ABSTRACT

DOING BUSINESS IN MORALLY TROUBLED WATERS: DOLPHINS, THE ENTERTAINMENT INDUSTRY AND THE ETHICS OF CAPTIVITY

Thomas I. White
Loyola Marymount University

This essay argues that humans have not fully understood the cognitive and affective capacities of dolphins, and that we have mistakenly defended as morally acceptable practices that actually harm dolphins. In particular, this essay argues that the current use of hundreds of captive dolphins by Sea World and similar facilities in the entertainment industry is ethically indefensible. Focusing primarily on critical differences between humans and dolphins, this essay argues that central concepts like "intelligence" and "language" (which have played a critical role in discussions about whether dolphins have moral standing) should be seen as species-specific, not universal notions. As a result, there are insufficient grounds to make the traditional claim that dolphins' cognitive capacities place them on a significantly lower spot in the moral hierarchy than humans. This paper also claims that the full development of dolphin personalities may depend on the richness of social interaction that is common in the life of a dolphin in the wild. Consequently, dolphins can probably experience a greater degree of emotional pain or deprivation in captivity than has traditionally been thought.

DOING BUSINESS IN MORALLY TROUBLED WATERS: DOLPHINS, THE ENTERTAINMENT INDUSTRY AND THE ETHICS OF CAPTIVITY

Thomas I. White
Loyola Marymount University

Douglas Adams, in his fantasy novel *The Hitchhiker's Guide to the Galaxy*, makes two particularly amusing observations about differences between humans and dolphins. He writes,

> It is an important and popular fact that things are not always what they seem. For instance, on the planet Earth, man had always assumed that he was more intelligent than dolphins because he had achieved so much—the wheel, New York, wars and so on—while all that dolphins had ever done was muck about in the water having a good time. But conversely, the dolphins had always believed that they were far more intelligent than man—for precisely the same reasons.[1]

Adams also comments on the difficulties of communication across species.

> Curiously enough, the dolphins had long known of the impending destruction of the planet Earth and had made many attempts to alert mankind to the danger, but most of their communications were misinterpreted as amusing attempts to punch footballs or whistle for tidbits, so they eventually gave up and left the Earth by their own means shortly before the Vogons arrived.
>
> The last ever dolphin message was misinterpreted as a surprisingly sophisticated attempt to do a double-backward somersault through a hoop while whistling the "Star Spangled Banner," but in fact the message was this: *So long and thanks for all the fish*. (156)

Adams' comments are as thought-provoking as they are amusing because they speak to the fact that humans hardly ever seriously question our ability to understand the physical world around us—and especially the other beings with whom we share it. At any given time, we behave as though our picture of the world and our sense of the nature of all its inhabitants are accurate. Paradoxically, however, we all know that extraordinary discoveries and intellectual revolutions that produce fundamental shifts in how we understand reality are a hallmark of the history or our species.

If this were all simply an exercise in intellectual *hubris*, this could be dismissed in the history of philosophy and science as just an embarrassing trait of our species. However, humans have regularly *acted* on fatally flawed understandings of the world.

Consider, for the moment, only how this has surfaced in our treatment of other humans. On the basis of what was thought to be self-evident logic and undeniable physical evidence, certain humans—women and a variety of races and cultures, for example—were seen as lacking specific capacities, and these groups were then classified for centuries as "inferior." Such "inferiority" meant that humans were essentially unequal, having different rights and fundamental needs. What would count, then, as unethical treatment—even cruelty—if experienced by a "superior," would nonetheless be "appropriate" for an "inferior." And this label rationalized—even long after hard data should have revealed the truth—treating these individuals in a way that is now universally recognized as morally indefensible.

