NMBAQC

NE Atlantic Marine Biological Analytical Quality Control Scheme

www.nmbaqcs.org

Benthic Invertebrate Component Ring Test Protocol

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If you have any questions or comments about this protocol document then please contact nmbaqc@apemltd.co.uk.

Contents

1. Objective

The aims of the Ring Test (RT) exercise are:

- to examine the consistency of identification of species;
- to highlight identification problems and literature updates for particular taxonomic groups or species complexes;
- to familiarise participants with species that they may not have previously encountered.

The ring test is a training exercise and the results are not used to assess the performance of a laboratory. The bulletin includes a graph with categories of 'low', 'mid' and 'high', according to numbers of identification differences but this is provided only for interest and to show degrees of variation. The Ring Test is created, circulated, assessed and reported by the scheme component's contractor (currently APEM Ltd.). Any significant issues raised are reviewed by the component contract manager, on behalf of the NMBAQC committee.

2. Protocol

Each participant receives 25 un-named specimens in individually labelled pots, numbered 1-25. The set of specimens (e.g. Specimen 1) of the same species sent to each laboratory, known as a species circulation, will range from about 20-30 specimens, depending on how many labs are expected to participate. The same 25 species are sent to each participant and, for any one species, all the specimens are of equivalent condition, size and sex; they may be small and damaged, to reflect real sample material but this will be equal between laboratories and stated in the specimen details. In each Scheme year, one RT circulation comprises mixed general fauna from a variety of Phyla; the other is usually targeted upon a particular theme (such as a taxonomic group or habitat type). Problem taxa highlighted by other Scheme exercises may be prepared as targeted ring tests, focussed on a particular taxonomic group, to address identification difficulties or literature issues. Notes on substratum, salinity, depth, geography and any other pertinent information will be provided on a 'Habitat Notes' sheet.

Participants are asked to identify each specimen to species level and return results forms with species names. They should indicate uncertain identifications through use of the confidence level column, not through identification to higher taxonomic levels; confidence levels indicate the taxonomic level to which a specimen would have been identified by the participant had it been present in one of their samples. Participants may also list literature or guides that they used (if non-

standard) in another column on the form. Participating laboratories may submit up to ten separate data sets for each exercise, enabling entries from several individual analysts per participating lab. All data should be submitted electronically to nmbaqc@apemltd.co.uk.

Participant's identifications are compared with the original NMBAQC identifications. Differences are noted at genus and species levels to give two totals for each participant. Synonyms and mis-spellings are also noted but not counted as differences. For example, if *Nephtys cirrosa* were to be circulated, a participant's identification of '*Nepthys cirosa*' would be corrected but not included in the list of differences; an identification of '*Nephtys caeca*' would count as one species level difference (the genus being correct); an identification of '*Phyllodoce mucosa*' would count as one species level difference and one genus level difference.

The reports (ring test interim reports and bulletins) include a sheet listing all the species distributed, the participant's identifications and any differences between the two. A summary of the total number of differences for each species circulation for all participants is also given, so that each participant can see if they were alone in making a particular 'incorrect' identification or whether other participants also had difficulty. The bulletin also provides detailed reasons, including images of RT specimens, as well as of specimens of all other species recorded by participants (where available); lists up to date literature are also included, where relevant. Ring test bulletins are published on the Scheme's website for reference.

3. Preparation

- all specimens will be sent in **70% Industrial Denatured Alcohol** (IDA) in individual sealed pots; dry specimens in sealed pots or bags may be sent for encrusting Bryozoa and some other taxa;
- all specimens will be labelled with each participant's Laboratory Code, the exercise number (e.g. RT51), the specimen number and the exercise deadline;
- an electronic form will be provided on which participants should supply their identifications;
- an electronic habitat notes sheet will be provided to each participant to aid identification.

4. Ring Test Interim Reports

Ring Test Interim Reports are produced separately for each participant. They will include the participant's original data submission, and the habitat notes provided by the contractor. NMBAQC identifications will be included in a table alongside the participant's original identification data (OD). Agreed identifications will contain a dash in the appropriate OD cell; edited identifications will have the participants identification noted. The table will also include the numbers of Genus and Species differences for the whole exercise (all participants).

Participants are encouraged to discuss reasons for their identifications, against NMBAQC identifications, if they believe the contractor's identifications to have been erroneous. These will be further investigated. If necessary, third party expert opinion will be sought and corrected identifications discussed in the final RT Bulletin.

5. Ring Test Bulletin Reports

The Ring Test bulletin will contain a list of specimens provided along with the total number of differences in genus and species identifications for each species circulation. A chart (Figure 1) categorizing (anonymous) participants as low, mid or high, according to numbers of species then genus identification differences will be included (for interest only), along with tables indicating differences per participant. Table 1 has results arranged with specimens as columns; Table 2 with participants as columns.

The main part of the bulletin is a breakdown of each species circulation sent. Images of one specimen from each species circulation will be included, alongside images of any different species named by participants for each circulation, where available; where possible, these will be of specimens of the same size as the RT species circulation and/or include growth series, where appropriate. A discussion will be included for each species circulation to summarize reasons for the name used by NMBAQC, compared to participants' alternatives, and to note out of date nomenclature and spelling errors. Relevant identification literature will be cited, where they appear to have been missed by participants

Ring Test bulletins are designed as a reference document for taxonomic identifications, particularly with problem taxa.

6. Timescale

Participants should send their results to nmbaqc@apemltd.co.uk, via the electronic sheet provided by the deadline supplied with the circulation (generally about two months after circulation of specimens).

Interim reporting should be completed within three weeks of the results deadline. The Ring Test bulletin should be issued within two months of the interim report.

Queries regarding Ring Test identifications provided in the interim reports must be submitted to nmbaqc@apemltd.co.uk within one week of issue of the report. It would be useful if participants could send specimens back before issue of the Ring Test Bulletin, to enable resolution of identification discrepancies. Any queries submitted later than one week after the issue of interim reports may cause a serious delay to the production of the Ring Test bulletin.

All specimens should be returned no more than two weeks after receipt of the Ring Test Bulletin.

If a participant requires an extension to the timescale, they should contact nmbaqc@apemltd.co.uk as soon as possible.