Katie Smyth

Consultant for the SAGB/Seafish

@SAGB

Shellfish Association of Great Britain

The Fishmongers' Company's Fisheries Charitable Trust

Department for Environment Food & Rural Affairs

seafish

Royal Greenland

Crown Estate Scotland
Oighreachd a' Chrùin Alba

SEPAmatic

Llywodraeth Cymru
Welsh Government

The development of Industry Codes of Welfare, re. sentience in crustacea

KATIE SMYTH

SAGB CONFERENCE - MAY 2022

Shellfish Association of Great Britain

seafish

Why are we talking about “codes” ?

19th November 2021 – the UK Government recognises crustaceans and cephalopod molluscs as sentient.

- recognised under the scope of the Animal Welfare (Sentience) Bill.
- decision was directly influenced by a report by the London School of Economics and Political Science.

8th April 2022 – the Bill passed the final stage in Parliament meaning that only Royal Assent is required now for it to become law.

28th April 2022 – the Bill received Royal assent and is now the Animal Welfare (Sentience) Act [1].

[1] https://www.gov.uk/government/news/animal-health-and-welfare-bills-receive-royal-assent

The LSE research highlighted the importance of '*codes of best practice*' in ensuring that stress to these animals is minimised.

The UK Government has stated that "*existing industry practices will not be affected and there will be no direct impact on shellfish catching or in restaurant kitchens.*"

Although there are already many areas of the supply chain thought to already achieve best practice, it is possible that in the future, some parts of the crustacean supply chain will need to adapt their practices.

The seafood industry is now taking proactive action to develop guidance for seafood businesses to help protect the welfare of shellfish across the supply chain.

Phase 1 – Feasibility study for industry “codes”

1. See what is successfully being done elsewhere in the world.
   - studying how other countries have adapted their practices to account for sentiency and/or high welfare in crustaceans;
   - looking for common themes between these countries’ rules
   - what can be adapted into a UK guide/code
2. Understand the legal definitions and hierarchy of terms such as ‘Guidance’ and ‘Code of Practice’.
   - consideration is also given to the use of Guidance and Codes of Practice by the courts.
   - aim is to help understand the way each option can be used in order to help decide the most practicable solution for the UK.
3. Determining stakeholder interest
4. Mapping out the plan for Phase 2

Findings: What other countries do

Thirteen countries/regions were studied that:

- either export crustaceans to the UK
- import crustaceans from UK
- are competitors for the UK in the crustacean industry,
- or are known to have crustacean welfare systems in place.

The most common system for controlling crustacean welfare in the supply cain is via a formal, governmentally imposed measure such as an Animal Welfare Act and associated regulations (7/13 countries).

- Formal nationwide controls: New Zealand, Switzerland, Austria and Norway.
- Provincial/state formal controls: parts of Italy, Australia and Canada.

Informal, NGO or industry recommended guidelines also exist (3/13 countries):

- Informal guidelines: parts of Australia and Canada and for part of the New Zealand industry.

The USA and the EU (EU as a bloc), and including France, Spain and Portugal do not recognise crustaceans as animals under their animal welfare acts and there are no controls over welfare, despatch or handling.

Summary of best-practice guidance for key countries that the UK either exports crustaceans to, imports crustaceans from, are competitors for the UK in the crustacean industry, or are known to have crustacean welfare systems in place.

Country	Animal welfare system for decapods		
	Informal best practice system	National governmental legislation	Provincial/State governmental legislation
New Zealand	✓	✓	✗
Australia	✓	✗	✓
Switzerland	✗	✓	✗
Norway	✗	✓	✗
EU (as a whole)	✗	✗	✗
↳ Austria	✗	✓	✗
↳ Italy	✗	✗	✓
↳ Spain	✗	✗	✗
↳ Portugal	✗	✗	✗
↳ France	✗	✗	✗
Canada	✓	✗	✓
USA	✗	✗	✗
China	✗	✗	✗

