

The Flying Minehunters - The 14th minecountermeasures squadron of the U.S. Navy

One of the greatest dangers to shipping in areas of crisis are even today mines. The U.S. Navy relies heavily on helicopters for reconnaissance and clearing of mine fields.



The identification and destruction of mines is made more difficult by the different variants of possible trigger devices. Mines can be equipped with detonators, reacting to sound, magnetism, contact or a combination hereof. Some are moored on the seabed and float a few meters below the surface. The best minecountermeasures system are ineffective, if counting devices are added to the triggering mechanism, arming the trigger only if the preset number of contacts have passed. Adding to the danger, mines compared to the potential destruction power are cheap to produce and therefore employed in large numbers. During the Iran-Iraq-war and the Gulf War more than a thousand mines were laid by Iraq, inflicting partly heavy damage also on U.S. ships. For destruction of mines all maritime states have mine-countermeasure ships of differing capacity available, and some also use airborne systems for the purpose. That potential minefields are scouted and combated by helicopters is not only done by the U.S. Navy, which operates for the purpose two active squadrons, two reserve squadrons and a conversion unit. Others include the Japan Maritime Defence Force, which operates 11 S-80M largely resembling the MH-53E, as well as the Russian Navy and its former ally, the Navy of the German Democratic Republic, using special versions of the Mil Mi-14 "Haze" maritime helicopter. As a relict of the close ties between the U.S. and Iran, the today Islamic Republic of Iran Navy is presumed to still operate between 10 and 20 RH-53D "Sea Stallions" delivered in the 1970's and having received some spares from the U.S. Navy on their aborted operation "Eagle Claw" to liberate the Americans held hostage in the U.S. embassy, as they left six undamaged aircraft in the desert.

HM-14 "Sea Stallions"

One of these units is HM-14 "Sea Stallions", which is homebased at NAS Norfolk, VA. The squadron is equipped with the largest and most powerful helicopter in the west, the Sikorsky MH-53E "Sea Dragon". The officially Helmineron-14 named unit was established on 12. May 1978, and gained reputation for their employment during the Gulf War. It could, operating from different vessels, destroy or neutralize most of the mines laid by Iraqi forces. But already before that the unit showed its best on different occasions, and therefore the list of honours and recommendations is long; it runs from five unit combat-efficiency awards to a special medal of honour by the U.S. Coast Guard for participation and support in localising and transport of containers with potentially dangerous content, which had toppled into the Delaware Bay from a cargo ship during a storm.

A sad point in the squadron history was the participation in the ill-fated hostage liberation mission "Eagle Claw" in Iran in 1980, during which due to a chaotic mission abortion one helicopter RH-53D Super Stallion was lost and several soldiers were killed.

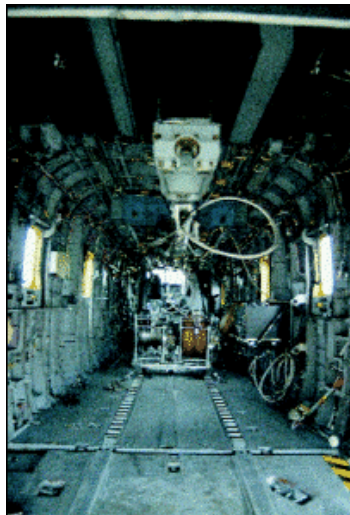


Fifty-four officers and 603 enlisted personnel are part of the squad, which is the largest combat-ready squadron of the U. S. Atlantic fleet. For deployments or exercises eight aircraft can be deployed onboard special anti-mine ships like the USS Inchon, which was converted from a transport ship for the U.S. Marine Corps for the purpose. On board of USS Inchon the "Sea Stallions" already participated in 1993 in the "Blue Harrier"-exercise off the coast of Denmark, where they were awaited again in the spring of 1997.

