

Here to give the UK seafood sector the support it needs to thrive.




Official Control Sampling of Shellfish

A Seafish training programme

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Introductions



Aims & Objectives, Overview, Format, Timetable & General Resources



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Aims

- To inform Local Authority (LA) & Food Business Operator (FBO) understanding and competency in how to collect, process and transport shellfish samples for Official Controls purposes in accordance with Official Controls Guidance & the Seafish informal Occupational Standard
- Support LA local governance, standard setting & verification of FBOs
- Assuring consumer protection (Food Safety)
- Assuring UK compliance by LA, Central Competent Authority and FBOs with relevant EU Food Law – e.g., retained regulations (EU) 2017/625 on Official Controls & (EU) No 2019/627 - Laying down uniform practical arrangements for the performance of official controls on products of animal origin – inc. Shellfish
- Assuring Capable Guardianship of shellfish waters sampling, monitoring & classification
- Possible first step to approval by LA as an official sample collector





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Learning Outcomes

- Deliver knowledge and understanding
- Understand how to collect, process and transport samples for official control sampling (OCS)
- Build collection capability and capacity


The learner will	The learner can
1. Understand the purpose of official control samples	Describe the relationship between industry sampling, Local Authority sampling and samples taken for national monitoring or challenge testing purposes. List the various species for which official samples may be required. List the various contaminants that may be tested for.
2. Understand the need for consistency and conformity in the application of sampling methodology at all times	Explain why a consistent and agreed methodology for sampling is essential and the negative impact deviations from the "standard method" may have on the credibility of the process.



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Learning Outcomes

The learner will	The learner can
3. Understand how to collect samples	Describe the planning and preparation required to collect samples. Explain when samples should be taken, how they should be collected, what equipment and other supplies are needed, and what constitutes an acceptable shellfish sample.
4. Understand how to store samples	Explain how samples should be prepared for storage, and stored prior to dispatch or transport, including the need to record and provide information with the sample.
5. Understand how to dispatch or transport samples	Describe how samples are to be transported including any time and temperature constraints, the nature of the packaging used and the need to keep stakeholders informed.
6. Understand how to collect, record and validate appropriate information	List the various types of information that should be recorded during the OCS process and describe how this data is recorded, validated and shared with stakeholders.
7. Understand the impact that other events may have on sampling and how to record and report these when appropriate	List the types of incidents or observations that should be recorded and reported. Describe how to report these observations/incidents to others.


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Course Timings



- Introduction 20 mins
- Understand the Purpose of Official Control Samples 20 mins
- Understand & Apply the Process of Official Control Samples 40 mins
- Avoiding Problems 30 mins
- Verification 20 mins
- Post Course Support 10 mins
- Discussions 10 mins

One or more breaks will be provided during the course.

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General Guiding Resources






Protocol for the Collection of Shellfish under the Microbiological Classification Monitoring Programme

Version 11
November 2021




Protocol for sampling and transport of shellfish for the purpose of Official Control Monitoring of classified shellfish production areas under Commission implementing Regulation (EU) 2018/627

Version	Date	Amendments
Version 3	September 2018	
Version 5	July 2020	Update of signature references
Version 6	July 2020	Updated contact details
Version 4	November 2021	Updated links to sampling methods and references for sampling distances from DAP

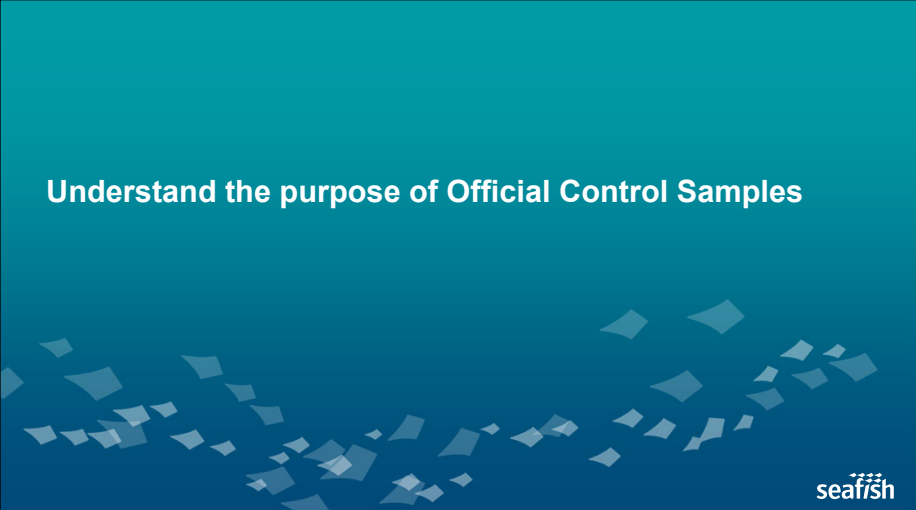
Food Standards Scotland protocol for appointed sampling officers for the collection and transport of shellfish samples for the purpose of Official Control Monitoring of classified shellfish production areas in Scotland


