

# What is it Like to Be a Dolphin?

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In the last 20 years, marine scientists have discovered that advanced abilities traditionally thought to be unique to humans are present in a variety of the marine mammals. Research on dolphins, however, has provided the richest picture of sophisticated intellectual and emotional abilities in cetaceans. The scientific evidence in a variety of areas is striking: self-awareness, dolphins' abilities to understand artificial human language, their capacity to think abstractly and solve problems, cetacean emotional abilities and social intelligence. Humans are no longer the only animals on the planet with such sophisticated intellectual and emotional abilities (Cavalieri and Singer, 1993; Reiss and Marino, 2001; White, 2007).

At the same time, fundamental differences between humans and dolphins have also surfaced. The dolphin brain has an older architecture than the human brain, and dolphin and human brains have features not found in the other. Dolphins possess a sense that humans lack (echolocation). And humans and dolphins have profoundly different evolutionary histories (Glezer et al, 1988; Ridgway, 1990).

This juxtaposition of important similarities and differences has significant ethical implications. The similarities suggest that dolphins qualify for moral standing as individuals – and therefore are entitled to treatment of a particular sort (White, 2007). The differences, however, suggest that dissimilar standards may apply when it comes to determining something as basic as 'harm'. Thousands of dolphins are killed by humans each year. Hundreds are kept captive for entertainment, therapy and military use. Is such treatment ethically defensible? Any attempt to develop an interspecies ethic about human–dolphin interaction, however, brings with it a variety of important issues that demand careful attention.

First, any such ethic will be logically dependent on our understanding of the nature of dolphins. The answers to such questions as 'What constitutes ethical and unethical treatment of dolphins by humans?' depend upon what dolphins are like, what they need to flourish, and so forth.

Second, research on many dolphin species suggests that dolphins are intellectually and emotionally sophisticated, self-aware beings. Some of the most important answers to the ethical issues, then, will depend on assumptions about the subjective dimensions of a dolphin's experience. For example, the answer to the question of whether certain treatment of dolphins inflicts traumatic, emotional pain depends a great deal on the character of the subjective experience of the dolphins involved.

Third, in investigating these issues, there is the constant danger of species bias. Anthropocentrism tempts us to think that in order for us to conclude that nonhumans have abilities similar to our own, they must demonstrate these abilities in the same way that we do. (For example, to be truly 'intelligent', the dolphin brain should have the same 'advanced' traits as the human brain, for example, a prefrontal cortex.) However, the ways that dolphins differ from humans are at least as important – if not *more* important – than the ways they are like us. So, in trying to determine what counts as appropriate treatment of dolphins, it is critical that we take into account and recognize the significance of these differences.

This chapter makes a preliminary attempt to address some of these issues by asking what we can currently say about 'what it's like to be a dolphin'. It will suggest a three part answer:

- 1 To be a dolphin is to be similar to humans.
- 2 To be a dolphin is to be different from humans.
- 3 To be a dolphin is to be the victim of unintentional anthropocentrism.

The chapter then concludes with some brief reflections on the ethical implications of these three claims.

## TO BE A DOLPHIN IS TO BE SIMILAR TO HUMANS

Historically, humans have seen our species as the 'gold standard' for sentience, intelligence, emotional sophistication and moral standing on Earth. We 'count' in a way that other beings do not. We're 'subjects'; they're objects. We're 'people'; they're 'animals'. We think it is kind and 'humane' of us to treat other beings in a considerate fashion, but, strictly speaking, this is nothing they're owed. We assume that the only reason we'd have to treat 'animals' any better is if and only if they demonstrate the same intellectual and emotional abilities that we have – and demonstrate them in the same way. In other words, only beings 'just like us' deserve moral consideration.

The discoveries of modern cetacean science, however, fundamentally challenge humanity's claim to uniqueness. Most importantly, a survey of the highlights of dolphin research in recent decades uncovers key data that suggest that dolphins, like humans, are 'persons'.

