

# Inaugural Western Australian Freshwater Fish Symposium

This volume is dedicated  
to the memory of Jon Murphy



**Freshwater Fish Group &  
Fish Health Unit**

*Centre for Fish & Fisheries Research*



Government of **Western Australia**  
Department of **Fisheries**

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## PREFACE

### Inaugural Western Australian Freshwater Fish Symposium

In November 2013, the Inaugural Western Australian Freshwater Fish Symposium was held at the Naturaliste Marine Discovery Centre, Hillarys Boat Harbour, Western Australia. It had been conceived and developed as a forum to assist in the conservation and management of the unique, but relatively little documented, fish and crayfish faunas in the inland aquatic systems of Western Australia. The symposium was attended by over 100 delegates, mostly from Western Australia, but also included attendees from most other Australian States. Twenty-eight speakers gave formal presentations on topics including threatened species, invasive species, fish parasites, sampling techniques, genetics, morphology, new species discoveries, and the management of fishes and their habitats.

The current Special Issue contains 11 papers that detail significant research achievements and management issues relating to Western Australia's unique freshwater fish and crayfish fauna. It is timely, in that much of the fauna is immediately threatened by a decline in surface water quality and availability, the impacts of invasive fishes, habitat degradation and the changing climate, among other factors. The first paper in the issue by Morgan *et al.* presents a much needed overview of fishes in freshwaters of Western Australia including a historical account of taxonomic, ecological and biodiversity discoveries. It represents an important review of the current knowledge of the biodiversity of fishes in each of the ichthyological provinces of Western Australia, specifically the Kimberley Province, Northern Province, Pilbara Province, Southwestern Province and the arid interior Paleo Province, which together constitute half of Australia's ichthyological divisions.

The Symposium Keynote Speakers were Drs Adam Kerezszy and Brendan Ebner. The paper by Kerezszy provides an excellent template for Western Australian researchers and managers on the importance of science communication beyond the scientific community. Lessons from the Kerezszy contribution include the example of the conservation of a small endangered fish species which has a relevance extending to organisms other than fish. Ebner *et al.* provide a history of the emergence of underwater video for studying the ecology of fishes and crayfishes in the Australian environment. Some of this work has Western Australian origins, and the review brings together experiences of researchers from across Australia that may assist those researchers and managers that are planning on or currently using this technology in inland aquatic ecosystems.

Duffy *et al.* provide a timely review of the Critically Endangered Margaret River Marron, a species that, without management intervention, may not persist in natural ecosystems beyond the next few decades, as a consequence of the introduction of the more widespread Smooth Marron. Another species that is threatened by introduced species and loss of habitat is Balston's Pygmy Perch, and Morgan and co-authors provide details on the range reduction of this endemic threatened fish. Enhancing fish migration in streams through the construction of fishways is only a decade old in Western Australia, and Beatty and colleagues detail the importance of understanding life-history and swimming ability of target species in the planning, design and construction of fishways in Western Australia. This is a timely publication in light of future predictions of reduced flow in Southwestern Province streams. Hourston *et al.* provide a disturbing finding from a large dataset on fishes in Swan Coastal Plain wetlands, demonstrating that of those wetlands containing fishes, only 12% were found to contain only native fishes, while 42% only supported introduced fishes. Rashnavadi and co-authors examine the flexibility in life history traits of a fish typically of estuarine origin that has penetrated inland into river systems that are impacted by secondary salinisation.

The remaining papers deal with studies in the Kimberley region of the State, a region which offers the highest number of species that are targeted for food, and also the highest diversity of inland fishes in the state. Close *et al.* identified that areas of relatively easy accessibility are most affected by fishing pressure, in contrast to remote regions. Thorburn *et al.* utilised dietary and stable isotope analyses to determine seasonal predator and prey relationships in the Fitzroy River, while Storey and Creagh address the applicability of the Functional Habitat Concept to fishes occurring in the various habitats of the Lower Ord River.

The overwhelmingly positive feedback received from the delegates to the Symposium who were surveyed will ensure that it becomes a reoccurring event. The publication of this Special Issue would not have been possible without considerable support from the Australian Society for Fish Biology, the Department of Fisheries and Murdoch University's Freshwater Fish Group & Fish Health Unit. We are delighted, that in the Centenary year of the Royal Society of Western Australia, the Society has supported the publication of this special issue, which presents an important positive step in conserving our uniquely Western Australian freshwater fish fauna.

**David Morgan, Stephen Beatty, Michael Snow & Debra Thomas**  
Organising Committee, Inaugural Western Australian Freshwater Fish Symposium

## **REVIEWERS**

We would like to extend our gratitude to the reviewers of the various manuscripts within this special issue:

Mark Allen, Patrick Armstrong, Stephen Beatty, Leah Beesley, Michael Calver, Paul Close, Rodney Duffy, Brendan Ebner, Michael Hammer, Pierre Horwitz, Matthew Hourston, Adam Kerezsy, Jason Ledger, Jess Leyland, Michael Lowry, Alan Lymbery, David Morgan, Brad Pusey, Tom Ryan, Michael Snow, Tim Storer, Andrew Storey and Dean Thorburn.