adams* class destroyer (Mk74 Missile Fire Control)
- → *Oliver Hazard Perry* class frigate (Mk 92 Missile Fire Control)
- *Kidd* class destroyer (Mk74 Missile Fire Control SM-1/later New Threat Upgrade for SM-2)
- *California* class cruiser (Mk74 Missile Fire Control SM-1/later New Threat Upgrade for SM-2)
- *Virginia* class cruiser (Mk74 Missile Fire Control SM-1/later New Threat Upgrade for SM-2)
- *Ticonderoga* class cruiser (Aegis Combat System/Mk99 Missile Fire Control)
- *Arleigh Burke* class destroyer (Aegis Combat System/Mk99 Missile Fire Control)

RIM-66 has also been in service in other navies worldwide, mostly in ships of classes similar to those listed above.

SM-1 Medium Range Block V, RIM-66B

The RIM-66B introduced changes that resulted in higher reliability. A new faster reacting autopilot, a more powerful dual thrust rocket motor, and a new warhead were added.

SM-1 Medium Range Blocks VI/VIA/VIB, RIM-66E

The RIM-66E was the last version of the standard missile one medium range. This version entered service in 1983 [7] with the United States Navy and export customers. The RIM-66E was used by all remaining Tartar vessels that were not modified to use the New Threat Upgrade and → Oliver Hazard Perry class frigates which controlled it with the Mk92 fire control system. The missile was retired from USN service in 2003; however it is still widely used abroard and is expected to remain viable until 2020.[8]

SM-2 Medium Range Block I, RIM-66C/D

The RIM-66C was the first version of the Standard missile two. The missile became operational in 1978 with the Aegis combat system fitted to the Ticonderoga class cruiser. The RIM-66D was the SM-2 medium range block I version for the New Threat Upgrade. The SM-2 incorporates a new autopilot giving it inertial guidance in all phases of flight except for the terminal intercept where semi-active radar homing is still used. This version is no longer in service, remaining missiles have either been remanufactured into later models or have been put in storage.

SM-2 Medium Range Block II, RIM-66G/H/J

The Block II missile introduced in 1983 with a new rocket motor for longer range and a new warhead. The RIM-66G is for the Aegis combat system and the Mk26 missile launcher. The RIM-66H is for Aegis and the Mk41 vertical launcher. The RIM-66J is the version for the New Threat Upgrade.

SM-2 Medium Range Block III/IIIA/IIIB, RIM-66K/L/M

The RIM-66M is the version of the Standard missile two medium range (SM-2MR) currently in service with the USN aboard Ticonderoga class cruisers, and Arleigh Burke class destroyers. The missile is specifically designed for the Aegis Combat System and the Mk41 Vertical launch system. The Block III missiles differ from earlier blocks by the addition of the MK 45 MOD 9 target detecting device, for improved performance against low altitude targets. The Block IIIB missile additionally has a dual semi-active/infrared seeker for terminal homing. The dual seeker is intended for use in high-ECM environments, against targets over the horizon or with a small radar cross section.[9] The seeker was originally developed for the canceled AIM-7R Sparrow air-to-air missile. All USN Block III and IIIA missiles are to be upgraded to Block IIIB. Block IIIA missiles are operated by the Japanese Maritime Self-Defense Force on its Kongo class and Atago class Aegis destroyers. Aegis equipped vessels in the Spanish and South Korean navies use it as well. The Dutch and German Navies have added it to the Anti-Air Warfare system, which uses the Thales Nederland Active Phased Array Radar and Smart-L radar. South Korean KDX-II destroyers use the block IIIA with a New Threat Upgrade compatible guided missile fire control system. Block III variants for Aegis and arm launchers are designated RIM-66L. Block III missiles for New Threat Upgrade systems is designated RIM-66K. Block IIIB missiles were not produced for the New Threat Upgrade. Blocks IIIA and IIIB are the current production versions.

Surface to air variants

Designation	Block	Platform	Notes
RIM-66A	SM-1MR Block I to IV	Digital Tartar	In Service 1967, Conscan radar seeker
RIM-66B	SM-1MR Block V	Digital Tartar	Plane scaning seeker
RIM-66C	SM-2MR Block I	Aegis combat system, Mk26 launcher	MK 115 blast-fragmentation warhead Monopulse seeker for ECM resistance
RIM-66D	SM-2MR Block I	New Threat Upgrade	First New Threat Upgrade version
RIM-66E	SM-1MR Blocks VI, VIA, VIB	Digital Tartar and Mk 92 Fire Control System.	In service 1983. Version still in service with export customers. Adds monopulse seeker developed for Standard missile 2.
RIM-66G	SM-2MR Block II	Aegis combat system, Mk26 launcher	In Service 1983.
RIM-66H	SM-2MR Block II	Aegis combat system, Mk41 Launcher	Added Thiokol MK 104 rocket motor, increasing range High-velocity fragmentation warhead
RIM-66J	SM-2MR Block II	New Threat Upgrade	
RIM-66K-1	SM-2MR Block III	New Threat Upgrade	
RIM-66K-2	SM-2MR Block IIIA	New Threat Upgrade	In Production.
RIM-66L-1	SM-2MR Block III	Aegis combat system, Mk26 launcher	
RIM-66L-2	SM-2MR Block IIIA	Aegis combat system, Mk26 launcher	
RIM-66M-1	SM-2MR Block III	Aegis combat system, Mk41 Launcher	Improved MK 45 MOD 9 target detecting device, for low altitude targets
RIM-66M-2	SM-2MR Block IIIA	Aegis combat system, Mk41 Launcher	MK 125 warhead. In production.
RIM-66M-5	SM-2MR Block IIIB	Aegis combat system, Mk41 Launcher	Missile Homing Improvement Program (MHIP), dual IR / SARH seeker, IR seeker mounted on side fairing. In Production.