Measure	Country					
	New Zealand	Australia	Austria	Switzerland	Norway	Canada
To induce insensibility						
Electro stunning machine	✓	✓		✓		
Ice slurry (saltwater)	✓	✓				
Chilling in air[3]	✓✓	✓		✗		
Anaesthetic agent e.g. Isoeugenol	✓	✗				
Despatch						
Render insensible first	✓✓	✓	✓	✓	✓	
Split (longitudinal cut)		✓		✓		
Split (longitudinal cut) without insensibility		✓		✗		
Spike nerve centres		✓		✓		
Spike nerve centres without insensibility		✓		✗		
Electro stun to death				✓		
Boiling alive after insensibility				✓		
Boiling after both insensibility and spiking/splitting		✓				
Boil alive – no prior insensibility		✗		✗		
Transverse cut		✗				
Immersion in inappropriate salinity		✗		✗		
CO_2				✗		
Air exposure		✗				
Inadequate oxygenation of water leading to asphyxiation		✗				
Dismembering		✗		✗		
Freezing				✗		
Microwaves/steamers		✗		✗		

Measure	Country					
	New Zealand	Australia	Austria	Switzerland	Norway	Canada
Holding						
Water quality	✓	✓		✓		✓✓
Water temperature	✓	✓✓				✓
Water aeration/oxygenation	✓	✓				✓
Ratio of animals : water	✓	✓				✓
Vibration				✓		
Feeding		✓✓				
Shelter		✓				
Transport						
Water quality			✓	✓		
Water temperature			✓			
Water aeration/oxygenation			✓			
Ratio of animals : water			✓			
Vibration				✓		
Transport in ice or ice water				✗		
Feeding			✗			
General transport rules e.g. must not cause undue stress		✓	✓	✓	✓	
Other						
Handling				✓		✓
Staff training		✓		✓		✓✓

<u>All best practice is not equal!</u>

Although formal controls are the most common (either national or provincial), they are not always the most thorough or helpful.

Can see that the most comprehensive are the Australian guidelines (informal), or in the Swiss regulations (formal)

← summary of accepted and prohibited methods of holding, handling, transport and despatch for countries where controls appear

- Green tick = governmental regulation/legislation
- Blue tick = voluntary best practice guidance
- Red X = practice is forbidden under governmental regulations
- Blue X = practice is forbidden under voluntary guidance

Of the 13 countries studied, only 7 have some measure of best practice in place for crustaceans.

Of those 7 that do, Canada, Norway and Italy's guidance (formal) does not cover despatch or pre-despatch procedures, and Austria's guidance (formal) only requires anaesthetisation before despatch but does not explain further how this is achieved.

Making a total of 3 countries that have detailed measures in place, that cover the key procedures (pre-despatch and despatch) we are interested in to develop a UK guidance system. These countries are:

- Australia (informal guidance, provincial guidance),
- Switzerland (formal guidance),
- New Zealand (informal guidance, formal guidance).

Skills and experience required

RSPCA Australia does not recommend that live crustaceans for human consumption are made available for purchase by the general public. Instead, they should be humanely killed by trained and competent personnel before purchase.

Training should include how to:

- appropriately handle and care for live crustaceans to minimise stress and suffering
- induce insensibility
- recognise signs of insensibility
- recognise signs of stress
- apply the method of killing
- operate and maintain any equipment involved in the killing process.

Signs of insensibility

Signs of insensibility vary from species to species but generally include:[10]

- no resistance to handling – for example, the abdomen or tail can be easily extended or manipulated, and the outer mouthparts can be moved without resistance
- no control of limb movement
- no eye reactions when the shell is tapped
- no reaction when touched around the mouthparts.

Signs of stress

Signs of stress include:

- thrashing
- autotomy (casting off of body parts, such as limbs).

Acceptable stunning and killing methods

This advice is based on the available scientific evidence. However, further research is required before definitive conclusions can be drawn about the humaneness of stunning and killing methods for crustaceans.

