SHELLFISH BIOSECURITY MEASURES PLAN

Guidance and templates for shellfish farmers

FISH HEALTH INSPECTORATE

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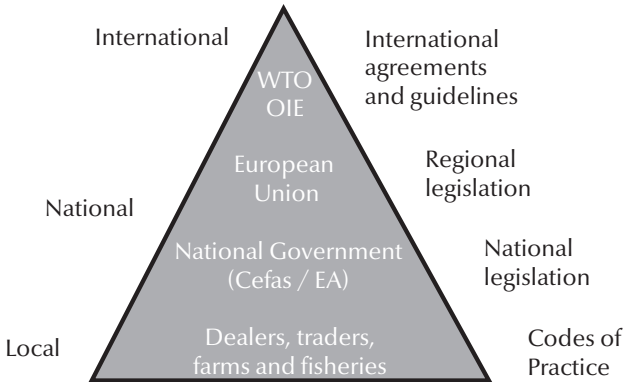
BIOSECURITY GUIDANCE

Information to aid you in completing a biosecurity measures plan

Introduction

The application of biosecurity in aquaculture is a shared responsibility. Each individual involved plays a different but critical role in the implementation of the overall programme[1]. This highlights the fact that, in order to be effective, biosecurity is necessary at all levels within aquaculture industry, from the control of infectious disease spread at an international level, to the development of national controls and down to operation of suitable practices at a local level. In these terms, the World Organisation for Animal Health (OIE) monitors the status of international diseases, our government (through Cefas) is responsible for controlling biosecurity within national limits, and Aquaculture Production Businesses (APBs) are responsible for biosecurity within their enterprises.



The key elements of biosecurity are; practical and appropriate legislative controls, adequate diagnostic and detection methods for infectious diseases, disinfection and pathogen eradication methods, reliable high quality sources of stock, and best management practices[2].

At the local level, implementation of an effective biosecurity measure plan is essential in reducing the risk of disease introduction to an APB. This follows the traditional principle that prevention is better than the cure, which is also a cornerstone of the GB Animal Health & Welfare Strategy published in June 2004.

In the context of shellfish farming, disease prevention is the only effective measure. Once a disease is present within a harvesting area it is difficult to control and there is little possibility of eradication. There are many examples throughout the world where introduced diseases have had devastating effects on sectors of the shellfish farming industry. The spread of Bonamia in native oysters within the UK is just one example.

The new Aquatic Animal Health (England and Wales) Regulations 2009 recognises the importance of effective biosecurity measures in restricting disease spread. It requires APB operators to implement a biosecurity measures plan as a condition of their authorisation.

These guidelines are designed to help the APB operator identify biosecurity measures applicable to their site. It describes biosecurity measures that can be implemented at shellfish farms, and includes a template to enable APB operators to develop and operate a meaningful plan of their own.

Identifying suitable biosecurity measures

It is recognised that it is much simpler to apply meaningful biosecurity measures in intensive small-scale systems than in open marine environments. However there are suitable measures and simple elements that can be applied in these areas. Areas to minimise risks of introducing and spreading disease are listed below:

- Identification and use of reliable sources of stock.
- Application of good management practices.
- Effective disease recognition and diagnosis.
- Identification of effective measures to take in the event of a disease outbreak or other unknown mortality.

1. Appointing a biosecurity plans manager

Appoint a biosecurity manager with the responsibility to implement the measures at the farm. The manager is responsible for producing the plan as well as demonstrating its effectiveness through use of good record keeping. Additional responsibilities include training staff in biosecurity issues, and ensuring that visitors are aware of measures that apply to them.

2. Be aware of diseases that can affect your stock

It is useful for farmers to be aware of diseases that can potentially affect their stock, clinical signs of infection, times of the year that diseases may occur and the conditions that cause clinical disease.

Shellfish diseases information can be found in a variety of sources:

- Textbooks on shellfish cultivation/diseases.
- Periodicals (Shellfish News, Fish Farming International etc.).
- Disease recognition leaflets.
- Internet – further information is available on the Cefas FHI website (www.efishbusiness.co.uk).

3. Identify the risk of contracting and spreading disease with movements of live shellfish

The greatest risk of introducing disease into a shellfish farm comes with movements of live shellfish. You should consider the following points where shellfish have to be introduced from areas outside the immediate harvesting area:

- Be aware of the disease history of the area the shellfish originate from.
- Where appropriate assess the potential quality of the shellfish by checking the supplier is operating a biosecurity plan.
- Where possible, isolate imported shellfish from other stocks until their health status is established.

4. Identify the risk of contracting and spreading disease as a result of site procedures

In addition to the risk of introducing disease through shellfish movements, there are other routes by which disease can be introduced and spread within a farm. A comprehensive biosecurity measures plan should cover these risks.

