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A review of animal welfare implications of the Canadian commercial seal hunt: A critique

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ABSTRACT

In a recent article in this journal (Butterworth and Richardson. A review of animal welfare implications of the Canadian commercial seal hunt. *Marine Policy* 2013;38:457–469), the authors argued that “generally accepted principles of humane slaughter cannot be carried out effectively or consistently during the Canadian commercial seal hunt”. The present review purports to show that these authors’ conclusions were incorrect because they were highly selective in their treatment of the information available and made no attempt to consider other perspectives. In addition, their reliance on anecdotal video sequences to support some of their points was seriously flawed since a vast proportion of these sequences failed to meet fundamental criteria of scientific rigor. The article by Butterworth and Richardson [5] failed to provide an unbiased presentation of the available data and therefore did not bring further clarity to the debate on the Canadian commercial seal hunt.

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1. Introduction

The Canadian commercial seal hunt is the largest marine mammal harvest in the world (average of 270,000 animals harvested annually between 1998 and 2007, the vast majority being 1–3 months old [1]) and as such, is highly controversial. Questions about the animal welfare implications of the methods used to kill seals have been raised since the 1960s and have been the subject of a number of reviews (e.g., [2,3]). Most recently, the European Food Safety Authority (EFSA) conducted an extensive review of all the data available on the animal welfare aspects of killing seals throughout the world. Its working group, consisting of experts with a variety of backgrounds and with various levels of familiarity with seal hunts, concluded that “many seals can be, and are, killed rapidly and effectively without causing avoidable pain, distress, fear and other forms of suffering, using a variety of methods that aim to destroy sensory brain functions. However, there is a strong evidence that, in practice, effective killing does not always occur but the degree to which it does not happen has been difficult to assess, partly because of a lack of objective data and partly because of the genuine differences in interpretation of the available data” [4].

A recent article by Butterworth and Richardson [5] published in this journal, using much of the same material available to EFSA [4], concluded that “generally accepted principles of humane slaughter cannot be carried out effectively or consistently during the Canadian commercial seal hunt”. However, the authors did not discuss why they arrived at significantly different conclusions than those of the EFSA working group. This critique addresses some of the animal welfare issues raised by Butterworth and Richardson [5] that are incorrect or misleading. It does not deal with all the flaws contained in their article, such as their views on hunting conditions and climate change which are outside their realm of expertise and are thus speculative. Readers should therefore view other aspects of their article with considerable skepticism.

2. Analysis

The objective of a scientific review is to provide a comprehensive overview of the current knowledge on a topic using previously published research [6]. To fit scientific standards, it is required to follow a structured, systematic approach in which the process to select the information is explicitly described and can be reproduced. This scientific rigor is necessary for readers to appreciate the validity of the conclusions reached in the review. The Materials and Methods section in Butterworth and Richardson [5] did not provide explicit methodology to reproduce the

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investigative work, or to select and weigh the evidence used. The fact that much of the material had already been evaluated by EFSA [4] was never discussed. Instead, an undisclosed, and potentially biased, selection and weighing appear to have occurred. The type of information referenced in the review ranged from peer-reviewed articles published in recognized scientific journals to anecdotal evidence such as video footage. Out of the 104 references in the review, 28 were peer-reviewed publications, of which only five directly studied the practices during the seal hunt. In other words, at least 95% of the referenced information was not peer-reviewed scientific evidence related to the seal hunt. The review contained a total of 231 citations and, except for Daoust et al. [7] (cited 10 times), the other four accessible peer-reviewed articles on the seal hunt were only cited once or twice. Instead, the authors focused their review on only three references (refer Table 1 in Butterworth and Richardson [5]), two of which were not peer-reviewed articles. The most cited reference was a non-peer-reviewed report produced by one of the co-authors himself [8] with 21 citations (9% of the total citations within the review), that was submitted to the EFSA working group. However, the EFSA [4] report concluded after reviewing the material available (including that of Butterworth et al. [8]) that without adequate sampling that is representative of the entire hunt with respect to sample size and design, it is not possible to establish reliably the exact proportion of animals that are killed outright, with good animal welfare results.