Table sources, reference material: [10] [7] [11] [12]

See also

- Aegis combat system
- AGM-78 Standard ARM
- Mk 74 "Tartar" Guided Missile Fire Control System
- Mk 92 Guided Missile Fire Control System
- New Threat Upgrade
- RIM-2 Terrier
- RIM-8 Talos
- RIM-24 Tartar - predecessor
- RIM-67 Standard Extended Range
- RIM-156 Standard SM-2ER Block IV
- RIM-161 Standard SM-3
- RIM-174 Standard SM-6 Extended Range Active Missile

External links

- Raytheon Standard missile website, mfr of Standard missiles [13]
- Navy Fact file - Standard Missile 2 [14]
- NAVAIR War fighters encyclopedia - Standard missile [15]
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[18] http://www.globalsecurity.org/military/systems/munitions/sm-2.htm

Boeing Harpoon

Harpoon	
 A *Harpoon* missile on display at the USS *Bowfin* museum at Pearl Harbor, Hawaii.	
Type	Anti-ship missile
Place of origin	United States
Service history	
In service	1977–present
Production history	
Manufacturer	Boeing Integrated Defense Systems
Unit cost	US$720,000
Specifications	
Weight	1144–1385 lb (519–628 kg) depending on launch platform
Length	15.4 ft (4.7 m)
Diameter	1.1 ft (0.34 m)
Warhead	487 pounds (221 kg)
Engine	rocket engine
Wingspan	3 ft (0.91 m)
Operational range	58–196 mi (93–315 km) depending on launch platform
Flight altitude	Sea-skimming
Speed	537 miles per hour (864 km/h)(240 m/s)
Guidance system	Active radar
Launch platform	multi-platform: • RGM-84A surface-launched • AGM-84A air-launched • UGM-84A submarine-launched

The **Harpoon** is an all-weather, over-the-horizon, anti-ship missile system, developed and manufactured by McDonnell Douglas (now Boeing Integrated Defense Systems). In 2004, Boeing delivered the 7,000th Harpoon unit

since the weapon's introduction in 1977. The missile system has also been further developed into a land-strike weapon, the Standoff Land Attack Missile (SLAM).

The regular Harpoon uses active radar homing, and a low-level, sea-skimming cruise trajectory to improve survivability and lethality. The missile's launch platforms include:

- Fixed-wing aircraft (the **AGM-84**, without the solid-fuel rocket booster)
- Surface ships (the **RGM-84**, fitted with a solid-fuel rocket booster that detaches when expended, to allow the missile's main turbojet to maintain flight)
- Submarines (the **UGM-84**, fitted with a solid-fuel rocket booster and encapsulated in a container to enable submerged launch through a torpedo tube);
- Coastal defense batteries, from which it would be fired with a solid-fuel rocket booster.

The missile is comparable to the French-made Exocet, the Swedish RBS-15, the Russian SS-N-25 Switchblade, the British Sea Eagle and the Chinese Yingji.

Development

Early Harpoons

The Harpoon was first introduced in 1977 after the sinking of the Israeli destroyer *Eilat* in 1967 by a Soviet-built Styx anti-ship missile from an Egyptian missile boat. Initially developed as an air-launched missile for the United States Navy P-3 Orion patrol planes, the Harpoon has been adapted for use on Air Force B-52H bombers, which can carry from eight to 12 of the missiles. The Harpoon has been procured by many U.S. allies, especially by the NATO countries, Canada, Australia, New Zealand, Japan, the United Kingdom, etc.

The Harpoon has also been adapted for use on the F-16 Fighting Falcon, in use by the USA, Singapore, South Korea and the United Arab Emirates. It has been carried by several US Navy aircraft, including the P-3 Orion , the A-6 Intruder, the S-3 Viking, the AV-8B Harrier II, and the F/A-18 Hornet.

The Royal Australian Air Force can fire AGM-84 series missiles from its F-111C/G Aardvarks, F/A-18 Hornets, and P-3C Orion aircraft. The Royal Australian Navy deploys the Harpoon on major surface combatants and in the *Collins*-class submarines. The Spanish Air Force and the Chilean Navy are also AGM-84D customers and deploy the missiles on surface ships, F/A-18s, F-16s, and P-3 Orion aircraft. The British Royal Navy deploys the Harpoon on several types of surface ship and submarine, and the Royal Air Force uses it on the Nimrod MR2 maritime patrol aircraft.

The Canadian frigate HMCS Regina (FFH 334) fires a Harpoon anti-ship missile during a Rim of the Pacific (RIMPAC) sinking exercise.