To be a 'person' is to be a 'who', not a 'what'. The sophisticated intellectual and emotional abilities characteristic of persons produce self-conscious, unique individuals (with distinctive personalities, life-long memories and personal histories) who are vulnerable to a wide range of physical and emotional pain and harm, and who have the power to reflect upon and choose their actions (Herzing and White, 1998; White, 2007). Dolphins join the great apes as nonhumans who demonstrate a nexus of advanced cognitive and affective abilities traditionally thought to surface only in humans (Cavalieri and Singer, 1993). Research shows that:

- The dolphin brain has a variety of advanced traits. It has a large cerebral cortex and a substantial amount of associational neocortex. Most anatomical ratios that assess cognitive capacity (brain weight/spinal cord, Encephalization Quotient) place it second only to the human brain. From this perspective, the dolphin brain appears to be, at the very least, one of the most complicated and powerful brains on the planet (Marino, 1995, 2004).
- On the subject of 'mirror self-recognition', scientists have made a strong case for the idea that dolphins possess not simply consciousness but self-consciousness. The dolphins studied were able to pass a standard test of self-awareness that we use with humans. It involves how we behave when we see our reflection in a mirror. The pioneer in this area was Ken Marten who worked with five dolphins at Sea Life Park in Hawaii (Marten and Psarakos, 1995). The most rigorous study was done by Diana Reiss and Lori Marino with two dolphins at the New York Aquarium. When a removable mark was put on the dolphins' bodies, the dolphins behaved in front of the mirror in a way that suggests that they were using it to examine themselves and to look at the mark. They appeared to understand that they were looking at a reflection of *their own* bodies (Reiss and Marino, 2001).
- Like humans, dolphins can solve problems by reasoning, as argued by John Gory, Stan Kuczaj and Rachel Walker (Gory and Kuczaj, 1999; Kuczaj and Walker, 2006). The dolphins in these studies were able to 'create a novel and appropriate solution in advance of executing the solution' – something, they argue, that 'can only be achieved if an animal has an ability to represent the causal structure of its environment' (Gory and Kuczaj, 1999). Other researchers have also observed novel and imaginative behaviours that appear to proceed from this same cognitive skill. The behaviour at issue may seem prosaic – blowing bubbles, for example – but it appears to require at least an intuitive grasp of the basic physical laws that govern the situation and a working knowledge of hydrodynamics (Marten et al, 1996).
- There is also evidence of problem solving among wild dolphins in a variety of hunting strategies that have been devised by members of the community, and then continued via cultural transmission to the next generation. This includes not only the use of sponges and bubble nets as tools but also cooperative fishing strategies with humans (Pryor et al, 1990; Smolker, 2001; Whitehead et al, 2004).

- Dolphins share with us an impressive level of cognitive sophistication – the ability to handle words, syntax, grammatical rules and the like, as suggested by Lou Herman’s famous work with artificial human languages (Herman et al, 1984, 1993, 1999; Richards et al, 1984; Herman, 1986; Kako, 1999). Even more important, however, is that Herman’s dolphins were able to perform so well while operating in what Denise Herzing has called ‘a foreign conceptual environment’ (private communication). It is clear that dolphins communicate with each other in the wild, but there is, as yet, no evidence that dolphins have a language equivalent to ours. The amount of cognitive flexibility demonstrated by Herman’s dolphins, then, is remarkable.
- It is in social intelligence that dolphins likely excel, however. Rachel Smolker claims that the dolphins she studied ‘spend most of their time and mental energy sorting out their relationships’ (Smolker, 2001). Smolker highlights this fact even further in her description of the mind of one of the dolphins in the group. She writes, ‘Her mind is a social mind, her intellectual skills lie in the realm of relationships, politics, social interaction’ (Smolker, 2001). Richard Connor’s discovery of political alliances among dolphins is particularly important in this regard (Connor and Peterson, 1994).
- Emotions ranging from anger to grief are a standard part of a dolphin’s inner world, as suggested by observations by Denise Herzing and Ronald Schusterman (Herzing, 2000; Schusterman, 2000).
- Centuries of stories document dolphin altruism towards one another and to humans; cetaceans may be the only nonhumans on the planet to demonstrate enough curiosity about another intelligent being to seek out interaction with that species; and, like humans, dolphins appear to engage in sex simply for pleasure (Norris, 1991).

The catalogue of similarities between dolphins and humans is striking, and, in my view, it is enough to grant what philosophers call ‘moral standing’ to dolphins. That is, the advanced level of dolphin cognitive skills and affective abilities (that is, the capacity to experience, reflect upon and manage a wide range of emotional states) implies that, in terms of subjective experience, dolphins have similar ‘individual consciousness’ as humans. Therefore, they should ‘count’ in a moral calculation on similar grounds that individual humans count.

This conclusion derives from the fact that, traditionally, it is the distinguishing features of human consciousness that underpin the human claim that we are entitled to special treatment at the hands of one another – and treatment significantly different from how we’re obligated to treat other animals. Advanced cognitive and affective traits give us the capacity for a rich subjective experience that, we argue, demands respect. These include:

- our ability to be aware of ourselves, our past, and to imagine ourselves in the future;

- our vulnerability to emotional as well as physical pain;
- our ability to empathize with and assist those around us – even if we have no close emotional bond with them;
- our rich intellectual and emotional lives;
- our ability to control our actions, and hence to be held responsible for what we do.