FINAL Version 6
For implementation from 4th January 2021

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Understand the purpose of Official Control Samples



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Key Learning Outcome - 1

- Understand that there needs to be consistency and conformity of sampling with the Official Controls Guidance otherwise sampling may not accurately classify shellfish waters.

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Overview - Understand the purpose of Official Control Shellfish samples

- Epidemiology of shellfish (food safety)
- Limits of depuration
- Legal context and duties
- Consequences of errors
- Routine activity theory
- Capable guardians

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Epidemiology – Outbreaks of Shellfish Associated Foodborne Illness



- Raw oysters are responsible for 3% of UK food related norovirus cases ([Source FSA](#))
- 12,000-14,000 (UK estimated) people per year experience sickness and diarrhoea after eating seafood, usually norovirus associated with raw oysters ([Source CEFAS](#))
- Cedar Key Salmonellosis outbreak (USA 2023) 8 people affected in Florida, Georgia & Alabama. Trade withdrawal of oysters

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Epidemiology:- Summary Hazard Analysis & Identification

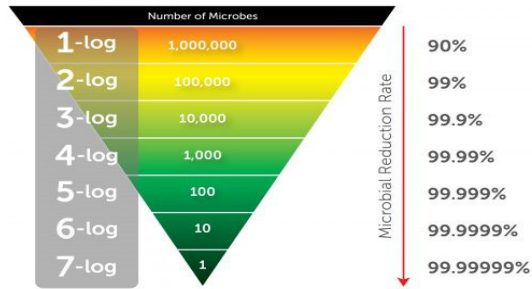
- Live Bivalve Molluscs are filter feeders & effectively concentrate waterborne contamination = Effective vectors of foodborne illness
- Source = Human sewage effluent, agricultural & natural run-off
- Enterobacteriaceae – E. coli (inc. STEC) & Salmonellae, Viruses inc. Norovirus & Hepatitis A
- Epidemiological Contributory Factor = Presence (P) i.e., contamination in the growing waters
- Shellfish growing waters must be classified according to the trends in the bacteriological quality of the growing waters. Sampling is vital for classification



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The Limits of Purification (Depuration)

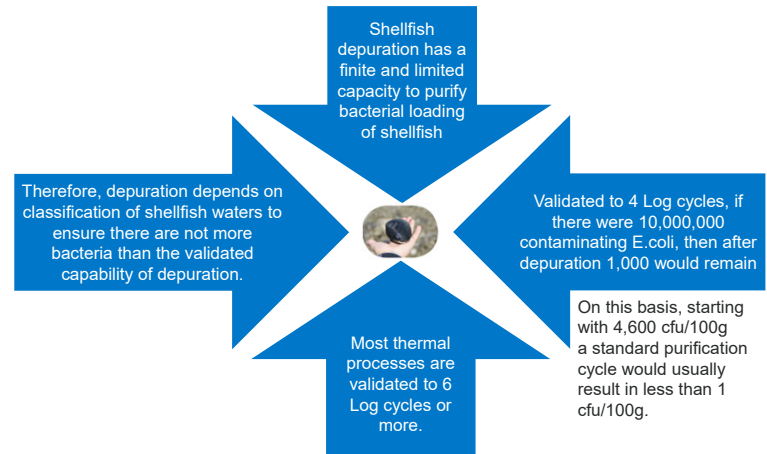


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The Limits of Purification (Depuration)



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Food Law & Shellfish – The Legal Background

