



# Data interpretation

EU Classification system



# European Regulations: 2019/627

## Classification categories

| Classification status | Criteria   | Treatment required before market  |
|-----------------------|--|---|
| Class A               | 80% of samples must be equal to or less than 230 <i>E. coli</i> /100g<br>(All results must be equal to or less than 700 <i>E. coli</i> /100g)      | Molluscs can be harvested for direct human consumption  |
| Class B               | 90% of samples must be equal to or less than 4,600 <i>E. coli</i> /100g<br>(All results must be equal to or less than 46,000 <i>E. coli</i> /100g) | Molluscs require purification in an approved plant<br><b>OR</b> after relaying in an approved relaying area<br><b>OR</b> after and EC approved heat treatment process                                   |
| Class C               | All results must be equal to or less than 46,000 <i>E. coli</i> /100g  | Molluscs require relaying for at least 2 months in an approved relaying area followed, where necessary, by treatment in a purification centre<br><b>OR</b> after and EC approved heat treatment process |

# Exercise

## Example datasets from 2 different sites

For each site decide on an appropriate classification level at the 3 stages of classification identified in the EU guidance i.e.:

- Preliminary classification (12 results/6 months)
- Initial full classification (1 year's data)
- Review ongoing established classification (3 years' data)

Write a short summary of reasons for choice of classification and comment on any notable features of the data

Groups to report back after analysis (30 mins)

## Site 1 – preliminary classification

Classification level?

Class A – 100% compliance with 230 (at least 80% needed) and no results exceeding 700

| <b>Species: Native oysters (Ostrea edulis)</b> |                     |                    |  |
|--|---------------------|--------------------|--|
| <b>Collection Date</b>                         | <b>&lt; or &gt;</b> | <b>E.coli/100g</b> |  |
| 27/01/2004                                     | <                   | 18                 |  |
| 07/01/2004                                     |                     | 40                 |  |
| 23/02/2004                                     |                     | 40                 |  |
| 08/03/2004                                     |                     | 50                 |  |
| 30/03/2004                                     | <                   | 18                 |  |
| 12/04/2004                                     |                     | 40                 |  |
| 27/04/2004                                     |                     | 18                 |  |
| 10/05/2004                                     |                     | 18                 |  |
| 24/05/2004                                     | <                   | 18                 |  |
| 05/06/2004                                     |                     | 50                 |  |
| 12/06/2004                                     | <                   | 18                 |  |
| 22/06/2004                                     |                     | 18                 |  |

## Site 1 – initial full classification

| Species: Native oysters ( <i>Ostrea edulis</i> ) |        |             |  |
|--|--------|-------------|--|
| Collection Date                                  | < or > | E.coli/100g |  |
| 27/01/2004                                       | <      | 18          |  |
| 07/01/2004                                       |        | 40          |  |
| 23/02/2004                                       |        | 40          |  |
| 08/03/2004                                       |        | 50          |  |
| 30/03/2004                                       | <      | 18          |  |
| 12/04/2004                                       |        | 40          |  |
| 27/04/2004                                       |        | 18          |  |
| 10/05/2004                                       |        | 18          |  |
| 24/05/2004                                       | <      | 18          |  |
| 05/06/2004                                       |        | 50          |  |
| 12/06/2004                                       | <      | 18          |  |
| 22/06/2004                                       |        | 18          |  |
| 20/07/2004                                       |        | 750         |  |
| 31/08/2004                                       |        | 310         |  |
| 05/10/2004                                       |        | 500         |  |
| 25/10/2004                                       |        | 70          |  |
| 09/11/2004                                       |        | 18          |  |
| 10/01/2005                                       |        | 18          |  |
| 18/01/2005                                       |        | 40          |  |

Classification level?

Cluster of high results in July, August and October

Too early to assess for seasonality (3 years' data needed)

84% compliance with 230  
But  
1 result greater than 700

Class B

## Site 1 – review after 3 years

Classification level?

Seasonal class A possible:  
December 'buffer' month; class  
A season from 1 December to  
30 June

High results – general  
deterioration?

