

Husbandry and environmental enrichment – *what do fish need and has there been much progress?*

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The aim of environmental enrichment in Zoos and aquariums is to provide an environment in which animals behave as closely as possible to their wild counterparts (Shepherdson, 1988). While environmental enrichment techniques have been applied extensively to mammalian systems, limited information exists concerning the application of such procedures to fish. In order to help ensure that the implementation of environmental enrichment procedures, if required, is based on sound scientific principles *and* practical considerations then work must be undertaken on appropriate species-specific forms of enrichment to understand any effects that they may have.

Using environmental enrichment for improving the welfare of fish is an important objective and has relevance in both husbandry and toxicity testing. This is further complicated in areas such as regulatory testing where strict guidelines cover every aspect of the way tests are conducted. Added to this is the possible effect of additional substrates within the test system possibly altering the final outcome then the use of enrichment must be approached with caution. With this in mind, it is important to balance the enrichment refinements with the need to have a scientifically valid, high-quality study so that refinements do not compromise results and require repeat testing, thus elevating animal usage. It is important, therefore, to achieve a balance between effective enrichment programs that could be transferred from the husbandry aspect of animal production directly into regulatory studies, without compromising study robustness.