Progress Report STP 2022-003 (FY 2022-2023)

Chasing Flamingos - Tracking synthetic eDNA in a river network using passive sampling methods

BCS Ecosystem Science

Project Core Team

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Project status as of June 27, 2023, 12:48 p.m.

X X Update requested

Document endorsements and approvals as of June 27, 2023, 12:48 p.m.

X X
Project Team granted
Program Leader required
Directorate required

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Progress Report

Environmental DNA (eDNA) is increasingly used to survey freshwater biodiversity, but complexities of flowing waters can limit interpretation of results in riverine environments. Inferences on species distribution are based on the unidirectional flow with assumptions of how far upstream the source of the DNA might occur. This project aims to measure the movement of a synthetic DNA tracer injected into a river, and the rate of loss with distance from the source. Modelling of the experiment will be conducted to inform how eDNA sampling can be used to inform spatial distributions of biodiversity along river reaches. Outcomes from this research will assist DBCA to apply novel eDNA methods to monitor the biodiversity of flowing, freshwater ecosystems.

The research proposal and methodologies have been developed and agreed between collaborators and funded. The experiment is planned for spring 2023 in Southern River and initial measurements of stream morphology and flows have been undertaken to develop a local flow rating curve. The synthetic DNA tracer and primers have been designed, based on American flamingo (*Phoenicopterus ruber*), and specificity testing is underway to ensure the final tracer will be unique to the experiment environment.