- Retained regulation (EU) 2017/625 - Overarching principles for Official Controls - sufficient competent staff, training, methods & techniques, equipment
- Retained Regulation (EU) No 2019/627 - Laying down uniform practical arrangements for the performance of official controls on products of animal origin intended for human consumption. This legislation requires production and relay areas to be routinely monitored and classified
- Retained Regulation (EC) 178/2004 Article 19 requires FBOs to collaborate with the Competent Authorities
- These Regulations apply to FSA/FSS, Local Authorities and similar Agencies

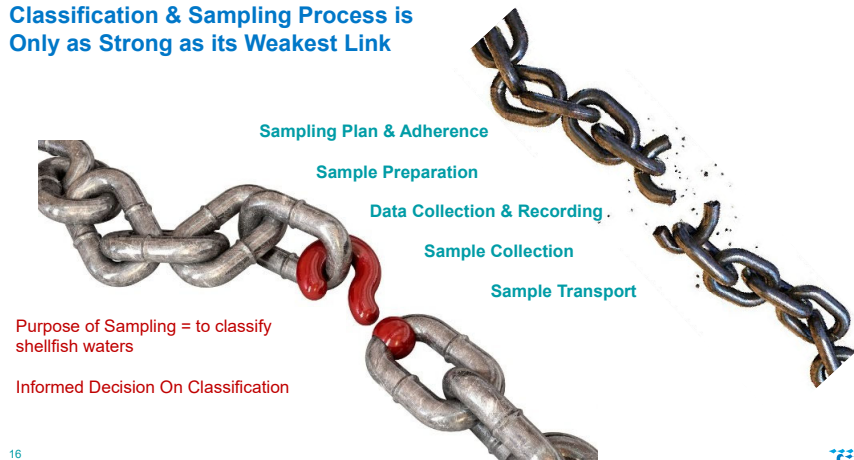


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Classification & Sampling Process is Only as Strong as its Weakest Link



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Reputation & Exports

- Majority of UK LBM exports continue to be to the EU, principally France & Spain
- 9,482 tonnes in 2021 and 9,697 tonnes in 2022*
- The value of UK LBM exports increased by 4% in cash terms, from £64.3 million to £67 million from 2022 to 2023*
- Industry located in remote fragile economic areas where employment prospects can be limited
- Exports critically depend on compliance with retained EU Food Law (Regulations (EU) 2017/625, (EU 2019/627 & (EC) 853/2004)
 - Audited by DG Sante F
- Quality of UK Official Controls inc. sampling & Classification & monitoring are critical to exports**

* *Seafish Trade and Tariff Tool*

UK shellfish exports to the EU
£ millions, January 2018-January 2023

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The Consequences of Failure to Follow the Guidance

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Routine Activity Theory

- Majority of UK Shellfish exports continue to be to the EU, principally France & Spain
- Routine Activity Theory is now a feature of Food Crime
- There have been instances of FBOs influencing the sampling & classification process
- Incentives
 - Gain classification
 - Improve classification
- Sampling Officers and EH staff must act as Capable Guardians of the classification process

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Sampling Officers as Capable Guardians

- Capable Guardians is a concept that has come to the fore in Food Safety
- Capable Guardians in this context are Sampling Officers, EH staff & FBOs
- Their 'Guardianship' ensures the authenticity and integrity of the sampling process

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Recap - Understanding the purpose of Official Control Shellfish samples

- Epidemiology of shellfish (food safety)
- Limits of depuration
- Legal context and duties
- Consequences of errors
- Routine activity theory
- Capable guardians

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Understand & Apply the Process of Official Control Samples

The Practical How-To Aspects



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Key Learning Outcome - 2

- To understand and apply to process of collection, processing and transport samples for official control sampling consistently and in conformity with the Official Guidance otherwise sampling may not accurately classify shellfish waters.



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Overview - Understand and applying the process of Official Control samples

- **Species sampled**
- **Sampling**
 - Location, frequency, transport
- **Sample size**
- **Data**
 - Collection, recording
- **Sample preparation**
- **Cool boxes**
 - Packing, validation


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Sample Species

- The level of contaminating bacteria is frequently species specific i.e., different species concentrate bacteria differently
- Therefore, the sampling plan will confirm the species for sampling or another indicator species
- In the UK species are generally (although not exclusively)
 - Mussel (e.g. *Mytilus edulis*),
 - Oyster (e.g. *Crassostrea gigas*)
 - Cockle (e.g. *Cerastoderma edule*)



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Sample Size


- The following sample sizes are recommended (number of commercially sized live animals by species) to ensure that the minimum testing material requirement is met for commercially sized shellfish.

