



**Protocol for the Collection and Transport
of Shellfish samples from Scotland
for the purpose of Official Control Monitoring of
classified shellfish production areas under
Regulation EC 854/2004**

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Document prepared by:	Cefas, SSQC, Fera, HMMH	Classification: Not classified
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Document approved by:	Jane Heywood, Project Manager,	Date: 21/12/18

1. INTRODUCTION

Regulation EC (No.) 854/2004 requires the monitoring of classified shellfish production areas, as part of the Competent Authority's official controls, to check for microbiological contamination, marine biotoxins and chemical contamination.

In Scotland, Food Standards Scotland is the Competent Authority with responsibility for the implementation and delivery of the shellfish official control monitoring programme. Cefas is the contracted laboratory with delegated responsibility for the co-ordination of this programme, the collection of samples and delivery of the required testing. Under contracted arrangements, the collection of field samples is undertaken by HMMH. The transport of the samples to the laboratory is arranged by the laboratories responsible for testing, other than in Shetland where samples (from Shetland and for *E.coli* monitoring only) are hand delivered to the *E.coli* testing laboratory by the sampling contractor. The laboratories responsible for testing under the current arrangements are:

- **Cefas** – toxin testing (Scotland), *E. coli* testing (Scotland other than Shetland and Orkney)
- **SSQC** – *E. coli* testing (Shetland & Orkney)
- **Fera** – chemical contaminants testing (Scotland)
- **SAMS** – water monitoring for harmful phytoplankton (Scotland)

Official control shellfish samples must be collected by authorised sampling officers. This defines a '**verified**' sample. The only exception to this rule will be for specific sites in Scotland where the collection of unverified samples by a harvester on behalf of the authorised sampling officer has been agreed between FSS, HMMH and Cefas and complies with the conditions further specified in section 5. Samples collected by the industry may fall in two categories: '**verified from shore**' sample (defined as a sample collected by a harvester but where collection from the agreed monitoring point is observed by an authorised sampling officer from the shore) or an '**unverified**' sample (where collection by the harvester from the monitoring point cannot be observed by the authorised sampling officer (in most cases due to the remoteness of the monitoring point and distance from any vantage point)). See section 5 for details. The definitions of verified, unverified and verified from shore used in this protocol are those prescribed by FSS as the Competent Authority, for the purpose of the Scottish official control shellfish monitoring programme.

All samples covered within the scope described in section 2 below must be collected in accordance with this protocol and from the monitoring points designated by FSS, details of which are available from FSS. This protocol can be read in conjunction with FSS ['Guide to shellfish sample collection' DVD](#).

Samples which fail to meet the requirements of this protocol will not be accepted by the laboratories.

2. SCOPE OF THIS DOCUMENT

Monitoring programme	Scotland
E. coli	X
Toxins	X
Chemical contaminants	X

Please note that a separate protocol for the collection of water samples required by SAMS for the monitoring of shellfish production areas for the presence of harmful phytoplankton is available from the [Shellfish Partnership page](#) of the Cefas website.

A separate protocol for the collection of shellfish and water samples by industry is also available from the [Shellfish Partnership page](#) of the Cefas website.

3. TIME OF SAMPLING

All samples should be collected at the frequency specified by FSS monitoring plans and policies, unless sampling can be rescheduled by agreement or where circumstances are outside of the sampling officers' control. Please note that where a sample is assessed as unsuitable by the laboratory or where a high result has been recorded, additional samples will be requested by the laboratories. Sampling officers must comply with these requests, unless exceptional circumstances prevent the collection of these additional samples.

Where industry support is required, HMMH sampling officers must liaise with the harvesters to agree a suitable time when sampling can take place and to draw up their sampling plans. Industry have been advised that rescheduling of samples will not be accepted unless agreed in advance with sampling officers.

To enable the laboratory to plan work for the forthcoming week, HMMH sample collection managers should email their **shellfish sampling schedule** each week to the designated laboratory programme co-ordinators (see section 11) **by 3pm Friday** of the preceding week. The schedule should specify the day when each shellfish sample is due for collection. If shellfish sampling schedules change after 3pm on Friday, the receiving laboratory must be immediately informed of these changes.

Sampling officers are requested to note the arrangements agreed with FSS for the submission and testing of samples around bank holidays and Christmas. These will be communicated to all at the start of each calendar year. Late samples will not be accepted, unless pre-discussed and agreed with Cefas.

Samples for microbiology (*E.coli*) testing:

- Official control shellfish sampling should be undertaken, where practical, 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.

- Where additional sampling is required, this will be notified to the sampling officers by Cefas.
- **Shellfish samples should be collected so that they arrive at the laboratories (Cefas *E.coli* Testing Laboratory or SSQC– see details below) after 7 am Monday, Tuesday, Wednesday and no later than 3 pm Thursday each week (excluding Bank holidays and any other agreed dates). Samples may be submitted on Friday if agreed in advance.** If you are unable to arrange for arrival at the laboratory within this timeframe, please contact the relevant laboratory (see contact information in section 11 of this protocol).
- **Shellfish samples from Orkney should be collected on Sunday, Monday, Tuesday or Wednesday to comply with the transport procedures specified in section 9.**
- Sampling officers collecting samples between 07:45 and 09:00am and submitting these to Cefas are asked to notify the laboratory. This will best be done by sending a text message providing details of area sampled, time and date of sampling to 07919 696857. This will enable the laboratory to ensure that staff are available to receipt these samples and limit the risk of samples exceeding the maximum 48h allowance for time elapsed between sample collection and start of test.
- Sampling officers collecting samples before 07:45am and sending these on to Cefas must note that if these samples are delayed in the post and do not reach the laboratory within one day, they will be automatically rejected on submission to the laboratory as they will exceed the maximum 48h allowance for time elapsed between sample collection and start of test.

