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## Why aquatic animals matter for food justice

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#### ABSTRACT

Healthy Eating Policy and Political Philosophy and Food, Justice, and Animals defend new frameworks for food justice. We examine how these frameworks apply to aquatic animals and whether these frameworks are plausible in light of these implications. We consider a variety of questions, including questions about the global health and environmental impacts of aquaculture and industrial fishing, about whether aquatic animals can be stakeholders or participants in public reason frameworks, about which aquatic animals should have rights, and about which rights aquatic animals should have. Without seeking to answer all these questions, we suggest that these frameworks need to be improved to properly protect aquatic animals, given how numerous, diverse, and neglected these animals are.

KEYWORDS Aquatic animals; food justice; public reason; animal ethics

#### Background

Experts increasingly accept that a wide range of aquatic animals are sentient, and that humans have a responsibility to consider their interests when making decisions that affect them (Mason & Lavery, 2022; Andrews et al., 2024). Fish, in particular, display a diverse array of sophisticated behaviors which signal sentience, including long-term memories, complex traditions, cooperation, and social learning (Brown, 2014). They are also agentic – interested in not only valued outcomes such as food or avoiding predation, but also in play, learning, and cognitive engagement (Fife-Cook & Franks, 2019).

Globally, humans capture between 0.79 and 2.3 trillion wild aquatic animals for food every year, excluding those used for fish oil or fishmeal, which may run between 0.46 to 1.1 trillion (Mood & Brooke, 2019). Humans also slaughter between 78 and 171 billion farmed fish (Mood et al., 2023), and between 253 and 605 billion farmed decapod crustaceans (Mood & Brooke, 2019). The number of farmed aquatic vertebrates dwarf farmed terrestrial

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© 2025 The Author(s). Published by Informa UK Limited, trading as Taylor & Francis Group. This is an Open Access article distributed under the terms of the Creative Commons Attribution License (http:// creativecommons.org/licenses/by/4.0/), which permits unrestricted use, distribution, and reproduction in any medium, provided the original work is properly cited. The terms on which this article has been published allow the posting of the Accepted Manuscript in a repository by the author(s) or with their consent. vertebrates, and according to one estimate, farmed aquatic vertebrates comprise 78% of all farmed vertebrates globally (Anthis & Anthis, 2019)

The diversity of farmed aquatic animals is also higher than the diversity of farmed terrestrial animals by a factor of about 20 (Franks et al., 2021). Yet despite (or perhaps because of) the variety of aquatic animals killed for food, humans still know very little about these animals. Indeed, as of 2021, 70% of farmed species are featured in four or fewer publications about welfare (Franks et al., 2021), with fishes, crustaceans, and cephalopod mollusks at particularly high risk of poor welfare (Chiang & Franks, 2024). That means that humans have made little to no effort to understand how our treatment of these animals might be affecting them, leaving them particularly vulnerable.

# Barnhill and Bonotti's healthy eating policy and political philosophy

Anne Barnhill and Matteo Bonotti argue that questions about state regulation of food consumption extend beyond questions about paternalism (Barnhill & Bonotti, 2022, p. 132). They propose using a public reason framework, according to which state regulation of food consumption is legitimate only when impact assessments consider a wide range of socio-cultural impacts in relation to widely held evaluative standards. Our question here is how the animal welfare, public health, and environmental impacts of aquaculture and industrial fishing interact with this framework.

Aquatic animal farming presents a dual threat to public health through the spread of zoonotic diseases and the use of antibiotics. The close confinement of aquatic species in farms can facilitate the transmission of zoonotic pathogens to humans, potentially leading to infectious disease outbreaks. Moreover, the widespread use of antibiotics in aquaculture to prevent disease can foster the development of antibiotic-resistant bacteria, posing a significant public health risk by diminishing the effectiveness of antibiotics (Henriksson et al., 2017).

Additionally, fisheries destroy habitats and deplete wild fish populations, while aquaculture introduces pollutants, excess feed, and antibiotics into aquatic ecosystems. Partly as a result, 65% of recorded taxa have collapsed at least once since 1950, with the potential for total collapse by 2048 (Worm et al., 2006). These issues are challenging to address. Consider that an estimated  $\frac{1}{3}$  to  $\frac{1}{3}$  of seafood imported to the U.S. originates from illegal, unreported, or unregulated (IUU) sources (Pramod et al., 2014), with adverse effects for humans and the environment (Urbina, 2023).