Species	##		
		Manilla clams (<i>Tapes philippinarum</i>)	18-35
Oysters (<i>Crassostrea gigas</i> and <i>Ostrea edulis</i>)	12-18	Palourdes (<i>Tapes decussatus</i>)	18-35
Hard clams (<i>Mercenaria mercenaria</i>)	12-18	Mussels (<i>Mytilus</i> spp.)	15-30
Horse mussels (<i>Modiolus modiolus</i>)	12-18	Cockles (<i>Cerastoderma edule</i>)	35-55
Sand Gapers (<i>Mya arenaria</i>)	12-18	Thick trough shells (<i>Spisula solida</i>)	35-55
Razoe clams (<i>Ensis</i> spp.)	12-18	Abalone (<i>Haliotis</i> spp.)	12-18
King scallops (<i>Pecten maximus</i>)	12-15	Whelks (<i>Buccinum undatum</i>)	12-18
Queen scallops (<i>Aequipecten opercularis</i>)	15-30	Periwinkles (<i>Littorina littorea</i>)	35-55

- In any event, an absolute minimum of 10 individual shellfish arriving live at the laboratory and containing at least 50g of flesh and intravalvular fluid is required for testing if results are to be used for classification purposes (including formal investigative samples associated with Action States)

Insufficient material = rejected sample


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Sample Location

- Samples must be taken @ the Regulatory Monitoring Point (RMP) confirmed in the relevant sampling plan
- The RMP represents the shellfishery – its pollution sources & tidal flows
- Positional tolerances can be stated in the sampling plan & complied with
- Where insufficient shellfish of the correct size are available – default action is contact CEFAS
- Classification zones stated within the sampling plan – sample within the boundaries & the actual location of sampling or the center of the dredge run recorded




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Sampling Plan?

- Sampling should be undertaken according to the official sampling plan and, where possible, on as random a basis as possible with respect to likely influencing environmental factors e.g., tidal state, rainfall, wind etc. to avoid introducing any bias to the results
- In practical terms, planning sampling dates weeks in advance and sticking to those dates regardless of weather (where safety permits) should be adequate for 'randomising' most factors. In doing so, it should be ensured that a representative range of tidal states is covered (where possible)



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Frequency of Sampling

- Where sampling is limited to particular tidal states due to access or safety reasons then this should be taken into account (particularly in the sanitary survey) when the appropriate location for the RMP is established
- To maintain full classification status, full monthly monitoring is expected i.e. 12 samples from each RMP per year unless otherwise stated in the sampling plan
- Class B and C sites with less than 8 samples and class A sites with less than 10 samples over a year are likely to be declassified
- LAs are asked to contact CEFAS Weymouth as soon as possible if they are encountering any difficulty in complying with their agreed sampling programme

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Data Collection & Recording 1

UK Health Security Agency
FOOD, WATER AND ENVIRONMENTAL MICROBIOLOGY SERVICES
 Porton, Salisbury, Wiltshire, SP4 0JF, UK
 Tel: 01292 457761, 457774
 York: 01904 448449, 448449
 London: 020 8357 8244, 8357 8053
 WhatsApp: 0044 1292 457761, 457774, 01904 448449, 448449
 Information about our services and products can be provided by post or email at
 info@cefas.gov.uk or cefas@cefas.gov.uk

SHELLFISH SAMPLE SUBMITTAL FORM

Sender's sample reference number: Kenz June 23
 Sample collected by: Joe Hodge
 Date collected: 29/06/2023
 Time collected: 12:30
 Sea water / between animals?
 Temperature (check on arrival): Sea 14.0 °C
 Weather conditions in last 24h (classification sample only): No rainfall in last 24 hours

CEFAS ID: N/A - Poly Box
 Quantity: 10
 Reason for sampling: Classification Pre-classification Post-depuration Pre-depuration On the market Investigation

