ARPHA Conference Abstracts 9: e202924
doi: 10.3897/aca.9.e202924

OPEN ACCESS

Conference Abstract

The Risk Assessment of Raw Water Transfer

Tom William Hill‡, Paul Stebbing‡

‡ APEM ltd., Stockport, United Kingdom

Corresponding author: Tom William Hill (t.hill@apemltd.co.uk)

Received: 05 Jun 2026 | Published: 05 Jun 2026

Citation: Hill T, Stebbing P (2026) The Risk Assessment of Raw Water Transfer. ARPHA Conference Abstracts 9: e202924. https://doi.org/10.3897/aca.9.e202924

Abstract

The expansion and reconfiguration of water resource infrastructure within the United Kingdom, particularly through Raw Water Transfer (RWT) has resulted in increased connectivity of previously isolated aquatic systems. While crucial to enhancing resilience in national water supply, this increased connectivity may lead to a greater risk of invasive non-native species (INNS) spread. Despite RWT being recognised by the UK's environmental regulator and the water industry as an important invasion pathway, risk assessment and risk analysis approaches remain fragmented. There is currently a need for a consistent framework for evaluating INNS risks associated with RWT schemes, and mechanisms for determining and monitoring the scale of biosecurity mitigation needed.

The Strategic Resource Option Aquatic Invasive Non-Native Species Risk Assessment Tool (SAI-RAT) provides a structured approach to assessing the risk of INNS spread, establishment, and impact associated, primarily, with RWT, but also operational assets, and large-scale water resource schemes. The tool allows the technical parameters of the RWT to be incorporated, which influence organism survival and therefore risk. The tool builds on previous industry work and was developed by APEM ltd. on behalf of the UK's Environmental regulator.

By providing a consistent assessment structure, SAI-RAT supports more coherent and defensible prioritisation of INNS risks, improves comparability between schemes and enables better integration and performance monitoring of biosecurity options within long-term water resource options. Crucially, the developed approach moves beyond, while still integrating, species-specific impact assessments to adopt a future-proofed, system- and

© Hill T, Stebbing P. This is an open access article distributed under the terms of the Creative Commons Attribution License (CC BY 4.0), which permits unrestricted use, distribution, and reproduction in any medium, provided the original author and source are credited.

pathway-focused framework that bridges ecological theory and operational decision-making.

This presentation outlines the conceptual rationale, scope, and theoretical underpinnings of INNS RWT risk assessment, illustrated through SAI-RAT, highlighting risk assessment's role in advancing integrated, scalable, and proportional approaches to managing aquatic biosecurity in increasingly managed and connected water resource systems.

Keywords

Risk assessment, INNS, Invasive non-native species, raw water transfer, water resource, drought, biosecurity

Presenting author

Mr Tom Hill

Presented at

Neobiota 2026, the 14th International Conference on Biological Invasions

Conflicts of interest

The authors have declared that no competing interests exist.