The richness of our abilities is so considerable that we consider the subjective experience of each human to be unique – and so valuable as to be beyond measure. As the philosopher Immanuel Kant expressed it, '[E]verything has either a price or a dignity. Whatever has a price can be replaced by something else as its equivalent; on the other hand, whatever is above all price, and therefore admits of no equivalent, has a dignity' (Kant, 1993). Kant is plain in asserting the fundamental and critical difference between people, on the one hand, and objects, on the other. Chairs and tables have a price, but we have a dignity. And our actions towards each other should reflect that.

In at least one fundamental and critical way, then, the subjective experience of 'being a dolphin' is remarkably similar to the subjective experience of 'being a human'. To be a dolphin is to be similar to humans in that we both experience life as 'persons'.

## TO BE A DOLPHIN IS TO BE DIFFERENT FROM HUMANS

As intriguing as the similarities between dolphins and humans are, however, the differences between our two species are probably more important. One of humanity's traditional weaknesses in dealing with nonhumans is to assume that other animals deserve consideration only to the extent that they are 'just like us'. The risk of anthropocentrism is ever present, so it's important to remind ourselves that evolution and adaptation may produce different types of consciousness and intelligence in different species. As Diana Reiss observes:

*It is important to realize that in some cases the borders between species are not real but are, rather, assumptions based on a lack of evidence or data. Historically it has been a tacit assumption that we are the only symbol- and tool-using species and are at the pinnacle of evolution. The view that physical evolution is pyramidal has been replaced by a view of evolution as a spreading structure with diverse life forms from different phyla. It is clear that there are both convergent and divergent processes and a variety of strategies operating throughout the biological world that enable different species to survive and flourish in their own environments. Perhaps in the near future we will view the evolution of intelligence in a similar way.*  
(Reiss, 1990)

Reiss considers the differences in the outcome of evolutionary processes experienced by humans and dolphins to be so profound that she has suggested that we regard dolphins as an example of an 'alien intelligence' (Reiss, 1990).

In view of the many ways that the outer world (physical environment, anatomy) probably shapes the inner world (consciousness, self-consciousness, intelligence, etc.), we have, then, the dual challenge of: (1) identifying appropriately 'alien' factors in a dolphin's natural environment and the features they lead to, and (2) determining their significance for 'what it's like to be a dolphin'.

A good place to start is simply common-sense observations that underscore just how fundamentally different it is for members of our two species to experience some of the most basic dimensions of life:

- First, because dolphins live in the water, they are virtually always moving. Even when they rest, they move. Coastal dolphins may sometimes station themselves on the bottom, but many pelagic (deep water) dolphins probably go through their entire lives without ever seeing a stable ocean floor. Humans, by contrast, require stillness and steadiness in virtually everything we do. Even when we travel, we need cars, trains and planes to be as stable as possible. We seem to be able to think better and focus more sharply on problems when we sit down. The dynamic and fluid quality of a dolphin's life would be disorienting to us.
- Because vision is such a central sense to humans, we require light for an extraordinary amount of what we do – to the extent that we've even invented artificial light. However, dolphins who live in the oceans have adapted to operating in darkness. Even on a sunny day, light does not penetrate very far into the ocean. And dolphins can, in fact, be far more active by night than during the day because more prey is available to hunt at this time.
- Because dolphins don't sleep the way that humans do, their awareness of life seems not to be punctuated by the stretches of unconsciousness that we experience (Wells et al, 1999). Ideally, we sleep and dream for about a third of each day. Because every breath is a conscious action for a dolphin, any significant stretch of unconsciousness would mean death. Uninterrupted awareness, then, is as normal for dolphins as periodic unconsciousness is for humans.
- In humans and other primates, the face is a critical tool for communication. Indeed, the face has no small number of muscles dedicated exclusively to producing the expressions associated with one emotion or another. And this is supported by as much as one third of the motor cortex of the human brain. In assessing the mood of another human, we likely 'read' his or her face first. Dolphins, by contrast, have no 'face', in the human sense. The famous dolphin 'smile' does not express an inner emotional state. It is simply the result of millions of years of adaptation for feeding and optimal hydrodynamics. External signals of dolphin emotional states are something other than 'facial' movements. Open mouth behaviours, tail slaps and bubbles are signs of aggression that are often apparent even to humans. But the more subtle pectoral touches, postures

and the like may be the equivalent of the small changes in facial expression that are understandable only to people who know one another very well.

