The Inland Waters and Catchment Ecology (IWCE) Science Program provides scientific and technical advice across government, industry and the community for the conservation, management and rehabilitation of inland waters, estuaries and catchments. Our diverse research includes ecology and population dynamics of freshwater and estuarine fishes, molluscs and crustaceans, ecology of freshwater and riparian vegetation, environmental water requirements, and ecology and management of invasive species.

**Overview**

The IWCE Program was established in July 2005. The program conducts a broad range of research through four subprograms: Fish Ecology, Plant Ecology, Invasive Species, and Climate and Catchment. We have established close links and collaborations with state and federal agencies, universities, and community groups including the Murray-Darling Basin Authority, Department of the Environment, CSIRO, Primary Industries and Regions South Australia, Department of Environment, Water and Natural Resources and regional Natural Resources Management Boards. We are also a research associate with the Goyder Institute for Water Research.

**Fish Ecology Subprogram**

Undertakes applied research on the ecology of freshwater and estuarine fishes that is relevant to natural resource management (NRM). The subprogram conducts a range of projects relating to the flow related ecology and the habitat requirements of freshwater and estuarine fishes, fish movement and the facilitation of fish passage. A current tri-state collaborative project ‘The Murray River Fishway Assessment Program’ is the largest freshwater ecological restoration project undertaken in Australia.

**Plant Ecology Subprogram**

Conducts a wide range of research projects relating to the ecology of aquatic and riparian vegetation including impacts of altered hydraulic regimes, environmental water requirements, impacts of increased salinity, effects of engineered flooding, impacts of drought on aquatic ecosystems, baseline vegetation surveys and condition and intervention monitoring.

**Invasive Species Subprogram**

Conducts research and provides scientific and technical advice in relation to the control and management of invasive freshwater fishes. Projects involve quantifying ecosystem impacts caused by invasive fishes, monitoring the distribution and abundance, developing and trialing innovative physical and chemical control measures and conducting risk assessments to identify key threats and knowledge gaps associated with new invasive species. State-of-the-art fish tracking techniques and analytical models are also used to quantify movement and habitat associations that can be exploited to increase the success of physical and chemical control techniques. The research and services are important to state, national and international biosecurity strategies and management.

**Climate and Catchment Subprogram**

Provides scientific and technical advice to underpin the sustainable management of catchment ecosystems in southern Australia in the context of climate change and other pressures. The subprogram conducts research on the hydrological and climate impacts on the freshwater and estuarine habitats and biota, monitors ecological responses to flows including environmental watering, and synthesises relevant knowledge and develops system understanding to support NRM.
Dr Qifeng Ye, Science Leader

Dr Qifeng Ye has a range of skills and extensive experience in fish and fishery biology, ecology and population dynamics accumulated through 20 years of environmental and fishery related work. This has been done in freshwater, estuarine and marine systems, in several countries. She has written many publications including journal papers, book chapters, articles and technical reports and has presented her research work at national and international conferences.

Since 2001, Dr Ye has led the Inland Waters research team, successfully attracted multi-million dollar research grants and grown the team into a significant Science Program. As the Principal Scientist, she has been a leader and/or played an integral part of a number of large scale, multi-disciplinary projects on fish ecology and ecological response monitoring to environmental flows.

Dr Ye is a member of several scientific and management committees at state and national levels. These include the Murray-Darling Basin Fish Working Group, Murray Cod Fisheries Management Group, CLLAMM Science Advisory Group, the Murray Futures CLLAMM Long Term Plan Reference Group, and the SA Freshwater Catfish Working Group.

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