

MMCP Collaboration

Understanding the ecological consequences of macroinvertebrate community-structure change

Background

The purpose of this project is to determine the nutritional value of key macroinvertebrates in the Murray River and compare that to the dietary requirements of large-bodied native fish to see if the changes observed in macroinvertebrate community structure in the Murray River have affected fish nutrition. If they have, there may be a need to refocus management interventions away from those targeted directly at large-bodied native fish, and more towards those that focus on their prey items.

This project seeks to explore whether or not some of the decline in large-bodied native fish in the southern MDB can be attributed to observed shifts in the distribution and density of potential prey items and hence potential changes in the diet of those fish. If this is the case there may be a need to refocus management activities currently underway that seek to restore large-bodied native fish stocks.

Management implications

The management and restoration of native fish populations has primarily targeted the maintenance of flows and habitats that promote recruitment and growth of larvae and juvenile fish. The success of these actions may be limited due to a poor understanding of how changed flow regimes have modified the occurrence of

appropriate food resources that necessary support the recruitment and growth of native fish. The MMCP Collaboration will provide water resource managers with the knowledge on how to manipulate flow regimes to support and maintain food resources that promote the growth of native fish.

Objectives

- Determine how changes in the size structure within the macroinvertebrate community alters the energy distribution of Murray River foodwebs, thus affecting fish communities.
- Synthesise and summarise the relevant literature on key elements of fish nutrition that have the greatest ecological significance in driving fish growth and reproduction.

Outcomes

- An improved capacity to predict how changes in the foodweb structure alters fish communities.
- The improved capacity will have been obtained through improved understanding of the energetic availability and nutritional landscape of macroinvertebrate communities, as food sources for higher order consumers.



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