Finally, middle-upper income countries consume approximately five times more seafood per capita than low-income nations (FAO, 2023). Luxury items like flounder and lobster are top greenhouse gas emitters (Gephart et al., 2021), and high-value crustacean species like lobsters and prawns contribute 22% of total emissions from wild-capture fisheries despite constituting only 6% of the total aquatic animals caught by weight (Parker et al., 2018). These dynamics drive exclusionary pricing, increasing nutritional benefits for distant consumers while increasing environmental burdens for local producers.

Given the global health, environmental, and socio-economic impacts of aquaculture and industrial fishing, the continued consumption of aquatic animals might conflict with the life plans of many current and future humans, resulting in publicly justifiable grounds for regulation. If the international community maintains the status quo, the result will be disease outbreaks, biodiversity loss, ecosystem collapse, and an increase in socio-economic disparity between relatively low-income producers and relatively highincome consumers.

Should we also consider the effects on aquatic animals themselves? Aquatic animals count as *stakeholders* in the public reason framework if they merit consideration for their own sakes. While evidence about animal cognition and behavior remains limited and mixed, there is now broad agreement that all vertebrates – including reptiles, amphibians, and fishes – and many invertebrates – including cephalopod mollusks, decapod crustaceans, and insects – have at least a realistic chance of being conscious or otherwise morally significant (Andrews et al., 2024).

There is also wide agreement that when animals have at least a realistic chance of being conscious or otherwise morally significant, humans have a responsibility to consider welfare risks for these animals when making decisions affecting them. We use the precautionary principle to mitigate risk in a wide range of domains, including environmental protection, public health, and nuclear safety. We should similarly mitigate welfare risks for animals – including aquatic animals – who might be suffering as a result of our actions and policies (Andrews et al., 2024).

Moreover, aquatic animals count as *participants* in the public reason framework if their perspectives inform what counts as a public reason in the first place. Specifically, even if these animals lack the kind of moral agency that allows them to understand abstract principles, they still have the ability to express their thoughts, feelings, and preferences, and moral agents still have the ability to study their thoughts, feelings, and preferences, derive evaluative standards from these attitudes, and use these evaluative standards when assessing abstract principles and concrete policies.

Over the past decade, philosophers have developed a variety of tools that we can use to bring animals 'into the room' during democratic deliberation (Cochrane, 2012; Kymlicka & Donaldson, 2024). For example, scientists are working to improve understanding of nonhuman perspectives, and legal and political theorists are working to improve representation of nonhuman perspectives within governments. While experts disagree about many of the details, what seems increasingly clear is that humans both can and should consult a wider range of perspectives than our own.

Even if we consider only human interests and perspectives, we have more than enough reason to regulate aquatic animal farming and fishing in light of the public health, environmental, and socio-economic impacts. If we also consider nonhuman interests and perspectives – which, we think, we should – then the need for regulation becomes overdetermined. Particularly when we consider the number and variety of aquatic animals killed each year, often unnecessarily, we see that there is no way that this industry can be just in anything like its current state.

#### Milburn's food, justice, and animals

Josh Milburn asks what kinds of food systems can respect human and nonhuman rights at the same time. He argues that the state should extend full rights to clearly sentient animals, should extend no rights to clearly non-sentient animals, and should extend one right – the right not to have suffering inflicted – to animals whose sentience is unclear (Milburn, 2023). In what follows we wish to make two points. First, this framework rules out exploitation of many aquatic animals for food. Second, we can, and should, improve this framework in a way that rules out even more exploitation.

First, Milburn's framework rules out exploitation of many aquatic animals for food. We now have enough evidence to conclude that many aquatic animals are clearly sentient (Mason & Lavery, 2022; Andrews et al., 2024). This category definitely includes all aquatic mammals, and it probably includes other aquatic animals too, ranging from fishes to octopuses. Given that aquatic animal farming and fishing harm and kill many such animals unnecessarily, a just food system that respects human and nonhuman rights would clearly not permit these industries to continue in anything like their current form.