- Another significant difference between the everyday experience of humans and dolphins is in how we perceive the objects on which we focus our attention. Because sound passes through tissue and other materials, when dolphins scan objects with echolocation clicks, their brains construct representations that are not only three dimensional, but transparent (or at least translucent). Without an artificial technology, however, human perception is opaque, and we see only the surface of objects. When we tap objects, the sound produced and the sensation we feel may tell us something about the density of objects. But we get only a tiny fraction of the information dolphins receive about the inner composition or structure of objects.

As intriguing as such a common-sense, unscientific list of differences is, it is difficult to identify the significance of each entry. However, the sum of the entire list clearly suggests that dolphins have adapted to an environment that is 'foreign' to humans and that this has probably led to some important differences in the inner worlds of the two species.

Fortunately, as cetacean research has progressed, details of key differences between humans and dolphins are beginning to surface. And two specific findings point to at least one fundamental difference in how our respective species experience life.

First, scientists have determined that dolphins can 'eavesdrop' on one another's echolocation clicks (Harley et al, 1995). By listening to another dolphin's echoes, then, one dolphin might actually share the other dolphin's experience. As a result, psychologist Harry Jerison makes the fascinating suggestion that this produces a kind of 'social cognition' – something for which there is no human equivalent. He writes:

*Intercepted echolocation data could generate objects that are experienced in more nearly the same way by different individuals than ever occurs in communal human experiences when we are passive observers of the same external environment. Since the data are in the auditory domain the 'objects' that they generate would be as real as human seen-objects rather than heard-objects, that are so difficult for us to imagine. They could be vivid natural objects in a dolphin's world. (Jerison, 1986)*

Second, because of differences in how the human and dolphin brains evolved, it is possible that the limbic system in the dolphin brain has more of an impact on the processing of information than is the case in the human brain (Morgane et al, 1986; Jerison, 1986). This has led Jerison to yet another interesting claim – that dolphins may have deeper emotional attachments than humans experience.

The combination of shared perception of echolocation clicks and deep social attachments, then, makes it reasonable to suggest that the dolphin 'sense of self' differs from what humans experience. Indeed, Jerison suggests that dolphin 'social cognition' produces a 'sense of self' that is qualitatively different – and more social – from what humans experience. He writes that 'the processes underlying decisions might be shared by several dolphins as a group when facing the same task' and that this 'communal experience might actually change the boundaries of the self to include several individuals' (Jerison, 1986). He suggests, for example, that in dolphin 'reciprocal altruism', 'the "individual" (at least during the altruistic episode) [is] not one animal but a group of dolphins sharing communally in the experience as well as the behavior' (Jerison, 1986). Such a 'social self' might help explain certain dolphin behaviours during mass strandings – that is, why healthy members of a community will not abandon their sick companions. It could explain why dolphin aggression against each other is far less mortal than is the case with humans. (In contrast to the many daily reports of humans murdering humans, there are far fewer accounts of dolphins killing other dolphins.) Perhaps dolphins experience conspecifics as less of a threat than humans do. And it might also explain why individual dolphins will not escape from being encircled by nets they could easily leap over. Cetacean scientist Kenneth Norris observed that when the Hawaiian spinner dolphins that he studied were confronted by something unfamiliar, or when the school was under attack, 'individuality is reduced close to zero' (Norris, 1991). Norris noted that the impulse to act primarily for what's good for the group is so strong that in threatening situations, dolphins won't try to escape separately as individuals, even though the option is readily available. They will refuse to move in ways that the entire group can't.

In a fundamental way, then, the subjective experience of 'being a dolphin' is remarkably different from the subjective experience of 'being a human'. To be a dolphin is to be different from humans in that the dolphin experience of 'selfhood' is probably social and shared with others.

## **TO BE A DOLPHIN IS TO BE THE VICTIM OF UNINTENTIONAL ANTHROPOCENTRISM**

While this chapter has been speculating about the subjective experience of dolphins by exploring the implications of scientific research, there is one final, very different dimension of 'what it's like to be a dolphin' that we need to examine. That is, 'to be a dolphin' is to be vulnerable to humans' beliefs about who dolphins are and what kind of treatment dolphins deserve. Thousands of dolphins die or are injured each year as a result of human fishing practices, and hundreds of dolphins are kept captive in entertainment facilities for shows or dolphin swim programmes. However, virtually all of these practices are sanctioned by the laws of one country or another and, in theory, supported by the best available science. That is, we are

not talking about the blind, unthinking predation of one species by another. The way that humans treat dolphins is supposedly the result of intelligent dialogue and formal processes that aspire to fairness, compassion and objectivity.