2.1. Video sequences

Butterworth and Richardson [5] relied extensively on observations of video sequences of the commercial seal hunt reported in three previous studies [7–9] and on sequences collected subsequently by non-governmental organizations (NGOs) opposed to the hunt. This additional material was not analyzed, interpreted, or discussed anywhere in the article. To our knowledge, only two NGOs (International Fund for Animal Welfare [IFAW], Humane Society of the United States [now Humane Society International]) have regularly observed this hunt in the recent past. Neither group has provided a detailed description of their survey methods or attempts to avoid bias in the recording and interpretation of the video sequences that they assembled. Consequently, the analyses by Butterworth and Richardson [5] cannot be used to reach conclusions regarding the conduct of the hunt, a point raised by EFSA [4] when it reviewed a series of videos of the hunt submitted by NGOs, including some of the same sequences used by Butterworth and Richardson [5]. These authors also failed to identify a standard of video sequences that, in their view, constitute reliable evidence of good or poor animal welfare outcome. Without an objective and validated assessment method, even videos showing proper killing procedures can be misinterpreted by some as presenting animal welfare concerns. For example, Daoust et al. [7] examined video imagery provided by IFAW. Out of 116 interactions between harp seals and sealers, IFAW identified 39 (33.6%) violations pertaining directly to animal welfare issues while Daoust et al. [7] found 12 (10.3%). Such video material would be viewed and interpreted best by panels of experts reflecting a diversity of views, experience and backgrounds related to the killing of animals, as was done by the Independent Veterinarians' Working Group [3] and by the EFSA [4] working group.

2.2. Tools used to kill young seals

According to Butterworth and Richardson [5], “For mechanical stunning to be humane the general requirement is that insensibility be accomplished with the first application in that repeated application may result in pain, fear and distress”. All the primary references provided in the first part of this quote pertained to livestock, i.e.,

animals that are killed under controlled conditions (where, nonetheless, the outcome is not always successful). The difficulties with this type of comparison are discussed in Section 2.6. However, it is also difficult to follow the logic of this particular point when it comes to animal welfare associated with the seal hunt. Sealers routinely give more than one blow in quick succession (Daoust, personal observation) so that in the event that the first blow does not completely crush the top of the skull, the following blows will complete this task very quickly and thus ensure the death of the animal.

According to Butterworth and Richardson [5], “more than 40% of the seals observed being shot were likely not rendered immediately unconscious as evidenced by further clubbing action carried out by the sealers”. An equally valid, and more likely, interpretation is that clubbing was carried out to ensure that the top of the skull was completely crushed and thus that both cerebral hemispheres were destroyed, as required by the Marine Mammal Regulations (MMR) of the Fisheries Act of Canada [10]. Clubbing after the seal has been shot may be done as a precautionary measure or if the shot to the head did not fully destroy the top of the skull. For example, a shot may fracture the base of the brain case and cause immediate death without completely destroying the upper part of the brain case, as was observed by Daoust et al. [7] and again by Daoust and Caraguel [11]. Crushing the top of the skull ensures that the requirements of the MMR are met.

2.3. Extent of skull fractures

Butterworth and Richardson [5] stated that “In examining skulls of seals clubbed by Canadian sealers, veterinarians and official observers have consistently identified a lack of cranial injury that would correlate with insensibility”. Nine of the 11 references provided were published between 1966 and 1981 and referred to the hunt for whitecoats, which ended in 1982 and was banned in 1987. Also, sealing practices changed substantially in 2009 with revised MMR [10]. Therefore, these observations do not provide an accurate representation of the hunt as it is currently carried out. Moreover, the Royal Commission on Seals and Sealing which reviewed the reports prior to 1986 contradicts this opinion since, citing a number of additional studies that found very low proportions of unfractured skulls, it concluded that “there is little cruelty or unnecessary suffering inflicted in most sealing operations” [2]. Interestingly, Daoust et al. [7] reported that, in the 1999 hunt, skulls of 221 (98%) of 225 seals killed with a hakapik prior to the observers' arrival on the ice floes had multiple depressed fractures with massive destruction of the brain, but neither this article nor those cited by Malouf [2] were included in the list of references cited by Butterworth and Richardson [5].

Tools used at the seal hunt may vary according to ice conditions, and this in turn may influence the types of injuries evident in carcasses. For example, according to Butterworth and Richardson [5], “Of the 76 post-mortems conducted by Burdon et al., 17% had no apparent skull fractures”. Observations by Burdon et al. [9] were carried out in the same year, and in the same general location, as some of the observations in the study by Daoust et al. [7], in which the hunt “involved the use of hakapiks and rifles in roughly equal proportions”. In the latter study, 40 seals were shot and subsequently struck with a hakapik (see Section 2.2). Three seals were shot only and died instantly; two were shot in the head, and one in the neck. Skull fractures would not have been seen in the latter animal, a factor that was not recognized by Burdon et al. [9] in their own observations. Of 245 seals shot and for which the original site of injury could be determined by Daoust and Caraguel [11], the neck was hit in 25 animals (10.2%), only six of which also had a skull fracture. A second shot was taken in only

one of these 25 seals; all others were considered to have died immediately (Daoust, unpublished data). Therefore, using only a single measure to assess the killing process can result in negatively biased estimates of proper animal welfare outcome.

