Bubbling Behavior in the Beluga Whale (Delphinapterus leucas)

Michael Noonan and Adrienne Salerno
Canisius College, Buffalo, New York
Chukchi Sea years 3-6 years earlier

4 males
17 females
6 juveniles

10.4M liter pool complex
Scan Sampling
• 42 hours
• 1084 bubble events recorded

Focal Animal Sampling
• 84 hours
• 3444 bubble events recorded

Approx 30% of Samples
Given environment, not surprising

But keep in mind
Expenditure of precious commodity
Bubble use during prey capture
Killer whales herding herring balls
Pilot whales chasing fish
Bottlenose dolphins flushing fish

Belugas?
Bubble production during vocalizations
Often associated with aggression
Bubble Play
Bubble Play
Object Play

Manufacture own playthings
Solitary vs Social?
Solitary Object Play
12.9% of all bubbles are manipulated after they are formed

92.9% - Bite/Mist
Bubble Play Production and Manipulation

Adults
1 by males
5 by females
Bubble Play Production and Manipulation

Adults
1 by males
5 by females

2 by adults  1 by juveniles
Beluga play is not limited to bubbles
Play-as-Rehearsal Hypothesis
Object play by adult animals

SARAH L. HALL
Anthrozoology Institute, School of Biological Sciences, Bassett Crescent East, Southampton SO16 7PY, UK

What is object play?
Object play is the involvement of inanimate objects of various kinds in an animal's play activities. Fagen (1981) defines 'divertive interactions with an inanimate object ... including exploratory manipulation', when describing object play. It is a type of play behaviour familiar to pet cat and dog owners who regularly provide their pets with toys. In the absence of human manufactured toys, domestic, captive and wild animals may use a wide variety of objects such as sticks, rocks, leaves, fruit, feathers, dead prey animals and even items of discarded human bric-a-brac as objects to play with (see Heinrich & Smolker, Chapter 2). Along with other types of play described in other chapters, object play is characterised by boisterousness and appears, anthropomorphically, to be enjoyable. Objects are thrown into the air, chased and captured, pulled to pieces, kicked, shaken and bitten.

Animals of all ages, from diverse taxa, play with objects. While non-human primates and carnivorous species such as cats, dogs and bears, are regular performers, other animals also play with objects. Play with twigs, small stones and nutshell by corvids, parrots and other birds is well known (see Heinrich & Smolker, Chapter 2), as is play with human manufactured toys by a wide variety of zoo animals, from turtles to rhinoceroses.

Detailed scientific study aimed specifically at object play has been confined to a small range of species, particularly domestic cats and dogs, some wild canids, laboratory rats, primates, polecats and their domestic counterparts, ferrets. Domestic species are convenient subjects, because they are easy to house and handle, and are less sensitive to stress induced by captivity. This is an important consideration in the study of play; animals suffering from stress are less likely to play (McCune 1992).
Among the most playful of all species
Temporal Synchrony
Social Contagion?

Brown & Noonan, this evening’s poster session
Our research agenda

Developmental Sequence

Individual Differences

Cultural Transmission

Intentionality
Hoop ring