Humans have explained and defended similar treatment of non-humans on the same grounds: "obvious" differences, unequal rights, vastly different criteria for "harm," and different standards for what determines ethical and unethical treatment. However, recent research on the cognitive and affective capacities of non-humans suggests we have been equally mistaken in our understanding of many living beings.[2] Specifically, this essay argues that

humans have made precisely this error with *dolphins*, and that we have mistakenly defended as morally acceptable practices that harm dolphins. In particular, this essay argues that the current use of hundreds of captive dolphins by Sea World and similar facilities in the entertainment industry is ethically indefensible.[3]

*

As suggestive as Adams' comments are, a more appropriate *philosophical* point of departure for our discussion is Thomas Nagel's essay, "What Is It Like to Be a Bat?"[4] Exploring problems related to materialist definitions of consciousness, Nagel stresses the significance of the "subjective character of experience" and, in particular, the "point of view" connected with that subjective experience.[5] He chooses the example of a bat because it presents "a range of activity and a sensory apparatus so different from ours . . . [as to constitute] a fundamentally *alien* form of life" (438). And he asserts the possibility that the point of view of two different species might be so different that facts and concepts that are obvious to one species are quite unknowable to another.[6] That is, the "structure of mind" of a particular being might make it impossible to recognize or understand critical facts that are an essential component of subjective experience of a very different sort of being. Nagel suggests that one way to resolve this dilemma is to attempt to form new concepts and to devise a new method that would "describe, at least in part, the subjective character of experiences in a form comprehensible to beings incapable of having those experiences"—a phenomenology to describe, for example, the sonar experiences of bats (449).

While Nagel holds out little hope for the success of such a project, his essay is a valuable point of departure for an inquiry about dolphins because the differences between humans and dolphins suggest that these marine mammals are probably even more "alien" to us than bats are. Nagel's piece reminds us of the gulf that may exist between different species and the difficulty in building an intellectual bridge that would make mutual understanding possible. Humans and dolphins, however, are both intelligent mammals. And I believe that this fact

makes it more likely than it may be in the case of bats for us to come to at least a basic understanding of dolphins.[7] The special challenge in this essay, however, is to find a way to identify the parts of a dolphin's nature that speak to the question of what constitutes an appropriate ethical standard for human/dolphin interaction. Exploring such issues as the material conditions of their existence, central dimensions of their subjective experience, the conditions that have to be met for the full development of their personalities, and the like will, I believe, let humans begin to understand not only, to adapt Nagel's phrase, "what it is to be a dolphin," but also to recognize an appropriate moral standard for human/dolphin interaction.

What strategy, then, will let us bridge the distance between these two species? I do not think that we have to go so far as trying to invent new concepts to make a dolphin's experience comprehensible to humans, but a nontraditional method is certainly called for.

The traditional approach taken when scientists and philosophers discuss dolphins is to focus on similarities between dolphins and humans.[8] The inquiry has essentially been to consider to what extent dolphins are like us. After all, one of the most important reasons that dolphins have captured the imagination of humans is the extent to which they and we share certain traits. We are both large-brained, highly social mammals. Dolphins appear to have emotions and a sense of self—indeed, full-blown personalities. Their actions seem to be largely a function of choice, not instinct or stereotyped behavior. They can behave altruistically towards members of their own and other species. And a significant level of intelligence is suggested by their ability to solve complex problems and by the fact that some dolphins have been trained to follow a variety of human commands that require an understanding of syntax.[9] Indeed, dolphins share so many advanced traits with humans that it is not unreasonable to consider them "nonhuman persons."[10]

However, in light of both Adams' and Nagel's observations, this essay will suggest that a more productive approach includes consideration of the significant

differences between our species.[11] Moreover, a central part of this inquiry involves exploring differences between our species that flow from the material conditions of our existence. Humans are land mammals; dolphins are marine mammals. The imperatives for surviving on land are very different from those that govern surviving in the water, and this fact has likely led to a host of major differences—differences that surface not simply in the physical shape and behavior of our respective species, but also in our fundamental physical and emotional needs, and in our inner, subjective experience. We must also bear in mind that living in the water *in the wild* is dramatically different from living in the water *in a captive situation*, so a full understanding of dolphins requires that our primary attention be to what they are like in their natural state, that is, the environment in which they evolved and in which the overwhelming majority of dolphins still live and function.[12]

So how are dolphins different from us? And how do these differences speak to the issue of appropriate standards for morally acceptable behavior by humans towards dolphins?[13] Let us consider the first question, examine a series of important ways that dolphins differ from humans, and get a better picture of what kind of beings they are. Then, we'll be in a position to make some observations about the morality of captivity.

