

## **Humane practice for live crustacea**

### **Introduction**

**The way that crabs and lobsters are handled prior to cooking is an emotive issue and it does cause some concern for processors and chefs. Before animals can be cooked they have to be 'stunned' or 'inactivated' and traditionally this is achieved by placing the animals alive into boiling water.**

**This fact sheet looks at the animal welfare concerns surrounding this whole issue, the legislation that is in place and current commercial practices that are used. It concludes with advice on the most humane best practice.**

### **The market**

UK trade in live crustacea (crabs and lobsters) is significant, with recorded annual landings of more than 20,000 tonnes. While much of this product is exported alive to continental markets, considerable amounts are processed domestically into cooked meat products.

### **Welfare concerns**

The crux of the issue is whether lobsters and other crustacea feel pain and there is considerable debate on this.

Lobsters have a simple neurological system and they lack the neurological receptors that would enable them to perceive 'pain' as we primates understand it. This is the conclusion of the Scientific Panel on Animal Health and Welfare (February 2005) when asked to look at whether various groups of invertebrates can sense and perceive pain, discomfort and stress when subject to human handling.

The lobster's principal response to any unwelcome stimuli is to move away; the level of response depending upon the magnitude and type of stimulus. When this is not possible then the 'tail flick' response is used. This behaviour will be maintained until the stimulus has decreased below the trigger threshold or the animal becomes exhausted. It is these innate responses that are witnessed when a lobster attempts to 'escape' from the cooking pot.

Crabs, on the other hand, often shed their claws and legs, and it is this reaction that can lead to emotive assertions that crustacea feel pain.

Whilst not definitive, the Norwegian opinion after extensive review of the available scientific evidence states, ".....it appears that most species of invertebrates probably are unable to feel pain, stress and discomfort....in spite of the violent reactions of lobsters and crabs when put in boiling water, it is assumed that these are reflexes to noxious stimuli. Different kinds of pre-treatment before boiling may reduce any possible feeling of stress."

**From the above, it would appear that crustacea react to the environmental stress of the situation, but there is no evidence they experience pain as understood by humans.**



### The legislation in place

The welfare of crustacea during commercial handling is covered by the Welfare of Animals Transport Order 2006 implementing EC Regulation 1/2005. The legislation provides instruction on maintaining welfare standards, but provides no guidance about approved methodologies for inactivating crustacean animals prior to cooking. In the absence of legislative constraint, several commercial practices have evolved.

- **Immersion in boiling water**

Animal can be inactivated by immersing them directly into boiling water. This takes the least amount of time (approximately 40 seconds to five minutes depending on the size of animal and volume of water) but risks many animals shedding either claws or legs. Immersing animals first into cold salt water reduces the amount of limbs lost but can increase inactivation times from five minutes to 15 minutes.

- **Immersion in freshwater**

To minimise the number of limbs lost, animals can first be 'drowned' by immersing them in freshwater; however, it can take from one to two hours to inactivate animals, and

the method imposes considerable osmotic (internal water balance) stress on the animal. Inactivation time can be reduced by using cool pre-boiled fresh water from which most of the oxygen has been reduced, but this complicates and extends the process, and is not energy efficient.

- **Pithing**

A sharp spike or screwdriver is inserted through the mouthparts of the animal into the main neurological ganglion to ensure an instantaneous death. (The neurological ganglion is a nerve collection point that is often referred to as the 'brain' but it is not equivalent to a brain.) This procedure requires skill, precision and care to locate the ganglion. Inserting the tool too far can potentially contaminate edible tissues in the surrounding area with shell fragments. This procedure is extremely labour intensive as each animal has to be handled on an individual basis.

- **Cutting in two**

This is similar to pithing. Some chefs advocate cutting a lobster in two along the length of its body (not across). When performed correctly it severs all the nerve ganglia at once and results in an instantaneous death. It requires skill, precision, practice, strength and a knife large enough to complete the cut in one action. Again, each animal has to be handled individually. This method is not commonly used for crabs.

- **Stunning**

Electrical out-of-water or 'dry' stunning has been developed, but the method is not yet fully reliable and it is likely to be expensive. In-water electrical 'stunning' techniques have been developed, resulting in the Crustastun, a device designed to administer a lethal electric shock before cooking. The device works by applying a 110 volt, 2–5 amp electrical charge to an animal immersed in a brine solution, killing the animal in about five seconds.

- **Refrigeration**

Placing the animal in a freezer (at a temperature below -18°C) for at least 30 minutes prior to immersion in boiling water, slows the animal's metabolism and induces a state of torpor (complete inactivity).

In this condition the animal does not react to normal stimuli and when then immersed in vigorously boiling salted water the rapid rise in body temperature kills the animal before it becomes active again.

#### Humane best practice approach

- **Introduce a state of inactivity by refrigerating animals prior to placing them in vigorously boiling water.**
- **Place animals in a freezer (< -18°C) for a minimum of 30 minutes (and up to 2 hours, but do not freeze) prior to cooking.**

#### For more detailed information

A Seafish report: *The Good Practice Guide to Handling and Storing Live Crustacea* goes into a lot more detail and can be downloaded at:

[http://www.seafish.org/pdf.pl?file=seafish/Documents/Crustacea\\_web\\_final.pdf](http://www.seafish.org/pdf.pl?file=seafish/Documents/Crustacea_web_final.pdf)

#### For further information contact:

Marcus Jacklin      T: 01472 252340  
E: m\_jacklin@seafish.co.uk