AFFIX LABORATORY NUMBER HERE

Name and contact details of authority/customer: XYZ Ltd
 Contact telephone number: 01234567890
 Purchase order number: N/A

Classification sample: CEFAS RMP ID: B26BC
 RMP name: RiverKenn
 Location (long./lat. or NGR): SX97638313
 Collection method: Hand picked Hand raked Dredged Other
 Bed Classification: A B C D

Post depuration sample: Premises name: RiverKenn
 Address:
 Depuration tank ref:
 Additional information:
 Bed Classification: A B C D

On the market sample: Premises name:
 Address:
 Batch ref:
 Country of origin: UK Other (specify):

Sample type

Mussels (*Mytilus* spp.) (18-35 animals) Cockles (*Cardostemma edule*) (30-55 animals)
 Pacific Oysters (*Crassostrea gigas*) (12-18 animals) Native Oysters (*Ostrea edulis*) (12-18 animals)
 Razor Clams (*Ensis* spp.) (12-18 animals) Manila Clams (*Tapes philippinarum*) (18-35 animals)
 Sand Gapers (*Mya arenaria*) (12-18 animals) Pearl Clams (*Mercaenaria mercenaria*) (12-18 animals)
 Queen Scallops (*Pecten opercularis*) (18-35 animals) Other (specify):

LABORATORY USE ONLY (Record details of unsatisfactory findings in comments)

Date received: / / 20
 Time received: Air / In between pack
 Received by: Temp. on receipt: °C
 Received from: Samples & Receipt
 Form ID: FNEW43 Shellfish Version 9

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- Points to note:
 - Key data that must be recorded
 - Incorrectly completed forms are one of the main causes of sample rejection.

Data Collection & Recording 2

- Key data that must be recorded
- RMP ID, RMP name, map co-ordinates, temperature at time of collection, time and date of collection, species sampled and method of collection (hand-picked, dredged, etc.)

Location and sample details

Classification sample
 CEFAS RMP ID: B26BC
 RMP name: RiverKenn
 Location (long./lat. or NGR): SX97638313
 Collection method: Hand picked Hand raked Dredged Other
 Bed Classification: A B C D

Post depuration sample
 Premises name: RiverKenn
 Address:
 Depuration tank ref:
 Additional information:
 Bed Classification: A B C D

On the market sample
 Premises name:
 Address:
 Batch ref:
 Country of origin: UK Other (specify):

Sample type

Mussels (*Mytilus* spp.) (18-35 animals) Cockles (*Cardostemma edule*) (30-55 animals)
 Pacific Oysters (*Crassostrea gigas*) (12-18 animals) Native Oysters (*Ostrea edulis*) (12-18 animals)
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 Queen Scallops (*Pecten opercularis*) (18-35 animals) Other (specify):

LABORATORY USE ONLY (Record details of unsatisfactory findings in comments)

Date received: / / 20
 Time received: Air / In between pack
 Received by: Temp. on receipt: °C
 Received from: Samples & Receipt
 Form ID: FNEW43 Shellfish Version 9

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Data Collection & Recording 3

- Key data that must be recorded
- The map co-ordinates must be recorded to at least 10m accuracy (8 figure OS reference e.g., TQ12345678) and should be those of the *actual* sampling location. A suitable GPS device or Ordnance survey 1:25,000 map should ideally be used for this purpose

Location and sample details

Classification sample
 CEFAS RMP ID: B26BC
 RMP name: RiverKenn
 Location (long./lat. or NGR): SX97638313
 Collection method: Hand picked Hand raked Dredged Other

Post depuration sample
 Premises name:
 Address:
 Depuration tank ref:
 Additional information:
 Country of origin: UK Other (specify):

On the market sample
 Premises name:
 Address:
 Batch ref:
 Country of origin: UK Other (specify):

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Data Collection & Recording 4

- Key data that must be recorded
- Offshore samples via a boat then, an Admiralty Chart (or similar) should be used with position recorded in Degrees and decimal minutes format i.e. 00° 00'.001N, 000° 00'.001W (or E as appropriate)