Method	Suitable for	Comments
Stage 1: stunning		
Crustastun (electrical stunning in a water bath)	All species	Requires specialised equipment
Chilling in an ice slurry	All tropical crustaceans and temperate species that are susceptible to cold temperatures	A saltwater ice slurry must be used for marine species Not recommended for temperate marine species that are adapted to colder temperatures
Chilling in air	Large crustaceans that are adapted to very cold temperatures	
Stage 2: mechanical killing		
Splitting	Lobsters and similarly shaped species	
Spiking	Crabs	

← Australian RSPCA guidance.

- Comprehensive
- Clear and non-technical
- Diagrams to aid in mechanical despatch
- Several despatch and “stunning” methods recommended
- Backed by science, providing a list of references at the end

Swiss guidance →

- Comprehensive
- Details methods for pre-despatch and despatch
- Spread across three (or more!) different legislative documents
- Strong focus on electrical stunning with other methods mentioned briefly and without emphasis.

Schweizerische Eidgenossenschaft
Confédération suisse
Confederazione Svizzera
Confederaziun svizra

Eidgenössisches Departement des Innern EDI
Bundesamt für Lebensmittelsicherheit und Veterinärwesen BLV
Tierschutz

Fachinformation Tierschutz Nr. 4.4

Hälterung von Panzerkrebsen für gastronomische Zwecke

1 Allgemeines

Die vorliegende Fachinformation zeigt die Vorgaben für eine tierschutzkonforme Hälterung von Panzerkrebsen für gastronomische Zwecke auf. «Hälterung» bezeichnet eine Haltung ohne Fütterung und über einen begrenzten Zeitraum. Zudem beschreibt die Fachinformation Regelungen zum Transport und zur Abgabe von Panzerkrebsen.

Diese Fachinformation richtet sich insbesondere an Personen, die beruflich Panzerkrebse hältern. Die Fachinformation richtet sich auch an die kantonalen Veterinärdienste, die mit dem Vollzug der Tierschutzgesetzgebung beauftragt sind.

1.1 Panzerkrebse

Panzerkrebse gelten nach Tierschutzverordnung TSchV als Wildtiere (Art. 2 Abs. 1 Bst. b). Sie umfassen Krebstiere der Ordnung der Dekapoden (Zehnfusskrebse), mit Ausnahme von Garnelen (Art. 2 Abs. 3 Bst. w TSchV). Dazu zählen mehrere Arten von Hummern, Krabben, Langusten und Flusskrebsen. Wirtschaftlich bedeutend sind vor allem der Amerikanische Hummer (*Homarus americanus*) und der Europäische Hummer (*Homarus gammarus*). In dieser Fachinformation wird deshalb im Speziellen auf diese Arten eingegangen. Der gelegentlich im Handel angebotene Kaisergranat (*Nephrops norvegicus*) gehört ebenfalls zu den Panzerkrebsen.

1.2 Hummer in der Wildbahn

Europäische und Amerikanische Hummer kommen ausschliesslich in marinen Lebensräumen vor. Sie können ihren inneren osmotischen Druck nicht regulieren, darum reagieren sie empfindlich auf Abweichungen des für sie richtigen Salzgehalts. In Süsswasser können sie gar nicht überleben. In ihrer natürlichen Umgebung geschehen Temperaturwechsel sehr langsam. Dies kommt den wechselwarmen Tieren zugute, da sie rasche Änderungen der Umgebungstemperatur schlecht ertragen. Hummer bewohnen bevorzugt felsige Gebiete des Meeresgrundes in Tiefen von bis zu 50 Metern. Sie sind nachtaktiv und halten sich tagsüber in dunklen Höhlen oder Felsspalten auf. Mit Ausnahme der Paarungszeit sind sie Einzelgänger: Sie verhalten sich Artgenossen gegenüber aggressiv und sind auf Distanz bedacht. An ihrem vordersten Beinpaar sind grosse Scheren ausgebildet – für den Beutefang, zum Ergreifen und Zerteilen von Nahrung, aber auch als Verteidigungswaffe.

