

# The legal protection of sentient invertebrates in food production in the UK

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Currently legislation in the United Kingdom (UK) offers protection to vertebrate animals that are bred and kept for the production of food. The Animal Welfare Act 2006 (AWA 2006) and the Welfare of Farmed Animals Regulations 2007 (WFAR 2007) protect against unnecessary suffering and require minimum standards for meeting the welfare needs of farm animals in England and Wales. There is similar protection in Scotland under the Animal Health and Welfare (Scotland) Act 2006 (AHWA 2006) and Welfare of Farmed Animals (Scotland) Regulations 2010. This article will focus on the law in England and Wales, but the same arguments apply to Scotland and the equivalent statutory provisions from Scottish law will be referenced in the footnotes. While vertebrates such as pigs and cattle benefit from legal protection under the animal welfare legislation, invertebrates that are bred or kept for food purposes are excluded. Scientific research supports the view that decapod crustaceans (such as lobsters, crabs, crayfish, prawns and shrimp) and cephalopods (such as octopus, squid, cuttlefish and chambered nautilus) are sentient (i.e., have the capacity to experience mental states such as pleasure and suffering).<sup>1</sup> This evidence includes demonstrations that octopuses value receiving painkillers when injured,<sup>2</sup> that hermit crabs can make sophisticated trade-offs between pain, shell quality, and fear of predators,<sup>3</sup> and

that crayfish show anxiety-like behaviour that is modified by the same drugs used to treat anxiety in humans.<sup>4</sup> Consideration of this evidence led to the inclusion of cephalopod molluscs and decapod crustacea in the Animal Welfare (Sentience) Act 2022, meaning they are officially recognised as sentient animals for the purposes of this legislation. Section 5(2) of that Act gives power for the Secretary of State to make regulations to amend the Act "to bring invertebrates of any description" within its remit and therefore more species of invertebrates may be included. Is it time for the definition of 'animal' in the AWA 2006 and AHWA 2006 to be extended to include sentient invertebrates and would it make any difference in practice to the welfare of invertebrates eaten as food?

In England and Wales vertebrate farm animals benefit from legal protection under the Animal Welfare Act 2006. Section 1 defines 'animal' as "vertebrate other than man" and applies to mammals, birds, reptiles, amphibians and fish.<sup>5</sup> A 'protected animal' includes animals domesticated in the British Isles or under the control of a human or not living in a wild state.<sup>6</sup> Therefore, pigs, cattle and chickens come within the protection of the Act as domesticated vertebrates, whereas, octopuses, lobsters and crabs - all of which are commonly eaten in England and Wales - are outside the scope of the Act.

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1 Birch, J., Burn, C., Schnell, A., Browning, H., & Crump, A. (2021). Review of the Evidence of Sentience in Cephalopod Molluscs and Decapod Crustaceans. LSE Consulting.

2 Crook, R. J. (2021). Behavioural and neurophysiological evidence suggests affective pain experience in octopus. *iScience*, 24, 102229.

3 Appel, M., & Elwood, R. W. (2009). Motivational trade-offs and potential pain experience in hermit crabs. *Applied Animal Behaviour Science*, 119, 120–124; Magee,

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B., & Elwood, R. W. (2016). Trade-offs between predator avoidance and electric shock avoidance in hermit crabs demonstrate a non-reflexive response to noxious stimuli consistent with prediction of pain. *Behavioural Processes*, 130, 31–35.

4 Fossat, P., Bacqué-Cazenave, J., De Deurwaerdère, P., Delbecque, J. P., & Cattaert, D. (2014). Anxiety-like behavior in crayfish is controlled by serotonin. *Science*, 344(6189), 1293–1297.

5 In Scotland the equivalent provision is s.16 Animal Health and Welfare (Scotland) Act 2006.

6 Section 2, Animal Welfare Act 2006 (for England and Wales); s.17, Animal Health and Welfare (Scotland) Act 2006.



The Explanatory Notes to the AWA 2006 give the rationale for restricting the scope of the Act to vertebrates “as these are currently the only demonstrably sentient animals”.<sup>7</sup> Clearly this is not now the case. The inclusion of cephalopods and decapod crustaceans in the Animal Welfare (Sentience) Act 2022 recognises their sentience and challenges their exclusion from the AWA 2006 and AHWA 2006. New Zealand (1999), Switzerland (2008) and Norway (2009) already include octopuses and decapod crustaceans in their animal welfare legislation. Is it time for the UK to do the same?