Despite humanity's best intentions, however, prejudices of all sorts (racial, sexual, religious, cultural, etc.) regularly play a role in shaping laws and policies. One of the public benefits of science, then, is to uncover and examine facts related to such matters so that prejudice is at least minimized. Yet for this to be successful, scientific investigation itself must be unbiased. And in the case of factual claims about nonhumans on which human practices rest, this means that scientific investigation must be free of unintentional anthropocentrism.

It's no secret that humans have a vested interest in being able to claim that we have the best brains on the planet. For thousands of years, this belief has allowed us to justify the idea that we are the only 'intelligent' species on Earth, and that the rest of creation lies at our feet, waiting for us to do with it as we please. As long as no other beings 'think' or 'feel', we don't need to have any moral qualms about how we treat them. Accordingly, in light of the obvious temptation to protect the primacy of humans, it's important for us to ask ourselves if we're being as objective as we should be. That is, is it possible that when we discuss topics of the sort we're involved in, could we – even unintentionally or unconsciously – interpret data about the rest of nature so that it supports a preconceived picture of reality and doesn't challenge our privileged status? In particular, is it possible for *scientists* to do this?

Ideally, of course, we would want to answer this question with an unequivocal 'no'. Yet humans have a long history of citing 'objective facts' in defence of practices that are either firmly rooted in irrational prejudice or at least conveniently self-serving (Tuana, 1993; Gould, 1996). And science has not been as unbiased as it should have been – particularly when it comes to assessing the claims of groups who have traditionally been labelled 'inferior'. As Steven Jay Gould has detailed, the work of two 19th-century craniologists, Samuel George Morton and Paul Broca, is worth special note because both men paid careful attention to detail and attempted to follow disciplined, scientific methodology. And yet, both came to the conclusion that the 'facts' irrevocably proved the intellectual superiority of white males (Gould, 1996).

Moreover, there are two critical points to realize about Morton and Broca. First, they were not rabid racists and sexists. They truly believed that they were objective scientists who were simply reporting data and following the facts wherever they led. Second, despite their stated, conscious desire to be objective, both men were apparently unaware of the fact that they were arguing for conclusions *that their data did not support*. In reviewing Morton's data, Gould discovered that although Morton 'finagled' and 'juggled' his data to back up his claims, he apparently was not consciously aware of this. (And when recalculated in an objective light, Morton's data reveal no significant differences between the races or sexes.) Gould acquits Morton of fraud, but points to a more insidious process. He writes:

*Yet through all this juggling, I detect no sign of fraud or conscious manipulation. Morton made no attempt to cover his tracks and I must presume that he was unaware he had left them. He explained all his procedures and published all his raw data. All I can discern is an a priori conviction about racial ranking so powerful that it directed his tabulations along pre-established lines. Yet Morton was widely hailed as the objectivist of his age, the man who would rescue American science from the mire of unsupported speculation. (Gould, 1996)*

Broca, in particular, had a sophisticated understanding of statistics and knew how to correct for various factors that could colour the outcome: differences in body size, age, health and the like. However, like Morton, Broca was a man of his time – and in his time, it was self-evident that non-white people and women were perceived to be intellectually inferior. As Gould explains:

*I spent a month reading all of Broca's major work, concentrating on the statistical procedures. I found a definite pattern in his methods. He traversed the gap between fact and conclusion by what may be the usual route – predominantly in reverse. Conclusions came first and Broca's conclusions were the shared assumptions of most successful white males during his time – themselves on top by the good fortune of nature, and women, blacks, and poor people below. His facts were reliable (unlike Morton's), but they were gathered selectively and then manipulated unconsciously in the service of prior conclusions. By this route, the conclusions achieved not only the blessing of science, but the prestige of numbers. Broca and his school used facts as illustrations, not as constraining documents. They began with conclusions, peered through their facts, and came back in a circle to the same conclusions. (Gould, 1996)*

Of course, when confronted with the examples of 19th-century scientists such as Morton and Broca, most of us are probably tempted to find one reason or another to think that this kind of thing couldn't happen in our century. Perhaps we think that contemporary science is more sophisticated and objective than in the past, so questionable data are more readily and effectively challenged. Or maybe we'd say that we live in more egalitarian times with greater sensitivity to human rights. Perhaps we'd even claim if there's any preconceived idea in our society that exerts unconscious pressure on scientists, it's the belief in the equality of races and the sexes. However, there are two reasons why we should take the example of Morton and Broca very seriously.