The Canadian Forces Maritime Command (Canadian Navy) uses Harpoons on its *Halifax*-class frigates. The Royal New Zealand Air Force has the capability of carrying the Harpoon on its five P-3 patrol planes as its only means of striking surface ships.

The Republic of Singapore Air Force also operates five modified Fokker 50 Maritime Patrol Aircraft (MPA) which are fitted with sonars and sensors to fire the Harpoon missile. The Pakistani Navy uses the Harpoon on its → naval frigates and P-3C Orions. The Turkish Navy uses Harpoons on surface combatants and Type-209 submarines. The Turkish Air Force will operate the SLAM-ER.

Fifty-seven Harpoons were reportedly sold to the Republic of China Air Force (Taiwan). The Taiwanese navy also includes four guided-missile destroyers and several guided-missile frigates with the capability of carrying the Harpoon, include the ex-USN *Knox* class frigates and the locally-built derivative of the → *Oliver Hazard Perry* class.

Harpoon Block ID

This version featured a larger fuel tank and re-attack capability, but was not produced in numbers because its intended mission (confrontation with the Soviet Union) was, after 1991, considered unlikely.

SLAM ATA (Block IG)

This version, under development, gives the SLAM a re-attack capability as well as an image comparison capability similar to the Tomahawk cruise missile; that is, the weapon can compare the target scene in front of it with an image stored in its on-board computer during terminal phase target acquisition and lock on.[1]

Harpoon Block II

Harpoon Block II test firing from USS *Decatur*.

In production at Boeing facilities in Saint Charles, Missouri, is the Harpoon Block II, intended to offer an expanded engagement envelope, enhanced resistance to electronic countermeasures and improved targeting. Specifically, the Harpoon was initially designed as an open-ocean weapon. The Block II missiles continue progress begun with Block IE, and the Block II missile provides the Harpoon with a littoral water attack capability.

The key improvements of the Harpoon Block II are obtained by incorporating the inertial measurement unit from the Joint Direct Attack Munition program, and the software, computer, Global Positioning System (GPS)/inertial navigation system and GPS antenna/receiver from the SLAM Expanded Response (SLAM-ER), an upgrade to the SLAM.

Although initially tested from U.S. Navy ships, the decision was made to not procure Harpoon Block II for the U.S. Navy fleet. Boeing lists 28 foreign navies as Block II customers. (http:/ / www. boeing. com/ defense-space/ missiles/harpoon/docs/HarpoonBlockIIBackgrounder.pdf)

Harpoon Block III

Harpoon Block III was intended to be an upgrade package to the existing USN Block 1C missiles and Command Launch Systems (CLS) for guided-missile cruisers, guided-missile destroyers, and the F/A-18E/F Super Hornet airplane. After experiencing an increase in the scope of required government ship integration, test and evaluation, and a delay in development of a data-link, the Harpoon Block III program was canceled by the U.S. Navy in April 2009. Cancellation of Block III however does not preclude the possibility of continued incremental upgrades to the Harpoon missile and launching suite in the future.

Operational history

In 1981 and 1982 there were two accidental launches of Harpoon missiles from US and Danish surface ships.

In 1986, the United States Navy sank at least two Libyan patrol boats in the Gulf of Sidra. Two Harpoon missiles were launched from the USS *Yorktown* with no confirmed results and several others from A-6 Intruder aircraft that were said to have hit their targets.[2] [3] Initial reports claimed that the *USS Yorktown* scored hits on a patrol boat, but action reports indicated that the target may have been a false one and that no ships were hit by those missiles.[4]

In 1988, Harpoon missiles were used to sink the Iranian frigate *Sahand* during Operation Praying Mantis. Another was fired at the Sina class missile boat *Joshan*, but failed to strike because the Fast Attack Craft (FAC) had already been mostly sunk by → RIM-66 Standard missiles. An Iranian Harpoon was also fired at the guided missile cruiser USS *Wainwright*. The missile was successfully lured away by chaff.[5]

In December 1988, a Harpoon launched by an F/A-18 Hornet fighter from the aircraft carrier USS *Constellation*[6] killed one sailor when it struck the *Jagvivek*, a 250 ft (76 m) long Indian merchant ship, during an exercise at the Pacific Missile Range near Kauai, Hawaii. A Notice to Mariners had been issued warning of the danger, but the *Jagvivek* strayed into the test range, and the Harpoon, loaded with an inert dummy warhead, locked onto it instead of its intended target.

In June 2009 it was reported by a U.S.-based newspaper, citing unnamed officials from the US administration and US Congress, that the U.S. government had accused Pakistan of illegally modifying older Harpoon missiles to strike land-based targets. Pakistani officials denied this and claimed the U.S. was referring to a new Pakistani-designed missile.[7] [8] [9] It was later stated that Pakistan and the U.S. administration had reached some sort of agreement allowing U.S. officials to inspect Pakistan's inventory of Harpoon missiles,[10] [11] and the issue had been resolved.[12]

General characteristics

Harpoon Block II test firing from USS *Thorn*.