The protection given to farm animals in England and Wales under the AWA 2006 is arguably both significant and insufficient. It protects the animals from unnecessary suffering (s.4) as well as imposing a positive duty on the person responsible for the farm animal to meet their specified welfare needs (s.9).<sup>8</sup> This is significant

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7 Explanatory Notes to the Animal Welfare Act 2006, commentary on section 1. <https://www.legislation.gov.uk/ukpga/2006/45/notes>. Accessed 9 August 2023.

8 For Scotland, the equivalent provisions are s.19

because farm animals have the legal status of property and without such legal protection an owner could treat their property as they wish, such as starving the animal or injuring them for pleasure. However, the legal protection of farm animals is arguably inadequate as it permits intensive farming practices that cause farm animals pain, distress and suffering. For example, the case of *Humane League UK v Secretary of State* (2023) EWHC 1243 describes the use of fast-growing broiler chickens in intensive farms in England that have been selectively bred to grow very fast, which can lead to health problems such as chronic leg disorders and heart failure. It is crucial to understand that the AWA 2006 prohibits only unnecessary suffering. Therefore, if the suffering is considered to be necessary, no offence is committed. Where a farm animal suffers, the question of whether an offence has occurred therefore rests on the issue of necessity. Section 4 sets out statutory considerations to assist the court in assessing the necessity of any animal suffering. This in-

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and s.24 Animal Health and Welfare (Scotland) Act 2006.

cludes a legitimate purpose and proportionality between the aim to be achieved and the means of achieving it. Therefore, some animal suffering will be permitted to achieve the legitimate aim of food production, but the suffering must not be disproportionate to that aim, though what counts as disproportionate will be interpreted differently by different parties.

When the AWA 2006 came into force it created a new welfare offence under s.9.<sup>9</sup> This was deemed a significant step in animal welfare law at the time. It imposes a positive duty on a person who is responsible for an animal to take reasonable steps to meet the specified welfare needs of that animal, such as its need for a suitable environment and diet and its need to be able to exhibit normal behaviour patterns. For farm animals, this legal protection is extended under the Welfare of Farmed Animals (England) Regulations 2007, which provide more detailed specifications for the welfare of farmed animals.<sup>10</sup> Schedule 1 sets out the general conditions under which farm animals must be kept, for example: daily inspections, the use of trained staff, and specifications about accommodation and food. Under WFAR 2007, a farm animal is defined as "an animal bred or kept for the production of food, wool or skin or other farming purposes". The regulations specifically exclude fish, reptiles and amphibians but as these are vertebrates, they enjoy protection against unnecessary suffering under the AWA 2006 (subject to an exception that excludes suffering caused to fish in the "normal course of fishing", s.59 AWA 2006). WFAR 2007 implements EU law (as was required at that time) and transposes the provisions of the relevant EU Directive (98/58/EC). The authority to create the regulations comes from s.12 AWA 2006. There is no definition of animals in WFAR 2007 and invertebrates are not mentioned. This means that the provisions under the AWA 2006 and WFAR 2007 that seek to protect the welfare needs of farm animals are not available to protect sentient invertebrates such as octopus, crabs and lobsters that are used as food.

<sup>9</sup> For Scotland, the equivalent provision is s.24 Animal Health and Welfare (Scotland) Act 2006.

<sup>10</sup> For Wales, see the Welfare of Farmed Animals (Wales) Regulations 2007; For Scotland, see the Welfare of Farmed Animals (Scotland) Regulations 2010.

Interestingly invertebrates are included in the Welfare of Animals at the Time of Killing (England) Regulations 2015 (WATOK 2015) and the Welfare of Animals (Transport) (England) Order 2006.<sup>11</sup> This protects sentient invertebrates used in food production during any transport and at the time of killing. WATOK 2015 is derived from an EU Regulation (No.1099/2009) but schedule 4 of WATOK concerns 'Killing animals other than those to which the EU regulations applies'. Schedule 4 defines animal to include invertebrates and requires the humane killing of these animals.<sup>12</sup> This means the animal must be killed without causing unnecessary suffering and there is a requirement that the killing is carried out by a person who has the requisite knowledge and skill to do this. The fact that UK law now recognises some invertebrates used in food production as sentient means that the killing must be carried out without causing unnecessary suffering to the animal. It is arguable that the practice of boiling crabs and lobsters alive in restaurants and homes in England and Wales has now become unlawful because the law recognises these animals as sentient. If boiling alive sentient invertebrates causes them pain and suffering and that pain is deemed to be disproportionate to the aim to be achieved, bearing in mind suitable alternatives such as stunning,<sup>13</sup> then death by boiling alive will be deemed to cause unnecessary suffering and be unlawful under WATOK 2015. In 2018 Switzerland legislated to prohibit the practice of boiling alive lobsters and other crustaceans based on evidence of their sentience. The Swiss law now requires prior stunning before death.<sup>14</sup>

