

## Advice of the Brussels Animal Welfare Council (24/06/2021)

### *on stunning when killing decapod crustaceans*

The Department Animal Welfare of Brussels Environment regularly receives questions (from the public and the Brussels Parliament) about the killing of lobsters and crabs. Various animal protection organisations also object to the boiling of living crustaceans. This resistance has become widespread over the course of the last few years and is supported by advices from bodies such as the European Food Safety Authority (EFSA)<sup>1</sup> and the Walloon Animal Welfare Council<sup>2</sup>.

These advices are based on scientific studies which show that the reactions of several species of decapod crustaceans (ten-legged crustaceans like lobsters, crabs, crayfish, etc.) to aversive stimuli (potentially causing tissue damage), go beyond what can be explained by nociceptive reflexes. In this animal category, there is thus a certain degree of “integration” of feelings or of negative affective states. Some of them even show behavioural changes that show striking homologies with anxiety in vertebrates. According to some scientists<sup>3,4</sup>, that corresponds to the concept of conscious experience of pain, on basis of which decapod crustaceans could be granted a status of “**sentience**” similar to that of fish, which argues for the **protection of their welfare**.

Nevertheless, only a few countries – to our knowledge, New-Zealand, Austria, Norway and Switzerland –do indeed include decapod crustaceans in their animal welfare legislation. Furthermore, only Swiss legislation contains explicit rules concerning the killing of these animals. This can only be done by people having necessary knowledge and practical experience and stunning is compulsory.

The Brussels Animal Welfare Council (hereafter called the Council) decided - during its meetings on 23<sup>th</sup> April 2021 and 24<sup>th</sup> June 2021 - that it is necessary to legislate the killing of decapod crustaceans in the Brussels-Capital Region, too. Up to now, the “animal welfare law” (from 14<sup>th</sup> August 1986) does not specify which animals or animals groups are in its scope of application. On the other hand, articles 15 and 16 (regarding killing and slaughtering) protect only vertebrate animals. Thus, the field of application of these articles could be extended to ten-legged crustaceans so that **killing and slaughtering** could only be done by **the least painful method** and **after stunning**. In addition, rules have to be established concerning **acceptable methods**.

Adequate electrical stunning (immersion in a saline solution to which an electrical charge is applied) leads to a loss of sensitivity in crustaceans within a second after the application. However, to ensure this, only specific and validated equipment should be used (according to the manufacturer's instructions). Two electrical stunning devices have been validated to this date, based on scientific research.

A first device (developed by a British society) delivers an electric shock that is immediately fatal. Scientific validation studies assessed whether an electrical activity remained in the nervous system of

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<sup>1</sup> EFSA, 2005. Opinion on the aspects of the biology and welfare of animals used for experimental and other scientific purposes. EFSA Journal 292, pp 1–46. <https://efsa.onlinelibrary.wiley.com/doi/epdf/10.2903/j.efsa.2005.292>

<sup>2</sup> <http://bienetreanimal.wallonie.be/files/documents/CWBEA-avis-Decapodes.pdf>

<sup>3</sup> For example: Elwood, R.W., 2012. Evidence for pain in decapod crustaceans. Animal Welfare 21, pp 23-27.

<sup>4</sup> For example: Sneddon, L.U., 2015. Pain in aquatic animals. Journal of Experimental Biology 218, pp 967-976.



stunned animals after the application of the stun<sup>5,6</sup>. An almost immediate loss of neural reactivity to different types of sensory stimulation was observed.

There is also another device (Swiss) for electrical stunning. This device (unlike the first one mentioned) delivers a non-lethal electric shock, the effect being only stunning<sup>7</sup>. When using this device, a subsequent step is necessary to kill animals before they regain their sensitivity. The problem is the lack of sufficient scientifically validated parameters to check the efficiency and persistence of the stun in practice.

Some sources also consider refrigeration combined with a mechanic destruction of the central nervous system (“*splitting*” for lobster-like decapod and “*spiking*” for crabs) acceptable for species which are not adapted to cold. Cooling reduces crustaceans’ mobility so that they exhibit fewer behavioural symptoms of stress (which allows an easier manipulation) but scientific proof that cooling eliminates stress or pain is lacking. Moreover, the above mentioned problem regarding the control of the persistence of the stun applies for this method as well.

The Council therefore concludes that **only electrical methods for which killing and stunning occur at the same time** should be allowed.

According to the Council, these new rules should – as in Switzerland – apply to all “walking” decapod crustaceans, defined as decapod crustaceans of the suborder Pleocyemata, with exception of the infraorders Caridea\*\* and Stenopodidea\*\*.

*\*\*The infraorder Caridea contains shrimps; the infraorder Stenopodidea contains other generally small crustaceans (which are often confused with shrimps) whom third pair of leg is clearly longer than the two first ones.*

*Up to now, there is no scientific source which indicates that shrimps should or could also be stunned. For this reason, they do not enter in the scope of this advice. Nevertheless, if further scientific studies indicate that stunning is appropriate and feasible, it could be reconsidered.*

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<sup>5</sup> Neil, D., 2010. The effect of the Crustastun on nerve activity in crabs and lobsters. Project report. University of Glasgow, Glasgow, UK.

<sup>6</sup> Neil, D., 2012. The effect of the Crustastun™ on nerve activity in two commercially important decapod crustaceans: the edible brown cancer Pagurus and the European lobster (Homarus gammarus). Project report. University of Glasgow, Glasgow, UK.

<sup>7</sup> Wahli, T., Ravasi, D., 2018. Schlussbericht zum Projekt « Testung eines Elektrobetäubungsgerätes für Panzerkrebse ».

