NOAA Backgrounder

MD 500D Helicopter: NOAA's Ship-Based Aerial Photography Platform

NOAA's MD 500D helicopter is the smallest aircraft in the agency's research fleet. It serves as an outstanding platform for observation and aerial photography for several of NOAA's diverse environmental science missions. The helicopter is often deployed aboard the NOAA ship *David Starr Jordan* for marine mammal surveys in the eastern tropical Pacific Ocean (ETP). In addition to ship-based operations, the helicopter serves as a highly maneuverable platform for low-level surveys and remote landing site operations. It can be flown with the doors removed, enabling unobstructed visibility from both sides. The helicopter's unique ability to hover and land virtually anywhere makes this platform crucial to scientists working in remote areas inaccessible by any other means of transportation. The MD 500D helicopter is also well suited for marine sanctuary overflights, ship grounding investigations, oil spill surveying, hurricane damage assessments, and overseeing other environmental hazards.

A WORD ABOUT NOAA. . .

The National Oceanic and Atmospheric Administration (NOAA) conducts research and gathers data about the global oceans, atmosphere, space, and sun, and applies this knowledge to science and service that touch the lives of all Americans.

NOAA warns of dangerous weather, charts our seas and skies, guides our use and protection of ocean and coastal resources, and conducts research to improve our understanding and stewardship of the environment which sustains us all.

A Commerce Department agency, NOAA provides these services through five major organizations: the National Weather Service, the National Ocean Service, the National Marine Fisheries Service, the National Environmental Satellite, Data and Information Service, and Office of Oceanic and Atmospheric Research; and numerous special program units. In addition, NOAA research and operational activities are supported by the Nation's seventh uniformed service, the NOAA Corps, a commissioned officer corps of men and women who operate NOAA ships and aircraft, and serve in scientific and administrative posts.

For further information: NOAA Office of Public Affairs, 14th Street and Constitution Avenue NW, Room 6013, Washington, D.C. 20230. Phone: (202) 482-6090.

Surveying Dolphins from the Sky

The MD 500D helicopter was added to the NOAA fleet in 1987 as a direct result of amendments to the Marine Mammal Protection Act (MMPA) and concern regarding the high rate of dolphin mortality caused by the yellowfin tuna purse seine fishery in the ETP. The MMPA tightened rules for U.S. fishing vessels, which resulted in fewer dolphins killed in this fishery. Foreign fishing boats were not subject to the requirements of the MMPA, so the U.S. Congress amended the MMPA in 1984 to tighten the importation requirements for fish harvested by foreign tuna vessels in the ETP. Foreign nations exporting yellowfin tuna to the United States were required to maintain a regulatory program for marine mammal protection similar to that of the United States. To ensure that tuna fishing vessels were complying with the regulations and that dolphins were protected, Congress appropriated funds to conduct dolphin abundance surveys in the ETP. NOAA's MD 500D helicopter became an integral part of that program.

The helicopter carries up to three scientists/marine mammal observers and has two aerial reconnaissance

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cameras mounted on the belly for vertical aerial photography. Vertical photographs of dolphin schools are taken with the time, date, position, and altitude annotated on each one. The photos are later analyzed by the NOAA National Marine Fisheries scientists to measure the length of individual animals and to count the number of dolphins in each school. This information, in addition to ship-based observer estimates of dolphin school size, is used to assess the abundance of dolphin in the ETP and regulation compliance by tuna fishermen.

A Versatile Research Platform

The MD 500D helicopter is extremely versatile in mission profile and operational parameters in its standard configuration. It can be flown at speeds ranging from a hover up to 150 knots and can accommodate an equipment operator and one pilot. As the only aircraft capable of operating off of the *David Starr Jordan*, the MD 500D's standard configuration changes to accommodate different projects. Modifications like emergency pop-out floats for over-water operations, rotor brake for ship operations, extended landing gear to accommodate underslung equipment, an internal fuel tank for extended range, power drops for a laptop computer, specialized cabin workstation for marine mammal counting, crew and cabin doors removable for unobstructed vision, and with the removal of certain scientific equipment, seating for up to three scientists/technicians may be installed. The MD 500D is transportable on a cargo airplane for relocation to distant work sites and international operations. The MD 500D helicopter has also been used to assess oil spill damage, survey coastal erosion, and survey marine mammals via vertical aerial photography.

NOAA's Aircraft Operations Center

The MD 500D is maintained and operated by NOAA's Aircraft Operations Center located at MacDill Air Force Base in Tampa, Fla. AOC is part of the Office of Marine and Aviation Operations, which includes civilians as well as officers of the NOAA Corps, the nation's smallest uniformed service. NOAA Corps pilots and civilian flight engineers, meteorologists and electronic engineers are highly trained to operate the various aircraft in the NOAA fleet.

Much of the scientific instrumentation flown aboard NOAA aircraft is designed, built, assembled, and calibrated by AOC's Science and Engineering Division.

For further information please contact Jeanne Kouhestani, NOAA Public Affairs, at (301) 713-3431, ext. 220, or visit our Web site at http://www.omao.noaa.gov/aoc.