



NMBAQC

NE Atlantic Marine Biological Analytical Quality Control Scheme

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Benthic Invertebrate Component Laboratory Reference Protocol

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

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1. Objective

The aims of the Laboratory Reference (LR) exercise are:

- to examine the accuracy of identification of biota recorded by each participating laboratory;
- to provide another opinion on the identities of specimens that might have caused problems for the laboratory;
- to encourage the assemblage and use of collections of reference specimens.

Each Laboratory Reference exercise is an '**identification amnesty**'; all of the submitted specimens may have been considered unidentifiable or of uncertain identity by the participant laboratory (*i.e.* problem taxa). Submission of problem taxa is optional and laboratories may also use this exercise for the verification of normal reference specimens as in earlier LR exercises. The Laboratory Reference is 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

A maximum of twenty-five specimens from a participating laboratory's reference material may be submitted. Free choice is allowed for specimen selection but all should be from Northern European waters. Duplicate examples of species may be submitted for the purpose of establishing growth series or to clarify problem taxa. **Some or all of the twenty-five specimens supplied may be unidentified problem taxa** (these specimens should be indicated as such on the data sheet). Notes on substratum, salinity, depth, geography and any other pertinent information should be added on the forms provided. All data should be sent electronically to nmbaqc@apemltd.co.uk.

The specimens received will be identified to the most accurate taxonomic level that can be achieved, with reference to standard NMBAQC scheme practice, as appropriate; the NMBAQC scheme does not undertake to identify every specimen to species level. If there are any disagreements, upon return of the specimens, we will provide explanations of our identifications, using reference material and images, where necessary. The NMBAQC scheme reserves the right to return specimens unidentified if mixtures of species are present within a single taxon vial that would take excessive time to separate.

3. Preparation

- All specimens should be sent in **70% Industrial Denatured Alcohol (IDA)** in individual sealed pots (dry specimens in sealed pots or bags may be acceptable for encrusting Bryozoa and some other taxa);
- All specimens should be labelled using the label sheet provided and the information requested on the sheet should be completed;
- An electronic habitats note sheet is provided to each participant. These should be completed for each specimen and submitted electronically.

All specimens will be returned to the participating laboratory upon completion of the audit.

4. Laboratory Reference Interim Reports

Laboratory Reference results will be reported to participants in a table format. The table contains the participant's original identification data (OD). These data will be listed alongside the edited identification data (ED) provided by the scheme. Revised text colour coding is detailed in the policy review report ([Worsfold, 2017](#)), and summarized below:

- **blue text** indicates full agreement in identification;
- **green text** indicates a change which does not affect any audit. In the LR exercise, taxonomic changes are noted in green, as **taxonomic edits**, as misidentifications are not regarded as 'taxonomic errors' in training exercises. **Green text** may also indicate an increase or decrease in taxonomic resolution, a recording policy difference, a spelling or nomenclature change, or a note on specimens that were not found (which are therefore removed from the OD and ED).

5. Laboratory Reference Module Summary Report

Laboratory Reference results will be summarised in a single report at the end of the scheme year (e.g. [2016/17 Laboratory Reference Module Summary Report LR21](#)). This report presents collated data and provides details of notable taxa, where relevant.

6. Timescale

Specimens and electronic sheets should be submitted by the stated deadline.

All reporting should be completed before 31st March, each scheme year.

If an extension to the timescale is required please contact nmbaqc@apemltd.co.uk, as soon as possible.

All queries regarding Laboratory Reference identifications provided in the Interim reports must be submitted to nmbaqc@apemltd.co.uk within one month of issue of the report. No action can be taken on queries submitted after this date.