Adaptations and Aquatic Consciousness

We could detail a variety of prosaic features of life in the water that suggests that even the most basic experience of living in the ocean differs considerably from living on land. However, life in the water has produced some specific adaptations that suggest significant *cognitive and affective differences* between humans and dolphins. Moreover, these differences argue strongly for the idea that the traditional method of approaching ethical issues related to non-humans—a method that fails to take sufficient account of the impact of the material conditions of life on the shape of the inner world of these beings—cannot produce an accurate account of the nature of dolphins. And if the traditional

method is flawed, then the traditional moral justifications for current treatment of dolphins by humans may be called into question.

Brain follows body: cognitive implications

The modern dolphin is a model of efficiency as it moves through the water. Indeed, dolphins are so supremely streamlined that they have been favorite subjects of study for designers of submarines. Because of the density of water, the cetacean's original land-based ancestor lost its shape as a quadruped in favor of the hydrodynamic, torpedo-like shape characteristic of most ocean creatures. Every detail of the external structure of a dolphin's body is the result of millions of years of swimming through the seas. Paws or hoofs became pectoral fins, not hands, and this may have led to a dramatic difference in the brains and cognitive functions of human and dolphins.

Neurologist Frank Wilson has made a number of intriguing and provocative claims about the development of the human body that have fascinating implications when applied to dolphins: that the human hand and the human brain co-evolved; that the development of the hand shapes the brain, language and human culture; and that the logic of the hand had an important impact on the shape of human intelligence.[14] Dolphins lack hands, but they possess large brains and sophisticated cognitive abilities, and their brains likely evolved very differently from the way that human brains did.[15] If the fundamental character of human language and human intelligence is informed by the "logic of the hand," traditional discussions about the cognitive and emotional character and capacities of dolphins are very likely colored by anthropocentric measures.

That is to say, if Wilson is correct, it may be more accurate to approach concepts like "consciousness" and "intelligence" as though they were species-specific, not universal notions. The architecture of the dolphin brain is significantly different from that of the human brain, and "human intelligence" and "dolphin intelligence" may also be very different. Similarly, definitions of "language" might also be species-specific.[16]

Consequently, current assessments of the intellectual sophistication of dolphins—which are used to assign them a lower place than humans in the biological and moral hierarchy—may very well be seriously flawed.

Dolphins in community: social intelligence, emotional needs

The ability to build physical structures and to develop certain technologies has allowed humans to assure our own safety on land. But how do dolphins in the ocean protect themselves when these land-based advantages are unavailable to them? Most importantly, through a social institution—the school. Dolphins are far more social than humans are, and this is most likely because of the extent to which this provides safety in the wild. Consider the following details.

- The school is the basic social unit in the oceans. This is undoubtedly because it increases the likelihood of survival. Accordingly, dolphins live in communities with other dolphins. Sometimes communities are small; sometimes they number in the thousands. But dolphins' sense of connection with one another appears to be very strong.[17] Indeed, dolphins appear to be much more social than humans are. Dolphins appear to spend a significant portion of their day making direct physical contact with other members of the community. They play active and important roles in their groups: hunting, scouting, raising the young, caring for the sick and injured, protecting the vulnerable, mating, being involved in group play and recreation. Solitary dolphins are a rarity, and seem inevitably to seek out human contact for companionship. Dolphins can literally die of loneliness. Dolphins develop strong, long-term relationships, usually with members of their own sex.

- Because the school is the primary means for survival in the waters, "relationship" may occupy the same place as "tool" does among humans. That is, survivability in the water is enhanced by social skills, so if dolphins have used a "social technology" to ensure their survival, they probably focus their intelligence in the direction of learning how to manage relationships with

other dolphins in a way that (as is the case with any tool) makes their lives easier. At least one marine scientist believes that, as a species, dolphins are "experts in relationships."[18] Thus, given the primacy of the school, what is called in some circles "social intelligence" or "emotional intelligence" may distinguish dolphin intellectual abilities in the same way that manipulating the physical environment through tools and technologies distinguishes human intelligence. [19] Hence, their view of what counts as signs of "intelligence" would probably be very different from ours.