Samples for toxin analyses:

- Shellfish samples should be collected at the stated frequency and in accordance with FSS monitoring plans. In addition to the routine testing arrangements, and when shellfish testing is not weekly, additional shellfish samples will be requested by Cefas when either phytoplankton levels or flesh results reach or exceed the following agreed trigger levels:

Biotoxin produced	Phytoplankton species	Phytoplankton trigger level (in cells/litre)	Flesh trigger levels
PSP	<i>Alexandrium spp</i>	40	≥400 µg [STX eq.]/kg shellfish
OA/DTX/PTX	<i>Dinophysis & Phalochroma spp</i>	100	≥80 µg [OA eq.]/kg shellfish
OA/DTX	<i>Prorocentrum lima</i>	100	
AZA	<i>Azadinium & Amphidoma spp</i>	Not monitored for No trigger set	≥80 µg [AZA1 eq.]/kg shellfish
YTX	<i>Protoceratium reticulatum</i> <i>Lingulodinium polyedrum</i>	No trigger set	≥1.8 mg [YTX eq.]/kg shellfish
ASP	<i>Pseudo-nitzschia spp</i>	50,000	≥10 mg/ kg shellfish flesh

- If samples have been found unsuitable/insufficient for analysis on receipt at the laboratory, additional sampling requirements will be notified to the sampling coordinators by Cefas.
- Shellfish samples should ideally be collected on **Monday, Tuesday or Wednesday and posted to Cefas for reception on Tuesday to Friday**. Flexibility for collection and reception throughout the week is in place, however. Sampling officers unable to comply with the above specifications should contact the laboratory to discuss requirements (see contact information in section 11 of this protocol).

Samples for chemical contaminant analysis:

- Samples collected for chemical contaminant analysis must be collected in **January – March** as this is prior to shellfish spawning
- Sample collection must be arranged so that samples arrive at the Fera – York laboratory between **9am Tuesday to 3pm Thursday**.

4. EQUIPMENT

Collection by sampling officers:

The following equipment is required for shellfish sampling and provided by the laboratories. Please contact them if you are running low on equipment. For contact information please see the section at the end of this protocol:

- Food grade polythene bags
- Cable ties
- Cool box/Biotherm Box/Coleman Box
- Ice packs
- Insulating foam
- Spray water bottle
- Strong adhesive tape
- Return address labels
- Gloves or antibacterial wipes
- GPS have been loaned by Cefas to HMMH sampling officers

The following equipment should also be available (**to be provided by HMMH**):

- Thermometer
- Scrubbing brush
- Rulers/calipers
- Colander or other draining vessel
- Absorbent paper towel
- Disinfectant (see section 12)
- Safety equipment as per HMMH risk and Coshh assessments

Collection by industry on behalf of sampling officers:

When samples are collected by industry, on behalf of the sampling officer, the following equipment will need to be provided to the industry collector by HMMH:

- a. Food grade polythene bags
- b. Cable ties
- c. Industry sample submission form (please note that a blank template of this form is available on the [Cefas website](#))

Industry will be expected to provide the rest including GPS/plotter/Nautical charts; thermometer; cool box/bag for temporary storage; disinfectant for industry own use (see Industry protocol on the Cefas website for details)

5. SAMPLING METHOD

Wherever possible, shellfish should be sampled by the method normally used for commercial harvesting as this can influence the degree of microbial contamination.

Sampling location:

The stated Representative Monitoring Point (RMP) location must be used as the starting point to identify the position from which samples should be taken. For sampling for microbiological monitoring, sampling officers are asked to comply with the tolerance around the E. coli RMP given in the sampling plan. If sufficient shellfish of the required size are not available within the area prescribed by the tolerance, sampling officers should contact Cefas so that a revised tolerance or alternative sampling location can be considered. Where a Representative Monitoring Zone (RMZ) is given in the sampling plan, sampling should take place within the boundaries of the zone and the actual location of sampling, or the centre of the dredge run, should be recorded as the sampling location.

For consistency across the programmes, sampling officers are asked to use the same tolerances around the agreed RMPs of the toxin or chemical contaminant monitoring programmes.

Recording of actual sampling location:

- **Verified samples:** sampling officers must report the *actual* location of sampling to a 10m accuracy in Ordnance Survey national grid reference (NGR) format i.e. AB 1234 5678. A GPS device should be used for this purpose. To achieve the maximum level of accuracy the WAAS/EGNOS option must be enabled.
- **Samples collected by industry:** the collector must be asked to fill in a HMMH unverified sample submission form for each sample they collect and hand this over to the sampling officer together with the sample. Sampling officers must ensure that they have blank forms available to hand out to collectors. Samples submitted after 31st January 19 without a fully completed industry sample submission form will not be accepted. (Jan 19 will be used as a transition period for operators).
 - Where a GPS is available to the boat operator, they should be asked to provide details of actual sampling location as described above.
 - When no GPS is available, a plotter or 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). It is

important to record the format of the latitude and longitude position correctly. If the position is provided by the operator for unverified or verified from shore samples in a format other than degrees and decimal minutes (e.g. decimal degrees or degrees, mins and secs), this should be noted on the sample submission form. For example, a location in degrees and decimal minutes is: 54°59.062'N, 5°2.132'W. The same location recorded in degrees, min, sec is: 54°59'3.73"N, 5°2'7.9"W. And the same location recorded in decimal degrees is: 54.98437, -5.03553

For samples where the location is provided in latitude and longitude format, the sampling officer should convert this position to the OS national grid reference format and write this, along with the latitude and longitude on the sample submission form. The online converter nearby.org.uk must be used to convert the coordinates.

