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**PLENARY SESSION**

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**FISH PASSAGE IN THE EUROPEAN CONTEXT: CHALLENGES,  
FAILURES, AND POTENTIAL SOLUTIONS**

The need to provide routes of alternative passage for moving fish impeded by river infrastructure is well recognised. In Europe, understanding of the potential for impoundments to block the spawning migrations of fish and as a result cause population declines date back to before the reign of the English Monarch, Richard the Lionheart, in the 12th Century. Despite continuous development of fish passage solutions, such as fishways for upstream migrating fish, and bypass facilities designed to aid downstream movements, robust evaluation of their efficiency is rare when viewed from the global perspective. Where effectiveness has been monitored, results frequently fall below expectation and in some cases the fish passes are themselves a cause for concern as a potential impact on fish populations. This has led to current fish passage solutions being described as “half-way” technologies and partially explains why many populations have continued to decline, and in some case become extinct, despite mitigation.

The development of fish passes that effectively attract multiple species (taking a community perspective) to their entrances, allow successful entry and passage while

minimising energetically costly delay and potential for predation remains a major and fundamental challenge. This presentation will outline some of the current problems and future challenges associated with fish passage development and provide recommendations for further progress in this field. These can be summarised as: 1) recognising the problem; fish passage may not provide a universal panacea; 2) developing realistic fish passage design criteria for multiple species; 3) embracing the influence of fish behaviour in passage efficiency; 4) improving understanding of population response and cumulative impacts; and 5) considering alternative mitigation options and developing techniques to effectively prioritise actions.