Marine Biology and the Human Connection

Dolphin Behavior

Studies conducted in Hawaii by researcher Lou Herman have greatly increased our knowledge of dolphin learning abilities. A dolphin named Ake (short of Akeakamai) and her mate, Phoenix, learned that they would receive rewards when they mimicked sounds that were generated by a computer. They also were able to make associations. When taught the hand signal to go through the gate in their tank, they also responded correctly to a similar hand signal that meant go through a hoop. They were able to learn that *ball* meant not only the small, red ball that they were first trained with but any other ball, regardless of size, color, or its ability to sink or float.

Though originally taught to respond to hand signals given by their trainers, Ake and Phoenix could also recognize and respond to the same signals when they saw them on a television screen. In a test, dolphins outscored new trainers in interpreting televised gestural commands.

Many animals, including humans, communicate by way of body language. Dolphins are no exception. For instance, a loud opening and closing of the jaws, known as a jaw clap, or the slapping of tail flukes on the water surface can indicate threat or displeasure.

Although dolphins probably communicate with each other in a number of ways, the most important are auditory signals. Bottlenose dolphins produce two types of vocalizations: whistles and pulsed sounds (which include echolocation clicks). It was discovered in the 1960s that each dolphin produced its own unique whistle, called a **signature whistle**. The signature whistle identifies the dolphin that is vocalizing, gives its location, and may relay other information as well. Current research indicates that perhaps as many as 90% of the whistles made by captive dolphins are signature whistles. It appears that a female’s whistle is quite different from her mother’s, whereas a male’s is very similar to his mother’s. Because females generally stay with their mothers when they mature, it may be important for them to have distinct signature whistles to avoid confusion. Males usually leave their mothers’ group and thus do not have to differ as much in their signature whistle. Calves develop signature whistles between ages 2 months and 1 year. The whistles remain unchanged for at least 12 years and possibly for the animal’s life.

Although scientists are beginning to learn the meaning of signature whistles, little is known of the pulsed sounds that dolphins make. One type of pulsed sound is the echolocation click that is used in navigation. Other pulsed sounds may be used for communication.

Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Period: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

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1. Dolphins have multiple ways of communicating with each other, what are two ways they communicate?
2. Which of the ways that they communicate with each other is the most important?
3. What is a signature whistle?

1. 90% of whistles made by captive dolphins are what?
2. Which pairing has a more similar whistle – female dolphins with their mother, or male dolphins with their mother?
3. What is the explanation for this difference in question 5?
4. At what age do dolphins develop their signature whistle?