Exceptional situations where sampling by industry for official control purposes may be authorised:

FSS recognises that there are situations where industry sampling may have to be considered for the purpose of the Scottish shellfish official control monitoring. This is in line with the provisions of the current version of the EURL Microbiological Monitoring of Bivalve Mollusc Harvesting Areas – the Good Practice Guide (GPG): Technical Application (version 6) (see Appendix 1). To allow industry sampling, the appointed sampling officer must be of the clear view that they cannot undertake sampling for reasons of either practicality or health and safety.

Practicality reasons:

- extreme difficulties in the timing of sampling (e.g. short notice through necessity of specific weather, environmental conditions that mean fitting in with sampling officer work schedules is impractical, harvest times which authorised sampling officers cannot reasonably be expected to meet) or
- extremely long sampling runs. This will most likely occur in sites conforming to the GPG definition of 'Remote area' as follows:

An area where no human or animal sources had been shown to impact on the fishery in the sanitary survey and where no potential changes to sources have been identified during the annual review process. An offshore bivalve shellfishery (≥5 km from shore) not impacted by long sea outfalls is an example of a remote area.

The use of specialist equipment such as dredges (e.g. oyster dredges), mechanical winches (e.g. as used in rope mussel fisheries) is not in itself grounds for industry lone sampling as it may be quite possible for the appointed officer to supervise or observe the industry operating such equipment to take the sample. Similarly, it may also be possible for the appointed sampling officer to accompany an industry operator on a boat where diver-gathered sampling may be necessary. Each of these scenarios have been employed under the programme in Scotland and have worked successfully.

Health and safety reasons:

- From 09th July 2018, Cefas and FSS request that sampling officers only board

vessels that show a valid small vessel certificate issued by the Maritime and Coastguard Agency (MCA) (or other authorised certifying authority) (“coded vessel”), as per the requirements of MCA Code of Practice for the safety of small workboats or pilot boats (workboat code) or MGN280 (M), and are maintained to this MCA standard by the operator. These codes are applicable to vessels of up to 24m load line length which are engaged at sea in commercial activities; where larger vessels are used for sample collection, compliance with the MCA code of practice(s) relevant to these vessels will be required.

- From this date, sampling officers must request from the industry evidence of coding or dispensation from the MCA and compliance with the MCA code for each vessel made available to sampling officers. Sampling officers must keep a record of this evidence.
- Where it has been established that the vessel is suitably coded or dispensed from coding, sampling officers will undertake a succinct check of the vessel safety before boarding, in accordance with HMMH’s vessel safety checklist. This check will be a quick confirmation of vessel safety. Where all checks are satisfactory, the sampling officer will be authorised to board the vessel and undertake verified sampling. Sampling officers will not be allowed to board the vessels if the safety check cannot be completed or if they reveal that the vessel does not meet minimum safety requirements in accordance with the checklist.
- Working with the industry, sampling officers will establish a list of sites from which verified sample collection should be the norm or alternatively where onshore verification can be organised. Unverified samples collected by the industry and handed over to sampling officers will be accepted only if no suitable coded vessel is available and no onshore verification by sampling officer can be implemented for the site.
- For the following, *E.coli* samples, investigation samples collected following possible human illness and toxin samples collected in order to achieve a 2nd negative result prior to reopening of an area, the expectation will remain that these will be verified samples collected by sampling officers (from suitably coded vessels) or collected by harvesters with collection verified from the shore by sampling officers.

The nature of the sample (unverified (e.g samples that are collected by harvesters, on behalf of and without direct supervision by an authorised sampling officer) or verified from the shore (e.g. samples that are collected by harvesters and collection from the RMP is observed by an authorised sampling officer from the shore)) must be recorded on the sample submission form by placing a tick in the relevant box. If known, the actual location of sampling should still be recorded, however if no location is provided by the harvester, sampling officers are asked to record this as “not provided” on the form. From 1st Feb 19, co-ordinates will need to be provided for all samples. Samples without co-ordinates will not be accepted by sampling officers.

In summary, if the taking of samples by the appointed sampling officer is not possible, then the next consideration should be officer supervision of the industry taking the sample. Only in the exceptional situations outlined above, could industry take the OC samples unsupervised. Ultimately the decision rests with FSS as the Competent Authority.

Unless exceptional circumstances, unverified samples must be collected at the point of landing. Sampling officers will be requested to provide a justification for collections other than at point of landing (to be recorded on the sample submission form).

Collection of razor clams:

Following adoption of the Razor Clams (Prohibition on Fishing and landing (Scotland) order 2017 ((Scottish Statutory Instrument 2017/49) (https://www.legislation.gov.uk/ssi/2017/419/pdfs/ssi_20170419_en.pdf), sampling officers must ensure that for the duration of the Scottish electrofishing on razor clams trial, sample of razor clams are only collected using vessels that have been issued a formal derogation to participate in the trail by Marine Scotland Science. A list of approved vessels will be provided to HMMH sampling managers and updated when required. The trial does not currently include Luce Bay and the sound of Barra.