Seasonal trend appearing

|            |   |      |  |  |
|------------|---|------|--|--|
| 27/01/2004 | < | 18   |  |  |
| 07/01/2004 |   | 40   |  |  |
| 23/02/2004 |   | 40   |  |  |
| 08/03/2004 |   | 50   |  |  |
| 30/03/2004 | < | 18   |  |  |
| 12/04/2004 |   | 40   |  |  |
| 27/04/2004 |   | 18   |  |  |
| 10/05/2004 |   | 18   |  |  |
| 24/05/2004 | < | 18   |  |  |
| 05/06/2004 |   | 50   |  |  |
| 12/06/2004 | < | 18   |  |  |
| 22/06/2004 |   | 18   |  |  |
| 20/07/2004 |   | 750  |  |  |
| 31/08/2004 |   | 310  |  |  |
| 05/10/2004 |   | 500  |  |  |
| 25/10/2004 |   | 70   |  |  |
| 09/11/2004 |   | 18   |  |  |
| 10/12/2004 |   | 18   |  |  |
| 18/01/2005 |   | 40   |  |  |
| 22/02/2005 |   | 40   |  |  |
| 19/04/2005 |   | 220  |  |  |
| 24/05/2005 | < | 18   |  |  |
| 14/06/2005 |   | 18   |  |  |
| 12/07/2005 | < | 18   |  |  |
| 23/08/2005 |   | 220  |  |  |
| 19/09/2005 |   | 160  |  |  |
| 11/10/2005 |   | 3500 |  |  |
| 01/11/2005 |   | 2400 |  |  |
| 21/11/2005 | < | 18   |  |  |
| 12/12/2005 | < | 18   |  |  |
| 24/01/2006 |   | 40   |  |  |
| 20/02/2006 |   | 18   |  |  |
| 20/03/2006 | < | 18   |  |  |
| 18/04/2006 |   | 50   |  |  |
| 23/05/2006 |   | 70   |  |  |
| 27/06/2006 |   | 18   |  |  |
| 24/07/2006 | < | 18   |  |  |
| 15/08/2006 |   | 500  |  |  |
| 12/09/2006 |   | 2200 |  |  |
| 02/10/2006 |   | 3500 |  |  |
| 14/11/2006 |   | 140  |  |  |
| 22/12/2006 |   | 18   |  |  |
| 16/01/2007 |   | 90   |  |  |

## Site 2 – preliminary classification

Classification level?

Clearly not class A (results >700) or class B (only 75% compliance with 4600 – needs to be at least 90%)

Possibly class C?

| <b>Species: Native oysters (<i>Ostrea edulis</i>)</b> |                     |              |  |
|---|---------------------|--------------|--|
| <b>CollectionDate</b>                                 | <b>&lt; or &gt;</b> | <b>Ecoli</b> |  |
| 12/12/2002  |                     | 750          |  |
| 29/12/2002  |                     | 1300         |  |
| 14/01/2002  |                     | 1500         |  |
| 17/02/2002  |                     | 2400         |  |
| 18/03/2002  |                     | 14000        |  |
| 28/03/2002  |                     | 1300         |  |
| 15/04/2002  |                     | 2400         |  |
| 30/04/2002  |                     | 3500         |  |
| 13/05/2002  |                     | 17000        |  |
| 28/05/2002  |                     | 2400         |  |
| 10/06/2002  |                     | 16000        |  |
| 08/07/2002  |                     | 5400         |  |

## Site 2 – initial full classification

| Species: Native oysters ( <i>Ostrea edulis</i> ) |        |       |  |
|--|--------|-------|--|
| CollectionDate                                   | < or > | Ecoli |  |
| 12/12/2002                                       |        | 750   |  |
| 29/12/2002                                       |        | 1300  |  |
| 14/01/2002                                       |        | 1500  |  |
| 17/02/2002                                       |        | 2400  |  |
| 18/03/2002                                       |        | 14000 |  |
| 28/03/2002                                       |        | 1300  |  |
| 15/04/2002                                       |        | 2400  |  |
| 30/04/2002                                       |        | 3500  |  |
| 13/05/2002                                       |        | 17000 |  |
| 28/05/2002                                       |        | 2400  |  |
| 10/06/2002                                       |        | 16000 |  |
| 08/07/2002                                       |        | 5400  |  |
| 12/08/2002                                       |        | 3500  |  |
| 16/09/2002                                       | >      | 18000 |  |
| 28/10/2002                                       |        | 3500  |  |
| 20/01/2003                                       |        | 310   |  |

Classification level?

Result of '>18000' returned

Actual magnitude unknown

Extra dilution necessary

Could be worse than class C  
(Prohibited)



