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FACT SHEET

South Australian shellfish quality assurance program

It is the aim of the South Australian Quality Assurance Program (SASQAP) to provide public health protection for consumers of South Australian shellfish. Quality of product is the single most important attribute that consumers look for in seafood and consumers of South Australian shellfish expect to be protected against shellfish associated illnesses. To achieve this, the program is dependent on the cooperative relationship between the SASQAP administration and the shellfish farming industry.

This program is important for the success of the shellfish industry in South Australia. Bivalve molluscs are unquestionably the most serious vectors of shellfish toxins, including paralytic (PSP), diarrhetic (DSP), amnesic (ASP) and neurotoxic (NSP) shellfsh poisoning. In addition, bivalves have the ability to ingest and concentrate pathogenic bacterial or viral agents that may give rise to disease or illness in the consumer. Episodes of illness outbreak can pose a serious economic problem for shellfish farmers.

Monitoring the environment

Shellfish are filter feeders which have the ability to concentrate bacteria, viruses, toxins, heavy metals, chemicals and other deleterious substances in their digestive tract and on to the surface of their gills from surrounding seawater. Shellfish products are often consumed raw and whole and in this way may be vectors of bacterial and viral diseases. A constant surveillance of shellfish growing waters is required to reduce the risk of contaminated oysters reaching consumers.

The continuing increase in numbers of oyster farms coupled with increased incidences of toxic algal blooms presents a constant threat to public health worldwide. Although there have been no reported toxic algal blooms in shellfish growing waters of South Australia to date, Coffin Bay did experience blooms in 1995 with *Gymnodinium mikimotoi* species.

This species is closely related to its toxic cousin *Gymnodinium breve* which can cause fish kills. Neurotoxic shellfish poisoning (NSP) as well as human respiratory disorders (aerosol poisoning). This demonstrates the need to be vigilant in monitoring the environment.

It is important that each shellfish grower is aware of the commitment required of him/her in terms of SASQAP through-out the harvesting season and how he/she can individually contribute.

Each shellfish growing area has a local liaison officer who provides a direct communication link between industry and the manager of SASQAP. It is the responsibility of the liaison officer to immediately report any unusual or adverse environmental conditions to the SASQAP manager. This requires daily inspections of the local growing area and close communication with other growers. The liaison officer is not responsible for water sample collection at any time.

Each grower also has a responsibility to his/her neighbours to make daily inspections of his/her area and report any unusual event to the local liaison officer. It is the responsibility of each grower to know who the liaison officer is and how to contact them.

As shellfish growers, you are in the best position to monitor the environment on a daily basis and report any unusual circumstances to your local liaison officer. All participants in the program must make a commitment to the program by assuming a watchdog mentality over their particular water body. Events such as fish kills, algal blooms, water discolouration, heavy rainfall, large numbers of birds near leases and stock mortlaities should immediately reported to the local liaison officer.

Area management plan for shellfish harvesting

A management plan is required to provide early warning for the detection of pollution incidents as they occur. The following procedures are the minimum requirements of an effective area management plan. Management plans should be individually adapted for each shellfish harvesting area.

- Two weeks before the start of the oyster harvesting season, water and oyster samples will be taken from prearranged sampling stations within each harvesting area and sent to the IMVS labs in Adelaide for testing to AQIS requirements. Random smapling will continue until the end of the harvesting season.
- The local liaison officer will perform daily visual inspections of the growing area and report any unusual environmental phenomena, such as a bird or fish kill, water discolouration or abnormal shellfish behaviour to the SASQAP manager.
- The area will be immediately closed to shellfish harvesting if the microbiologcal criteria established for an approved area are not met.
- If the local liaison officer receives a notice of closure, it is then his/her responsibility to personally inform each shellfish grower (by telephone) of the closure and thereafter keep them informed of current classification status. *The SASQAP project manager is not responsible for contacting individual growers.*
- Water sampling will be conducted every second day in the first week of a closure being established. During the second and subsequent weeks water samples will be taken every third day until water sampling establishes that the criteria for an approved area are met. A minimum of two oyster samples will also be collected with the water samples;
- Water quality sampling will continue until analytical results show that the water quality parameters are at an acceptable level.
- The area will be re-opened for shellfish harvesting when the criteria established for an approved area are met at all sampling stations and microbiological tests on oyster meat show compliance with the criteria stated below. Area re-opening will be determined by the SASQAP project manager.
- Results of all analytical tests are to be sent to the SASQAP manager and copies sent to the local liaison officer.
- Each shellfish harvester will be required to have product recall procedures in place during the harvest season.

Approved area criteria

SASQAP has adopted a “clean waters” approach to area classification which is preferred by the USA and is also used in Tasmania and Victoria. This strategy enables the culture of shellfish at “approved” and “conditionally approved areas” only. The following classification definitions have been taken from the National Shellfish Sanitation Program Manual of Operations, Part 1 USFDA.

Approved area

Growing areas may be designated as approved when the sanitary survey and marine biotoxin surveillance data indicate that faecal material, pathogenic microoganisms, poisonous and deleterious substances are not present in the area in dangerous concentrations. At the present time, the coliform group of microorganisms and *E.coli* are used as the standard indicators of faecal contamination in Australia.

The bacteriological quality of every sampling station in the approved area exposed to faecal contamination shall meet one of the following standards under the systematic random sampling strategy:

a) the total coliform median or geometric mean MPN (most probable number) of the water does not exceed 70 per 100ml and the estimated 90th percentile does not exceed an MPN of 230 per 100ml for a 5-tube decimal dilution test; or

b) the faecal coliform median or geometric mean MPN of the water does not exceed 14 per 100ml and the estimated 90th percentile does not exceed an MPN of 43 per 100ml for a 5-tube decimal dilution test.

Conditionally approved area

Growing areas that are subject to intermittent microbiological pollution may be classified as conditionally approved. This option is voluntary and may be used when the suitability of an area for harvesting shellfish for direct marketing is affected by a predictable pollution event. A sanitary survey must show that the area will meet the approved area classification criteria for a reasonable period of time. The factors determining these periods are predictable, and are not so complex as to preclude a reasonable management approach. Essentially, what this means is that the area will be more closely monitored during the oyster harvesting season than an approved growing area. The growing waters must be tested at least on a monthly basis during the shellfish harvesting season.

Initially, 30 water samples are required before classification of the area can be decided. Once approved classification is achieved, 6 samples a year are required to meet USFDA standards. At least four of these samples would be taken during the harvesting season.

Australian health authorities place greater emphasis on the analysis of shellfish than water samples, therefore shellfish samples will also be assessed for microbiological levels of total coliform, faecal coliforms, and *E.coli* to the following standards:

Plate count:
- USFDA standard is 500,000 orgs/g
- NHMRC standard is 100,000 orgs/g (and no more than 10% to exceed 500,000 orgs/g)

Faecal coliforms: USFDA standard is 2.3 orgs/g

E.coli : NHMRC standard is 2.5 orgs/g

An approved area may be temporarily made a closed area when a public health emergency is declared.

Legislation

Participants in SASQAP should be aware that although the adoption of this program represents a major step in self-regulation, once classifications are in place the program has legal status in which Primary Industries and Resources of South Australia has the powers of enforcement, investigation and if necessary prosecution.

Enquiries

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