1.3 Hummer in der Gastronomie

In der Gastronomie gelten Hummer weltweit als Delikatesse. Der grösste Teil aller weltweit gefangenen Hummer stammt aus nordamerikanischen Küstengewässern. Nach dem Fang hält man sie in grossen Stückzahlen bis zum Weiterverkauf in Meerwassertanks. Die Scheren werden dabei oft zugebunden, da sich die Hummer ansonsten durch aggressives Verhalten gegenseitig verletzen. Nicht selten werden sie über mehrere Monate gehalten, bis sie über weite Strecken lebend weiter transportiert werden. Sie werden teilweise in Verteilzentren zwischengehältert und gelangen schliesslich in die hiesigen Gastronomiebetriebe. Dort müssen sie bis zur Tötung entsprechend den

823/2013/16482\COO.2101.102.4.1016900\1.206.02.02.07

In the 7 countries that have best practice recommendations for crustaceans, are <u>specific</u> procedures to achieve handling, pre-despatch and despatch stated in any form of guidance?

✘ = no
N = yes in formal national guidance
P = yes in provincial/state guidance
I = yes in informal guidance

Country	Animal welfare system for decapods		
	Handling procedures defined	Pre-despatch procedures defined	Despatch procedures defined
New Zealand	✘	P I	✘
Australia	✘	I	I
Switzerland	N	N	N
Norway	✘	✘	✘
Austria	✘	✘	✘
Italy	✘	✘	✘
Canada	P	✘	✘

Whilst there are **consistent themes throughout the different forms of guidance**, especially concerning the need to render the animal insensible before despatch, there is no one-size-fits-all approach.

The most prominent of the common themes is to render the animal insensible before despatch:

- The three main ways to achieve this appear to be either (1) electrical stunning, (2) a seawater ice slurry, (3) spiking or slicing through the main nerve centres as appropriate to the species (which also accomplishes despatch at the same time).

There are also common themes in terms of practices that are not recommended for despatch, which could also be brought into UK guidance:

- These include (1) boiling alive without first rendering the crustacean insensible, (2) immersing in an inappropriate salinity, (3) dismembering while alive, (4) death by asphyxiation (aerial exposure/drowning/CO_2 exposure), (5) microwaving.

There are also **some contradictions between countries** in their best practice recommendations.

- Cooling down the crustacean in air in a freezer as a stunning/anaesthesia method is not a recommended practice in Switzerland but it is in New Zealand.
- New Zealand (informal) guidelines also recommend an anaesthetic agent for inducing insensibility, whereas the Australian RSPCA guidance (informal) does not.
- Australian RSPCA guidance recommends that a longitudinal cut without prior insensibility is an appropriate method of swift despatch for certain species, whereas in Switzerland (formal) this is not permitted. The same occurs for spiking the nerve centres of certain species.

Whilst these contradictions are in the minimum, and overall there are many more common themes between countries it shows that there is **not a one-size-fits-all approach**.

What lessons can we learn for the UK?

Switzerland has one of the most comprehensive legislations of those studied, yet has a reliance on electrical stunning.

- This could impose a financial burden on businesses.

Other countries including Australia and New Zealand, instead recommend (in addition to electrical stunning) a seawater ice slurry to induce an anaesthetic-like effect.

- This is potentially a more affordable option, especially for smaller operators.

In developing UK based guidelines, it is important that a **range of appropriate techniques both for rendering a crustacean insensible, as well as for despatch are provided**. This will allow businesses to make choices that provide high welfare, whilst also remaining practically achievable and financially affordable.

Different sectors of the industry may need different rules for achieving the best welfare.

- e.g. a vessel out at sea catching several tonnes over several days will need different best practice recommendations to a restaurant kitchen
- This is something that is lacking from best practice guidance in other countries.

The Swiss system, is thorough in its provisions for crustacean welfare, but not necessarily the best model for a UK best practice system.

- Switzerland is a landlocked nation
- Has no crustacean fishing fleet and no crustacean fishing industry.

A better model for the UK, (large marine catching sector and much of catch exported), could be New Zealand, Australia or Canada.