First, the second half of the 20th century saw more than one attempt to use quantifiable data and rigorous methodology in a way that suggests irrevocable racial differences in intelligence:

- In 1969, Arthur Jensen argued that differences in IQ scores between white and non-white people in America were largely the result of genetic, not environmental, factors (Jensen, 1969).
- In 1971, H. Eysenck argued that African and black American babies develop sensorimotor skills more quickly than Caucasians do, and he then claimed that such speedy development as an infant correlates with lower IQ later in life. 'These findings', he observes, 'are important because of a very general view in biology according to which the more prolonged the infancy the greater in general are the cognitive or intellectual abilities of the species' (Eysenck, 1971).
- In 1994, Richard Herrnstein and Charles Murray echoed Jensen's earlier claim that differences in IQ scores between white and non-white people were mainly genetically based (Herrnstein and Murray, 1994).

Moreover, Jensen, Herrnstein and Murray clearly link their scientific findings to recommendations regarding social policy. Jensen (1969) begins his article by writing, 'Compensatory education has been tried, and it apparently has failed.' And his subsequent study allegedly shows why additional compensatory education programmes would also fail. Herrnstein and Murray (1994) similarly use their data to argue that a variety of traditional programmes designed to eradicate inequalities can be nothing but fruitless.

But the most important reason to take the examples of Morton and Broca to heart is that it is as 'obvious' today that nonhuman beings are 'just animals' as it was in the 19th century that non-white people and women were inferior. In our culture, it is self-evident that 'animals' are completely different from humans. They are not thought to have self-awareness, and they are seen to have very limited cognitive and affective abilities. And because they're so different from us, we really don't have to worry too much about harming them. Can we say with certainty that the 'objective' research of contemporary science can't be affected by these beliefs?

Consider one more comment by Gould (1996) about the troubling possibility that scientists may not be as free from the attitudes that predominate in the societies in which they live as we would like to think:

*Clearly, [in the 19th and early 20th centuries], science did not influence racial attitudes ... Quite the reverse: an a priori belief in black inferiority determined the biased selection of 'evidence.' From a rich body of data that could support almost any racial assertion, scientists selected facts that would yield their favoured conclusion according to theories currently in vogue. There is, I believe, a general message in this sad tale. There is not now and there never has been any unambiguous evidence for genetic determination of traits that tempt us to make racist distinctions (differences between races in average values for brain size, intelligence, moral discernment, and so on). Yet this lack of evidence has not forestalled the expression of scientific opinion. We must therefore conclude that this*

*expression is a political rather than a scientific act – and that scientists tend to behave in a conservative way by providing ‘objectivity’ for what society at large wants to hear. (Gould, 1996)*

The point to recognize is that 19th-century scientists could just as easily have taken the position that differences between races and the sexes did not prove anything about the superiority or inferiority of one group over the other. And yet, instead of concluding nothing, they took a position that not only was unsupported by the facts, but that clearly reflected the dominant attitudes and prejudices operating in their society. Is it possible that contemporary scientists in some way do the same thing when studying dolphins?

### **Anthropocentrism and cetacean science**

But is this any more than an idle fear? Do we have any reason to think that contemporary scientists might draw conclusions about dolphins that are unintentionally affected by species bias? Most scientists are appropriately cautious in the conclusions they draw. They recognize that what we might know about brain structure does not settle the issue of general cognitive ability or behavioural flexibility, and they regularly call for more research. And contemporary science has progressed in a way that it would be considered bad science to make the sort of heavy-handed pronouncements about the relationship between a single feature (for example, skull size) and a property such as ‘intelligence’ that we find in 19th-century science.