Some areas for consideration are:

- Use of shared equipment and boats.
- Visitors to the site.
- Access to the site by other water users.

5. Risk limitation measures

Once risks are identified the biosecurity manager should decide on appropriate systems and procedures to control or reduce these risks. Such measures may include:

- Early disease identification through regular stock inspections.
- Staff training to recognise disease signs.
- Ensure the cultivation method is suitable for the species being held.
- Limit farm access to staff and authorised personnel.
- Identify and set up zones within the farm, e.g. nursery area, ongrowing sites, packing and storage areas.
- Consider the use of suitable disinfectants, where appropriate.

6. Monitoring the plan

Once procedures and measures are decided, it is useful to maintain a clear recording system for the results of checks made and actions taken. Accurate recording will help the biosecurity manager to make informed decisions and take appropriate action when a disease or breach of biosecurity occurs. Listed below are examples of information to be recorded in the log:

Stock inspections

- Routine inspections should be an essential activity on a shellfish farm.
- Keeping an inspection log is highly recommended. This should record any mortalities observed during stock inspections or following routine farm procedures (grading, sorting, harvesting, etc.).
- Establish a formal chain of reporting to ensure the biosecurity manager is quickly informed of any potential problems.

Visitor details

- Keep a record of all farm visitors.
- Ensure visitors are aware of biosecurity measures that apply to them.

Disinfection / cleaning procedures

- Record when disinfectants are used, including dates of disposal. Disinfectant solutions need to be replaced before they lose efficacy.

Other useful biosecurity information to be recorded

- Movements on and off site: a condition of authorisation requires records to be kept for all movements to the farm from and to anywhere outside the harvesting area.
- Movements within the site: more detailed records of movements of shellfish may have to be kept for hygiene purposes. These provide a useful resource when identifying the cause of any mortality event in the farmed stock.
- Details of significant weather conditions, particularly temperature and rainfall.

7. Contingency planning

When problems are identified they should be recorded in the biosecurity log. There should be a system in place that allows the problem to be addressed. All staff should be aware of the appropriate course of action when problems are identified. The protocol should cover the following areas:

Identification of a problem

- Routine monitoring, recording and passing on information of the shellfish stocks through the management chain (Outlined in Section 6) enable the biosecurity manager to identify and deal with any problems at the earliest opportunity. It is advisable that actions to be taken by the biosecurity manager at the onset of a problem have been considered in advance, i.e. contingency plans are prepared before the problem arises.

Identification of a problem that is due to seasonal or weather conditions

- The biosecurity measures plan can include consideration of climatic and seasonal conditions that cause problems with the farmed stock, and the actions that can be taken to limit these effects.

Identification of a problem that is more serious; where mortalities in the farmed stock cannot be explained

- Cefas FHI should be contacted at the earliest opportunity.

Control the spread of a problem

- If a disease is suspected action should be taken to attempt to limit the spread of infection through the farm. This is easier to achieve if the farm is separated into sections or zones, (outlined in Section 5).

BIOSECURITY PLAN TEMPLATE

Biosecurity measures plan template

The biosecurity measures plan template covers all sections required to provide effective biosecurity at an APB. This template may be completed by the biosecurity manager.

An electronic version is available from www.efishbusiness.co.uk.

1. Biosecurity manager

Name	
Contact details	
Alternate contact name	
Contact details	

Useful contacts

	Cefas FHI
Name	
Business name	
Telephone	
Fax	
Email	
Address	

2. Staff training

Staff name	Date trained	Signature of biosecurity manager

Possible content for Section 3 “Identify the risk of contracting and spreading disease with movements of live shellfish”

- Seed or stock purchased from outside the country.
- Seed or stock moved or purchased from another mollusc farming area.
- Seed or stock purchased from a site with an unknown disease history.
- Seed or stock caught from the wild or other non-farm site.
- Multiple species brought onto site.
- Stock moved or purchased from other sites for processing or depuration on the APB.
- Multiple sources of shellfish making up order.
- Multiple delivery destinations.

3. Identify the risk of contracting and spreading disease with movements of live shellfish

Example: Risk of introduction of disease with purchased shellfish

Possible content for Section 4 “Identify the risk of contracting and spreading disease as a result of site procedures”

- Use of boats and/or equipment at more than one site within a mollusc farming area.
- Mechanical damage to shellfish as a result of handling and husbandry.
- Effluent water from depuration, storage or processing is untreated and discharges back into a mollusc farming area.
- Mixing shellfish from a number of sources.
- Visitor access to site.
- Site cleanliness, areas not kept clean may harbour pathogens.
- Condition of site equipment and facilities.
- Movement of staff (and customers) to and from sites in other mollusc farming areas.
- Public access to the site.
- The management of shellfish stock on the farm.
- Fishery in the mollusc farming area.
- The use of processing facilities on site.