The Sikorsky MH-53E "Sea Dragon"

The Sea Dragon is an enlarged and significantly more powerful deduction of the CH-53 Super Stallion, also used by the German "Heeresflieger" as the CH-53G. The original aircraft was developed to the CH-53E "Super Stallion", which introduced third turbine on the left side of the fuselage, what necessitated a new main rotor, which has now seven blades of increased span and width. All 204 aircraft built suffer problems with the rotor head, which are presently corrected during routine overhauls. Of the total number 54 aircraft are MH-53E. Like in the basis version the tailrotor-rotation plane is tilted to port, to add lift. Thus a torque forward is generated, which accelerates forward flight. Without this effect the main rotor blades passing the forward fuselage would collide with it at high flying speeds.

To have sufficient fuel for the long flights connected with mine-countermeasures missions, fairings made of composite material were added to both sides of the fuselage, and easily identify the "Sea Dragon" from their more numerous brother, the "Super Stallion". With this feat the internal fuel rose to 12.100 metric litres. With this the aircraft can stay on station for four hours with half an hour flying time from base or achieve a ferry range of around 1000 kilometers. Maximum speed is given with 270 km/h, standard speed with 150 km/h and more. The mission altitude is around 150 ft over the sea. Air-to-air refuelling is possible by a probe on the right side of the fuselage, which can be extended to three-times the length of the retracted position. Usually C-130 Hercules transports serve as flying gas stations.



To help the pilot see, whether the mine-sled Mk-105 rides well on the water, a mirror is mounted on both sides of the fuselage, which can be adjusted by the crew from the cockpit. The mirrors also help to transport heavy and bulky loads slung on a fuselage hook,

which can take loads up to 16.300 kg. This lifting capability also allows the removal of crashed aircraft from flight decks as well as supply of ships at sea with goods of all kind. 55 combat ready troops can be carried in the cabin. In the cabin is also the winch, whose 500 ft cable tows the minesled, and which can take a tension of 13 metric tons. With this winch active sonar bojes can be lowered into the water, which provide an exact picture of the potential mine field. For these missions depending on the type of equipment used five to seven crew members are needed.

Tactics and equipment

As soon as reports on enemy mines are received by the fleet, an aircraft flies to the area, to get a sonar picture with the mine-hunting device Q-14, which uses a side-looking multibeam sonar. With this tool the crew of the Sea Dragon can detect, classify and mark the present mines. The real-time transmission inside the helicopter permits maximum flexibility and minimum reaction times. Additionally the sonar pictures can be recorded on video, to allow



the tactics personnel large scale analysis. With the received informations the GPS coordinates of the area to be cleared can be determined, which can be split among several aircraft. The width of the corridors determines the rate of mine clearing. The procedure is ordered by the fleet commander and depends on the available time and the acceptable risk to the fleet, as a mine field cannot always be cleared completely due to the time available. The turning points are outside the determined clearing area to ensure maximum precision.

To fulfill the mission five different types of mine-hunting equipment are used by the squad:

Mk103 is a system to cut moored mines. By cutting their attachment cables they float to the surface and are neutralized by special ships.

Mk104 is used to detonate acoustic mines. The probe is towed through the water and produces a sound through a venturi-pipe, which resembles larger merchant ships.

Mk105 is known as the "sled", which is used to detonate magnetic mines. With this a hydrofoil resembling platform and the integrated conductor a magnetic field is created, to simulate an undegaussed ship. The sled is so large, it cannot be lowered from the helo, but has to be attached to the towing-cable while floating in the water.



Mk106 is a combination of Mk104 and 105. SPU-1 is used for shallow-water mines and is a 30ft long tube filled with foam, which is magnetized before the mission, and simulates the magnetic signature of most shallow-water ships. Up to three of these tubes can be hooked together.

Although unusual for European conditions the speed and flexibility of air-borne minesweeping are strong arguments for the operation of these large and heavy helicopters, which have lost nothing of the helo's proverbial flexibility albeit their highly specialized role.