6. SIZE OF INDIVIDUAL ANIMALS

Samples should only consist of animals that are within the normal commercial size range. Immature/juvenile animals may provide results that are unrepresentative of mature stock that will be harvested for commercial sale/human consumption. In circumstances where less mature stock is being commercially harvested for human consumption then samples of these smaller animals may be collected for analysis.

7. SAMPLE COMPOSITION

A minimum sample sizes (in terms of number of live animals by species or weight in shell) is recommended for submission for analysis (following NRL guidance). This is summarised in the table below.

Please note that open, gaping or damaged shells should not be included in the sample. Also note that the laboratories will need a minimum of 10 non moribund/dead animals to accept a sample as suitable for analysis. When this criterion cannot be met, the sample will be rejected on receipt at the laboratory. Where the shellfish show an unusually low yield or where morbidity may be an issue, please consider providing more shells/animals than those recommended above to ensure sufficient animals remain available for analysis.

Species	Micro	Toxin	Chem Contam	Chem Contam
		For 50g flesh ¹	For 500g flesh ²	For 100g flesh ³
King scallops (<i>Pecten maximus</i>)	12 to 15	12 to 15	50 to 70	12 to 15
Queen scallops (<i>Aequipecten opercularis</i>)	15 to 30	15 to 30	80 to 100	20

Oysters (<i>Crassostrea gigas</i> and <i>Ostrea edulis</i>)	12 to 18	12 to 18	80 to 100	20
Hard clams (<i>Mercenaria mercenaria</i>)	12 to 18	12 to 18	80 to 100	20
Manila clams (<i>Tapes philippinarum</i>)	18 to 35	18 to 35	80 to 125	16 to 25
Otter clams (<i>Lutraria lutraria</i>)	12 to 18	12 to 15	50 to 70	12 to 15
Palourdes (<i>Tapes decussatus</i>)	18 to 35	18 to 35	80 to 125	16 to 25
Surf clams (<i>Spisula solida</i>)	30 to 50	30 to 50	80 to 125	16 to 25 or 1 kg shells
Sand Gapers (<i>Mya arenaria</i>)	12 to 18	N/A	50 to 70	10 to 15
Razor clams (<i>Ensis</i> spp.)	12 to 18	12 to 15	50 to 70	10 to 15
Rope grown mussels (<i>Mytilus</i> spp.)	15 to 30	15 to 30	300 or 3kg shells	60 or 600g shells
Shore mussels (<i>Mytilus</i> spp.)	N/A	25 to 40	400 or 4kg shells	80 or 800g shells
Cockles (<i>Cerastoderma edule</i>)	35 to 55	35 to 55 ⁴	500 or 3 kg shells	100 or 600g shells

Notes:

1. Min. 50g of flesh is required for all samples submitted for toxin analyses, regardless of the type of analysis required.
2. Min. 500g of flesh will be required for a full suite of chemical contaminants testing (heavy metals, PAHs and PCBs/dioxins) or PCBs/dioxins testing alone.
3. Min. 100g of flesh will be required for heavy metals and/or PAHs testing.
4. Where minimum landing sizes have been reduced, more individuals may be required.

Other species:

Micro

Abalone (<i>Haliotis</i> spp.)	12-18
Purple sea urchins (<i>Paracentrotus lividus</i> , up to 7cm diam)	50-60
Common sea-urchins (<i>Echinus esculentus</i> , up to 20 cm diam)	12-15
Green sea-urchins (<i>Psammechinus miliaris</i> , up to 11 cm diam)	35-55

8. PREPARATION AND PACKAGING OF SAMPLES

Unverified and verified from shore samples:

Please see the protocol for collection of shellfish by industry for details of the preparation of samples collected by Industry. This protocol is available on Cefas website. Shellfish will be collected, prepared, bagged and clearly labelled by the industry operator. Separate samples must be bagged and labelled for toxin, microbiological and chemical analyses. Each must be accompanied by a fully completed industry sample submission form. The labelled bagged sample should then be placed in a temporary storage container promoting the cooling of the sample prior to repacking into validated coolboxes by the sampling officer. The samples should be handed over to the sampling officers as quickly as possible after collection to ensure that samples can be prepared, paperwork completed and samples packed in time for dispatch to the laboratories on that day. It will be the responsibility of sampling officers to pack samples in accordance with Cefas sampling and transport protocol and to send these samples to the testing laboratories. Sampling officers must measure the temperature of the shellfish sample when handed over to them and record this on their sample submission form. This is to

provide the laboratory with additional information on the conditions of the sample prior to shipping. **From 1st Feb 19, sampling officers must not accept a sample without a completed and signed industry sample submission form.**

Verified samples:

It is imperative that mud and sediment adhering to the shellfish is removed. This is best achieved by rinsing/scrubbing with fresh water of potable quality or seawater from the immediate area of sampling (to avoid contamination). Do **not** totally re-immerses the shellfish in water as this may cause them to open or introduce a source of microbial contamination. Allow to drain.

Shellfish must be placed inside a strong food grade plastic bag (blue for E. coli samples and clear for toxins samples; any colour for chemical contaminants) and the bag tied leaving some air space. A second bag may be used if required (in particular if the sample is likely to puncture the first plastic bag).

