

Codes of Practice for the Welfare
of Crabs, Lobsters, Crawfish and
Nephrops



2. Wholesale and Transport Sector

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Shellfish
Association of Great Britain





Overview of the Codes

This “Code of Practice” is part of a suite of codes that provide guidance on best practice handling and dispatch of live crustacea across the supply chain – from boat to plate. There are five individual codes which are summarised here.

[Follow this link](#) to access the other codes.



Guide 1: CATCHING SECTOR



Guide 2: WHOLESALE AND TRANSPORT SECTOR



Guide 3: PROCESSING SECTOR



Guide 4: RETAIL SECTOR



Guide 5: FOOD SERVICE SECTOR



WHOLESALE AND TRANSPORT SECTOR

Aim of the Codes of Practice

These codes describe best practice for the handling and dispatch of large decapod crustaceans, i.e. crabs, lobsters and crawfish (European spiny lobster, *Palinurus elephas*) as well as nephrops for the live market. This section also applies to the commercial trade in live-landed brown shrimp (*Crangon crangon*). Many businesses are already implementing measures to ensure good standards of welfare. These codes are intended to guide all businesses to meet industry best-practice and to achieve continuous improvement in crustacean welfare.

This section of the codes describes best practice for the wholesale and transport sector. Further sections describe best practice for the catching (from the moment that crustaceans are brought onto the fishing vessel), processing and retail and food service sectors.

The codes have been written for the UK shellfish industry and supply chain and may not be applicable to all species imported from abroad, depending on their usual habitat and physiology.

What is welfare?

The Animal Welfare (Sentience) Act 2022 recognises in law that decapod crustaceans are sentient beings and that the ways in which we treat them may have an adverse effect on their welfare.

Research has shown that large decapod crustaceans are sentient. This means that they could be able to 'feel' things including pain, suffering and distress. If we do things to cause pain, suffering or distress then we say that this is bad for the animal's welfare. If we do things that prevent these feelings then we say that this is good for the animal's welfare.

We have a direct impact on the welfare of crabs, lobsters, crawfish, nephrops and brown shrimp by the way we handle them, the conditions in which we keep them, and the way in which we dispatch them.

Who is responsible?

Everyone involved in catching, transporting, processing, preparing and selling shellfish has a role to play in ensuring the best welfare for crabs, lobsters, crawfish and nephrops. Whatever you do in the shellfish industry, you have a responsibility for the welfare of crabs, lobsters, crawfish and nephrops for the whole time that they are under your control and you are responsible for complying with all relevant legislation.

Businesses are encouraged to nominate a senior manager or controller to have oversight of the application of the codes in day-to-day operations and to put in place the appropriate plans, policies, training and monitoring to ensure good crustacean welfare across their supply chain.



WHOLESALE AND TRANSPORT SECTOR - HANDLING

6. Handle with care and respect

Every time that you handle decapod crustaceans you create a risk of causing them physiological stress or physical injury. This has clear welfare consequences.

- 6.1 You should aim to minimise any handling of crustaceans, working as quickly and as gently as possible.
- 6.2 You should hold crustaceans by the carapace. You should avoid holding them by the legs or claws.
- 6.3 The correct handling techniques should be demonstrated to anybody that handles crustaceans.

How do you know that you are doing the right things?

Your staff have been shown how to handle crustaceans and you check this regularly.

You review your performance, you identify where improvements could be made, and you set targets for achieving these.

How can you show that you are doing the right things?

You can record and monitor the percentage of the crustaceans that you process which are damaged by handling.

Positive feedback from your buyers on the health of your crustaceans including the percentage mortality after-sale and the percentage of damaged crustaceans.

7. Avoid physical impacts and crushing

Even though they have hard shells, decapod crustaceans can suffer internal and external injury and

physiological stress by physical impacts (such as dropping) and by crushing. These injuries are a clear welfare issue and can lead to greater mortality.

- 7.1 Crustaceans should not be thrown or dropped into containers but should be placed carefully into them.
- 7.2 Containers and boxes of crustaceans should not be dropped or thrown.
- 7.3 You should avoid stacking of containers of crustaceans in a way that risks crushing the animals in the lower containers.
- 7.4 Containers should not be so large that the weight of the crustaceans risks crushing the animals at the bottom.
- 7.5 Couriered containers should clearly show that the contents are live and to be handled with care.

How do you know that you are doing the right things?

Your staff have been shown how to avoid injuring crustaceans.

You review your performance, you identify where improvements could be made, and you set targets for achieving these.

How can you show that you are doing the right things?

You can record and monitor the percentage of the crustaceans that you process which are injured or crushed.

Positive feedback from your buyers on the health of your crustaceans including the percentage rejected for being injured or crushed.



WHOLESALE AND TRANSPORT SECTOR - ENVIRONMENT & STORAGE

8. Create the best environment for health and welfare

Gills cannot function properly out of water and temperature, air flow, humidity, vibration and light can all affect crustacean welfare.

