Macroalgae component

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This is the seventeenth year of the Macroalgae Component.

Summary of activities

The format for 2022 - 23 followed that of the previous year.

The component consisted of two modules:

1**. Opportunistic Macroalgae Biomass Ring Test (OMB - RT)**: - synthetic samples of different weights for washing and drying to both wet and dry weights.

2. **Opportunistic Macroalgae/Seagrass Cover Ring Test (OMC - RT)**:- estimation of percentage cover of opportunistic macroalgae and seagrass based on photographs of field quadrats.

The analytical procedures of both modules were the same as for the previous year of the Scheme. There were nine laboratories participating in the OMB-RT and eight laboratories in the OMC-RT.

Summary of results

Biomass of macroalgae (OMB-RT14)

This is the fourteenth year in which biomass of macroalgae has been included as a module of the NMBAQC scheme and was included as a single exercise. The format followed that established by Wells Marine during the previous years of the module (OMB RT01 – RT12 - see NMBAQC website). Test material was distributed to participating laboratories along with data forms, which were completed with algal biomass results and returned for analysis.

Eleven laboratories were issued with test material, of which nine laboratories completed the macroalgae biomass module of the NMBAQC scheme. All participants returned both wet and dry weight data. All of the participating laboratories were government; no other organisations took part in this component of the macroalgae exercises.

Results for wet weight of biomass varied between laboratories with some laboratories producing very different measures of biomass when compared against the average biomass and actual/expected biomass, particularly for the wool material sample (sample B). The dry weights also showed a high degree of variability between laboratories. Most laboratories remained within the Z-score limit of +/- 2.0 for both the dry weight and wet weight against the mean, however one laboratory with particularly high wet weights was flagged with a 'fail' for all three samples and another laboratory with the highest dry weight scores was flagged with a 'fail' for samples B and C.

Comparing wet and dry weights using z-scores calculated from the expected wet weight and actual dry weight is less accommodating and more sensitive to slight deviations in results than comparisons against the mean. However, for RT14, the z-scores derived from the expected wet weights and actual dry weights only resulted in one additional 'fail' compared to the z-scores calculated from the mean.

Cover of macroalgae & seagrass ([OMC-RT13](#))

This is the fourteenth year in which percentage cover estimations of macroalgae have been included as an element of the NMBAQC scheme and the twelfth year for which seagrass has been assessed as a separate exercise. This module included one exercise for macroalgae and one for seagrass, both of which were split into three additional tests based on methodology. The format followed that established by Wells Marine during the previous years of the module (RT03 – RT12).

Eleven laboratories were issued test material. Eight laboratories completed the percentage cover macroalgae/seagrass module with a total of 25 participants. Of those laboratories submitting results, all eight were government organisations.

Results for percentage cover of both opportunist macroalgae and seagrass varied between participants and between the different methods used. Several results deviated from the sample mean and from the % cover as calculated by image analysis. Deviation from the latter was more noticeable and this has also been reported in previous years. There was a considerable lack of consistency between the three methods in terms of the degree of continuity between participants as well as how the data compared with the image analysis % cover. For the macroalgae test, methods A and C were equally popular, whilst for seagrass method A was the most popular and method C least popular. The number of 'Fails' between test methods and comparison against mean or image analysis varied considerably with no apparent trend. The overall number of 'Fails' was similar for macroalgae and seagrass particularly when compared against ImageJ. The tests continue to produce a broad range of results thereby increasing the standard deviation, this results in the Z-scores being unable to pick up slight deviations from mean or ImageJ analysis percentage cover.

Reports
[OMB RT14 Final Report 2023](#)

Pears, S. & Brackenreed-Johnston, G. 2023. National Marine Biological Analytical Quality Control Scheme. Macroalgae Biomass Component Report Ring Test OMB RT14 2023. Report to the NMBAQC Scheme participants. Apem Report NMBAQCmaomb14, 10pp, April 2023.

[OMC RT14 Final Report 2023](#)

Pears, S. & Brackenreed-Johnston, G. 2023. National Marine Biological Analytical Quality Control Scheme. Macroalgae/Angiosperm Percentage Cover Component Report Ring Test OMC RT14 2023. Report to the NMBAQC Scheme participants. Apem Report NMBAQCmaomc14, 15pp, April 2023.