The sample submission form should be completed, circling at the top of the form what type of testing the sample(s) is/are for. The bagged sample and form should then be placed in a second/third bag and resealed, then placed in the container provided along with frozen cool packs and foam. Freezer packs should not come into direct contact with the samples or sample bags.

Occasionally, the location of sampling makes the immediate use of a validated cool box difficult or impractical. For example, if out on extensive mud flats or on a small boat etc. In such cases, it would be acceptable to place samples for a short period of time (up to 4 hours) in a more easily portable non-validated container prior to packing in a validated cool box for final transport to the laboratory. The temporary storage container should promote cooling of the sample^{1*}. For example, a ruck sack, bag or box with cool packs where necessary (e.g. in summer) suitably separated so as not to come into direct contact with the shellfish should be adequate.

Separate samples must be submitted for toxin, microbiological and chemical analyses.

After collection from the harvesting area, samples should be placed as soon as practically possible in the cool box provided by the laboratory and packed in accordance with this protocol. This should ensure that samples are maintained at a temperature not exceeding 10°C. Care should be taken to ensure that samples are not frozen. Frozen samples will be rejected on reception at the laboratory.

Samples that do not comply with the packaging protocols may be rejected by the laboratory.

Method for packing Coleman boxes

¹ *The NRL for microbiological contaminant in bivalve shellfish has carried out a significant body of work in this area, to underpin the time-temperature criteria used for E. coli testing purposes in the UK for shellfish classification purposes. This data, derived over numerous laboratory studies, as well as previous published work in this area indicated that E. coli concentrations do not significantly deviate under short-term conditions of moderate warming (up to 20°C), however longer term temperature abuse may impact recovery of E. coli from bivalve shellfish tissues*

Please note that two separate types of Coleman boxes are used by Cefas for the purpose of the programmes covered by this protocol. Sampling officers must use the correct packing instructions for the boxes delivered to them, to ensure optimal performance of the boxes.

Coleman box model number 6216/6215

The boxes may be used for samples destined for E. coli, chemical contaminants and biotoxin analyses. Prior to shellfish collection, the provided Campingaz M10 cool packs (6 per Coleman box) must be chilled in a freezer for a minimum of 24 hours. Boxes of this type should be packed according to the diagram below:

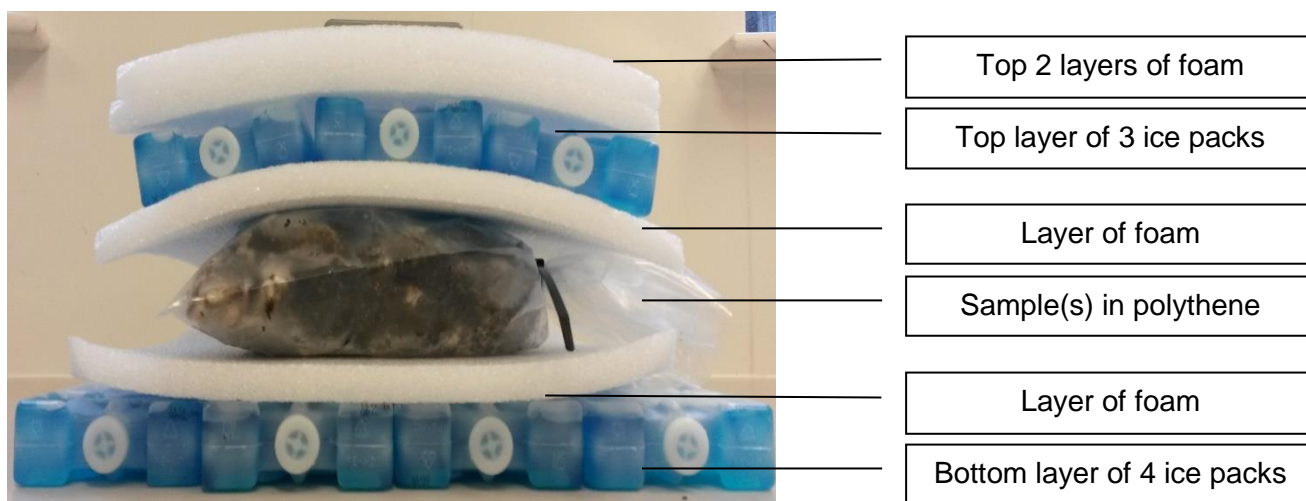


- Top 2 layers of foam
- Top layer of 3 ice packs
- Layer of foam
- Sample(s) in polythene
- Layer of foam
- Bottom layer of 3 ice packs

Coleman box model number 5877

The boxes may be used for biotoxin and/or chemical contaminants analyses **BUT not E. coli samples as they will not maintain sufficient temperature control over 48h.** Prior to shellfish collection, the provided Campingaz M10 cool packs (7 per Coleman box) must be chilled in a freezer for a minimum of 24 hours. Boxes of this type should be packed according to the diagram below:





Care must be taken to correctly place the cool packs and foam spacers to ensure that the sample does not come into contact with the cool packs and freeze. **Frozen samples cannot be tested and will be rejected by the laboratory.**

Once correctly assembled and the relevant sample submission forms have been included, the box lid must be secured with adhesive tape to prevent leakage and a prepaid postage label attached before posting to the relevant laboratory. Shellfish samples sent using Royal Mail must be labelled as “**perishable**”, This is for compliance with Royal Mail labelling instructions. Please note that Royal Mail has defined specific conditions for the transport of “live creatures/animals”. These are not suitable for shellfish samples destined to testing. Sampling officers are therefore advised not to log/describe the samples as live creatures for the purpose of Royal Mail. “Perishable” labels should be affixed to the tape used to secure the transport box. Alternatively, please write on the tape using a marker pen.

