Examination Information

i **d** e n t i f i c a t i o n **q** u a l i f i c a t i o n s

NAME OF UNIT: **FRESHWATER DIATOMS**

REFERENCE NUMBER: **B031**

COST OF EXAMINATION: **£ 250.00**

SYNOPSIS:

The aim of this examination is to test the application of skills in identifying British diatoms from a variety of freshwater and estuarine habitats. Special emphasis will be given to those species or groups that are used for monitoring freshwater environments, or studying environmental change. The level of difficulty has been matched to the quality standards required for identifying biological material in environmental impact assessments, habitat evaluations or other ecological surveys.

Candidates will be expected to demonstrate proficiency in identifying diatoms from mixed samples to species (occasionally variety), or to higher groups such as genus or family as required. Both planktonic and benthic communities will be represented. Most of the examination material will be in the form of acid-cleaned samples mounted on microscope slides, but may also include fresh specimens, photographs, line drawings or scanning electron micrographs.

A time element has also been taken into account so that the examination is a realistic test of efficiency of practical work as well as accuracy of identification. There is no restriction on the use of keys, handbooks or other identification manuals.

Candidates will also be expected to demonstrate an understanding of relevant morphological terms, especially those that are used as diagnostic or key characters; familiarity with identification manuals, checklists and other relevant publications; and a basic working knowledge of botanical nomenclature as it relates to the correct use of taxonomic names.

CANDIDATE GROUPS:

Biologists and ecologists working for the Environment Agency, Scottish Environmental Protection Agency, Water Companies or elsewhere in the water industry; freshwater ecologists, environmentalists and taxonomists engaged in assessing, monitoring or evaluating freshwater habitats; also experienced amateurs.

EXAMINATION FORMAT:

The examination comprises a practical test lasting about two and a half hours, and a short written paper of about half an hour - total duration 3 hours.

The main practical test will be in two parts: the first lasting about half an hour will involve the identification of about 25 illustrated specimens to generic level, or to other higher taxonomic group as required. In the time allocated this material will have to be identified mainly 'by eye' and without the use of keys. The second part (2 hours) will comprise identification of about 25 specimens to species (or variety), for which full use of keys will be essential. Some specimens which cannot be keyed out may also be included; candidates will be expected to state if it is impossible to identify these, and any guesses at inappropriate levels of accuracy will be regarded as incorrect answers.

The written paper will consist of 5-10 multiple-choice questions on morphology, structure of keys, relevant publications, and the correct use of scientific names.

EQUIPMENT:

Candidates are encouraged to bring their own microscopes but where this is not possible a compound microscope and lamp will be provided for each candidate. Facilities for making temporary slide mounts will be available, although this will not generally be necessary.

Candidates will be expected to bring their own identification keys, handbooks, and other identification aids; although single copies of relevant key works may be available. Reference collections will not be provided, nor can they be brought into the examination by candidates. Any problems over the availability of equipment and literature should be referred to the Museum well in advance of the examination date.

MARKING:

The pass mark for the examination is 90 per cent. Candidates achieving the pass mark will receive the full IdQ Certificate. As well as being informed in writing of the result, each candidate will also be given the actual percentage mark achieved.

To encourage training in freshwater diatom identification and the progressive acquisition of skills, candidates who fail to achieve the 90 per cent pass mark but who reach the intermediate standard of 70 per cent will be awarded an Intermediate Certificate.

VENUE:

The examination will be held at the Natural History Museum, South Kensington, London.

BOOKING INFORMATION:

For details on how to book and download an application form go to www.nhm.ac.uk/science/idq or contact idq@nhm.ac.uk, telephone (020) 7942 5816 or fax (020) 7942 5841.

REFERENCE LIST:

The following are useful guides to the morphology, terminology and identification of diatoms. Familiarity with these works will generally be essential for successful completion of the examination, but in some cases candidates may prefer to use alternatives. The list is intended as a guide only.

Barber, H.G. & Haworth, E.Y. 1981. A guide to the morphology of the diatom frustule. *Scientific Publications of the Freshwater Biological Association* No. 44.

Cleve-Euler, A. 1951-1955. Die Diatomeen von Schweden und Finnland. *Kungliga Svenska Vetenskapsakademiens Handlingar* **2:1**; **3:3**; **4:1**; **4:5**; **5:4**. Uppsala & Stockholm. (Available as facsimile: Bibliotheca Phycologica 5 (1968))

Hendey, N.I. 1964. An introductory account of the smaller algae of British coastal waters. Part V. Bacillariophyceae (Diatoms). *Fishery Investigations.* Series IV. Ministry of Agriculture, Fisheries & Food. HMSO, London. (Reprint 1976, Otto Koeltz Science Publishers)

Krammer, K & Lange-Bertalot, H. 1986. Bacillariophyceae. Teil 1: Naviculaceae. *Süsswasserflora von Mitteleuropa.* Band 2/1. Begr. A. Pascher. Gustav Fischer Verlag. Stuttgart.

Krammer, K & Lange-Bertalot, H. 1988. Bacillariophyceae Teil 2: Bacillariaceae, Epithemiaceae, Surirellaceae. *Süsswasserflora von Mitteleuropa.* Band 2/2. Begr. A. Pascher. Gustav Fischer Verlag. Stuttgart.

Krammer, K & Lange-Bertalot, H. 1991. Bacillariophyceae Teil 3: Centrales, Fragilariaceae, Eunotiaceae. *Süsswasserflora von Mitteleuropa.* Band 2/3. Begr. A. Pascher. Gustav Fischer Verlag. Stuttgart.

Krammer, K & Lange-Bertalot, H. 1991. Bacillariophyceae Teil 4: Achnanthaceae. Kritische Erganzungen zu *Navicula* (Lineolatae) und *Gomphonema*. *Süsswasserflora von Mitteleuropa.* Band 2/4. Begr. A. Pascher. Gustav Fischer Verlag. Stuttgart.

Round, F.E., Crawford, R.M. & Mann, D.G. 1990. *The diatoms. Biology and morphology of the genera.* Cambridge University Press. Cambridge.

Sykes, J.B. 1981. An illustrated guide to the diatoms of the British coastal plankton. *Field Studies* **5:** 425-468. (Field Studies Council Publication S8).