- Primary function: Air-, surface-, or submarine-launched anti-surface (anti-ship) missile
- Contractor: The McDonnell Douglas Astronautic Company - East
- Power plant: Teledyne Teledyne J402 turbojet, 660 lb (300 kg)-force (2.9 kN) thrust, and a solid-propellant booster for surface and submarine launches
- Length:
  - Air launched: 3.8 metres (12 ft) 7 in)
  - Surface and submarine launched: 4.6 metres (15 ft)
- Weight:
  - Air launched: 519 kilograms (1140 lb)
  - Submarine or ship launched from box or canister launcher: 628 kilograms (1380 lb)
- Diameter: 340 millimetres (13 in)
- Wing span: 914 millimetres (36.0 in)
- Maximum altitude: 910 metres (3000 ft) with booster fins and wings
- Range: Over-the-horizon (approx 50 nautical miles)
  - AGM-84D: 220 km (120 nmi)
  - RGM/UGM-84D: 140 km (75 nmi)

  - AGM-84E: 93 km (50 nmi)
  - AGM-84F: 315 km (170 nmi)
  - AGM-84H/K: 280 km (150 nmi)
- Speed: High subsonic, around 850 km/h (460 knots, 240 m/s, or 530 mph)
- Guidance: Sea-skimming cruise monitored by radar altimeter, active radar terminal homing
- Warhead: 221 kilograms (490 lb), penetration high-explosive blast
- Unit cost: US$720,000
- Date deployed:
  - Ship launched (RGM-84A): 1977
  - Air launched (AGM-84A): 1979
  - Submarine launched (UGM-84A): 1981
  - SLAM (AGM-84E): 1990
  - SLAM-ER (AGM-84H): 1998 (delivery); 2000 (initial operational capability (IOC))
  - SLAM-ER ATA (AGM-84K): 2002 (IOC)

External links

- Official Harpoon information [13] – Boeing Integrated Defense System website
- Detailed information of all Harpoon versions and upgrades [14] – From Encyclopedia Astronautica
- AGM-84 variants [15]
- McDonnell-Douglas AGM-84A Harpoon and AGM-84E SLAM [16]
- FAS Harpoon article [17]
- Global Security Harpoon article [18]
- Boeing Harpoon Block III Press Release [19]
- Boeing Harpoon Block II Backgrounder [20]
- Royal Netherlands Navy launches Harpoons from new frigate HMS De Ruyter (Defense-Aerospace) [21]
- Boeing F/A-18 fires AGM-84 [22] Digital Military Art

References

[1] Global Security Harpoon article
[2] Time (magazine). High-Tech Firepower (http://www.time.com/time/magazine/article/0,9171,961035,00.html). April 7, 1986.
[3] Ronald Reagan. Letter to the Speaker of the House of Representatives and the President Pro Tempore of the Senate on the Gulf of Sidra Incident (http://www.reagan.utexas.edu/archives/speeches/1986/32686h.htm). March 26, 1986.
[4] The New York Times. PENTAGON REVISES LIBYAN SHIP TOLL. March 27, 1986.
[5] The New York Times. U.S. STRIKES 2 IRANIAN OIL RIGS AND HITS 6 WARSHIPS IN BATTLES OVER MINING SEA LANES IN GULF (http://query.nytimes.com/gst/fullpage.html?res=940DE0DC1038F93AA25757C0A96E948260). April 19, 1988.
[6] The New York Times / AP. U.S. Rocket Hits Indian Ship Accidentally, Killing Crewman (http://query.nytimes.com/gst/fullpage.html?res=940DEEDA1F3AF930A25751C1A96E948260). December 13, 1988.
[7] The New York Times. U.S. Says Pakistan Made Changes to Missiles Sold for Defense (http://www.nytimes.com/2009/08/30/world/asia/30missile.html) August 29, 2009
[8] Rediff.com / PTI. Pakistan illegally modified Harpoon missile: Report (http://news.rediff.com/report/2009/aug/30/pakistan-modified-missile-to-use-against-india-says-us-report.htm). August 30, 2009.
[9] The Times of India / PTI. Harpoon missile modification by Pak very serious: US (http://timesofindia.indiatimes.com/news/world/us/Harpoon-missile-modification-by-Pak-very-serious-US/articleshow/4957845.cms). September 1, 2009.
[10] Dawn News. http://www.dawn.com/wps/wcm/connect/dawn-content-library/dawn/news/pakistan/09-pakistan-allows-us-to-inspect-harpoons--szh-11
[11] India TV News. http://www.indiatvnews.com/main/newsdetails.php?id=3479&pg=index
[12] http://thenews.jang.com.pk/updates.asp?id=87764
[13] http://www.boeing.com/defense-space/missiles/harpoon/index.htm
[14] http://www.astronautix.com/lvs/harpoon.htm
[15] http://www.designation-systems.net/dusrm/m-84.html
[16] http://www.ausairpower.net/TE-Harpoon.html

[17] http://www.fas.org/man/dod-101/sys/smart/agm-84.htm
[18] http://www.globalsecurity.org/military/systems/munitions/agm-84.htm
[19] http://www.boeing.com/news/releases/2008/q1/080131a_nr.html
[20] http://www.boeing.com/defense-space/missiles/harpoon/docs/HarpoonBlockIIBackgrounder.pdf
[21] http://www.defense-aerospace.com/cgi-bin/client/modele.pl?prod=100076&session=dae.43173607.1227915838.b123k38AAAEAAA87SX0AAAAG&modele=release&prod=100076
[22] http://www.digitalmilitaryart.com/Modern/Harpoon2D.jpg.php