- An important difference between dolphin and human social interaction is in sexuality. Dolphins are naturally bisexual and far more active sexually than humans are. (It's estimated that the average dolphin has 8 to 10 sexual encounters each day with various members of the community.) There are no sexual taboos, although there do seem to be mechanisms to prevent inbreeding. Dolphin sexuality apparently serves a major role in managing relationships among members of the community. For example, sometimes it expresses affiliation, sometimes aggression; sometimes it's a matter of instructing the young in sexual behavior.

One especially important implication that flows from these dimensions of dolphin social life is that the extent to which their personalities can develop may very well depend on the richness of social interaction that is common in the life of a dolphin in the wild. It seems likely that dolphins, far more than is the case with humans, ensure both individual and communal welfare by means of managing a large number of relationships on a daily basis. Simply put, in order for dolphins to grow emotionally and to feel safe and happy, they may very well need to live together in a complex nexus of relationships more than humans do.

Ethical implications

So where does all of this take us? This has been an admittedly sketchy look at some differences between dolphins and humans and a rudimentary attempt at speculating about their significance. But I hope that two points seem

likely: 1) cognitively and affectively, “what it is to be a dolphin” is probably very different from “what it is to be a human,” and 2) these differences should occupy a central role in answering questions about what constitutes “harm” to dolphins and what qualifies as “appropriate” treatment of dolphins by humans.

The differences are dramatic enough (particularly in light of the implications of Wilson’s theory of brain/hand co-evolution) to make us take Nagel’s caution about the differences in species very seriously. Indeed, psychologist Diana Reiss maintains that dolphins should be regarded as a truly "alien" intelligence.[20] Consequently, there’s a good possibility that we have at best only a seriously incomplete understanding of dolphin “intelligence.” Our ignorance on such an important matter, then, means that *there are insufficient grounds to make the traditional claim that dolphins' cognitive capacities place them on a significantly lower spot in the moral hierarchy than humans*.

Similarly, what has been learned about the affective capacities of dolphins and about their social lives in the wild argues for a broader understanding of what could constitute “harm” to dolphins in human/dolphin interaction. That is, between their emotional capacities and their need for a rich social life, *dolphins can probably experience a greater degree of emotional pain or deprivation in captivity than has traditionally been thought.*

In short, the traditional defense of the use of captive dolphins by the entertainment industry has been based on an outdated and incomplete view of the nature of these beings. With this in mind, then, let us now proceed to the question of whether captivity is morally justifiable.

*

The current defense of the use of captive dolphins in facilities in the entertainment industry begins with the following claims: dolphins are well fed and receive medical attention they would not receive in the wild; they live a life-span comparable to that of dolphins in the wild; they experience social

interaction with other dolphins and humans; facilities take care to ensure that they are not bored; the success of captive breeding programs means that the capture of wild dolphins is now rare.

While all of these claims are largely true, the more serious parts of the captivity defense are far more questionable: 1) the cognitive and affective capacities of dolphins show that they are not the moral equals of humans; 2) if dolphins were unhappy in captivity, they would either fail to breed, be perennially depressed, show aggression towards humans, or they would try to escape from the facilities that give them access to the open ocean; 3) dolphins are not harmed physically from captivity; and 4) they are also not harmed emotionally by captivity.

As I hope I have suggested from the discussion above, we do not know enough about dolphins at this time for the defenders of captivity to claim these points to be true. Moreover, I believe that the differences between humans and dolphins make it apparent that these points may very well be false.

1) Even accepting for the sake of argument the highly debatable assumption that moral standing depends on a species' cognitive and affective sophistication, before we know what kind of consciousness and intelligence dolphins have, we cannot confidently say that it grants them little or no moral standing. Moreover, what we do know about dolphins suggests that they are "non-human persons" and should be recognized as such.