The inclusion of cephalopods and decapod

<sup>11</sup> For Wales, see the Welfare of Animals at the Time of Killing (Wales) Regulations 2014 and The Welfare of Animals (Transport) (Wales) Order 2007.

<sup>12</sup> For Scotland, the Welfare of Animals at the Time of Killing (Scotland) Regulations 2012 does not include an equivalent to schedule 4, WATOK 2015 and therefore invertebrates are not included in the Scottish Regulations.

<sup>13</sup> Conte, F., Voslarova, E., Vecerek, V., Elwood, R.W., Coluccio, P., Pugliese, M and Passantino, A. (2021) Humane Slaughter of Edible Decapod Crustaceans. *Animals*, 11(4), 1089.

<sup>14</sup> Nicholls, S. (2018) Swiss law bans boiling lobsters alive. Available at <https://www.euronews.com/2018/01/11/swiss-law-bans-boiling-lobsters-alive> Accessed 7th August 2023.



crustaceans in the Animal Welfare (Sentience) Act 2022 is a significant step in protecting the welfare of these animals. However, the recognition of sentience means that there is inconsistency and confusion in the current law relating to farm animals, with some protection for sentient invertebrates during transport and at the time of killing (in England and Wales but not Scotland) but no legal protection while they are being kept alive for the purpose of food production. The AWA 2006 and AHWA 2006 need to be urgently amended to provide clarity and consistency. Both Acts permit the definition of animals to be extended to include invertebrates. In England and Wales this is possible where “the appropriate national authority is satisfied, on the basis of scientific evidence, that animals of the kind concerned are capable of experiencing pain or suffering”.<sup>15</sup> In Scotland, Scottish Ministers may by regulations extend the definition of animal to include invertebrates.<sup>16</sup> As there is now evidence that cephalopods and decapod crustaceans are sentient<sup>17</sup> and this is expressly recognised under UK law in the Animal Welfare (Sentience) Act 2022, there is sufficient evidence to comply with s.1(3) AWA 2006 and s.16(3) AHWA 2006 and extend the definition of animals to include sentient invertebrates.

This is increasingly important due to the pressures on sentient invertebrates. There are environmental pressures such as from warming seas and pollution leading to disease and die offs, such as that seen in the Northeast of England around the crab fisheries and in a lesser way to the lobster fisheries.<sup>18</sup> As the number of sentient invertebrates falls in the wild then there is pressure on them to be farmed to meet demand. In Spain, there is a proposal to build the world's first industrial octopus farm and to

raise a million octopuses a year for food. Expert scientists oppose the octopus farm, arguing that the conditions the octopuses will live in will lead to stress, conflict and high mortality.<sup>19</sup> The World Organisation for Animal Health “has considered the welfare of farmed aquatic animals and has developed welfare guidelines for farmed fish but not for cephalopods, and therefore, octopus welfare. In other parts of the world where octopus farming is being developed, such as the US, Mexico, and Japan, octopuses are not protected by law”.<sup>20</sup>

There are three issues with octopus farming on this scale: animal welfare, environmental pollution, and sustainability. There are a range of animal welfare issues caused by farming octopuses, arising from their behaviour and cognitive capacities. Industrial octopus farming is likely to have high stocking density, but octopuses are solitary animals in the wild and can be aggressive when housed in groups, leading to injury and even cannibalism.<sup>21</sup> Octopus tanks can be barren and unnatural, without the hiding places octopuses need to feel safe,<sup>22</sup> and without any behavioural or cognitive enrichment.<sup>23</sup> Most importantly, there is currently no humane slaughter method for octopuses that would be viable at a commercial scale.<sup>24</sup> The second concern

<sup>15</sup> Section 1(3), Animal Welfare Act 2006.

<sup>16</sup> section 16(3), Animal Health and Welfare (Scotland) Act 2006.