The MMR require that the top of the skull to be checked by palpation after it has been struck [10]. According to Butterworth and Richardson [5], “in the context of the commercial seal hunt, it has been argued that skull palpation is not a reliable test for unconsciousness”. Citing Butterworth et al. [8] and EFSA [4], they stated that “A partially crushed skull can be compatible with consciousness”. However, they failed to note that EFSA [4] specifically stated: “(1) Palpation of the skull can be used for assessing and monitoring the severity of brain damage. (2) *The presence of an intact skull would not necessarily mean that an animal was not rendered unconscious* [our italics]. (3) A partial fracture (one side of the cranium or at the front or the back of the skull) could still be compatible with consciousness and sensibility”.

2.4. Other alleged observations of poor animal welfare practice

Animals often exhibit involuntary movements following death from traumatic injury. In seals, this takes the form of a so-called post-mortem swimming reflex, well described in EFSA [4]. Butterworth and Richardson [5] said that “83% [of the seals] responded to stimulus after [cutting/skinning] had begun” and that “In many cases, the seals *appeared* [our italics] to be alive as they were dragged across the ice”. These authors failed to acknowledge that such movements linked to stimuli after a seal has been struck could simply be a manifestation of a post-mortem reflex. EFSA [4] addressed this point specifically: “...As such evidence has been used to criticize the hunts when animals are observed from a distance, it is difficult to know whether it is a swimming reflex or voluntary activity that is being observed. This has led to different conclusions by different observers, even for the same video sequences”.

Butterworth and Richardson [5] cited a study of struck and lost rates carried out by Sjare and Stenson [12] to claim that more seals will be lost if taken in the water rather than on the ice. The rate at which animals are lost is not a direct measure of wounding and thus negative animal welfare outcome as these animals can be killed outright by a shot to the head. Also, while Butterworth and Richardson [5] stated that lost rates of young seals in the water are five times those on the ice, Sjare and Stenson [12] actually found that, because of the wide range of values in each case, there was no significant difference in the rates of lost seals. Similarly, none of the 24 young harp seals shot in the water by hunters and observed by Daoust and Caraguel [11] were lost. This is mainly because young seals have a very thick layer of fat at the time of the hunt and, therefore, float when dead. Sjare and Stenson [12] did find a higher lost rate for older seals but these have made up a very small proportion (< 3% [1]) of the Canadian hunt over the past decade.

Butterworth and Richardson [5] stated as further evidence of poor animal welfare outcome that “A significant number (59%) had pre-mortem bleeding in the mouth or nostrils, and blood in their un-perforated (intact) stomachs, indicating that they were alive and swallowing blood after the first strike”. However, observations by Daoust and Caraguel [11] indicated that the presence of blood in the stomach of a dead seal does not necessarily imply consciousness when the blood was swallowed since the swallowing process becomes involuntary once liquid or a bolus of food enters the pharynx [13], as could occur when the mouth of an unconscious animal is filled with blood from massive head injury.

2.5. Adaptation of seals for marine life

According to Butterworth and Richardson [5], “the specific adaptations of seals to the aquatic and diving life raise significant concerns when ‘conventional’ slaughter processes are proposed”. This statement is speculative and not supported by others. In a review of killing methods, NAMMCO [14] stated that: “The [several morphological and physiological] adaptations [to diving in seals] do not have any consequences for killing times of seals vs. other mammals when killing tools that cause extensive brain damage (rifle shot, hakapik or similar weapon) are used, since such damages are equally fatal to a seal as to any other mammal”. The Guidelines for the Euthanasia of Animals of the American Veterinary Medical Association also identify gunshot and blunt trauma to the head of small juvenile marine mammals as acceptable methods when practiced by competent people [15]. These are the methods approved for the Canadian seal hunt.

2.6. Internationally recognized standards of humane slaughter

Butterworth and Richardson [5] insisted on equating Canada's commercial seal hunt with the slaughter of domestic animals and thus applying exactly the same principles. The implementation of these principles for domestic animals, including successful stunning, is not perfect. For example, in assessments of 25 European slaughterhouses involving 1823 cattle between 2000 and 2011, the mean percentage of animals showing signs not compatible with sufficient depth of stunning with a captive-bolt gun was 13.5% [16]. Moreover, referring to European regulations pertaining to the slaughter of domestic animals, Butterworth and Richardson [5] stated that “Stunning via delivery of a manual percussive blow (such as clubbing) is not recommended for general use”, but they failed to mention that these regulations “...shall not apply: (a) where animals are killed...(ii) during hunting...” [17], nor did they discuss the issue of ritual slaughtering methods using exsanguination without stunning, which accounts for up to 20% of the animals killed in some countries [18].

