

Signals for Survival (DVD). ISBN 9780878933594. ©2009 Cornell Lab of Ornithology and Shoals Marine Laboratory. Distributed by Sinauer Associates, Sunderland, MA 01375.

Signals for Survival is an interesting look into the topic of animal communication. This DVD investigates the general biology, anatomy and physiology, and natural history of the herring and black-backed gulls that nest on the Isle of Shoals in upstate Maine. Using the groundbreaking 1968 works of Niko Tinbergen as a model, this film discusses how these species communicate both inter- and intraspecifically. Tinbergen's works were used because he was one of the first scientists to do studies of this type in nature and develop his hypotheses out of observations he made.

In the introduction, the narrator presents the study species and explains why they are ideal for communication studies. He then transitions into animal communication, saying that all communication starts with a signal. Sometimes that signal is received and sometimes it is lost. It can also be misinterpreted. The behavior of the receiver depends on the understanding obtained.

The next segment is entitled "Territoriality and Aggression." Coexistence requires communication, and when signals fail, violence erupts. The gulls on the Isle of Shoals use several forms of auditory signals to express their behaviors. For example, a "long call" is considered an advertisement signal that indicates a direct threat. A "mew" call signals a dispute and

requires support from a mate. A "kek-kek" means that a predator is approaching. The gulls also use visual cues to express certain behaviors. For example, when the gull is charging with outstretched wings, that is a sign of aggression. As both the herring gulls and black-backed gulls nest in the same area, there are always territory disagreements between the species.

The third segment is called "Courtship and Mating." The birds produce the same auditory calls just mentioned, but because of the different context in which they are produced, they have a different meaning. The "mew" call means a nuptial feeding, while the "long call" indicates mate attraction and pair bonding. Visual cues also include head tossing, which suggests a begging display and readiness for copulation.

The final segment of *Signals for Survival* is called "Parental Care." The gulls used in the study share the responsibilities of incubating the eggs and defending the nest, so communication between the parents is essential for the safety of the young. When selecting a nest site, the birds use a "choking" call, which indicates a site preference. The "mew" call in this case is used to summon mates and recall wandering chicks. Probably the most recognized signal is that of the red spot display, which shows the young where to peck in order to obtain regurgitated food from the parents.

The DVD also contains several extras. These include the original 1968 film by Niko Tinbergen, an interview with Dr. Thomas Seeley, a scientist at the Shoals Marine

Laboratory, and some additional gull footage. There is also an advertisement for the summer programs for students held at the Shoals Marine Lab.

Signals for Survival is basic enough for a general biology class, either at the middle or high school level. It would also be appropriate for a more specialized course in animal behavior or ornithology, should a school offer one. While it is very informative and really shows how important communication is in the animal kingdom, the DVD is a bit slow-moving. It is recommended that a teacher present the segments individually and enhance them with support materials rather than showing the entire DVD at one time. This will allow students more time to absorb the information, and they will be better prepared to watch the next section.

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