

What lives, what dies? The science behind the decision to cull seals to save cod

March 16 2020, by Daniel Skerritt



Credit: AI-generated image ([disclaimer](#))

Atlantic cod on the Grand Banks of Newfoundland supported one of the world's greatest fisheries for over three centuries. Yet this seemingly inexhaustible resource is in bad shape. [Some stocks are now endangered](#) and their survival could depend on removing a key predator, the grey seal.

This raises some difficult questions: How do we determine the value of one species over another, and what is the role of science in this conundrum?

My colleagues and I in the [Fisheries Economics Research Unit](#) at the University of British Columbia are fascinated by these questions. As an interdisciplinary group of economists, ecologists and [social scientists](#), we commonly attribute values to animals in different ways. But determining whether to kill one animal to preserve another is less straightforward.

A grim solution to a grim problem

The collapse of the Grand Banks fisheries is considered [one of the most significant failures in the history of natural resource management](#)—akin to the ongoing degradation of the Amazon—and casts a long shadow over Canadian fisheries management.

Subsequent limitations and closures to fishing have helped some stocks recover, but for others the outlook remains grim. In particular, the southern Gulf of St. Lawrence cod stock [continues to decline despite fishery closures since 2009](#). Scientists now forecast that if things don't change [these cod will become locally extinct](#).

One proposal, however, could reverse the cod's fortunes. The solution is to cull the seals that prey on the dwindling stock. Researchers suggest that for a cull to be effective, the seal population, which numbers around 500,000, must be [reduced by more than 65 percent](#).



Cod being dried out on fishing flakes at Pouch Cove, Nfld., in 1948. Credit: Library and Archives Canada

This solution is not uncommon. The pros and cons of conservation-led culling have long been debated. Some culls are supported by conservationists and researchers alike, while [more controversial culls](#)

[such as that of the wolves of British Columbia](#) are opposed by both.

How then do we decide which culls are justified? Is the death of a colony of seals a fair price for the conservation of a cod stock?

Are all animals equal?

Clearly an innate ranking of species exists. For example, the tenacious *Homo sapiens* [populated New Zealand about 700 years ago](#). At the same time *Rattus exulans* (Pacific rat) also made New Zealand its home.

In the following centuries [New Zealand's environment transformed—a quarter of bird species went extinct](#), and [large-scale deforestation was rife](#). Yet, the burden of compensation rests squarely with the rat. Their total extermination from the region is [scheduled for 2050](#).

Evidently some animals are considered "[more equal than others](#)", and some culls justifiable.

This brings us back to the Gulf of St. Lawrence. [According to fishery managers](#), we now face a decision: "increase grey seal removals to allow Atlantic cod to recover, or accept the high extinction risk of these fish and allow [grey seal](#) abundance to remain high."



STRIGOPS HABROPTILUS

The flightless kakapo is easy prey for rats, dogs and other species introduced to New Zealand by humans. It was thought to be extinct in the 1960s, but could be re-introduced if New Zealand becomes predator-free by 2050. An illustration from the History of the Birds of New Zealand, by Walter Lawry Buller, published in 1873. Credit: Wikimedia

Admittedly, the plight of bottom-dwelling fish does not evoke public interest like that of the unique wildlife of the New Zealand archipelago. However, cod have been [valued by humans for thousands of years](#), pre-dating our knowledge of New Zealand altogether. Their continued productivity is a vital part of our [shared cultural history](#), [employs](#)

[thousands of people](#) and feeds many more.

Cod are valuable. But are they more valuable than seals?

Determining the 'right' course of action

There are two ways to view culling decisions. Firstly, there is the technical viewpoint of identifying which animals to kill and when. The role of science here is relatively clear.

Science provides an analytical framework in which decisions to cull are made. We can [combine multiple measures of value](#) that consider economic, ecological and social aspects, to determine the relative "value" of species. We can run mathematical models or cost-benefit analyses, for example, to provide simplistic (possibly reductive) advice on the outcome of different options. Indeed, some options may be effective at reaching the intended goal, but hard to stomach!

The second viewpoint is the question of whether we should cull. This examines the morality of how humans operate and the consequences for nature. This is where the role of science becomes unclear, and has been [debated quite vehemently](#).

For me, culling decisions are not technical but moral, with multiple "right" answers. While I argue that this decision is for society, scientists are not passive actors. We can provide methods for [gauging public opinion](#) and can identify alternative approaches to how humans might operate within our environment. It is important for scientists to reflect on whether they are presenting facts or feelings.

Science, in my opinion, should not answer moral questions but should describe the facts behind each option. [Science should not derive values from facts](#).



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Caught between a rock and a hard place

Regardless of whether you agree with this opinion or not, it is important to reflect on the commonality between culling decisions: the [unbalancing of ecosystems](#).

At some point we must accept that recreating pristine environments, that of before Homo sapiens, via further intervention is impossible. [We cannot separate ourselves from nature](#). While culling may restore a sense of what was lost, we cannot reverse our impact altogether, especially as

climate change promises a world of fewer unperturbed environments.

As such, society will no doubt face an ever-increasing number of moral decisions.

Treating the decision to cull as a technical problem with a technical solution denies the Canadian public its say and possibly contributes to maintaining the (destructive) way that humans currently operate, leaving the moral questions unanswered.

How we decide the value of grey seals and cod in the coming years, while seemingly insignificant on one level, sets a precedent for our future decision-making processes.

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