- 8.1 You should protect crustaceans from exposure to rain, snow, temperatures below freezing, wind, sun, light, heat, and vibration.
- 8.2 Crustaceans should be stored in the dark or with only such dim lighting (ideally red) as needed for staff safety.
- 8.3 You should aim to prevent crustaceans' gills from drying out [see information box on indicators of stress and physiological challenge].
- 8.4 You should store species separately.
- 8.5 It is good practice to minimise the duration of live storage.
- 8.6 Dry-stored crustaceans should be covered with a piece of wet seaweed, fabric, newspaper or hessian and kept refrigerated at between 4-8°C, avoiding direct contact between ice (if used) and crustaceans.
- 8.7 If storage (including storage in transport) is for periods in excess of 24 hours then you should monitor live crustaceans that are in your care for signs of stress and physiological challenge .
- 8.8 You should keep vivier tanks clean and ensure that water quality and temperature are maintained within the correct parameters [see information box on vivier storage].

- 8.9 You should plan storage and transport to minimise handling and environmental stressors, taking account of risks of delays at all stages in the supply chain.

How do you know that you are doing the right things?

You have made sure that your processes minimise crustaceans' exposure to adverse conditions.

You achieve very low levels of mortality and of indications of stress and physiological challenge.

You review your performance, you identify where improvements could be made, and you set targets for achieving these.

How can you show that you are doing the right things?

You can record and monitor the percentage of the crustaceans you receive which die whilst in your care.

You can record and monitor the percentage of the crustaceans that show signs of stress and physiological challenge whilst in your care.

You can record and monitor the environmental parameters for live storage.

Positive feedback from your buyers on the health of your crustaceans including the percentage mortality after-sale and indications of stress and physiological challenge.



Indicators of stress and physiological challenge

When storing shellfish it is important to recognise indicators of stress and physiological challenge, which are signs of poor welfare. These include:

- Distended membranes between the tail and carapace and at leg joints.
- A reflex separation of one or more limbs (autotomy).
- Rapid tail thrashing (an escape mechanism) in lobsters.
- A lack of limb movement.
- No reaction when limbs are moved.
- No reaction when mouth parts touched.
- No attempt to move or turn over when placed on their sides.

Where indicators are being used to assess welfare, then the proportion of dead animals can also be used as a measure of overall physiological challenge.

Import/export of crustaceans

Import and export, by sea or air, are complex processes that can impact on the welfare of crustaceans. Containers must be able to withstand crushing and to maintain optimum environmental conditions, and they should be suited to the specific handling requirements of the journey. For example, if transport involves manual handling then boxes should not be so heavy as to increase the risk of accidental dropping; and if there is a likelihood that transport may be delayed then containers should provide sufficient thermal insulation to accommodate the delayed part of the journey.

It is essential that the correct documentation accompanies the shipment and, if required, that prior notification is given according to the official controls of the destination country. This paperwork would usually include customs and animal health declarations. Failure to provide adequate notification or the correct documentation can result in delays, rejection and destruction of consignments.



Vivier Storage

In-water storage is used throughout the shellfish supply chain: on vessels, in on-shore storage and display, and in transport. The same welfare and environmental criteria apply across all of these, although the way in which they are achieved may differ.

Oxygen: Although shellfish can survive for short periods with reduced oxygen levels these conditions result in waste products accumulating in the body which crabs, lobsters and nephrops find aversive. Oxygen saturation should ideally not fall below 85%. In closed systems, aerate from the bottom of the tank and use a diffuser to generate small bubbles which increase oxygen transfer. Note that aeration, particularly from a compressor or on a hot day, can increase water temperature and consideration should be given to cooling air if needed.

Temperature: Shellfish cannot control their internal temperature so need to be protected both from extreme temperatures and rapid changes in temperature. Cool shellfish use less energy, require less feeding and are less likely to fight with others or moult. Target temperature for storing and transporting crabs, lobsters, crawfish and nephrops is between 4 and 8°C.

Light: Shellfish tend to inhabit low-light environments and are mostly nocturnal. Crabs, lobsters, crawfish and nephrops are averse to high light levels and should be stored in the dark or with only such dim lighting (ideally red) as needed. However, working conditions need to be safe and if required light levels should be increased slowly and minimised to the area required.

Salinity: Shellfish live in fully marine waters which, around the UK, are generally between 32-35‰ (part per thousand) salt, equal to 32-35 grams of salt in one litre of water. If using seawater in a vivier tank then make sure that the source is clean and free from any possible pollutants. For example, seawater from within a harbour may be contaminated with oil or other hydrocarbons. Note that evaporation from the vivier tank can increase salinity.

Noise, vibration, impacts: Whilst there is 'noise' at sea, storage can lead to increased un-natural and unfamiliar sounds, vibration and impact leading to increased stress. Storage facilities should be designed, where practicable, to minimise the noise and vibration from pumps, motors and compressors.

Feeding: Shellfish in vivier tanks at sea should not be fed. This serves to clear the digestive system and purge waste products whilst there is sufficient fresh seawater to do so, prior to overland transport in a vivier lorry where fresh seawater is not available.

Monitoring: Any in-water system will require monitoring, maintenance and record keeping to ensure good welfare standards. In closed systems (i.e. not pumping clean, fresh seawater) the following information should be collected and retained for analysis and future reference:

- Oxygen
- pH
- Ammonia (ammonium)
- Nitrates (nitrites)
- Salinity
- Flow rates
- Stocking density
- Mortality & indicators of stress and physiological challenge
- Temperature
- Water clarity and cleanliness

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