INNER LIVES

// BY JONATHAN BALCOMBE

ANIMALS SOMETIMES show their emotions quite clearly: Picture a dog who's just been informed it's walk time or a cat reacting to a territory intruder.

But some feelings are subtle and harder to detect. For instance, might animals experience optimism or pessimism?

In one experiment, animals are trained to associate one cue with a treat and another cue with something less positive (or unpleasant). They are then presented with ambiguous (intermediate) cues. The prediction is that an animal who's feeling optimistic will approach the ambiguous cue, whereas a pessimistic animal will avoid it.

In one study, starlings learned that dishes with white lids contained tasty mealworms but dark gray lids indicated bitter worms. Presented with dishes with lids of lighter shades of gray, starlings housed in large, enriched aviaries flipped the lids and sampled the worms, whereas birds kept in small, barren cages rarely did so. Researchers concluded that enriched starlings have a sunnier view of life. Studies of hens, pigs, sheep, dogs, rats and even honeybees show similar results.

A recent study of 18 goats living at a sanctuary compared nine goats who had been abused earlier in life with nine goats who had never been abused. Both groups showed the same optimism responses to an ambiguous cue. Intriguingly, though, the five female goats who had been rescued from abusive situations showed more optimism than the other 13 goats. The researchers concluded that "these females could be experiencing long-term optimistic bias triggered by release from stress."

Happy goats, perhaps? Studies like these show that animals aren't just alive—they have a quality of life.

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MARK SIMMONDS

HSI SENIOR MARINE SCIENTIST

// BY RUTHANNE JOHNSON

ROOTS BY THE SEA: Mark Simmonds was about 14 years old, walking along the beach with his Great Dane, Blue, when he discovered a beautiful, but obviously sick, black and white bird. "It had a little patch of oil on its bright white chest," he remembers.

The bird turned out to be a razorbill, the closest living relative of the great auk, a penguin-like seabird who became extinct in the mid-19th century. He took it to a nearby wildlife rescue center, where the bird was later euthanized because it had ingested some of the oil. "The experience was very formative," he says. "It only took this little spot of oil to kill this fantastic marine animal."

SCIENCE MATTERS: As a marine biologist and environmental scientist, now based in Bath, England, Simmonds has spent much of his career looking at the factors threatening marine mammals in the modern world: chemical pollution, marine noise and debris, fishing activities and climate change.

He has written or co-written more than 200 scientific articles and taken part in gatherings of the International Whaling Commission and conventions on endangered and migratory species. It is in part because of the work of scientists like Simmonds that the IWC has broadened its focus to include environmental threats and solutions, such as stopping the input of plastics into the ocean and freeing whales trapped in lost nets.

He's successfully pushed for increased protections of whales and dolphins, and he's helped highlight the need for conservationists to consider the social biology of cetaceans. For example, whales and dolphins pass down survival skills—such as how to find migratory routes and foraging grounds—by learning from each other rather than genetically. Therefore, even a single animal killed or purposefully removed from the environment can create a devastating loss.

Marine noise was a largely unrecognized threat until studies began to show the connection between some strandings and loud underwater noises. Simmonds helped investigate this. "One thing that eventually came through was that whales were being forced up from deep dives faster than their physiology could withstand. Basically, they were suffering from something very similar to the bends."

IN THE COMPANY OF ROYALS: In 2013, Queen Elizabeth II awarded Simmonds the title of Officer of the Order of the British Empire for his work in marine mammal conservation and environmental sciences. The OBE is part of a division of a British order of chivalry that includes knighthood.

At Buckingham Palace, Prince Charles presided over the investiture. "When I entered the palace ballroom and crossed to the stage, I pretty much forgot all I was meant to do. But Prince Charles was very kind and clearly forgave my stutters. It was all rather breathtaking, very splendid and somewhat unreal."

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