Practical application of sanitary surveys in Scotland

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Introduction

In accordance with the legislative requirement of (EC) No. 854/2004, Cefas began to conduct sanitary surveys of bivalve mollusc production areas in Scotland on behalf of Food Standards Agency Scotland (FSAS). The FSAS approach has been to undertake sanitary surveys for existing production areas as well as those that required classification after 2006. In 2007, Cefas and FSAS developed a parallel restricted survey program to address the need to survey short-term wild fisheries in a resource-efficient manner.

Sanitary Surveys - Aquaculture and Long-Term Wild Fisheries

Thirty-one field survey visits were undertaken as part of the Scottish Sanitary Survey program in 2007 and 2008, encompassing a 51 production areas and 76 bivalve mollusc farms (Table 1). A mixture of new and established areas were selected for survey. Existing areas were prioritised using a risk matrix and where feasible, adjacent production areas were agglomerated with the selected areas.

	Surveys	Sites	Production areas pre-survey	Production areas post-survey
2007 Total	**16**	**43**	**29**	**29**
2008 Total	**15**	**33**	**22**	**24**

Table 1 Sanitary surveys undertaken to date in Scotland

Of a total 47 production areas in Shetland, 24 (51%) have been surveyed to date. Similarly, 50% of production areas in Argyll & Bute (21 of 42) have been surveyed. Together, these two authorities contain 58% of classified shellfish production areas in Scotland (Figure 1).

Restricted Surveys - New Wild Fisheries

Wild fisheries in Scotland tend to be ephemeral, so where applications have been received for new classification a restricted survey is undertaken in the first instance.

Restricted surveys address basic requirements in an efficient manner - giving policy makers at Food Standards Agency Scotland sufficient information to inform establishing monitoring points and classification areas without expending valuable resource on a potentially short-lived fishery.

Once the fishery has been classified for three years, it will be included in the full sanitary survey program in the same manner as existing fisheries (ie. By priority of risk).

Risk Matrix System

A risk matrix was developed to prioritise existing fisheries for survey based on public health risk. Factors considered:

- Human Population
- Species
- Classification for previous 3 years
- Changes in classification
- Outbreaks of illness
- Monitoring results outwith classification

Findings

Many areas in Scotland are remote, with little in the way of human population. Despite this, some remote areas were found to, at times, have monitoring results consistent with a C classification. In areas with low population densities, sewage discharges (both raw and septic tank-treated) are sometimes found very near bivalve mollusc production sites (Figure 2). Agricultural pollution appears to be a major contributor to high levels of faecal contamination found in bivalve molluscs in many parts of Scotland (Figure 3).

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Legislative Requirements

Under (EC) No. 854/2004, the competent authority is required to:

1) Inventory pollution sources likely to contaminate production area
2) Examine quantities of pollutants released according to seasonal variation
3) Characterise circulation of pollutants
4) Establish sampling programme taking above into consideration that is representative of the area

Figure 2 Discharge near fishery

Figure 3 Livestock at shoreline

Figure 4 Scotish longline mussel fishery

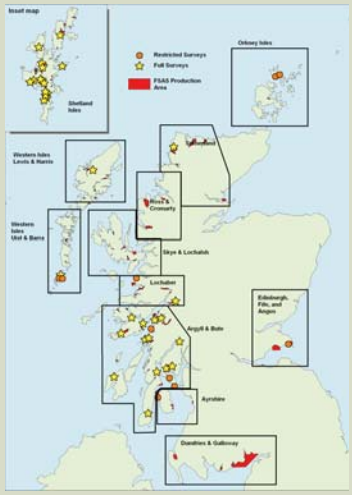

Figure 1 Scotish production areas surveyed

Importance of Shoreline Survey

Due to the lack of firm data regarding potential sources, amounts and seasonality of contamination to the fisheries in Scotland, the findings of the physical shoreline survey are of paramount importance in providing a robust and accurate assessment of local pollution sources.

For example, for the surveys conducted during 2007-2008, physical shoreline surveys revealed, on average, twice the number of discharges as were captured within the permit system and reported by SEPA (Table 2). Up to 28 individual discharges have been observed in areas with only 3 reported discharge permits.

Survey Year	SEPA permits	Scottish Water records	Observed during survey
2007	68	42	127
2008	82	41	166
Total	150	83	293

Table 2 Discharge records for 2007-2008 surveys

Challenges

A number of challenges remain in meeting the requirements of this legislation.

1) Developing an accurate inventory of sources of faecal pollution.

- Small point and diffuse sources are the predominant drivers of contamination
- Agricultural census data not available in spatially useful detail
- No data available on sludge and slurry application
- Seasonal variation in pollutants not captured or reported

2) Data available on sewage discharges is incomplete.

- No microbiological data reported or available
- Many private crude sewage or septic tank discharges
- No microbiological data available for catchments
- No flow data available for most rivers and large streams

3) Little information is available on hydrodynamics of specific sea lochs.

- Bathymetry based on very old soundings in some cases
- Tidal flow information limited or absent in many areas
- Wind data available for very small number of stations in Scotland

4) Sampling plans must be representative and practically achievable by the local food authority (LFA).

- Remote locations pose challenge in routine access and sample collection
- Stock density not always sufficient within tolerance zone
- Need to use other sampling strategies, ie. monitoring zones