This framework also sets limits on exploitation of many other aquatic animals for food. For example, while there might not yet be sufficient evidence to take decapod crustaceans to be *clearly* sentient, there *is* sufficient evidence to take these animals to have a realistic *chance* of being sentient (Birch et al., 2021; Crump et al., 2022). Given that humans kill a vast number of these animals, a just food system would clearly not permit this industry to continue in anything like its current form either.

Unfortunately, as we have seen, we still lack evidence about most of the aquatic species we use for food. In some cases the evidence that we lack concerns whether these animals are sentient, and in other cases it concerns what these animals want and need. Either way, this lack of evidence limits our ability to make reliable estimates about what, if anything, it

might be like to be farmed aquatic animals. It thus limits our ability to determine which rights these animals are owed according to Milburn's framework, as well as what it takes to respect these rights in particular contexts.

How should we treat animals about whom we know very little, due to our inability or unwillingness to collect evidence about them? This is a larger question than we can answer here, but, at a minimum, it would be perverse to refuse to collect evidence about aquatic species, and to then justify their exploitation on the grounds that we lack evidence about them. Plausibly, in a just food system, the burden of proof would be on those who seek to *defend* exploitation, not on those who seek to *prevent* it. And in that case these aquatic food systems would *really* be in trouble.

Moreover, we can, and should, improve this framework in a way that rules out even more exploitation. As we have seen, when there is a low but plausible chance that an animal is sentient, Milburn proposes that the state grant them one and only one right: the right not to have suffering inflicted upon them. This principle seems designed as a compromise that allows the state to prioritize actual sentient beings while still considering potential sentient beings. But the way that it achieves this compromise creates a mismatch between the *content* of rights and the *strength* of rights.

On one hand, the content of our rights depends on the content of our interests. For example, you have a right to life, liberty, and property if you have an interest in these goods (or in other goods that depend on these goods). In contrast, the strength of our rights depends on the strength of our interests. For example, you might have a stronger right to life than a mouse if you have a stronger interest in continued existence than a mouse – that is, if you would benefit more from continued existence and be harmed more by premature non-existence.

When we ask how to factor the probability of sentience into our attributions of rights, the natural answer is that it should affect the *strength* of rights, not the *content* of rights. Suppose that a sophisticated robot is functionally identical to a human. This robot might be unlikely to be sentient, given their silicon substrate. But *if* the robot is sentient, *then* they would have the same interests as humans. In this case, *if* we should take probability of sentience into account, then plausibly we should do so by assigning *many weak* rights to the robot, not by assigning *only one* right to them (Sebo, 2018).

Granted, the kinds of animals that Milburn has in mind may have a low probability of sentience *and* a narrow range of interests (if any at all). And even if they had a low probability of sentience and a *wide* range of interests (if any at all), Milburn might still think that attributing only a single right to them is a reasonable compromise, since this policy exercises caution in some respects (we avoid the infliction of suffering) but not in others (we still treat these animals like objects otherwise). But if so, then this strategy for striking

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a balance between excessive caution and excessive incaution at the very least deserves further scrutiny.

In sum, Milburn's framework implies that a wide range of aquatic animals have rights, and so a wide range of aquatic farming and fishing practices are unjust. Moreover, if we hold the state to higher standards than Milburn does – as, we think, we should – then we should hold that an even wider range of aquatic animals have an even wider range of rights, and so an even wider range of aquatic farming and fishing practices are unjust. Either way, it follows that most sectors within these industries cannot play a substantial role in a just future food system, with the possible exception of bivalves if done correctly (Jacquet et al., 2017).

#### Conclusion

The food justice frameworks developed by Barnhill and Bonotti and by Milburn imply that aquatic animal farming and fishing are unjust in light of the public health, environmental, and socio-economic impacts (for Barnhill and Bonotti) and the animal welfare and rights impacts (for Milburn). Moreover, if we improve these frameworks by including aquatic animals as stakeholders and participants (for Barnhill and Bonotti) and by extending a wider range of rights to possibly sentient aquatic animals (for Milburn), we find that these industries are even more unjust.

#### **Disclosure statement**

No potential conflict of interest was reported by the author(s).

#### Notes on contributors

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