Penguin (missile)

Penguin	
	
Type	littoral anti-ship missile
Place of origin	Norway
Service history	
In service	1972
Production history	
Manufacturer	Kongsberg Defence & Aerospace
Specifications	
Weight	385 kg (MK2), 370 kg (MK3)
Length	3.0 m (MK2), 3.2 m (MK3)
Diameter	28 cm
Warhead	120 kg (MK2), 130 kg (MK3)
Detonation mechanism	delay fuse
Engine	Solid propellant sustainer
Wingspan	1.4 m (MK2), 1.0 m (MK3)
Operational range	34+ km (MK2), 55+ km (MK3)
Flight altitude	sea skimming
Speed	high subsonic
Guidance system	pulse-laser, passive IR (MK2), passive IR, radar altimeter (MK3)
Launch platform	naval ships, helicopters (MK2), fixed-wing aircraft (MK3)

The **Rb 12 Penguin** anti-ship missile (U.S. designation **AGM-119**), made by Kongsberg Defence & Aerospace (KDA)[1] [2] of Norway from the early 1970s and continually upgraded since, is a passive-IR seeker based short-to-medium range naval cruise missile. It was the first AShM of the western world with an IR seeker (instead of the commonly used active radar technology).

The Penguin can be fired singly or in coordinated-arrival salvoes. Propelled by a solid rocket engine, it performs random weaving maneuvres at target approach and hits the target close to the waterline. Of the western inventory of

such missiles, it is the only variant that performs a terminal bunt and weave manoeuvre. The modified 120 kg warhead detonates inside the target ship by using a delay fuse.

In its various versions, the Penguin can be launched from a number of different weapons platforms:

- Surface vessels: Missile boats;its initial application—as well as larger ships
- Fighter aircraft: certified for F-16
- Helicopters (certified for the following aircraft):
  - Bell 412 SP
  - Kaman → SH-2 Seasprite
  - Sikorsky S-70 series (SH-60 Seahawk, UH-60 Black Hawk)
  - Westland Super Lynx

KDA's successor to the Penguin is the Naval Strike Missile (NSM), offered from 2007 onwards. NSM features an imaging IR-seeker, GPS navigation, a turbojet sustainer engine (for much longer ranges: 150+ km), and significantly more computer performance and digital signal processing power.

South African Air Force Mirage F1AZ armed with Penguin Missiles [3]

Operators

Norway

In service with both the Royal Norwegian Navy (since 1972) and Royal Norwegian Air Force (since 1989)

Turkey

In service with the Turkish Navy (since 1972)

Greece

In service with the Hellenic Navy (since 1980)

Sweden

In service with the Swedish Navy (since 1980)

United States

In service with the United States Navy as the **AGM-119** (since 1994)

Australia

Procured for service with the Royal Australian Navy's Super Seasprite helicopters

Spain

In service with the Spanish Navy (since 2003)

South Africa

In service with the South African Air Force

Brazil

Acquired eight missiles for use in Brazilian Navy's S-70B helicopters[4]

External links

- Video of ship-launched Penguin Mk2 missiles being test fired in Norway [5] – By the RNoN 22nd FPB Squadron
- Official Penguin webpage (KDA) [6]
- Missile.index search [7] – Choose* **Development-Country:** "Norway", then pick "Penguin" from the results list (* direct linking to subpages is not possible at this website)

References

[1] Early development of the Penguin was done by the Norwegian Defence Research Establishment (NDRE; Norw. *FFI*) during the 1960s.

[2] Kongsberg Defence & Aerospace (KDA) was formerly a part of *Kongsberg Våpenfabrikk* (*KV*) (1814–1986) and *Norsk Forsvarsteknologi* (*NFT*) (1987–1994), and is now part of *Kongsberg Gruppen* (*KOG*).

[3] http://newsite.ipmssa.za.org/images/stories/kb/aircraft/f1/f1az_48_open.jpg

[4] Diário Oficial da União (https://www.in.gov.br/imprensa/visualiza/index.jsp?jornal=3&pagina=47&data=22/12/2008)

[5] http://www.youtube.com/watch?v=Mw9f3SQbLJQ

[6] http://www.kongsberg.com/eng/kda/products/Missiles/

[7] http://missile.index.ne.jp/cgi/misearch.cgi?act=cond&lang=en

Electronics and Countermeasures

AN/SPS-49

AN/SPS-49

AN/SPS-49 on USS *Abraham Lincoln* (CVN-72)

Country of origin	United States
Introduced	1975
Number built	200+
Type	2D Air-search
Frequency	L band 850–942 MHz
Range	250 nmi (460 km)
Altitude	up to 150,000 ft (45,720 m)
Diameter	24 ft (7.3 m) × 14 ft 3 in (7.3 m × 4.3 m)
Azimuth	0-360°
Precision	0.03 nmi range 0.5 deg azimuth (SPS-49(V)5)

The **AN/SPS-49** is a United States Navy two-dimensional, long range air search radar built by Raytheon that is capable of providing contact bearing and range. The radar is also used by several other countries, such as Australia, Canada, Spain, Poland and Taiwan aboard → *Oliver Hazard Perry*-class frigates and Canadian *Halifax*-class frigates.