2) Given their apparent social sophistication, the fact that captive dolphins are unaggressive, generally evidence no depression and do not try to escape may just as likely mean that they are as socially adaptable as humans (who can respond to captivity by other humans the same way that dolphins do).[21]

3) Most facilities do tend to their dolphins' most obvious physical needs. However, in even the biggest facilities, the tanks that dolphins live in are small and shallow in comparison to the ocean. There are no currents. There's no change of pressure associated with different depths. The tanks are made of concrete or some other hard surface that would probably cause a dolphin's clicks to reflect differently than in the ocean. Indeed, the tanks are so small that a dolphin probably has little need for its sonar. Wild dolphins are most active at night, while captive dolphins are expected to be most active during the day, when human audiences come to see them perform. The parks are deserted in the evening. While all of this may not amount to physical pain, these are certainly physical conditions that are at best "uncomfortable" and at worst "deprivation" or "hardship."

4) And, most importantly, the absence of rich social interaction may very well harm dolphins emotionally, preventing them from developing what could be the central facet of their personalities. Dolphins in captivity live with a relatively small number of other dolphins. For such a social being, this could be felt as a hardship. Also, dolphin heterosexual behavior is limited to pairings arranged by captive facilities for the sake of breeding offspring. Even homosexual contacts are limited only to the dolphins with whom they share a pool. It is hard to believe that this would not have a negative effect on such a sexual being, who presumably gets more than physical and emotional pleasure from so much sexual contact with so many members of the community. A wild dolphin's sense of life may very well be akin to a "web" of relationships, with its sense of self closely connected to the community of which it is a part. If so, captive dolphins may experience a much more fragile sense of life than either humans or dolphins in the wild do. In short, there is good reason to think that captive dolphins might live in an emotionally deprived state and, given the differences we have noted above, that captivity is more harmful for them than it would be for humans.

Once we grant that dolphins may be a form of life that is essentially *alien* to ours, the ethical issues regarding captivity are less about whether dolphins are "humanely" treated, well-fed, getting appropriate medical attention, and can successfully reproduce but more about whether the conditions in which they live are appropriate to their nature. And I hope that I have shown that there is reason to believe that the conditions of captivity may very well not meet this standard.

I hope that this essay suggests that the current standard for assessing human/dolphin interaction is morally unacceptable. Once we begin to recognize the differences between humans and dolphins, however, we are in a position to begin developing a different, more appropriate standard for our behavior towards them. This essay claims to be little more than a start towards recognizing the details of such a standard, but I hope that I have shown that the differences between dolphins and humans are so great that the philosophical—and especially ethical—implications are likely to be considerable. On the matter of captivity, however, I believe that the "alien" nature of dolphins levels a fatal charge against captivity on two counts: 1) we do not know enough about "what it is to be a dolphin" to say that captivity does not violate any dolphin rights or does no harm; and 2) what we do know makes it likely that captivity is both intrinsically indefensible and produces genuine harm.

---

[1]Douglas Adams, *The Hitchhiker's Guide to the Galaxy* (New York: Pocket Books, 1979), p. 156.
[2] On the cognitive capacities of non-humans, see the work of Donald Griffin (e.g., *The Question of Animal Awareness* [New York: Rockefeller University Press, 1991]). On their affective capacities, see, for example, Jeffrey Moussaief Masson and Susan McCarthy, *When Elephants Weep: The Emotional Lives of Animals* (New York: Delacourt Press, 1995).
[3]I am currently working on a book on the philosophical implications—especially the ethical implications—of the scientific research on dolphins. This essay is related to that project, but it should be seen as a largely incomplete treatment of the questions at hand. A full explanation and defense of a number of the critical issues involved is beyond the length and scope of this paper. This is also the case regarding the scientific basis for a number of claims I make about dolphins. This paper is the latest in a series of preliminary discussions about some different aspects of this issue: "Ethics at Sea: The Dolphin/Tuna Controversy." *Business, Ethics and the*

Environment: The Public Policy Debate. Edited by W. Michael Hoffman, Robert Frederick, and Edward S. Petry, Jr. New York: Quorum Books, 1990. Pp. 233-45; "Is a Dolphin a Person?" in my *Discovering Philosophy* (Englewood Cliffs, NJ: Prentice Hall, 1989); "Dolphins and the Ethics of Captivity," presented at the Eastern Division meeting of the American Philosophical Association, December 1989); "Are Dolphins Persons?" *Wild Dolphin Project: Notes from the Field*, Vol. 5, No. 1 (Summer, 1996), 10-11; "Speculations about the Nature of Nonhuman Consciousness, or What Does It Mean to Be a Dolphin?" Pacific Division Meeting of the American Philosophical Association. Seattle, Washington, 1996; and (with Denise Herzing) "Dolphins and the Question of Personhood," *Etica & Animali*, 9/98, 64-84. The earlier pieces suggest that captivity is less problematic than I currently believe.

