

## IMEF - Fish Monitoring 1999-2000

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### Introduction

The Integrated Monitoring of Environmental Flows (IMEF) project was established by DLWC to assess the environmental responses to improved flows after the introduction of the flow rules in 1998 for the major regulated rivers and the Barwon-Darling River.

This flier provides an update on the fish component of IMEF.

Freshwater fish have been selected as one of the environmental indicators that will be examined as part of the monitoring program. The NSW Fisheries Office of Conservation is conducting the fish component of the IMEF program for the Department of Land and Water Conservation.

The fish component of the IMEF program is designed to test the following potential environmental benefits of releases from dams and limits on extraction:

- The breeding of native fish could be promoted by ensuring more natural temperatures and keeping spawning habitats wet at critical times.
- Silt in the river bed is likely to be flushed out by more frequent flow events. This would increase the opportunities for egg-laying by fish spawning on gravel
- Natural wetting of river channels flood plains, temporary streams and billabongs could maintain habitat for feeding and resting.
- Wetting low-lying floodplain wetlands more frequently means that the exchange of fish between these wetlands and the river is likely to occur more often.
- That floods will stimulate recruitment by native species.

### Methods

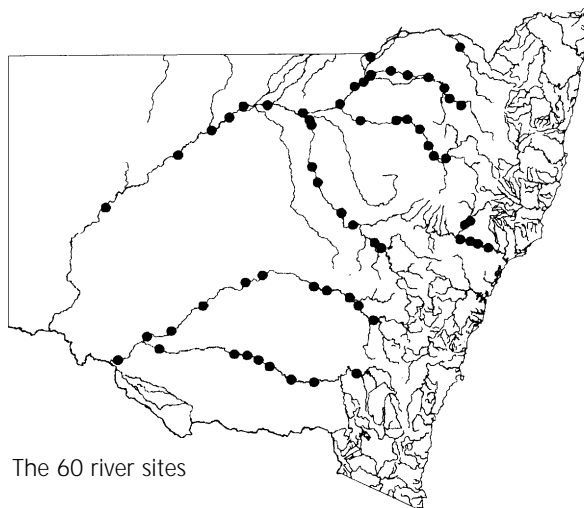
Fish were sampled by electrofishing from a boat. This technique temporarily stuns the fish so they can be caught and later released. Captured fish were identified, examined for disease, damage or abnormalities and measured. Fish observed but not caught and which could be readily identified were also recorded.

Sixty river sites were sampled during the 1999-2000 summer. Ten of these sites were also sampled during the NSW Rivers Survey between 1994 and 1999.

Ten wetland sites in the Gingham/Gwydir valleys were sampled three times between January and June 2000 to describe "pre-flood" fish community structure.

### Results for riverine sites

A total of 6280 fish was recorded during 1999/2000. Of these, 80% were native and 20% alien (non-native) fish.



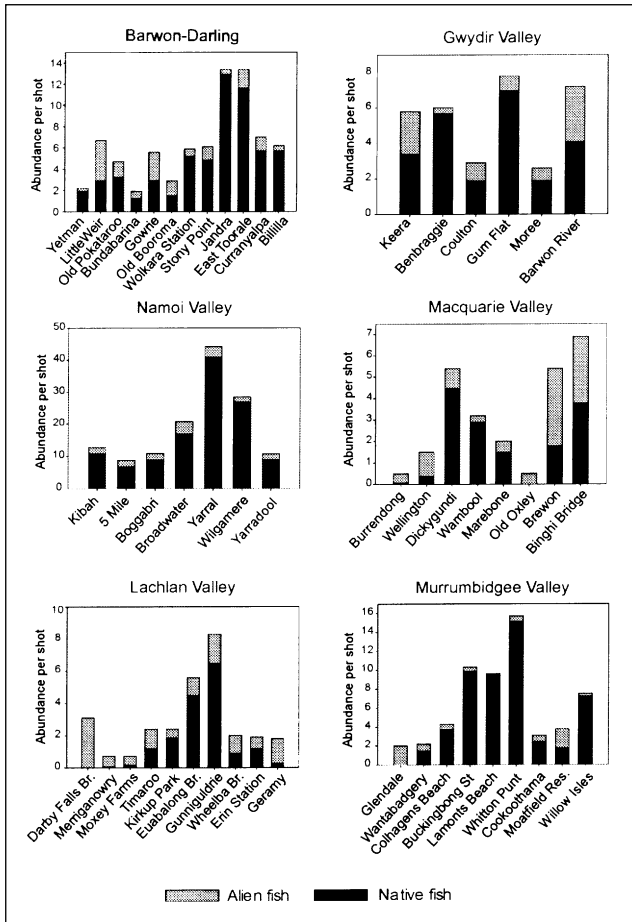
The 60 river sites

In the inland rivers the native fish caught were mostly Australian smelt and bony herring, with medium numbers of golden perch and Murray cod. Only small numbers of the threatened species, silver perch and trout cod, were caught. In the Hunter River the most abundant fish were striped mullet and freshwater herring.

The alien fish were mostly carp, gambusia and goldfish.

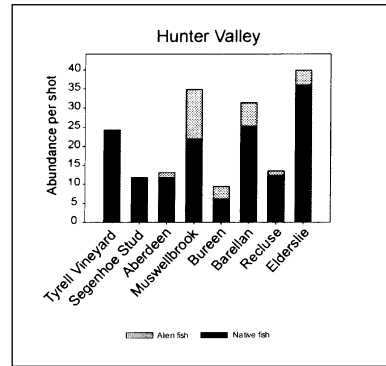
The relative abundance of native and alien fish species per electrofishing "shot" in each river are shown on the following figures.

The riverine sites were sampled again during the 2000-01 summer period as part of the ongoing monitoring program.



Murray-Darling Basin sites

The fish monitoring project was carried out jointly by the NSW Department of Land and Water Conservation and NSW Fisheries (Office of Conservation)



Hunter River sites

### Results for wetland sites

A total of 2284 fish was recorded during the three sampling runs. Of these, 26% were native and 74% alien fish.

Seven native species were recorded from the ten wetlands with number of species per wetland ranging from one to seven.

Three alien fish species (carp, goldfish and gambusia) were recorded at eight wetland sites and two species were recorded at the remaining two wetland sites.

### More Information

More detailed information is available on request.

For further details of the IMEF project please contact Marie Egerrup, Sustainable Water Management, Department of Land and Water Conservation, GPO Box 39, Sydney, NSW 2001. Email: megerrup@dlwc.nsw.gov.au

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Electrofishing in inland NSW