Operation

First tested in 1965 aboard USS *Gyatt* (DD-712) and introduced in 1975, the SPS-49 serves as a primary air-search radar aboard numerous ships world wide. It is also serves in a complementary role aboard Aegis cruisers with the AN/SPY-1. It is an L band radar operating in the 850–942 MHz band and has a range of 250 nautical miles (460 km). The orange-peel parabolic shape of the antenna creates a narrow 3.3° beam reducing the probability of detection or jamming. It is also capable of rotating at 6 rpm for long range mode or 12 rpm in short range mode.[1] To guard against incoming missiles, default operation of the AN/SPS-49A(V)1 is at 12 rpm, in order to provide more frequent scans. The SPS-49A is capable of full-range detection in either 6 or 12 rpm modes.

Variants

- AN/SPS49(V)1 - Baseline radar (Various CVN, LHA, LSD and other ships)
- AN/SPS49(V)2 - (V)1 radar without the coherent side lobe cancellation feature (→ *Oliver Hazard Perry*-class frigates)
- AN/SPS49(V)3 - (V)1 radar with the radar video processor (RVP) interface (FC-1) (USS *Long Beach* (CGN-9))
- AN/SPS49(V)4 - (V)2 with the RVP interface (→ *Oliver Hazard Perry*-class frigates)
- AN/SPS49(V)5 - (V)1 with automatic target detection (ATD) (New Threat Upgrade (NTU) ships)
- AN/SPS49(V)6 - (V)3 system with double shielded cables and a modified cooling system (USS *Ticonderoga* (CG-47))
- AN/SPS49(V)7 - (V)5 system with a (V)6 cooling system (Aegis combat system)
- AN/SPS49(V)8 - (V)5 system enhanced to include the AEGIS Tracker modification kit (Aegis combat system)
- AN/SPS49(V)9 - (V)5 with medium PRF upgrade (MPU)

Source:[1]

- AN/SPS-49A(V)1 - Developed in the mid 1990s. Added radial speed determination on each target, each scan. Improved clutter rejection

See also

- List of radars

External links

- GlobalSecurity AN/SPS-49 [2]
- Electronics Technician Volume 4-Radar Systems [3] - via Tpub

References

[1] NAVAIR warfighter encyclopedia (https://wrc.navair-rdte.navy.mil/warfighter_enc/weapons/SensElec/RADAR/ansps49.htm)
[2] http://www.globalsecurity.org/military/systems/ship/systems/an-sps-49.htm
[3] http://www.tpub.com/content/et/14089/css/14089_26.htm

AN/SPS-55

AN/SPS-55

AN/SPS-55 antenna on → USS *Samuel B. Roberts* (FFG-58)

Country of origin	United States
Introduced	1971
Type	Surface-search
Frequency	I band (9.05 to 10.0 GHz)
Range	greater than 50 nautical miles (92.6 km)[1]
Azimuth	1.5º
Elevation	-10° to +10°, centered on the horizon
Power	130 kW

The **AN/SPS-55** is a solid state surface search and navigation radar. It was developed by Cardion Electronics for the U.S. Navy under a contract awarded in 1971. It was originally developed for a class of ships known as Patrol Frigates, but it was also installed on numerous Cruisers, Destroyers and Minesweepers. It is an I band radar and its antenna consists of two waveguide slotted arrays mounted back-to-back. One array provides linear polarization and the other provides circular polarization. Polarization is user selectable and the circular polarized array is more effective in reducing returns from precipitation.[2]

Features

- Magnetron transmitter
- Low noise RF receiver
- Sensitivity time control (STC)
- Fast time constant filtering (FTC)
- Sector radiate (SR)

The effective range of the radar is from 50 feet (15 m) to beyond 50 miles (80 km). It is primarily used to detect other ships, coastlines and navigation hazards.

The "Sensitivity Time Control" automatically adjusts the gain of the RF receiver from low to high based on the time elapsed from the last transmitter pulse. This helps to adjust for the fact that near by targets generate a larger return than distant targets of the same size.

The "Fast Time Constant Filtering" helps to remove targets which have a very large range size, like clouds, while passing targets with a smaller range size, like ships or aircraft.

The "Sector Radiate" allows the operator to turn off the transmitter for any sized pie shaped sector of the antenna's 360 degree rotation. An operator might want to do this to avoid detection by an enemy receiver which with a known or suspected location.

Platforms

- *Ticonderoga*-class cruisers
- *Virginia*-class cruisers
- *Spruance*-class destroyers
- → *Oliver Hazard Perry*-class → frigates
- Avenger class countermeasure ship

References

[1] AN/SPS-55 (http://www.fas.org/man/dod-101/sys/ship/weaps/an-sps-55.htm) at fas.org.

[2] Electronics Technician Vol 7 - AN/SPS-55 (http://www.tpub.com/content/et/14092/css/14092_52.htm)

AN/SPS-55 antenna on USS Nicholson (DD-982).