However, this does not mean that species bias is impossible – only that it would be expressed in more subtle ways. The language of contemporary science is both more technical and the conclusions more carefully crafted, so any unintentional species bias would come through tone, for example, or in what facts are *not* mentioned. And occasionally we do find scientists discussing matters in a way that lets us ask whether species bias is inadvertently creeping in to the interpretation of the data:

- 1 In a short article that argues that dolphins fail to show evidence of advanced intelligence, Margaret Klinowska (1989) gives the following account of the dolphin brain:

*The newest studies of dolphin brains show that they have not developed the latest stage in the evolution of the brain. Their cortex seems to be lacking some features that are characteristic of primates and many other mammals. It seems that these structures started to evolve among land mammals about 50 million years ago, while the ancestors of modern cetaceans returned to the water a few million years earlier. Even the most advanced cetacean brains seem to be stuck at a stage*

*called the paralimbic-parinsular, which is the most primitive stage in land mammals.*

*In many respects, then the cetacean brain is actually quite primitive. It retains all the structures found in primitive mammals, such as hedgehogs and bats. It shows none of the structural differences from area to area typical of advanced brains like those of primates. The regions of the cortex are not separated by so-called associative areas, as they are in most other mammals, but they do seem to be arranged in much the same order as we imagine they were in the ancestor of all mammals. (Klinowska, 1989)*

The basic facts that this scientist cites about the cortex and the brain structure are correct. However, in the context of her entire article, the unmistakable implication (that these facts suggest that dolphins could not have advanced cognitive abilities) is questionable. Missing, of course, are provisos about the relevance of the different evolutionary histories between humans and dolphins (Marino, 2002).

- 2 In the course of their commentary on the main study that argues for the 'initial brain' hypothesis, Lester Aronson and Ethel Tobach appeal to a variety of grounds to challenge John Lilly's claim that the size of the dolphin brain suggests remarkable similarities with the human brain. They rely on brain measurements in the following way:

*Through the efforts of [Glezer, Jacobs and Morgane], we are now able to correlate the behavioural level with the anatomical level of the neocortex and probably with the physiological level as well. We see at once that the anatomical level is considerably below that of the higher primates, and far below the human level. Those who favour the hypothesis of a high level of cetacean intelligence almost always emphasize the large, highly convoluted cortical surface area which is larger in Homo and which forms a vast array of sulci and gyri. But [the authors of this study] show paradoxically that the corticalization index in Tursiops (volume of cortex over volume of brain  $\times$  100) is even below that of the basal insectivore which is their extant model of the hypothetical 'initial' mammalian ancestor. (Aronson and Tobach, 1988)*

Again, there is a factual basis for these claims. However, the facts show only that the anatomical level of the dolphin brain is 'different from', not 'considerably below', the human brain. In addition, Aronson and Tobach ignore significant facts. The 'corticalization index' is not the only measure that Glezer et al note in their research. Three other ratios are cited (for 'encephalization' and 'neocorticalization') that show rough equivalence between humans and dolphins.

At the very least, this argues for a more cautious conclusion than the one that Aronson and Tobach indulge in:

*We think that Gaskin put it well: 'If I may borrow and embellish a phrase from a paper by the Caldwells, there is abundant evidence that dolphins communicate information about "what", "where" and "who". There is no substantive evidence that they transmit information about "when", "how" or "why". So, no matter what some might wish to believe, with respect to Kipling's "six honest serving men" of learning and intellect ["What", "Why", "When", "How", "Where" and "Who"], the dolphin appears to be three servants short.'* (Aronson and Tobach, 1988)

- 3 And even though Glezer et al offer a carefully worded caution in a reply to Aronson and Tobach's comments about intelligence, note how they conclude their comments:

*Relative to certain points brought up by Aronson and Tobach, it is likely that the behavioural status of the dolphin is exaggerated in the literature. Obviously, caution is needed in comparing intelligence among different species living in various ecological niches. Our investigations do not suggest any direct correlations between neocortical morphology and behaviour, but they point out the obvious morphological fact that dolphin neocortical organization bears a close resemblance to that of the hedgehog.* (Glezer et al, 1988)

What they give with one hand ('caution is needed in comparing intelligence'), they take away with the other ('close resemblance to [the brain] of the hedgehog').

In each of these three cases, no scientist explicitly says, 'specific features of the dolphin brain prove that dolphins cannot have advanced cognitive abilities'. However, the authors strongly imply what they think is *probably* the case – despite the existence of a large body of data that essentially precludes any judgement based on structure alone.

Why does the conflicting data not simply lead them to an absolutely noncommittal stance? Perhaps we have the same phenomenon that Steven Gould described above. In other words, it's possible that these scientists – even though operating in good faith – might nonetheless be influenced in how they view and interpret data by their society's overwhelming belief that only humans have advanced intellectual and emotional abilities.

To be a dolphin, then, is to be the victim of unintentional anthropocentrism in that there is reason to fear that contemporary cetacean science is not as unbiased as it should be.