Location and sample details		
Classification sample	Post depuration sample	On the market sample
CEFAS RMP ID: B26BC.....	Premises name:	Premises name:
RMP name: RiverKenn.....	Address:	Address:
Location (long./lat. or NGR) SX97638313.....	Depuration tank ref:	Batch ref:
Collection method : <input checked="" type="checkbox"/> Hand picked <input type="checkbox"/> Hand raked <input type="checkbox"/> Dredged <input type="checkbox"/> Other:	Additional information:	Country of origin: <input type="checkbox"/> UK <input type="checkbox"/> Other (specify):
Bed Classification: (check which applies) <input type="checkbox"/> A <input checked="" type="checkbox"/> B <input type="checkbox"/> C <input type="checkbox"/> U/C		

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Data Collection & Recording 5

- Key data that must be recorded
- Record locations to 3 decimal places and record which datum is used (OSGB 36 or WGS 84) as positional errors of up to 200m can occur if the incorrect datum is reported

Classification sample	
CEFAS RMP ID:	B26BC.....
RMP name:	RiverKenn.....
Location (long./lat. or NGR)	SX97638313.....
Collection method :	
<input checked="" type="checkbox"/> Hand picked	<input type="checkbox"/> Hand raked
<input type="checkbox"/> Dredged	
<input type="checkbox"/> Other:
Bed Classification: (check which applies)	<input type="checkbox"/> A <input checked="" type="checkbox"/> B <input type="checkbox"/> C <input type="checkbox"/> U/C

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Condition/Preparation of the Sample

- Any adhering mud should be removed using a brush or similar
- Shellfish should be rinsed with clean seawater or potable quality freshwater & drained
- No re-immersion – This would allow shellfish to open & to become contaminated
- Open, gaping or damaged shellfish must be discarded & replaced
- Placed into sample bag labelled with species RMP ID & collection date



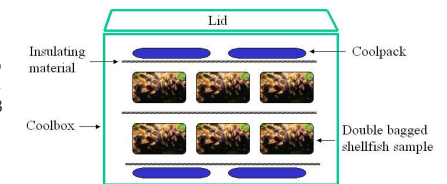
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Use of the Cool box

- Critically, a correctly packed cool box should be able to achieve an internal temperature of below 10°C within 4 hours and maintain it at that temperature for at least 48 hours
- Shellfish should be double bagged
- The diagram & the photograph confirm how the cool box should be packed
- The pre-printed sample information sheet (see sample protocol) should be completed and placed inside a polythene bag and secured within the box
- The lid should be secured in place with tape and the cool box then delivered to the test laboratory to arrive in time to allow testing to commence within 48 hours of sample collection



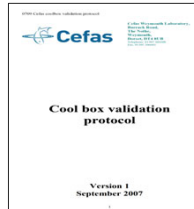
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Validated Cool boxes

- Cool boxes validated in accordance with the CEFAS Cool box *Validation Protocol* should be used.



- [CEFAS cool box protocol document](#)

- Are other packaging protocols available?



Coleman 28Q Model number 5278
Size: 51 x 27 x 35 cm
Material: Polypropylene
Capacity: 26.4 L

Used with 4 x 1000g ice packs.
The 4 x 1000g ice packs firstly frozen to -18°C for at least 24 hr. and then placed in the appropriate positions within the box, 2 in the base of the box and 2 attached by the special clips to the cool box lid.



Also Used with 6 x Camping Gaz M10 ice packs (3 on top, 3 on bottom) with 1kg shellfish sample.

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Recap - Understand and applying the process of Official Control samples

- **Species sampled**
- **Sampling**
 - Location, frequency, transport
- **Sample size**
- **Data**
 - Collection, recording
- **Sample preparation**
- **Cool boxes**
 - Packing, validation

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Avoiding problems

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Key Learning Outcome - 3

- To understand how to ensure conformance with the Official Controls Guidance.