The address of the sender must also be shown on the sample box. It is recommended that the sender’s address label is also affixed to the tape used to secure the box. Do not write or affix any label to the box itself.

Please note:

- If submitting multiple samples on any given day, it is possible to place more than one sample in the Coleman box (packaged as above) providing the box can be securely sealed and the total weight of the package, including cool box, sample(s), cool packs and spacers does not exceed 10kg. If two/three samples do not fit securely into the box, or the total weight exceeds 10kg, samples **must** be sent in separate boxes. If packing more than one sample in one box, care must be taken to ensure that each bagged sample is correctly sealed and identified.
- Submitting *E.coli* and toxin samples to Cefas: Cefas has sourced suitable labels and bag markers to allow toxin and *E.coli* samples to be placed in the same box. Green cable ties should be used to tie bags containing shellfish for toxins testing and yellow cable ties should be used to tie bags containing shellfish for *E.coli* testing. Clear plastic bags should be used to package shellfish for toxins testing

and blue plastic bags should be used to package samples for *E.coli* testing. The type of testing required for the samples in the box should be marked on the outside of the box for boxes that contain samples for toxins and *E. coli* testing, by placing a tick next to the relevant 'T' for toxins and/or 'EC' for *E.coli* on the box label. Clear cable ties should not be used for these samples.

- The volumes of shellfish required for chemical contaminants analyses are much greater than for toxin or *E. coli* analyses. This means that some samples are likely to have to be split between 2 if not 3 boxes per sample. When this is required, ensure that all boxes are accompanied by a completed submission form marked 1 out of 3, 2 out of 3, ...
- **Incorrectly packaged or unidentified samples cannot be analysed by the laboratory.**

Short term storage of samples

Samples should not be frozen. If overnight storage prior to dispatch/delivery is necessary, samples should be stored in a correctly packed validated coolbox. The samples should then be re-packed with new icepacks immediately before final box sealing and posting/transfer to the laboratory in the morning. Where short term storage is required, sampling officers will be required to record this and the temperature (prior to repacking)/duration of storage on the sample submission form.

9. SAMPLE TRANSPORT

Despatch of samples to the laboratory should be undertaken as soon as practically possible after sampling. For the purposes of the monitoring programmes sampling locations have been designated as either **NOT REMOTE** or **REMOTE**. Remote areas are defined by Royal Mail special delivery terms and conditions. Sampling contractors will be advised of the status of each production area and informed when this changes.

Samples from areas designated as NOT REMOTE

Samples should be delivered to the designated courier drop off point in time for next day delivery to the laboratory.

Samples from areas designated as REMOTE

For sampling locations with agreed **REMOTE** designation, samples must be delivered to the designated courier drop off point in time for dispatch on the day of sampling or following day, for arrival at the laboratory on the next day.

Specific note relating to samples for *E.coli* testing: Samples from areas designated as NOT REMOTE should arrive at the laboratory in order that analysis can be commenced within 24 hours of collection. Samples from REMOTE areas must arrive at the laboratory in order that analysis can be commenced within 48 hours of collection. Samples cannot be tested if the time elapsed between collection and onset of analysis exceeds 48 hours.

Samples should be sent to the following laboratories:

Monitoring programme	Location of classified production areas	
	Scotland other than Shetland and Orkney Isles	Shetland & Orkney Isles
<i>E. coli</i>	Cefas, Weymouth	SSQC Ltd, Shetland
Toxins	Cefas, Weymouth	
Chemical contaminants	Fera, York	

Samples destined for SSQC Ltd, Shetland

Shellfish samples from Shetland should be hand delivered to SSQC Ltd (see address below). Samples from Orkney should be handed over to Streamline at Kirkwall in time for loading onto the Tuesday pm or Thursday pm (seasonal) Northlink sailings to Lerwick. The sampling officer must notify the laboratory of the sailing used so that laboratory staff can arrange the collection of the sample from Lerwick.

Samples should be addressed to:

SSQC Ltd,
Port Arthur,
SCALLOWAY,
Shetland, ZE1 0UN

Samples destined for Cefas, Weymouth:

Shellfish samples should be sent via Royal Mail Special Delivery (unless alternative courier arrangements have been agreed), using the relevant prepaid labels (marked with a tick next to 'T' for toxins samples and/or a tick next to 'EC' for E. coli samples) to:

Shellfish Microbiology and BTX Cefas Weymouth laboratory Barrack Rd, WEYMOUTH, Dorset DT4 8UB

Old address labels may be used up until new labels are issued. In this case, write 'EC' and/or BTX' on the shipping label accordingly if the box contains E. coli and/or Biotoxin samples so that they can be directed to the correct laboratory on arrival at Cefas.

Samples destined for Fera, York:

Shellfish samples should be sent via Royal Mail Special Delivery (unless alternative courier arrangements have been agreed), using the relevant prepaid labels to:

FAO Sean Panton/Liz Greene,
Fera Science Limited,
National Agri-Food Innovation Campus
Sand Hutton,
YORK,
North Yorkshire, YO41 1LZ

In case of emergency (for example in case of industrial action by Royal Mail staff), the alternative courier service will be either TNT or Parcelforce. Specific instructions will be provided to sampling contractors should contingency arrangements be required.

