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AN INVESTIGATION OF HOW THE CLASSIFICATION STATUS OF SHELLFISH PRODUCTION AREAS MAY BE AFFECTED BY THE NUMBER OF *Escherichia coli* RESULTS ASSESSED

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The classification of shellfish production areas (SPAs) in many shellfish producing countries is based on monitoring for faecal indicator organisms. This monitoring assesses the risk of contamination with pathogens and determines the level of post-harvest treatment necessary for the shellfish prior to sale for human consumption

This study investigated the effect of the number of *E. coli* monitoring results on the classification status of SPAs using the A, B and C classification criteria prescribed in the European Food Hygiene Regulations. The assessment was based on a database of *E. coli* results obtained from monitoring in shellfish from seven production areas (>255 sample results/SPA) on the coast of Santa Catarina (Brazil). It was found that six SPAs would be classified as B and one as C if all the available results were considered. Ten series of 50 data samples were randomly extracted from each production area dataset (12–120 results/sample, in multiples of 12). Classifications given to each data sample resulted in two production areas that had been given B status based on the full database being classified more times as A than as B when data samples with 12 results were considered. In general, the number of data samples compliant with class A decreased with the higher the number of *E. coli* results that were assessed per data sample.

The results indicate that areas with class B status can be misclassified as A during the initial classification when fewer results are available. Furthermore, areas with 'prohibited' status can be misclassified as C during the initial classification, when 12 results are considered in compliance assessments.

This study did not identify the same potential misclassification issue in relation to SPAs with classifications ranging between B and C. These classes share the same maximum limit (46,000 MPN/100g), therefore, compliance with 4,600 MPN/100g is the legal standard that differentiates the two.

This study identifies two factors that may lead to misclassification of a production area: the varying number of results considered in the compliance assessment; and the consideration of maximum *E. coli* result as a legislative standard. Therefore, possible ways of minimising the risk of misclassification include the adoption of other statistics as microbiological legislative standards rather than maximum *E. coli* result or the consistent use of a fixed amount of results to classifying SPAs during initial and ongoing monitoring.

These results emphasise the need to consider long-term monitoring datasets in compliance assessments to ensure that the classification status of SPAs truly reflects environmental contamination levels