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CASE STUDIES

Animal Ethics Committee Guidelines and Shark Research

Comment on "Ethics of Species Research and Preservation" by Rob Irvine

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In assessing whether the proposed experiment on a speartooth shark is morally justifiable (see Rob Irvine's 2013 fictional case study created to spark dialogue and debate), I will draw on the Australian Code of Practice set by the National Health and Medical Research Council (NHMRC 2013). This Code sets out three principles (the three Rs) to abide by when assessing protocols: whether there can be a reduction in animal use; whether there can be a refinement of procedures; and whether animal research can be replaced. The aim is to approve only those studies for which animals are essential and justified and which conform to the requirements of the Code. This should take into consideration factors including ethics, the impact on the animal or animals, and the anticipated scientific or educational value (NHMRC 2013, Section 1).

With a sample size of one in the speartooth shark case study, there clearly cannot be a reduction in animal use. There also is insufficient information to work out whether refinement is possible. We are not told how big the aquarium is in which the shark is to be housed. As sharks are free-swimming animals with territories normally much larger than an aquarium, it is likely that a university aquarium of any size will result in suffering. No information is given as to whether this shark is normally a social animal, so it is impossible to assess whether being imprisoned alone will generate additional suffering. The proposal states that "[t]he individual shark will suffer no long-term harm as a result of the research" (Irvine 2013, 262). How could that be known? The shark could even die during transportation.

The research proposal (even if fictive) presents insufficient discussion of alternative ways of proceeding. The replacement principle usually applies to methods that don't use animals at all. However, given the aim of the Code, if animals are to be used then it is better to engage in noninvasive research rather than invasive research. If the aim is to discover the natural behaviour of the shark, then the shark needs to be studied. On the other hand, it would be preferable to study the natural behaviour in the field even if the waters in which the shark lives are "fast-moving" and "murky" (Irvine 2013, 261). At the very least, more detail is needed to say why such studies wouldn't work. Infrared cameras can work in murky water. So a study in murky water is not very different from a study in darkness. As it is already known what the speartooth shark preys upon, namely, "bony fish and crustaceans," then presumably some investigations have already been carried out in the "fast-moving, highly murky waters of mangrove-lined tropical Northern river systems" (Irvine 2013, 261 and 262).

The original article by Rob Irvine, published in the *Journal of Bioethical Inquiry*, 10(2): 261–262, can be located at doi 10.1007/s11673-013-9443-x.

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Thus the research would appear to violate the refinement and replacement principles (if the latter is interpreted as substituting noninvasive research for invasive research).

In considering whether the research is ethical, the Code directs us to weigh the suffering of the animal against the anticipated scientific or educational benefits. I have already given reasons why the shark may suffer. The bony fish and crustaceans may suffer as well (see Sneddon, Braithwaite, and Gentle 2003; Stead 2013 on the capacity for fish and crustaceans to feel pain). It could be argued that they or their kin would suffer anyway when being captured by sharks. However, the experiment as conceived may involve more than those who suffer this fate. These "excess" prey will be used in further experiments and then killed. We have no way of assessing whether their suffering is countered by the scientific or educational value of this other research. What we can say is that the experiment would produce some suffering for the shark and prey; exactly how much is unclear.

Are there scientific benefits that could reasonably be said to override the suffering of the animals? There is a major statistical problem with this study. A sample size of one may tell us nothing about the species and to suggest that the study of one shark could be generalizable to other species of sharks is ridiculous.

The aim of the study is to find out about the natural behaviour of the shark. However, how can the behaviour of the shark in a very artificial environment inform us about the natural behaviour? It is also claimed that "[t]he basic research in animal behaviour will advance scientific insight into particular issues that will contribute directly to reducing the degree of endangerment of the species and to benefiting the welfare of the individual animal species" (Irvine 2013, 262). These are very vague claims. It is unclear that any amount of predator/prey information that could be gleaned from such a study in an artificial environment would tell us anything about endangerment of the species in the wild or about their welfare. The problems which face this shark relate to recreational line-fishing, gillnetting, and habitat degradation (Stevens, Pillans, and Salini 2005). The aquarium waters could be polluted to mimic part of the habitat degradation. But then we face the problem that this research has already been done and it would be unethical to cause animal suffering by duplicating it.

Other vague statements are made about the value of this research, including the view that it will lead to a better understanding of the overall ecosystem and how it operates. How could that be, if the ecosystem is not actually being studied?

The proposed study has a very inadequate scientific rationale and a weak methodology, and the outcomes—if any—are insufficient to justify the animal suffering that would be incurred.

An additional point involves ethics of a different nature: the tying up of public funds for a project that is unlikely to produce any useful results. There are to be 24-hour monitors on a shark trap, staff from the National Parks and Wildlife Service on hand 24 hour per day for a month to assist researchers, people employed to transport the shark, and a special aquarium built for one animal. Tranquilizers, analgesics, and/or other anaesthetics may also be used.

In this discussion I have drawn on the framework for assessing protocols laid down in the Code of Practice. This Code is implemented by Animal Ethics Committees. Elsewhere I have criticised the functioning of such committees (Russell 2012). While I stand by those criticisms, I believe that the Code does offer a good framework to assess the ethical issues involved in animal experimentation. It is how the Code is implemented that needs fixing. The vague comments about the research helping management and conservation that we see in this proposal can lull the members of a committee into thinking all is well when it isn't.

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