<sup>17</sup> Birch, J., Burn, C., Schnell, A., Browning, H., & Crump, A. (2021). Review of the Evidence of Sentience in Cephalopod Molluscs and Decapod Crustaceans. LSE Consulting.

<sup>18</sup> Hughes, G. (2023) ‘Experts to investigate Teeside mass crab die-off, government says’. Environment Journal. Available at: Experts to investigate Teesside mass crab die-off, government says (environmentjournal.online). Accessed 27th June 2023.

<sup>19</sup> Marshall, C. (2023) World's first octopus farm proposals alarm scientists. Available at [www.bbc.co.uk/news/science-environment-64814781](http://www.bbc.co.uk/news/science-environment-64814781) Accessed 27th June 2023.

<sup>20</sup> Lara, E. (2021) Compassion in World Farming - Octopus Factory farming - A recipe for disaster. Available at: [www.ciwf.org.uk/research/species-aquatic-animals/octopus-factory-farming-a-recipe-for-disaster/](http://www.ciwf.org.uk/research/species-aquatic-animals/octopus-factory-farming-a-recipe-for-disaster/) Accessed 27th June 2023.

<sup>21</sup> Jacquet, J., Franks, B., Godfrey-Smith, P., & Sanchez-Suarez, W. (2019). The case against octopus farming. *Issues in Science and Technology*, 35(2), 37-44.

<sup>22</sup> Vaz-Pires, P., Seixas, P., & Barbosa, A. (2004). Aquaculture potential of the common octopus (*Octopus vulgaris* Cuvier, 1797): a review. *Aquaculture*, 238(1-4), 221-238.

<sup>23</sup> Jacquet, J., Franks, B., Godfrey-Smith, P., & Sanchez-Suarez, W. (2019). The case against octopus farming. *Issues in Science and Technology*, 35(2), 37-44.

<sup>24</sup> Lara, E. (2021) Compassion in World Farming - Octopus Factory farming - A recipe for disaster. Available at: [www.ciwf.org.uk/research/species-aquatic-animals/octopus-factory-farming-a-recipe-for-disaster/](http://www.ciwf.org.uk/research/species-aquatic-animals/octopus-factory-farming-a-recipe-for-disaster/) Accessed 27th June 2023.

for octopus farms is the risk of environmental pollution from release of biological waste from farms and at processing sites. Finally, octopus farms raise concerns about their sustainability. Octopuses are carnivorous and the feed for octopuses “contains human-edible ingredients such as soyabean or fish (90% of the wild fish caught to produce fishmeal and oil is human edible)”.<sup>25</sup> This goes against the ‘Strategic Guidelines for the Sustainable Development of Aquaculture’ adopted by the EU Commission in 2021.<sup>26</sup> which aims to limit this practice as it places additional pressure on wild fish stocks. Due to these concerns the farm animal organisation Compassion in World Farming is “urging the aquaculture industry to stop octopus farming altogether to prevent unnecessary suffering and environmental damage”.<sup>27</sup> Although there are currently no plans to farm octopus in the UK, pre-emptive regulation of the practice, as well as potential regulation of trade in farmed octopus, could send a strong international signal and prevent future harmful developments in this industry.

In conclusion, just as there is concern over the welfare of farm animals versus commercial interests for chickens, pigs, and cattle, which suffer in intensive farming practices (e.g. *Humane League UK v Secretary of State* (2023) EWHC 1243), so it can be seen that the move to farm sentient invertebrates such as octopus raises concerns for their welfare. Given that farmed vertebrates benefit from legislative protection, but still suffer under intensive farming practices, will legally protecting sentient invertebrate animals raised for food make any difference in practice? There are potentially two ways in which it could. Firstly, it prevents the worst types of suffering, particularly those arising from inhumane methods of killing such as boiling alive (subject to the practical difficulties with enforcement of the law). Secondly, it educates people that (at least some) invertebrates are sentient creatures that can feel pain, which can then increase public concern for the welfare of invertebrate animals. Therefore, following the enactment of the Animal Welfare (Sentience)

Act 2022, and in recognition of the growing body of scientific evidence on the sentience of some invertebrates, the authors believe that the time is right for the AWA 2006 and AHWA 2006 to be extended to protect sentient invertebrates used in food production in the UK.

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25 Ibid, at 37.

26 Ibid, at 37.

27 Ibid, at 37.