This project is possible only through the generosity of a variety of marine scientists and educators who have been kind enough to discuss their research and their experience with dolphins with me over the last decade (Joy Hammp, the late Kenneth Norris, Diana Reiss, Susan Shane, Laura Urian, Bernd Wursig). My service as a member of the Wild Dolphin Project's Scientific Advisory Board and my involvement with the Project's fieldwork has been extremely instructive.

[4] Thomas Nagel, "What Is It Like to be a Bat?" *Philosophical Review*, 4 (1974), 433-450 .

[5] Nagel claims that a materialist account first requires an understanding of the subjective experience. He writes,

> Any reductionist program has to be based on an analysis of what is to be reduced. If the analysis leaves something out, the problem will be falsely posed. It is useless to base the defense of materialism on any analysis of mental phenomena that fails to deal explicitly with their subjective character. For there is no reason to suppose that a reduction which seems plausible when no attempt is made to account for consciousness can be extended to include consciousness. Without some idea, therefore, of what the subjective character of experience is, we cannot know what is required of a physicalist theory" (437).

Nagel even hints that reductionism is condemned to failure when he observes that "every subjective phenomenon is essentially connected with a single point of view, and it seems inevitable that an objective, physical theory will abandon that point of view" (437).

[6]Nagel writes,

> If anyone is inclined to deny that we can believe in the existence of facts like this whose exact nature we cannot possibly conceive, he should reflect that in contemplating the bats we are in much the same position that intelligent bats or Martians would occupy if they tried to form a conception of what it was like to be us. The structure of their own minds might make it impossible for them to succeed, but we know they would be wrong to conclude that there is not anything precise that it is like to be us: that only certain general types of mental state could be ascribed to us (perhaps perception and appetite would be concepts common to us both; perhaps not). We know they would be wrong to draw such a skeptical conclusion because we know what it is like to be us. And we know that while it includes an enormous amount of variation and complexity, and while we do not possess the vocabulary to describe it adequately, its subjective character is highly specific, and in some respects describable in terms that can be understood only by creatures like us. The fact that we cannot expect ever to accommodate in our language a detailed description of Martian or bat phenomenology should not lead us to dismiss as meaningless the claim that bats and Martians have experiences fully comparable in richness or detail to our own. It would be fine if someone were to develop concepts and a theory that enabled us to think about those things; but such an understanding may be permanently denied to us by the limits of our nature. And to deny the reality or logical significance of what we can never describe or understand is the crudest form of cognitive dissonance. (440-1)

Not surprisingly, this essay is based on the idea that more of an understanding of certain non-humans is possible than Nagel seems to think either possible or likely.

[7] I am assuming here that—despite our differences—since both humans and dolphins possess such cognitive capacities as self-consciousness, control over behavior, memory, the ability to engage in sophisticated communication with conspecifics, the ability to solve complex problems, and the like, we will be able to engage in reasonable speculation about how such a being would respond to the survival imperatives characteristic of the ocean. [For a fictional attempt to do just such a thing, see Kurt Vonnegut, *Galapagos: A Novel* (New York: Delacorte Press, 1985.]

[8] See, for example, the most recent discussion of humans and dolphins by Alasdair MacIntyre in his 1997 Carus Lectures, *Dependent Rational Animals: Why Human Beings Need the Virtues* (Chicago: Open Court Publishing, forthcoming).

[9]There is an extensive body of research on these dimensions of dolphins. On whether dolphins have self-awareness, see the work of Ken Marten. On dolphin social life see the work of Denise Herzing, Kenneth Norris, Karen Pryor, Randy Wells, and Bernd Wurzig. On dolphins' abilities to comprehend human language, see the work of Louis Herman. On the role of dolphins in a therapeutic situation with children, see the work of David Nathanson.