External links

- GlobalSecurity.org - AN/SPS-55 (http://www.globalsecurity.org/military/systems/ship/systems/an-sps-55.htm)
- FAS.org - AN/SPS-55 (http://www.fas.org/man/dod-101/sys/ship/weaps/an-sps-55.htm)
- GlobalSecurity.org: CG-47 Ticonderoga-class (http://www.globalsecurity.org/military/systems/ship/cg-47-specs.htm)
- Electronics Technician Vol 7 - AN/SPS-55 (http://www.tpub.com/content/et/14092/css/14092_52.htm)
- NAVAIR warfighters encyclopedia - AN/SPS-55 (https://wrc.navair-rdte.navy.mil/warfighter_enc/weapons/SensElec/RADAR/sps55.htm)

AN/SLQ-25 Nixie

SLQ-25 Nixie aboard USS *Iowa* (BB-61)

The **AN/SLQ-25 Nixie** and its variants are towed torpedo decoys used on US and allied warships. It consists of a towed decoy device and a shipboard signal generator. The decoy emits signals to draw a torpedo away from its intended target.

The Nixie attempts to defeat a torpedo's passive sonar by emitting simulated ship noise, such as propeller and engine noise, which is more attractive than the ship to the torpedo's sensors.

The more modern AN/SLQ-25B includes equipment of the AN/SLQ-25A (refreshed variant of the AN/SLQ-25 to include fiber optic towed cable and COTS equipment) and incorporates a towed array sensor to detect submarines and incoming torpedoes. The AN/SLQ-25B also incorporates additional active sonar decoys by receiving, amplifying, and returning "pings" from the torpedo, presenting a larger false target to the torpedo.

Typically, larger ships may have two Nixie systems mounted on the rear of the ship to allow operation singularly or in pairs while smaller ships may have only one system.

Under a joint UK/ US Memorandum of Understanding, the UK MoD and the US DoD are furthering torpedo survivability systems. The US is currently working on an Active Source programme called the DCL Technology Demonstrator programme and the UK has developed and entered into service the S2170 Surface Ship Torpedo Defence system.

External links

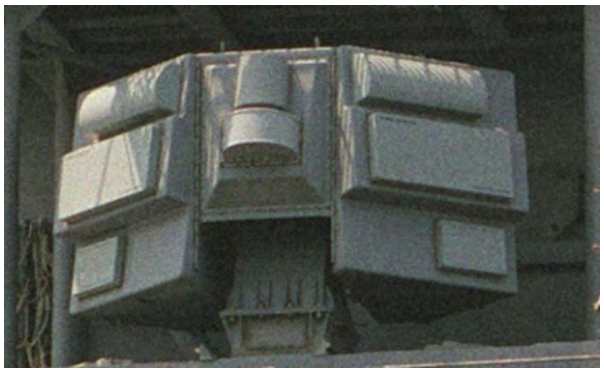
- http://www.fas.org/man/dod-101/sys/ship/weaps/an-slq-25.htm
- http://www.sfu.ca/casr/101-navnixie.htm (available here [1])
- http://www.janes.com/extracts/extract/juws/juws0325.html

References

[1] http://web.archive.org/web/20040612053314/http://www.sfu.ca/casr/101-navnixie.htm

AN/SLQ-32 Electronic Warfare Suite

The **AN/SLQ-32** is a shipboard electronic warfare suite built by the Raytheon Company of Goleta, California. It is currently the primary electronic warfare system in use by U.S. Navy ships (as of 2007).



The AN/SLQ-32(V)3 antenna aboard USS Nicholson (DD-982).

Variants

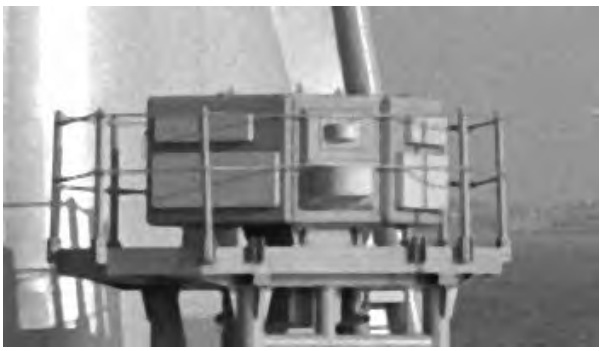
Referred to by it operators as the "slick-32", the SLQ-32 was conceived in the 1970s to replace the AN/WLR-1, which had been in service since the early 1950s. As originally designed, the SLQ-32 was produced in three variants, the (V)1, (V)2 and (V)3. Later in its service life, two additional versions were built, the (V)4 and (V)5.

The AN/SLQ-32(V)1 antenna aboard USS Bowen (FF-1079).

- **SLQ-32(V)1 –** A simple threat warning receiver, it was capable of receiving high-band radar signals of the type commonly carried on missiles and aircraft. The (V)1 was installed on auxiliary ships and small combatants such as → frigates. This variant of the system is being phased out as current ships equipped become decommissioned.
- **SLQ-32(V)2 –** Initially the most common variant, the (V)2 added the ability to receive surveillance and targeting radars. This provided a passive targeting capability for Harpoon missile-equipped ships. The (V)2 was installed on frigates, destroyers, and 270-foot (82 m) Coast Guard Cutters.
- **SLQ-32(V)3 –** Expanding on the (V)2's capabilities, the (V)3 added active radar-jamming capability. The (V)3 was installed on various combatants such as cruisers, battleships, large amphibious ships and high-value replenishment vessels.
- **SLQ-32(V)4 –** Designed for installation on aircraft carriers, the (V)4 consisted of two (V)3 systems, one for each side of the ship, tied to a common computer and display console. Additional line replaceable units and software were added to support the wide separation of the two antenna/electronics enclosures.