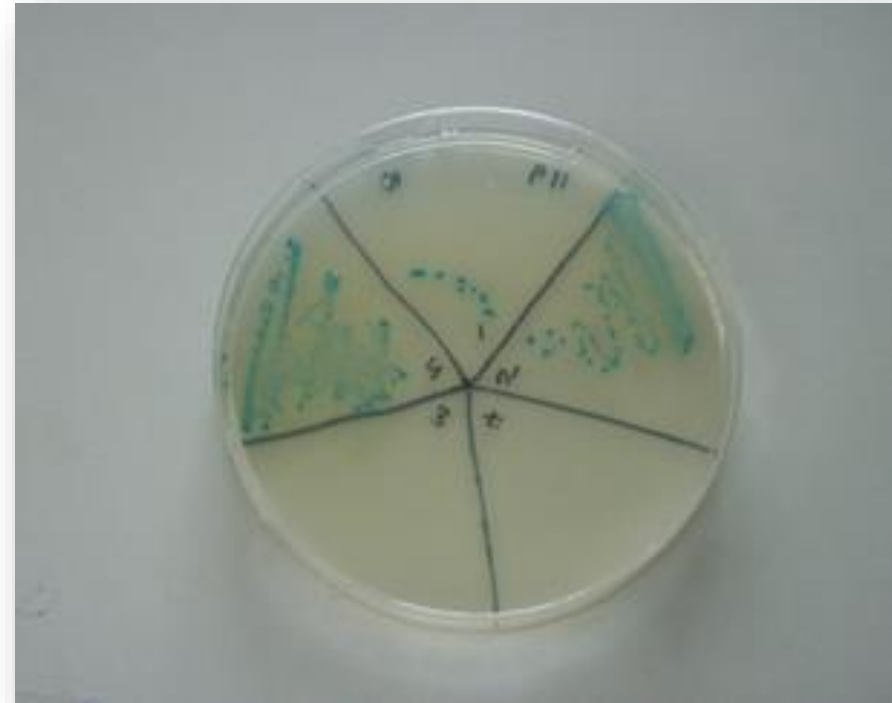
## ***EU Reference method: 5 tube x 3 dilution MPN (1g, 0.1g, 0.01g)***

- **Maximum result for this dilution range is >18,000 *E.coli*/100g**

*1<sup>st</sup> stage of test – Mineral Modified  
Glutamate Broth – 5 tubes each at 3  
dilutions (standard range)*



*2<sup>nd</sup> stage of test – chromogenic agar*



- Need for 4th dilution series if >18,000 results likely - allows resolution to >180,000 *E. coli*/100g

## Site 2 – review after 3 years

Classification level?

Now that extra dilution is being carried out it is clear that this site is very contaminated

Exceeds class C standard (upper limit 46000)

Site should be designated as 'Prohibited' i.e. no harvesting allowed

Need for extra dilution to reach end point – how high would it have been?

Prohibited level results

| Species: Native oysters ( <i>Ostrea edulis</i> ) |        |         |
|--|--------|---------|
| CollectionDate                                   | < or > | Ecoli   |
| 12/12/2002                                       |        | 750     |
| 29/12/2002                                       |        | 1300    |
| 14/01/2002                                       |        | 1500    |
| 17/02/2002                                       |        | 2400    |
| 18/03/2002                                       |        | 14000   |
| 28/03/2002                                       |        | 1300    |
| 15/04/2002                                       |        | 2400    |
| 30/04/2002                                       |        | 3500    |
| 13/05/2002                                       |        | 17000   |
| 28/05/2002                                       |        | 2400    |
| 10/06/2002                                       |        | 16000   |
| 08/07/2002                                       |        | 5400    |
| 12/08/2002                                       |        | 3500    |
| 16/09/2002                                       |        | >18000  |
| 28/10/2002                                       |        | 3500    |
| 20/01/2003                                       |        | 310     |
| 10/02/2003                                       |        | 3500    |
| 07/04/2003                                       |        | 2400    |
| 19/05/2003                                       |        | 35000   |
| 02/06/2003                                       |        | 54000   |
| 07/07/2003                                       |        | 70      |
| 18/08/2003                                       |        | 1300    |
| 15/09/2003                                       |        | 1700    |
| 18/09/2003                                       |        | 1300    |
| 13/10/2003                                       |        | 2400    |
| 02/02/2004                                       |        | 16000   |
| 01/03/2004                                       |        | 11000   |
| 15/03/2004                                       |        | 2400    |
| 19/07/2004                                       |        | 5400    |
| 23/08/2004                                       |        | 5400    |
| 13/09/2004                                       |        | 92000   |
| 29/11/2004                                       |        | 17000   |
| 13/12/2004                                       |        | 7000    |
| 10/01/2005                                       |        | 3500    |
| 21/02/2005                                       |        | 1100    |
| 07/03/2005                                       |        | 3500    |
| 23/05/2005                                       |        | 220     |
| 13/06/2005                                       |        | 2400    |
| 04/07/2005                                       |        | 750     |
| 05/09/2005                                       |        | 54000   |
| 24/10/2005                                       |        | 160,000 |
| 28/11/2005                                       |        | 28000   |
| 12/12/2005                                       |        | 24000   |
| 23/01/2006                                       |        | 220     |