## CONCLUSION: THE ETHICAL IMPLICATIONS

In exploring the question, 'What is it like to be a dolphin?' this essay makes three claims:

- 1 To be a dolphin is to be similar to humans in that we both experience life as 'persons'.
- 2 To be a dolphin is to be different from humans in that the dolphin experience of 'selfhood' is likely social and shared with others.
- 3 To be a dolphin is to be the victim of unintentional anthropocentrism in that there is reason to fear that contemporary cetacean science is not as unbiased as it should be.

If the three claims of this essay are correct, what are the ethical implications? A full account of all of the ethically problematic aspects of contemporary human–dolphin interaction is beyond this chapter, but the following are at least the most obvious conclusions.

First, the deaths of hundreds of thousands of dolphins each year at the hands of humans are without question ethically indefensible. The most dramatic slaughter comes from the annual Japanese dolphin 'drive hunts'. However, over 300,000 cetaceans are thought to die annually around the world as a result of fisheries bycatch (WDCS, 2008). Dolphin self-awareness implies that the death of each individual dolphin is the ethical equivalent of the death of an individual human. Moreover, the suffering that accompanies these deaths – from suffocation, extreme panic, drowning, bleeding to death, witnessing the deaths of members of one's community and the like – is surely extreme.

Second, Jerison's (1986) claims about dolphin 'social cognition', a 'social self' and the powerful social bonds among dolphins imply that the number and quality of their relationships are important factors in their welfare. (The average human, by contrast, can flourish with a much thinner social network.) This means that all versions of dolphin captivity – for entertainment, therapy and military use – are probably depriving dolphins of conditions that are critical to their wellbeing. Captivity is characterized by a small number of relationships, all of which are managed by humans, in sterile conditions that can hardly be characterized as constituting an authentic dolphin community. Given the intense social nature of dolphins, it is difficult to see how captive situations can nourish this dimension of their being – thus reducing dolphins to commodities being used primarily to benefit humans.

Third, the fundamental differences between humans and dolphins suggest that – as is the case with concepts such as 'intelligence' and 'self' – what constitutes 'harm' is to a large degree specific to the nature of each species. This is particularly true with beings with such advanced cognitive and affective capacities. The development of an interspecies ethic that can apply to human–dolphin interaction, then, requires

more research into the lives of wild dolphins for the sake of identifying the basic conditions that foster the welfare of both individual dolphins and their community.

It is important to realize, however, that this essay has focused on the smaller dolphins primarily because of the large amount of research available on them – not because they are the only cetaceans with advanced intellectual and emotional abilities. It is obviously easier to do research on small cetaceans than on large ones, but this shouldn't suggest that dolphins are the only cetacean candidates for nonhuman personhood or moral standing – or that dolphins are the only cetacean under human assault.

Large spindle cells, which are thought to play a significant role in human self-awareness, social cognition and possibly even communication, have been found in the brains of humpback whales, fin whales, sperm whales and orcas (Hof and van der Gucht, 2007). Cultural transmission has been discovered in dolphin, orca, sperm whale and humpback societies (Whitehead et al, 2004). A variety of larger cetaceans (orcas, sperm and humpback whales) demonstrate abilities to communicate, form coalitions, cooperate and use tools (Connor et al, 1992; Clapham and Mead, 1999; Clapham, 2000; Rendell and Whitehead, 2001, 2003; Valsecchi et al, 2002). Such emotions as grief and parental love appear to have been observed in orcas (Rose, 2000a, 2000b). And, surveying the most relevant literature on cetaceans, Simmonds argues that for at least some cetacean species, there is unequivocally evidence for significant social structure and highly developed social behaviour (Simmonds, 2006).

Similarly, the larger cetaceans face their own ethically problematic treatment at the hands of humans. The current large-scale commercial whaling practised mainly by Japan, Norway and Iceland is disturbing. So too are the deaths of many whales taken in subsistence hunts (Brakes et al, 2004). But if commercial whaling is fully revived (by the lifting of the IWC's moratorium), the slaughter that would ensue would be awful and, in this one gesture, humankind would reaffirm its ancient worldview on the nature of cetaceans and our exploitative relationship with them. Even the current, incomplete state of research on the intellectual and emotional abilities of the large cetaceans implies that the systematic hunting of whales should be seen more as 'genocide' than 'hunting for food' or 'preserving a cultural tradition'.

Whether such a slaughter will happen depends on whether policy-makers and the public are willing to listen to scientists and cetacean advocates with an open mind. But, at this point, the jury is still out on which will carry the day: vested interest and speciesism or the ethical implications of the objective facts of science. We can hope for the latter. But the history of our species is a grim reminder of how difficult it will be to prevent the former.

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