- **SLQ-32(V)5 –** The (V)5 was built as a response to the → Stark incident in 1987. The (V)5 incorporated a compact version of the (V)3 system intended to give active jamming capability to the → *Perry* class FFG's, which were too small to carry a full (V)3.

Sidekick jamming antenna on → USS Ford (FFG-54) part of (V)5.



The AN/SLQ-32(V)2 antenna aboard USS Donald B. Beary (FF-1085).

All versions of the SLQ-32, with the exception of the (V)4, are interfaced with the → MK36 Decoy Launching System, able to launch chaff and infrared decoys under the control of the SLQ-32. The number and arrangement of MK36 launchers installed depends on the size of the ship, ranging from two launchers on a small combatant to as many as ten on an aircraft carrier. A growing number of systems are being upgraded to incorporate the multi-national MK-53 Nulka system.

The original modular design was intended to allow upgrades of the system from one variant to the next by simply installing additional equipment as required. Starting in the early 1990s, a program was begun to upgrade all SLQ-32s in the U.S. fleet. Most (V)1 systems were upgraded to (V)2, and most (V)2 systems were upgraded to (V)3. This was normally carried out during a major ship overhaul.

Contract

AN/SLQ-32 console aboard USS Iowa (BB-61).

The initial procurement process was built around a “design to price” concept in which the final delivery cost per system was fixed in the contract. The SLQ-32 was designed to support the protection of ships against anti-ship missiles in an open sea environment. After initial deployment of the system, naval roles began to change requiring ships to operate much closer to shore in denser signal environments. This change in roles required changes to the SLQ-32 systems which were added over time. With experience gained working with the SLQ-32, coupled with improvements to the hardware and software, technicians and operators gradually overcame the initial problems. The SLQ-32 is now the mainstay of surface electronic warfare in the U.S. Navy and U.S. Coast Guard's WMEC 270-foot (82 m) Class Ships.

Future

In 1996, a program called the *Advanced Integrated Electronic Warfare System* (AIEWS) was begun to develop a replacement for the SLQ-32. Designated the AN/SLY-2, AIEWS reached the prototype stage by 1999, but funding was withdrawn in April 2002 due to ballooning costs and constant delays in the projects development. It has since been replaced with General Dynamics' *Surface Electronic Warfare Improvement Program* (SEWIP), which will build on the existing SLQ-32 hardware and technology in an evolutionary fashion.

See also

- Electronic Warfare
- ELINT
- U.S. Navy
- Raytheon

External links

- Federation of American Scientists: AN/SLQ-32 Electronic Warfare (EW) system [1]
- Raytheon Poduct Description for the AN/SLQ-32 [2]
- AN/SLQ-32 in the *Warfighters Encyclopedia* [3]
- AN/SLQ-32(V)5 Data Sheet [4]
- EXHIBIT R-2, RDT&E Budget Item Justification [5]
- Surface Electronic Warfare Improvement Program (SEWIP) [6]

References

[1] http://www.fas.org/man/dod-101/sys/ship/weaps/an-slq-32.htm
[2] http://www.raytheon.com/products/slq32/
[3] https://wrc.navair-rdte.navy.mil/warfighter_enc/weapons/SensElec/cm/slq32.htm
[4] http://www.raytheon.com/products/stellent/groups/sas/documents/asset/slq32.pdf
[5] http://www.globalsecurity.org/military/library/budget/fy2007/navy-peds/2007-0604757n.pdf#
[6] http://www.gd-ais.com/capabilities/offerings/marketing/sewip.pdf

Mark 36 SRBOC

The BAE Systems **Mark 36 Super Rapid Blooming Offboard Chaff** (abbreviated as **SRBOC** or "Super-arboc") is a short-range mortar intended to launch chaff or infrared decoys within the vicinity of naval vessels, with the purpose of foiling anti-ship missiles. Each launcher has four tubes set at a 45-degree angle, and two tubes set at a 60 degree angle, providing an effective spread of decoys and countermeasures to defeat radio frequency emitting missiles. The SRBOC can also be fitted with the TORCH infrared "flare" decoy system. A typical ship's load is 20 to 35 rounds per launcher.

The Mk. 36 SRBOC is in use with 19 navies around the world. It is very similar to the NATO Sea Gnat system.

Two Mark 36 Mod 7 Super Rapid Bloom Off-board Chaff (SRBOC) system launchers aboard the battleship USS Wisconsin (BB-64) during Operation Desert Storm.

External links

- Federation of American Scientists page [1]
- SRBOC Factsheet [2]

References

[1] http://www.fas.org/man/dod-101/sys/ship/weaps/mk-36.htm
[2] http://www.fas.org/man/dod-101/sys/ship/weaps/mk36-srboc.pdf

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