[10]See, for example, relevant essays in n. 3. Even so, "personhood" may be an inappropriately anthropocentric concept to use in such an inquiry; see my "Dolphins and the Ethics of Captivity," n. 3.

[11]Scientific research on dolphins over the last 20 years has discovered a fair amount about these differences, but due to the limitations of an essay of this character, the following account of dolphins will necessarily be overgeneralized and, at times, oversimplified. For example, there are over 30 different species of dolphins, most of the research has been done on one species (the bottlenose) and it is not clear just how much can be concluded about the other species from this research.

[12] I believe that a major weakness in much philosophical discussion of "animal rights" is that it is not informed by field experience. Through the cooperation of Denise Herzing, who has been studying a community of spotted dolphins in the Bahamas for the last 15 years, I have been able to participate in the field research of the Wild Dolphin Project since 1990. This experience has made a dramatic difference in both my understanding of the philosophical questions involved in human/dolphin interaction and my sense of how these issues must be approached to be resolved.

[13] The discussion that follows explores only the differences that are most relevant to the question of the ethical justifiability of dolphin captivity. The wide range of differences and their implication for answering the general question, "What is it like to be a dolphin?" will be dealt in the book I am working on.

[14] Frank R. Wilson, *The Hand: How Its Use Shapes the Brain, Language, and Human Culture* (New York: Pantheon Books, 1998). Wilson observes: "There is growing evidence that *H. sapiens* acquired in its new hand not simply the *mechanical* capacity for refined manipulative and tool-using skills but, as times passed and events unfolded, an impetus to the redesign, or reallocation, of the brain's circuitry. (59) . . . Increasingly in the work of those concerned to illuminate human origins, we find evidence that, from the beginning, the hominid hand and its growing repertoire of movements were integral to what was happening in behavioral, cultural, and cognitive evolution. (290) . . . For humans, the hand has a special role and status in the organization of movement and in the evolution of human cognition. (291)"

[15]Wilson's contention about brain/hand co-evolution in humans suggests that that there would have been an analogous, coevolutionary process involving the dolphin brain and the part or parts of its body that, like the hand in humans, allowed it to survive so successfully in its environment. I am not in a position at this time, however, to speculate about what that might be.

[16] It is impossible to say at this point whether dolphins have a "language" in the conventional sense in which this concept is understood. Some laboratory dolphins have demonstrated an impressive ability to understand human language, so their species must use these capacities in

some fashion. (Given the efficiency of the workings of nature, if these abilities weren't used, they wouldn't be present.) And, clearly, dolphins do communicate with one another in a number of ways. However, given the differences between human and dolphin systems of communication, the main methods of investigation on this front (the extent to which dolphins can understand human language, or, in the case of researchers using keyboards, the extent to which dolphins can operate in artificial systems that use symbols [sound and/or keys] with single meanings) may not reveal how dolphins communicate. Indeed, it may turn out that the most significant ability demonstrated by the impressive ability dolphins have shown with human language is their capacity to operate in a foreign intellectual environment.

[17]The connection among other cetaceans—whales—may be so strong that it accounts for mass strandings. One explanation of at least some strandings is that when illness drives one member of the community into the shallow water in order to get the support of the beach, others follow because the group is so tightly bonded. That is, their sense of themselves is so much as a member of the group, that this becomes stronger than individual survival. They cannot abandon one member of the group, and the consequence is that they all die.

[18]Bernd Wursig, private communication.

[19]For example, "intelligence" among dolphins might be more social and emotional than purely intellectual. For a discussion of the claim that factors other than high intelligence are more important to success in human life see: Daniel Goleman, *Emotional Intelligence* (New York: Bantam Books, 1995).

[20] Diana Reiss, "The Dolphin: An Alien Intelligence," in Ben Bova and Byron Preiss, Eds. *First Contact: The Search for Extraterrestrial Intelligence* (New York: NAL Books, 1990), 31-40.

[21] It is worth noting that wild dolphins try to avoid being captured, and there is at least one case of a dolphin escaping from a temporary holding pen after capture. Carol J. Howard, *Dolphin Chronicles* (New York: Bantam, 1996), pp. 33-34.