10. **SAMPLE SUBMISSION FORM**

Unverified/verified from shore samples: each sample collected by industry must be accompanied by an HMMH industry sample submission form, completed in full and accurately by the industry collector and signed. The template for this form is available from HMMH and also available on the [Shellfish Partnership page](#) of the Cefas website. **From 1st Feb 19, sampling officers are asked not to accept samples if not accompanied by a fully completed and signed form.**

All samples: each sample must be accompanied by a completed Cefas Sample submission form. Blank Sample submission forms are provided to sampling officers and are also available on [Shellfish Partnership page](#) of the Cefas website.

An individual sample submission form (and industry sample submission form if collected by industry) must accompany each sample to the laboratory. The form must be completed in full and accurately. Incomplete or inaccurate submission forms may lead to the rejection of samples.

The following information must be recorded on the **Sample submission forms**:

- Sample testing required; *E.coli*, toxins or chemical contaminants
- Details of site: production area, site name, SIN, Pod number, actual OS Grid reference
- Date and time of collection
- Method of collection
- Name and contact details of sampling officer
- Nature of sample: verified, verified from shore, unverified and reason why the sample was not verified.
- Temperature*
- Storage of sample prior to dispatch
- Specific details for *E.coli* samples*
- Date of last/next harvesting if known. If this information is not known, leave blank on the form. This information will support discussions with FSS and local authorities about follow up monitoring should a high result be recorded with the sample.
- Any other relevant information*

* See details below

Temperature:

Sampling officers should take the temperature of the surrounding seawater at the time of sampling and record this on the collection form. Where this is not possible (e.g. for inter-tidal shellfish sampled dry) the between-shellfish temperature of the sample should be recorded immediately after collection. The between-shellfish temperature should also be measured for all shellfish samples collected by industry at the time they are handed to the sampling officer. To do this the temperature probe should be placed in the centre of the bagged shellfish sample. The temperature (and for industry samples the time when it was taken) should be recorded on the **Sample submission form**.

Additional details for samples submitted for *E.coli* testing:

- Where the sampling officer is asked to collect an additional sample for example for further dilution testing the sampling officer should tick the relevant box to indicate a **resample**.
- Where the sampling officer is asked to submit a sample from a site undergoing classification, the sampling officer should tick the relevant box on the **Sample submission form**.

Any other relevant information:

- In addition to the information requested, sampling officers are asked to report unusual observations (e.g. weather, boating activity, dredging, animals in water, plankton bloom, etc.) which can help target investigations and possible remedial actions. Information on harvesting activity will also be useful.
- For razor samples: sampling officers are asked to provide the name and licence number (PLN) of the vessel used to collect these samples to verify that these were acquired in compliance with the new legislation on razor clam fishing.

11. CONTACT INFORMATION

Enquiries relating to the delivery of the FSS monitoring programmes (including monitoring points, frequency of sampling, actions in case of breach of pre-defined levels, general queries or problems relating to sampling) should be referred to the Cefas Programme Co-ordinators:

Monitoring programmes	Cefas Programme Co-ordinators
<i>E. coli</i> Monitoring Programme	Michelle Price Hayward Tel. 01305 206627, Fax. 01305 206601 michelle.price-hayward@cefas.co.uk copied to mailbox: ecoliscotland@cefas.co.uk
Chemical Contaminant Monitoring Programme	Myriam Algoet Tel. 01305 206696, Fax. 01305 206601 myriam.algoet@cefas.co.uk or Jane Heywood Tel. 01305 206760; jane.heywood@cefas.co.uk
Toxin Monitoring Programme	Lewis Coates Tel. 01305 206744, Fax. 01305 206601 biotxinmonitoring@cefas.co.uk or Toxin laboratory Tel. 01305 206600

Weekly sampling schedules must be submitted to the following generic email addresses: biotxinmonitoring@cefas.co.uk, microlab@ssqc.co.uk, toxicalgae@sams.ac.uk, liz.greene@fera.co.uk, ecoliscotland@cefas.co.uk

Enquiries relating to sample collection/delivery should be submitted to the laboratories' contact listed below:

Specific logistic & lab enquiries relating to:	Laboratory contact
<i>E. coli</i> samples for Cefas, Weymouth	Lesley Bickerstaff Tel. 01305 206697, Fax. 01305 206601 lesley.bickerstaff@cefas.co.uk copied to mailbox: ecoliscotland@cefas.co.uk
<i>E. coli</i> samples for SSQC Ltd, Shetland	Jennifer Blyth Tel. 01595 772443, Fax. 01595 880746 jennifer@ssqc.co.uk
Toxin samples for Cefas, Weymouth	Lewis Coates see details in above table
Chemical contaminants samples for Fera, York	Sean Panton Tel. 01904 462387 Sean.panton@fera.co.uk Liz Greene Tel. 01904 462387; liz.greene@fera.co.uk For packaging/postage enquiries only, please contact: Myriam Algoet, Cefas (see details above)

12. HEALTH, SAFETY & BIOSECURITY ADVICE

Sampling officers must comply with the HMMH Health and Safety policies and procedures. This includes compliance with all safety measures prescribed in risk assessments relevant to their travelling to the agreed sampling locations and the collection and handling of shellfish samples from such areas for the purpose of the FSS monitoring programmes. The drafting, implementation and review of all relevant H&S documentations are the responsibility of HMMH.