If the authors wished to compare methods used during a hunt, commercial or not, to slaughter practices used for domestic animals, they should have addressed the entire process. More specifically, they should have considered the environment of the animals during the hours, or even days, preceding death. It is reasonable to assume that, even under the best conditions, domestic animals experience substantial, if not severe, distress during transport from the farm to the slaughterhouse, during their stay in lairage pens at the slaughterhouse, and in the line to slaughter. Some researchers actually consider fear in animals to be worse than pain [19]. No such human-imposed stress occurs during a hunt when the seals are shot from a distance, while stress would only last for a few seconds before a seal is killed when approached closely by a sealer with a hakapik.

There are also major differences in the process used to kill livestock as compared to seals that were not addressed by Butterworth and Richardson [5]. With domestic animals at the slaughterhouse, stunning with a captive-bolt gun is followed by exsanguination to slaughter the animal. In the seal hunt, however, the hakapik, club, or rifle is not simply a stunning tool but is meant to cause irreversible loss of consciousness or death. These methods have been endorsed by EFSA [4], NAMMCO [14] and the AVMA [15] as acceptable to kill young seals. Exsanguination is only a precautionary, albeit important, measure to eliminate any possibility that a seal will regain consciousness.

Butterworth and Richardson [5] misrepresented EFSA [4] when they used this report as one of the references supporting their contention that “Confirmation of unconsciousness should occur immediately following application of a stunning method”. While this is important in the slaughter of domestic livestock

where stunning may be temporary and exsanguination is the slaughtering process, it is less critical in the seal hunt where the initial rifle shot or blow from a hakapik is the primary killing process. Whereas confirmation of unconsciousness or death (by palpation of the top of the skull) should be done immediately after the seal has been stunned with a blow from a hakapik, EFSA [4] stated that “The time between shooting and monitoring of the state of the shot animal should be *as short as possible*” (our italics).

2.7. Other harvests of wild animals

From an animal welfare perspective, the intense focus on the Canadian seal hunt is perplexing. Hunts for various species of wild animals are carried out worldwide and involve annual harvests of hundreds of thousands of animals for personal consumption, commercial gain, or wildlife management. Difficult monitoring and enforcement are common to all the hunts. Moreover, considerations for animal welfare and standards of practice in other hunts are similar to, or less than, those currently required during the Canadian seal hunt. For example, close to 6.5 million white-tailed deer (*Odocoileus virginianus*) were killed by sport hunters in North America in 2011 [20], without explicit guidelines for humane killing methods. In the United Kingdom, tens of millions of game birds are reared and released for shooting each year [21], and close to 100,000 deer of four species are shot annually, some destined for market [22]. Munro [22] added that the majority of deer are killed by a shot to the chest, which is highly unlikely to cause immediate loss of consciousness or death. Specifically, according to the Best Practice Guidance on the Management of Wild Deer in Scotland, “...Shooting, following Best Practice should result in the majority of shot deer dying within 5 min” [23].

In Australia, close to 1.5 million kangaroos and wallabies were killed for commercial purposes in 2010 [24]. A “National Code of Practice for the Humane Shooting of Kangaroos and Wallabies for Commercial Purposes”, produced by the Australian Government [25], shows several parallels with the Canadian MMR for hunting seals [10]. Most importantly, like Canada, the primary goal of this Code is “to achieve instantaneous loss of consciousness and rapid death without regaining consciousness”.

3. Conclusions

Wild animals of all types, including seals, will continue to be killed for a variety of reasons: subsistence; commerce; sport; or wildlife management. In fact, some members of the European Union are seeking means of controlling seal populations in their own waters in an attempt to protect their fisheries [26,27]. Harvest of any animal, regardless of the reason, deserves to be done in a respectful manner that follows basic principles of animal welfare, and issues of poor compliance with proper hunting practices must be addressed through continuous monitoring and enforcement, as they are in slaughterhouses. However, respect must also extend to those who may benefit from exploitation of natural resources. These people, including sealers, must be engaged in a constructive dialog if any long-term meaningful progress is to be made in the sustainable management of wildlife resources that respects basic principles of animal welfare.

A well-balanced scientific article on hunting methods for seals should aim to present varying perspectives from the available literature and weigh them objectively before offering possible conclusions and constructive advice where these methods could be improved. It is therefore unfortunate that Butterworth and Richardson [5] chose to ignore the conclusions of EFSA [4] and other reviews of the seal hunt (e.g., [3,14]) and instead presented a highly selective and unfair portrayal of the available data on the

Canadian seal hunt. In doing so, they have failed to achieve their purpose of promoting animal welfare.

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