4. Identify the risk of contracting and spreading disease as a result of site procedures

Example: Accidental transfer of disease via equipment

Possible content for Section 5 "Risk limitation measures"

- Maintain a biosecurity log that records the results of shellfish health inspections and daily mortality records.
- Check on shellfish health – the biosecurity manager will monitor records and take action where these exceed expected levels.
- Where mortalities occur, shellfish from affected batches will not be moved to other mollusc farming areas.
- Keep imported shellfish separate from other farm stock until the health status of the shellfish is confirmed.
- Do not accept shellfish onto the site if they are showing signs of disease.
- Establish the exact provenance of stock before purchase.
- Operate separate zones on the site, where appropriate.
- Have separate equipment for use in separate mollusc farming areas, or disinfect equipment before and after use.
- Maintain batch integrity throughout production cycle (don't mix batches) where possible.
- Maintain anti-predator measures to prevent access by birds and animals.
- All staff to be aware of the biosecurity plan and trained in their responsibilities.
- Disinfect transport equipment before and after deliveries.
- Ensure that handling methods and husbandry do not compromise the health of shellfish stocks.
- Only source from sites with an equal or higher health status than your own site.
- Be aware of the diseases that can potentially affect your shellfish. Train staff to be aware of episodes of unusual mortality.
- Record all the movements onto and off the site to allow proper traceability and disease investigation.
- Record the results of third party fish health inspections (Cefas FHI).
- Have a system for reporting health problems to the biosecurity manager.
- Have contingency plans for all foreseeable eventualities; update this in the light of emerging problems.
- Where practical collect and remove mortalities as frequently as possible.
- Store mortalities in a secure manner prior to disposal in accordance with official guidance.
- Do not return moribund shellfish to biosecure zones once they have been removed.

5. Risk limitation measures

Example: The processing area will be operated as a separate biosecure zone. The processing waste will be collected and disposed of in a manner that does not pose a threat of disease transfer

Possible content Section 6 for "Monitoring the plan"

Record	How it will be kept
Stock health inspection	Regular inspections will be made to inspect stock and observe the health. These observations will be recorded in the biosecurity log.
Mortality levels in each batch or zone	Mortalities will be recorded in the biosecurity log. Where these exceed normal limits action will be taken.
Health inspections	Inspections by fish health professionals employed by the APB, Cefas FHI or other agencies will be recorded in the biosecurity log.
Results of health inspections	The results of any shellfish health inspection will be kept.
Visitors to the APB	Details of all visitors will be recorded in the biosecurity log. They will be supplied with information on the biosecurity plan.
Shellfish movements on and off site	All shellfish movements will be recorded in the Cefas FHI supplied movement book, or to the same standard in an electronic format.
Shellfish movements within the mollusc farming area	Movements of shellfish where zones within the mollusc farming area are identified will be recorded e.g. separate lays in Fishery Orders.
Disposal of waste	Details of all APB waste including the source, quantity, method of disposal and date of disposal will be recorded in the biosecurity log.
Environmental conditions	Relevant water quality parameters and weather conditions will be recorded in the biosecurity log.

6. Monitoring the plan

Record	How it will be kept
Example: Stock health inspection	*Example: A regular record of observed shellfish health will be maintained in the farm diary*

Possible content for Section 7 "Contingency planning"

Record	How it will be kept
Unexplained mortality or a sudden increase in mortality in a batch of shellfish	Staff to record details including the numbers of mortalities in the biosecurity log and inform the biosecurity manager. Biosecurity manager to undertake investigation and contact Cefas FHI. Contain the threat and where possible prevent it from spreading to other areas.
Shellfish mortalities continuing	Contact Cefas FHI to confirm the action to be taken, contain the threat and prevent the problem from spreading to other areas. Restrict access to affected stock where possible.
Need to dispose of dead shellfish	Identify a suitable site for disposal, in accordance with the waste disposal regulations. Contact the local health authority for advice on the method of disposal. Contain the mortalities in a manner which minimises the risk of infection spreading to other parts of the mollusc farming area where possible.

7. Contingency planning

Record	How it will be kept
Example: Unexplained mortality not responding to treatment	*Example: Contact Cefas FHI on 01305 206700 to report the problem*

Example page of a biosecurity log book

Below is an example of a biosecurity log to be completed as appropriate to the farming practice and which can be used as a template. An electronic version is available from www.efishbusiness.co.uk.

Date:	
Stock inspection carried out by:	
Water quality: **Temperature:** **O_2:** **Salinity:**	
Mortality count:	
Waste disposal:	
Notes:	
Visitors to site:	

Company	Name	Time on	Time off

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