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Overview – Avoiding problems

- Common reasons for rejection
- How to ensure acceptance

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Avoiding sample rejection

- **Common reasons for rejection by the laboratory**
 - Size and condition of shellfish
 - Insufficient quantity
 - Temperature (too high or low)
 - Poor packaging
 - Dead or damaged shellfish
 - Poor documentation e.g. lack of location
 - Out of time
- **How to ensure acceptance**
 - Follow procedures at all times
 - Notify the laboratory/LA of dispatch
 - Confirm timely receipt by laboratory

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Avoiding sample rejection (continued)

Date and Time of Sampling	: 25/04/2023 16:15
Date and Time Received	: 26/04/2023 12:30
Date and Time Examined	: 26/04/2023 13:21
Temp at Sampling (°C)	: 10.5
Temp on Receipt (°C)	: -0.4
Condition of Coolbox on receipt	: Satisfactory
	Samples not frozen
Condition of sample on receipt	: Satisfactory

MICROBIOLOGICAL EXAMINATION - SHELLFISH

FINAL TEST REPORT

Test (Performed at receiving laboratory unless stated)	Method Ref.	Result	Unit	Interpretation
<i>Escherichia coli</i>	FNES48 (F16)	2.3 x 10 ³	MPN/100g	

Opinions and Interpretation

The time of sampling is not recorded on the request form. It may not be possible to assess whether the sample has been tested within 24 hours.

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Other Events

- Report unusual, noteworthy or useful observations of incidents to stakeholders
 - What might these unusual or noteworthy incidents be?
 - Why and how to report them?
 - Who are the reports made to?
 - Who are the stakeholders ?
- Examples of real incidents
 - Recent adverse weather
 - CSO spills
 - Other examples?




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Summary of Key Learning Outcomes

1. Understanding that there needs to be consistency and conformity of sampling with the Official Controls Guidance otherwise sampling may not accurately classify shellfish waters
2. To understand and apply to process of collection, processing and transport samples for official control sampling consistently and in conformity with the Official Guidance otherwise sampling may not accurately classify shellfish waters.
3. To understand how to ensure conformance with the Official Controls Guidance.



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Verification

- Occupational Standard
- Local Authority or FSA requirements




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Occupational Standard

- Collect, process and transport samples for official control sampling


The learner will	The learner can
1. Prepare for shellfish sampling	Plan for sampling, establishing the time, location and species to be sampled. Assemble equipment and other supplies/services as required.
2. Collect samples of shellfish	Collect and record any required data appropriately. Collect shellfish samples (species, size, quantity) using the appropriate methods. Record data as required.
3. Store shellfish samples	Prepare samples for storage and transport: <ul style="list-style-type: none"> • Clean samples • Wrap samples Chill and store samples ready for dispatch or transport. Record data as required.



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Occupational Standard

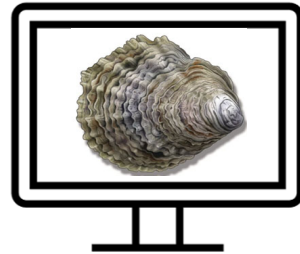
The learner will	The learner can
4. Transport shellfish samples	Despatch samples to relevant laboratory (or other destination) using agreed transport or courier service. Record data as required. Keep appropriate stakeholders informed.
5. Collect, record and validate appropriate information.	Collect and record data at each stage in the process as required. Validate data as needed using appropriate methods. Share data with stakeholders appropriately and in a timely fashion.
6. Report unusual, noteworthy or useful observations of incidents to stakeholders	Identify when an observation is worth reporting. Record the details of the observation. Report an observation in a way that allows others to take appropriate action.



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Sources of further guidance and support

- [Online resources](#)
- Official Guidance Documents
 - Protocol for sampling and transport of shellfish.pdf
 - Sampling-protocol-water-samples-july-2020.pdf
 - Shellfish June 2016 supplementary sampling NI.pdf
 - Shellfish-supplementary-sampling-guide-england-and-wales-updated-june-2018.pdf
- Other forms of guidance and support?



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Safe working practices on the shore or at sea?

- Working fishermen will have completed suitable safety training programmes.
- Those collecting samples intertidally can undertake **Seafish's Basic Safety for Intertidal Workers** training programme through a Seafish recognised approved training provider.

For more information on training for fishermen or intertidal workers please email training@seafish.co.uk



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Discussions, questions and answers

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Here to give the UK seafood sector
the support it needs to thrive.

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Thank you

Official Control Sampling of Shellfish

A Seafish training programme

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Local Authority / Food Standards Agency Verification


TBA

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Post Course support




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Post course support

- Safety training for samplers at sea and working the foreshore
- Technical guides and other support materials

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Post Course Support

- Safety training for samplers at sea and working the foreshore
- Technical guides and other support materials



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