

## **The role of sound learning in depredation by killer whales**

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A number of whales and in particular many dolphins such as the killer whale have the ability to mimic sounds and to memorize the context with which these sounds are associated. Killer whales can interpret a wide range of sounds of their natural environment due to excellent hearing abilities and a brain that is specialized to process acoustic information. The process by which killer whales make sense of different sounds is to learn to associate them with situations and objects in their environment similarly to how humans learn. In this presentation, I will give an introduction to how killer whales use sounds to socialize and forage effectively. Based on the results of studies on their acoustic learning abilities we can assume that killer whales can learn to associate sounds of particular fishing boats and operating fishing gear with the presence or absence of food. Because food is one of the strongest motivators to modify behaviour in animals (and humans), learning depredation is rewarded by the presence of fish on long lines. If the fish that killer whales can take off long lines is of very high nutritional value to them the reward effect of depredation can change the whales' behaviour from opportunistic depredation to strategic depredation. When and where this happens probably depends on how well sounds can be used to find longliners. If it is easy to find another boat after one longline set has been depredated killer whales may switch to a depredating life style.