Putting Sea Mammals to Work: Dolphins Help Coalition Forces in Iraq

In the first month after arriving in Iraq, the dolphin teams achieved a number of successes, including unofficial clearance of 913 nautical miles of water, investigation of 237 objects, and recovery and/or destruction of over 100 mines.

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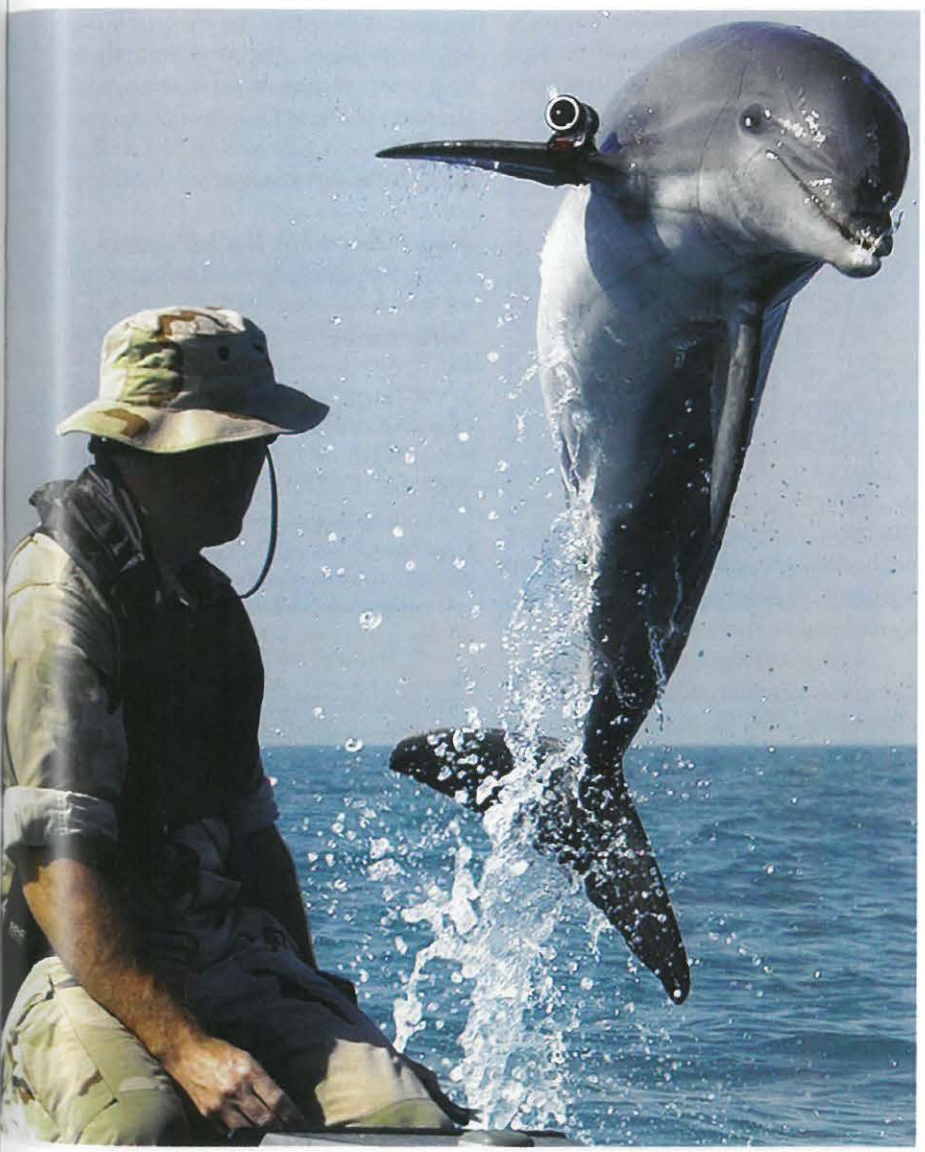

Sergeant Andrew Garrett watches K-Dog, a bottle nose dolphin attached to Commander Task Unit 55.4.3 leap out of the water while training near the USS Gunston Hall in the Persian Gulf. *C/O AP*

Dolphins Helping Out in Iraq

Iraqi forces laid sea mines in Umm Qasr, Iraq's only deep-water port, as they withdrew from the area in late March. Thus, before humanitarian aid ships could enter, the area had to be cleared of sea mines. This mission marked the first time the NMMP dolphins were used in a combat environment. Military personnel from the United States, Australia and Britain—including 50 divers with sophisticated underwater equipment—spent four days clearing the port with the help of the dolphin teams.