When undertaking sampling duties, sampling officers must be mindful of the risks of introduction or transfer of aquatic pathogens and invasive species to the areas being visited, through their sampling activities. Officers are asked to comply with minimum biosecurity measures such as cleaning and disinfection of instruments, equipment and shoes/boots between sites and not driving/parking onto beaches or in close proximity to shellfish beds. All disposable items should be treated as clinical waste. Advice on suitable disinfectant and disinfection procedures are available from Marine Scotland Science. As a minimum, Marine Scotland Science recommends removing all organic matter (e.g. mud) from PPE and equipment surfaces, followed by the application of Virkon S or Virkon Aquatic S at 2% and with a minimum contact time of 10 min (or spray onto clean surface and leave to dry). A list of other suitable disinfectants is available at: <http://www.defra.gov.uk/aahm/guidance/disinfectant/list/>.

Sampling officers should also be mindful of the health status of the sites that they visit and schedule their visits to ensure that the risk of transfer of pathogens and invasive species from site to site is minimised. Details of sites under specific designations and

for which specific movement controls do apply are available from Marine Scotland Science and up to date lists and maps of designated areas are published on the following links: [notifiable diseases page on the Scottish Government website](#)

Sampling officers should familiarise themselves with biosecurity plans operated by operators in each harvesting area and with rules that apply to site visitors.

Where new risks of transfer of specific fish or shellfish pathogens are identified, the requirement for implementation of additional biosecurity measures will be discussed between Cefas programme co-ordinators and HMMH as soon as reasonably practicable following notification by Marine Scotland Science.

Sampling officers wishing to transfer shellfish between sites for the purpose of the FSS official monitoring programmes must contact the Fish Health Inspectorate office and obtain written approval prior to any transfer taking place.

Sampling officers observing unusually high shellfish or fish mortalities during the course of their activities must report their findings to the Fish Health Inspectorate (see below).

Information on non-invasive aquatic species and how to prevent their introduction and spread can be found on the GB non native species Secretariat [webpage](#). This website includes access to [identification sheets](#) for all UK invasive species.

Fish Health Inspectorate, Marine Scotland Science PO Box 101 375, Victoria Street Aberdeen AB11 9DB	Tel: 0131 244 3498 Email: MS.FishHealth@gov.scot
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Change record

Version	Date released	Change
1	29 March 18	New Shellfish Partnership protocol drawn up at contract start
2	6 July 18	<p>Section 5:</p> <ul style="list-style-type: none"> • Clarification as to when actual sampling location can be reported in degrees and minutes • Clarification as to where unverified samples should be collected from • Further clarification on verified from shore and unverified conditions • Clarification on the format required for reporting of latitude/longitude positions and requirement for conversion <p>Section 8:</p> <ul style="list-style-type: none"> • Introduction of provisions for sharing of transport box for E.coli and toxin samples destined to Cefas Weymouth <p>Section 9:</p> <ul style="list-style-type: none"> • Amendment to labelling of samples destined to Cefas Weymouth <p>Section 10:</p> <ul style="list-style-type: none"> • Amendment to sample submission form, now combining E.coli toxin and chemical contaminants programmes requirements. • New additions to sample submission forms • Reference to HMMH unverified sample submission form for unverified and verified from shore samples <p>Throughout:</p> <ul style="list-style-type: none"> ○ Reference to Industry protocol for collection of shellfish (V1 issued 06/07/18)
3	20 December 18	<p>Section 1:</p> <ul style="list-style-type: none"> • “should” replaced by” must” in a number of sentences • Addition of FSS definitions for verified, unverified and verified from shore samples • Addition of note to clarify that samples not meeting the protocol requirements will be rejected <p>Section3:</p> <ul style="list-style-type: none"> • Addition of paragraph re. liaison with industry • Addition of notes in 1st paragraph re. possible requirement for additional samples. • Addition of note referring to late samples not being accepted around bank holidays and Christmas (unless pre-arranged) <p>Section 4:</p> <ul style="list-style-type: none"> • Addition of section relating to equipment required for industry sampling <p>Section 5:</p> <ul style="list-style-type: none"> • Addition of reference to transition period (Jan 19) • Addition of notes about sampling officers having copies of blank unverified submission forms to hand out to collectors

		<ul style="list-style-type: none"> • Clarification of what constitutes a “verified from shore” sample • Change to recording of location of sample collection when harvesters do not provide information • Withdrawal of option where collectors do not have GPS, plotter or charts to confirm location of sampling • Addition of reference to EURL Good Practice Guide <p>Section 7:</p> <ul style="list-style-type: none"> • Minor change to wording <p>Section 8:</p> <ul style="list-style-type: none"> • Addition of section clarifying how industry will collect and hand over samples • Addition of note stating that the HMMH unverified sample submission for is available from Cefas website • Clarification on requirement for safety checks <p>Section 9:</p> <ul style="list-style-type: none"> • Update to Fera contacts <p>Section 10:</p> <ul style="list-style-type: none"> • Addition of note clarifying that unverified/verified from shore samples must be accompanied with completed unverified submission form or they will be rejected at the laboratory • Instructions for measuring shellfish temp for harvester-collected samples added <p>Section 11:</p> <ul style="list-style-type: none"> • Update to Fera contacts <p>Section 12:</p> <ul style="list-style-type: none"> • Deleted link to FRS disinfection protocol – no longer available on Marine Scotland website <p>Appendix 1 added</p>
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Appendix 1: EURL Microbiological Monitoring of Bivalve Mollusc Harvesting Areas – the Good Practice Guide: Technical Application (Jan 17 version (6))



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