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## **Attempting to One-Up the Unbelievable**

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“Oceans of Fun” is a marine mammal facility, at the Milwaukee County Zoo, where the shows are always impressive. Some of the mammals know over 150 behaviors. The sea lions, for example, can jump 10 feet out of the water to touch a ball, bark, catch rings around their necks that were thrown from over 20 feet away, and hit a thrown beach ball out of the pool and into the audience.

Last fall, I began observing a sea lion being trained a remarkable behavior: catching a Frisbee and then throwing it back to a trainer, standing over 20 feet away! Fortunately, the trainers could use already learned behaviors for establishing this new behavior.

Slick, the sea lion in training, had already been bridge and target trained. The bridge is a clicker. This clicker serves as a conditioned reinforcer. With enough conditioned reinforcers, Slick gets a primary reinforcer, a fish. Slick had also been taught targeting: placing his nose at the tip of a pole or at the trainer's fist on command and following these targets as the trainer moves them.

Additionally, Slick had learned to open and close his mouth on command. This behavior is very useful when trainers brush marine mammals' teeth or check the teeth and gums for deterioration or disease. Obviously you don't want mammals shutting their mouths when a trainer's hand is in there! Also, this behavior had been useful in teaching mammals to hold paintbrushes in their mouths and paint.

The trainer used these behaviors to teach Slick his new behavior. First the trainer introduced Slick to the Frisbee, so Slick would not be frightened or curious about it. The trainer did this by allowing Slick to observe the Frisbee until he swam from it. The trainer also had Slick target the Frisbee, providing a click each time Slick touched the Frisbee.

Next the trainer had Slick bite and release the Frisbee on command. The trainer started by having Slick open his mouth. Then the trainer placed the Frisbee into Slick's mouth and instructed Slick to close his mouth. At first Slick was reinforced for merely closing his mouth, but soon thereafter he would only be reinforced when he closed his jaw tightly about the Frisbee. Then the trainer instructed Slick to open his mouth so that the trainer could retrieve the Frisbee. When this was accomplished, the trainer taught Slick to open his mouth whenever Slick saw the Frisbee nearing Slick's mouth.

The next step was the most challenging. Slick was commanded to sit in one place. The trainer then began barely tossing the Frisbee to Slick. It was almost like moving her hand in a throwing fashion, but then dropping the Frisbee into his mouth. She reinforced Slick's "catching" the Frisbee and his returning it by releasing it down into her arms on command. Then she began slightly increasing the distance between Slick and her. She then only reinforced each successful catch and later only when he successfully tossed the Frisbee back to her. In this way, Slick was soon shaped to catch and toss back the Frisbee from a few feet.

The last step was the most difficult. The trainer progressively increased the distance between Slick and her to almost 15 feet. As she did this, Slick gradually developed the skill to catch the Frisbee from such a distance. The problem, though, was

his returning the Frisbee to her. Slick had learned to flick the Frisbee back to her by snapping his head up as he released the Frisbee. This worked for the first five to ten feet. When the trainer, however, distanced herself beyond some 10 feet, he could not flick the Frisbee any further. She only rewarded him when his flicks were about 10 feet or farther. He, consequently, attempted to flick the Frisbee further but usually failed.

Given this problem, the trainer had consulted with trainers in California who had taught a sea lion this behavior. There too, the sea lion had faced this problem but creatively attempted something new, snapping his neck sideways as he released the Frisbee. Our trainer was hoping that Slick would try that too!

That was last December and I am sure that Slick is still in training. I, however, don't know whether Slick has learned to twist his neck when throwing the Frisbee. I cannot comment on whether the trainer has lengthened the distance between the marine mammal and her. This spring the shows will start up again, so you will have to view the amazing show to find out for yourself!