THE UK NATIONAL ESTUARINE CLASSIFICATION SYSTEM AND ITS APPLICATION

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ABSTRACT

An outline is presented of the background to the development of an estuarine classification system used by the UK National Water Council. The basic objectives and several possible approaches which were considered are described. Reasons are given for the selection of parameters and features incorporated in the scheme, which include dissolved oxygen, biological quality and aesthetic quality. The result of the application of the scheme to data collected in 1980 is presented, and the paper concludes with proposals for future modifications and the application of the scheme for management purposes.

INTRODUCTION

The first survey of river pollution in England and Wales was organised in 1958 by the Ministry of Housing and Local Government. Further surveys were published in 1970 and 1975 (HMSO 1971-1978) by the Department of the Environment (DOE) and involved the use of similar procedures. Following the 1975 survey it was decided that the system of assessment should be made more quantifiable and objective. In view of its role as the coordinating body of the Water Authorities, the task of organising the survey and publishing the results was transferred to the National Water Council (NWC) which also undertook the development of the new river classification system. The new scheme was published in 1978 for use in the 1980 river quality survey (NWC, 1978).

In 1974 the Control of Pollution Act (HMSO 1974a) was enacted giving Water Authorities increased powers in tidal waters, and by
1977, the DOE had concluded that a system of water classification of estuaries and coastal waters should be developed and, if possible, adopted for use in conjunction with the 1980 river pollution survey.

Three main reasons for the conduct of a survey of estuaries and coastal water quality were identified by the DOE, viz

(a) the provision of a nationally-based classification system would demonstrate to Ministers that their statutory and administrative interests in the state of estuarine and coastal waters were being safeguarded, and that the broad policies to which they had committed themselves were being adequately implemented

(b) a means was required by which reports could be made to the general public, particularly those with strong environmental interests in the quality of estuarine and coastal waters;

(c) a means was required by which reports could be made to the European Commission and Member States of the Community, and to the Paris Commission, on the quality of estuarine and coastal waters, particularly in relation to the effects of discharges of black list and grey list (List I and II) substances to the aquatic environment (HMSO 1974b and EEC 1976).

A number of subsidiary benefits of a classification system were also recognised, for example in assessing the effect on the environment of tidal power schemes, barrages, possible conversion of an estuary to a water storage system, industrial and municipal developments and the assessment of minimum acceptable flows to estuaries. A further advantage was that, by adoption of a uniform method of classification, changes over a period would be apparent and be capable of easy summary, on a common basis.

DEFINITION OF THE TASK UNDERTAKEN

Responsibility for coordinating the technical aspects of pollution monitoring and assessment procedures in the United Kingdom rests with a number of monitoring management groups (MMGs). These groups were organised under DOE guidance (HMSO 1974c) and report on matters related to their particular field of responsibility. Within this framework estuaries are the joint concern of the Freshwater and the Marine pollution MMGs. Accordingly, a working party was established, working to these two MMGs, to develop a system of water quality classification for estuaries and coastal waters. One of the authors (PCW) acted as chairman and the other (JEP) as Technical Secretary of the Working Party.

At a very early stage in the discussions a number of problems were recognised in relation to the breadth of the task, and several