Whilst the Swiss system may not be the best model for UK needs, it has some useful aspects e.g.:

- Animal consignments given priority at checkpoints and can only be detained for health or protection purposes.
- This would be an interesting point to try to emphasise in future UK welfare guidelines, especially considering the well publicised hold-ups with shellfish consignments at ports due the UK's exit from the EU.

Visibility of any guidance produced is also an important factor to consider.

In cases where no informal (industry-led / NGO-led) guidance could be found for the countries studied, this does not mean no informal guidance exists, but if there is any it is not widely promoted or easily found online via a search engine.

- This could be considered a failing of the guidance.

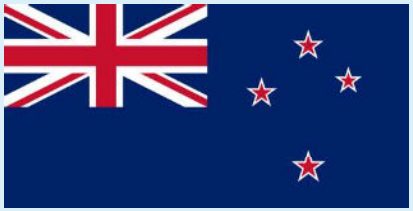
Successful guidelines need to be readily available to ensure easy uptake.

Whether it be something free (e.g. the Australian RSPCA best practice document) or something that involves a “membership”, a successful **informal** best practice system needs visibility.

Lack of visibility is something than any future UK system must avoid.

- promoted actively, easily accessible e.g. a website, clear and straightforward.

How has the industry reacted to welfare rules changes elsewhere?



New Zealand rock lobster industry - when the New Zealand government imposed new formal regulations to control how crustaceans are rendered insensible before despatch, one of the key factors that ensured the changes were well received was they involved using a saltwater ice slurry as a pre-despatch anaesthetic/stunning technique and that electrical stunning was not forced upon the industry. The cost to purchase electro stunning apparatus would have been prohibitive to many operators.

Nova Scotia (Canada) lobster industry - when new rules were introduced ≈7 years ago they were not well received by industry. The Provincial Government at the time imposed the regulations without any input to the process from industry. It took a couple of years for industry to make peace with the new regulations which was helped by making the compulsory course that was required as part of the regulations, free for the first few years.

The use of the terms ‘Guidance’, ‘Codes of Practice’ and similar terminology, **do not have a defined meaning and can be used flexibly**.

Instead approaches have been considered based on

(1) mandatory requirements – i.e. a government regulation

(2) assurance, standards and compliance schemes

(3) voluntary schemes.

Pros and cons exist for each approach.

Too early/too little knowledge to choose an approach at this point in time.

Further investigation is required in Phase 2 of this project

Summary of possible best practice options →

Legal standing of welfare guidance definitions

Approach	Mechanism	Notes
Statutory or non-statutory guidance	Development of guidance or code of practice by an appropriate national authority with industry input.	Feasible approach (?) Would require a ministerial request to an industry body (e.g. Seafish) in order to progress. Specific requirements for the publication of such a document still needs to be ascertained.
Voluntary guidance	Industry-led development of guidance or code of practice. Would require formation of a stakeholder working group and could have potential oversight by enforcement authorities.	Feasible approach (?) Legitimacy would be aided by BSI accreditation (but not mandatory). The mechanisms and costs of this will need to be ascertained.
Compliance, standards or assurance schemes	Approach 1: Development of SSC or industry body code covering animal welfare standards.	Feasible approach (?) This approach would lead to a group of stakeholders that agree to operate or apply a higher standard than others. There may be no obvious benefit for members.
	Approach 2: Developed and delivered through an industry body, providing a USP through use of logos.	Likely unfeasible approach (?) This would require a fully auditable system in order to avoid issues associated with competition law. Process is onerous and expensive. Unclear how willing industry would be prepared to pay for certification and how much difference this will make to value of the product.

Stakeholder (initial) consultation

≈50 businesses and individuals from the crustacean industry in the UK were directly contacted

- to gauge the general feeling in the industry about having guidelines developed
- the willingness to be actively involved in the development of the guidelines once Phase 2 of this project commences.

Project was also promoted at several crustacean group meetings via the Shellfish Association of Great Britain and Seafish, as well as being publicised (with contact details) in the media, reaching an even wider audience.

