The octopus mind and the argument against farming it

Commentary on **Mather** on *Octopus Mind*

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Abstract: Mather is convincing about octopuses having 'a controlling mind, motivated to gather information,' but stops short of asking what having that mind means for octopus moral standing. One consequence of understanding the octopus mind should be a refusal to subject octopuses to mass production. Octopus farming is in an experimental phase and supported by various countries. We argue that it is unethical because of concerns about animal welfare as well as environmental impacts.

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Mather (2019a) presents ample evidence that octopuses have personalities, causal reasoning, get bored, and have imaginations. These are features we humans understand. She also describes unique aspects of octopuses' 'way of being' — such as a nervous system distributed

mostly throughout eight arms and the ability to camouflage themselves using chromatophores. Mather also argues convincingly that octopuses have 'a controlling mind, motivated to gather information.' Yet she stops short of asking what possessing that mind means for octopus moral standing (see commentaries of Browning 2019 and King & Marino 2019).

One consequence of understanding the octopus mind should be a refusal to subject octopuses to mass production. This is in an experimental phase today and supported by various countries, including Spain, Mexico, China, and Japan. Octopus farming is unethical because of concerns about animal welfare as well as environmental impact (Jacquet et al., 2019).

Mass production of octopus would mean controlled, sterile, and monotonous environments (probably experienced in isolation) combined with set diets and regimented feeding schedules, all designed to maximize biomass, not wellbeing. Few studies have considered octopus welfare in farmed settings (for an overview see Castanheira, 2019), but these have reported high rates of cannibalism and aggression at higher stocking densities (Pham & Isidro, 2009), parasitic infections (Ladineo & Ozić, 2005), and problems with digestion (Sykes et al., 2017). Intensive farm systems are inevitably hostile to the positive experiences octopuses are likely to seek, including high levels of cognitive stimulation (Mather & Dickel, 2017), opportunities to explore, manipulate, and control their environment (Finn et al., 2009; Levy et al., 2015; Steer & Semmens, 2003), and social interaction (Boal, 2006; Caldwell et al., 2015; Scheel et al., 2017).

Beyond welfare concerns, commercial octopus farming would also be ecologically unsustainable. Octopuses are carnivores and require protein from other animals in their diet. Octopuses in captivity grow best on a diet consisting primarily of crab, but diets of mackerel (Pham & Isidro, 2009) or squid and hake have also been tried (Cerezo Valverde & García García, 2016). Rather than alleviating pressure on wild aquatic animals, farming octopus would increase pressure. As with any captive carnivore, farming octopus is inefficient: it would feed people but the result would be a net loss of animal protein.

Ecologists have emphasized that farming carnivores is unsustainable (e.g., Ackefors & Rosén, 1979; Naylor et al., 2000). Aquaculture is a valuable and probably inevitable part of the future of human food consumption, but it can be implemented more or less responsibly. From a sustainability perspective, farming should not focus on carnivores but on organisms lower on the food chain that we do not need to feed, such as mussels and oysters (Jacquet et al., 2017), seaweeds, and other options. Owing to concerns about environmental impact as well as human health, experts have argued that human diets should be composed predominantly or exclusively of plants (Willett, 2019). Although the argument that 'people have to eat' has been used to justify the development of octopus farming (including by Mather, 2019b) the human diet need not include farmed octopus. Unlike the octopus, humans have immensely flexible diets.

The nascent octopus farming industry has also argued that octopus farming will meet global demand for octopus. However, as with aquaculture in general, which has not been a substitute for capture fisheries but has added to the global supply of seafood (e.g., Longo et al., 2019), octopus farming would probably result in creating demand for octopus.

The octopus industry has also said octopus farming will create jobs. Any new enterprise, including going to war or building prisons, is likely to create jobs. The question is at what cost. Farming oysters, seaweed, or lentils would also create jobs without subjecting 'a controlling mind' to mass production. We must ultimately ask ourselves whether farming the octopus — an

undomesticated, sentient, and sophisticated carnivore — is the right thing to do. We believe it is not. The following scholars (signing as individuals, not on behalf of their institutions) agree:

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