

ANTICIPATORY MOVEMENTS SUGGEST INTENTIONALITY IN CAPTIVE ORCAS

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Introduction

The question of whether animals look ahead in time to events that have not yet transpired can arguably be addressed by instances in which their movements appear to anticipate as-yet-unrealized contingencies.

We have identified five instances in the behaviour of captive killer whales that might speak to this issue. Our observations were made on captive orcas held at Marineland of Canada in Niagara Falls, Ontario.

Swimming path selection

The swimming pattern of a 7-year-old orca appeared to anticipate the retrieval of dropped food-fish on the second leg of a round trip swim.



Object body alignment

The orientations of a 9-year-old female orca relative to her trainer appeared to deliberately prevent the intended removal of a desired object.



Maternal interpositioning

A mother's movement deflected her newborn's direction in what appeared to be a deliberate steering of the calf away from an impending wall collision.



Gate blocking

Repeated positioning of a 32-year-old female orca in a gate raceway appeared to anticipate impending gate closures and prevented their occurrence.



Deferred object retrieval

A 7-year-old female orca deferred the retrieval of foreign objects in a way that appeared to anticipate reinforcement contingencies.



Discussion

A conservative view might hold that non-human animals live only in the here and now—that their behavior and mental lives are limited to existing stimuli and present contingencies. In the instances described above, discriminate stimuli (informed by prior experience) were present that clearly cued the animals. However, we would argue that the observed behaviors dealt with impending, rather than present, contingencies, and thus constituted reactions that anticipated consequences that had not yet transpired. If the subjects being observed had been human, we would have unhesitatingly inferred intentionality. If parsimony suggests continuity with the mental process of other large-brained mammals, an inference of intentionality seems similarly warranted here.

In any case, these examples are offered as providing possible insight into the mental lives of killer whales. If the term foresight reasonably applies to such instances, a principal question of interest refers to the time scale over which animal subjects anticipate future sequelae. In the instances described above, the whale's anticipatory movements took place within only a few minutes of the as-yet-unrealized outcomes. Thus, if our observations are taken as evidence that killer whales do in fact look forward in time, they only provide evidence of such foresight over a short time scale.

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