

Why Octopus farming should not be permitted on a commercial scale and the urgent need for change in current farming systems

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Introduction

Octopuses (*Octopoda*) are found in the sea's intertidal zones and are frequently slaughtered as a popular marine delicacy (Nixon & Young 2003; Mouritsen & Styrbæk 2018). Due to increased demand for octopus consumption Nueva Pescanova (NP), a Spanish multinational, have declared that farmed octopus will be introduced commercially in 2023 (Marshall, 2021). This announcement has received backlash from concerned citizens and conservationists, particularly regarding the welfare of octopuses in these farms (Lai, 2022; Paddison, 2022; White, 2022). It coincides with increasing acknowledgement of the sentience of cephalopods like octopuses (Birch et al 2022). This essay considers the welfare concerns of octopus farming, relating to the intelligence and ethology of the species, and argues that it would be immeasurably harmful. The author suggests stronger legislation and attitudinal shifts are needed to better safeguard octopuses by avoiding their consumption in favour of cruelty-free alternatives.

Welfare concerns

The common octopus (*Octopus vulgaris*) possesses a large brain compared to other cephalopods, with a brain-to-body ratio (BTBR) like those of vertebrates (Nixon & Young 2003). The BTBR is essential in evaluating sentience because it gives researchers an indication of how much investment the organism has in the brain. A recent academic report (Birch et al 2022) resulted in the recognition of octopuses as sentient in the UK's Animal Welfare (Sentience) Bill 2021 (SB2021).

Cognitive Capacities

Octopuses have shown similar levels of cognitive prowess as vertebrates in perception and memory assessments (Schnell et al 2020). In a study conducted by Boal (1991), two-spotted octopuses (*Octopus bimaculoides*) were trained to distinguish between a succession of seashells, where selecting an odd-shaped seashell yielded a food incentive. Afterwards, the octopuses were provided with a novel combination of stimuli and selected the oddity, demonstrating an ability to transfer learning that enables organisms to respond flexibly in ambiguous environments. This shows octopuses are proficient in inferential reasoning and have an advanced ability for associative learning (Papini & Bitterman, 1991; Schnell et al 2020). Other assessments pertaining to episodic memory have supported octopuses' possession of advanced cognitive capacities. In the wild octopuses have been observed avoiding feeding sites where resources have been depleted, demonstrating octopuses recall where, when, and how much prey they consumed previously (Mather, 1991; Forsythe & Hanlon, 1997).

Furthermore, a plethora of octopus species have been documented employing their appendages as tools to retrieve and ingest their prey by drilling holes through the prey's armour and incapacitating them (Fioritio & Gherardi 1999; Blustein & Anderson, 2016). Similarly, octopuses have been observed adapting their camouflage to imitate prey species and remain undetected before attacking, or to avoid becoming prey by masquerading as rocks (Fig.

1) (Hanlon et al 1999: Huffard, 2006: Huffard, 2007: Hanlon et al 2007). This mimicking behaviour indicates strong cognitive learning and behavioural flexibility processes.



Figure 1: octopus camouflages as a rock (Sabljak, 2017).

These studies depict octopuses as highly intelligent and sentient individuals. There are, therefore, serious welfare implications for how NP are to farm 3000 tonnes of octopuses humanely, whilst providing them with the mental stimulation required of such an intelligent species (White, 2022). Indeed, many wild animals suffer psychologically when unable to adequately exhibit their natural behaviours or when confined to stress-inducing environments such as commercial farms (Malham, 2002: Clubb & Mason, 2003: Bennett & Toll 2011: Fischer & Romero 2019).

Social groups

NP has not stated how they intend to breed and raise what are typically solitary animals (Shomrat et al 2008). When octopuses meet in the wild outside of mating season, hostile behaviours are frequent (Demarco 2015: Selzak 2016). Grouping them could impair their mental and physical well-being. Conversely, if the octopuses are kept individually, they are

prone to escape (Malik 2016). Potential escapes pose problems not just for the individual escaping in terms of injury and disease, but also for the surrounding ecosystem; especially if a non-native species is able to survive in a location with no natural predators. This has been seen with the likes of mink in England (Reynolds et al 2013), and frequently results in legislative changes that enables the culling of non-native species (Convention on Biological Diversity, 1992: The Natural Environment and Rural Communities Act, 2006). Such regulation does not fully specify how species should be exterminated, suggesting many suffer inhumane deaths.

Slaughter

Regardless, no current legislative regulations exist to prohibit the inhumane slaughter of octopuses. According to a report published by Compassion in World Farming (2021), current slaughter methods include clubbing and cutting octopus brains, asphyxiation in netting, and freezing in ice, none of which render the octopus unconscious. Consequently, this sentient animal could suffer excessively at slaughter even on farms (Paddison, 2022).

Legislative & attitudinal shifts

Evidently, octopuses are unique creatures inappropriate for farming. Their protection in legislation is lacking and their welfare is unlikely to be considered, let alone protected, in farms.

Although octopuses have recently been added to the Animal Welfare (Sentience) Bill 2021, (SB2021), which officially recognises their sentience, many organisations are worried that this legislation does not provide non-human animals with meaningful rights. The UK Centre for Animal Law (A-LAW) expressed concern that the Animal Sentience Committee (ASC), established by SB2021, has no statutory responsibility regarding when and how to execute powers (Ares, 2022). Furthermore, A-LAW voiced reservations about the safeguarding of SB2021 in relation to the ASC's skills and independence, with groups like the Countryside Alliance (CA) arguing that animal rights and welfare should not be conflated to avoid negatively impacting farmers and land managers (Ares, 2022). Certainly, many farmed mammals and fish will have their sentience recognised under this Act but will still be farmed in large numbers and cruel conditions (FAWC, 2009).

Indeed, acknowledging the sentience of farmed individuals could necessitate a moral obligation to stop slaughtering them for food when plant-based alternatives exist. SB2021, however, meanders around its own notion of sentience to avoid infringing on policymaking or alienating the farming lobby. This failure comes at the expense of the commodified non-humans whose sentience may be recognised without any substantive changes to their treatment.

Strengthening legislation like SB2021 and supporting attitudinal shifts away from the exploitation and consumption of sentient beings, will be essential to better safeguard non-human animals confined in farms.

Corroboratively, individuals are increasingly rejecting traditional farming of non-human animals in favour of cruelty-free cuisine. Unfortunately, it is not unusual for consumers to feel a disconnect from non-humans that do not look 'cute' or have human-like traits, regardless of their intelligence, sentience, or suffering (Nationalpost.com 2012; Batt, 2019; Steinnes et al 2019). Octopuses exemplify this disconnect, although opposition to the introduction of commercial octopus farming provides a valuable platform to advocate for their protection, and that of other species. Octopuses, and other farmed beings, are just as worthy of moral consideration as companion animals.

Conclusion

Octopuses are a sentient, intelligent species, inappropriate for commercial farming (CIWF 2021; Lai, 2022; White, 2022). Allowing octopus farming would be a regression in animal welfare practices. Better legislation is required to protect not only octopuses, but all sentient creatures commodified for consumption. Building opposition to octopus farming presents an opportunity to strengthen laws, like SB2021, and support attitudinal shifts that better protect farmed individuals and encourage the consumption of cruelty-free alternatives.

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