Several dolphins in all helped out in the region; Tacoma and Makai arrived first, and they were later joined by Jefe and Kahili, two males, and Kona and Punani, both females. In mere hours, the team had cleared a path for the Sir Galahad, a humanitarian aid ship. After clearing a 50-mile shipping lane in the port, the teams began clearing hazardous explosives from a wider area. The dolphin teams were also being employed to help clear the Khawr Abdullah waterway, which connects Umm Qasr to the Gulf.

The dolphins were well taken care of during their deployment; veterinarians and handlers monitored their health carefully. The group in Iraq adapted fairly well, probably because the Gulf is similar to their normal environment. One dolphin, Tacoma, left the area for about 48 hours, and some were worried he was gone for good. He did return, however; as their trainer, Aviation Ordnanceman First Class Dee Jennings, says, "They take day trips. They're not missing. We do have tracking devices on them, but we don't worry about it. They always come home."[1]

How the Dolphins are Used

So how do these dolphins put their sonar to work for Naval operations? A dolphin uses it's natural biological sonar and sends out a sound signal, which bounces off objects nearby. The echoes returning from the objects are recieved by structures in the animal's jawbone, transmitted from there to it's ears and then to its brain, where the echoes are processed and provide the dolphin remarkable information on the subject.. Once the dolphin finds the desired object- a swimmer or mine- it notifies its handler, who then gives the dolphin a marker to place in that location. Navy divers go in after the item is marked and dispose of it accordingly. The animals are extremely effective in locating the objects they are trained to find.

Many people wonder if the animals are in danger performing their tasks. The sea mines that the dolphins are trained to locate are designed to be set off by large vessels, not by animals. Also, the dolphins are trained simply to mark where the mine is and they know not to touch it. Once they have marked the mines, the animals are removed from the area before clearance or demolition begins. Over the past 10 years, the dolphin survival rate has been 97 percent.

Why Use Marine Mammals?

Study of marine mammals has shown that "dolphins and sea lions are highly reliable, adaptable and trainable marine animals that [can] be conditioned to search for, detect and mark the location of objects in the water."[4] The two main benefits of using these animals to assist the Navy are their diving abilities and their sensory capacities. When diving, humans are subject to decompression sickness, commonly referred to as "the bends". Dolphins, however, do not face these problems, and they can dive deeper, faster and more frequently than human divers. They are especially useful in shallow waters, where hardware sonar systems are less effective. Dolphins' biological sonar is also much better than any man-made imitations. They can detect objects from more than 100 yards away as well as determine the different densities and possibly even the different materials of those objects. One of the biggest benefits of using dolphins is being able to quickly determine which areas have *no* mines, significantly reducing the amount of time it would take to verify clear areas as compared to other methods.

U.S. Navy Marine Mammal Program

Since 1959, the U.S. Navy has been studying and working with marine mammals to improve its capabilities. The Navy Marine Mammal Program (NMMP) has studied a variety of animals, such as seals, killer whales, dolphins, sea lions and white whales. Currently, "the Navy cares for, trains and relies on two species—the bottlenose dolphin and the California sea lion."[2]

The NMMP is located at the Space and Naval Warfare Systems Center San Diego (SSC San Diego). SSC San Diego is "the U.S. Navy's research, development, test and evaluation, engineering and fleet support center for command, control and communication systems and ocean surveillance."[3] Before they can be deployed on missions, the dolphins go through a rigorous training process that initially takes several years, depending on the particular animal, and continues on a generally daily basis as long as the animal is employed on that mission.

The marine mammals comprise five groups known as Marine Mammal Systems (MMSs), which perform different functions, named Mark (MK) 4 through MK 8. MK 4, MK 7 and MK 8 are mine hunting systems and are assigned to Naval Special Clearance Team One (NSCT ONE). MK 5 and MK 6 are assigned to Navy Explosive Ordnance Disposal Mobile Unit Three (EODMU THREE). The jobs of the different systems include detecting and/or marking the locations of sea mines attached to the bottom of the ocean, locating and/or marking mines sitting on or buried in the ocean floor and identifying safe areas in shallow waters, and detecting and marking the location of swimmers or divers that might be a threat to ships at anchor or piers. These duties help create safe paths for troops and equipment to pass and allow for initial shore landings.

Conclusion

Dolphins' natural capabilities have proven incredibly useful in finding underwater ordnance and clearing vital waterways. The Navy is developing unmanned undersea vehicles (UVVs) to eventually replace marine mammal systems. A set of these vehicles was used in conjunction with the dolphins and human divers in Umm Qasr and were substantially effective in the combined mine clearance effort. Until these systems are more fully tested, the Navy will rely on the skills of marine mammals to help create more success stories like the clearance of Umm Qasr. ■

Acknowledgements

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