Around a ⅔ to ¾ initial response rate from those directly contacted

Overwhelmingly positive response – with almost all wanting to participate

- single negative response was from one individual who declined because they were not involved with the frontline of the sector any more and thought their colleagues would be better placed to help.

Some stakeholders also provided some initial thoughts on the topic of crustacean welfare.

Planning for Phase 2

The industry can be separated into the following broad sectors.

1. catching (creel/pot caught)
2. fishing (trawl caught)
3. wholesalers, shore storage and holding
4. processors
5. Exporters/ importers and live transport
6. catering
7. retail
8. home consumers

These sectors are separated based on differing processes for how they work with decapods. Therefore it would be valuable if sector-specific guidance is created, possibly using the above groupings.

From the review of guidance types in other countries, the concise, reader-friendly guides are the easiest to understand.

- Keep guidance succinct, reader-friendly, and focused on each individual sector.

Also create a guideline for home consumers as a simple advice sheet on at-home-despatch that they could download from e.g. the SAGB, Seafish or other appropriate website.

- Would then be possible to combine individual guidance into a larger single document with chapters for each sector, if appropriate.

Suggested that the following relevant stakeholder groups be invited to form the working groups/expert panels that will create the best practice documents.

1. vessel operators
2. wholesalers, holding and processing facility operators
3. chefs / restaurants
4. retailers
5. sentience experts &/or welfare organisations e.g. RSPCA
6. Defra/government
7. shellfish organisations/groups
8. project board/team

Suggested that each panel consist of representatives from the relevant sector (from points 1 to 4 as appropriate), plus other relevant stakeholders (points 5 to 8).

Stakeholders invited to form panels – round table approach

Panels will discuss options and produce the best practice recommendations.

Stakeholders not invited to panels will be asked for feedback on the recommendations.

In parallel, further discussions will take place about the form the guidelines should take with input from e.g. Defra, industry, welfare orgs etc.

- visibility also has a part to play in accessibility (and possibly success) - important for the panels to consider how the guides will be promoted.

The guidelines created will be put into the chosen format

Review exercise – e.g. soft/light review after 12 months followed by a thorough review after 2 years suggested.

Guidelines should be updated if there be any major changes to crustacean welfare requirements that become law or recommended by clear-cut science in the meantime.

Summary

1. a suitable guideline can be developed for the UK, led by industry.
2. must ensure welfare is achieved throughout the supply chain, whilst remaining both financially and procedurally achievable for large and small businesses.
3. whilst varying degrees of guidance exist, thorough guidance is present only for a minority of countries – three out of thirteen studied.
4. several options exist for the form guidance can take, from formal governmental controls, through semi-formal standards and assurance schemes, to informal industry-led or NGO-led guidance.
5. formal legislation is the most common type of best practice guidance, but it is not necessarily the most robust and helpful.
6. whilst welfare is highly important, measures chosen to control welfare in the supply chain also need to be appropriate and achievable by all aspects of the industry.
7. different sectors of the industry will need different rules for achieving the best welfare.
8. a successful guidance needs to be visible and accessible. Any future system, especially if informal, must promoted actively and have an online presence.
9. successful guidance needs to be simple to understand and follow, and written in non-technical language whilst also being backed by scientific evidence.
10. stakeholder panels using a round-table approach could be a great way to create guidance that meets the above needs.

Shellfish Association of Great Britain

seafish

SAGB CONFERENCE - MAY 2022

KATIE SMYTH PHD

Marine scientist

+14 years experience

Fisheries / Aquaculture / Ecology / Physiology / Risk Assessment

Numerous projects on crab, lobster and shrimp

Independent – no bias or ties

THANK YOU

For more information or to get involved please contact:

Katie Smyth (smyth.katie@gmail.com)
David Jarrad at SAGB (admin@shellfish.org.uk)
Oscar Wilkie at Seafish (seafish@seafish.co.uk)

52nd Annual Conference

Shellfish Association of Great Britain

#SAGB52