

# The Murray-Darling Freshwater Research Centre

## Research Portfolio | 2010 – 2013



The Murray-Darling Freshwater Research is a Joint Venture between CSIRO and La Trobe University. The core business of the MDFRC is the generation of new scientific knowledge to support effective management of the Basin's ecology. This knowledge is generated through long-term strategic research, short-term tactical research, synthesis of the best available science, monitoring and evaluation and knowledge exchange activities to promote adoption and active involvement in the management of the freshwater assets of the Basin.

| Project  | Client                                       | Year        | MDFRC Contact  |
|--|--|-------------|----------------|
| 2012-2013 Theogoa Lagoon lateral movement carp removal - Ref no: 460   | Murray Local Land Services                   | 2012 – 2013 | Iain Ellis     |
| An evaluation of the proposed Chowilla Creek environmental regulator on large-bodied fish species – Ref no: 312                                  | Fishway Consulting Services                  |             | Clayton Sharpe |
| Angler Diaries for Gunbower Island: Community contribution to knowledge generation of fish distribution across Gunbower Island – Ref no: 320     | North Central Catchment Management Authority | 2010 – 2011 | Clayton Sharpe |
| Assessing the effectiveness of environmental flows on fish recruitment, water quality and secondary productivity in Barmah-Millewa – Ref no: 366 | Arthur Rylah Institute                       | 2010 – 2011 | Daryl Nielsen  |
| Assessing the importance of water-borne propagule movement for establishment of aquatic vegetation in a long-dry wetland – Ref no: 352A          | Murray Darling Basin Authority               | 2010 – 2011 | Caitlin Johns  |
| Assessment of drifting fish larvae in the Murray River (Mildura) in spring/summer 2011-2012 - Ref no: 406  | Mallee Catchment Management Authority        | 2011 – 2012 | Iain Ellis     |
| Assessment of fish community in Margooya Lagoon post Murray River flooding - Ref no: 402   | Mallee Catchment Management Authority        | 2011 – 2012 | Iain Ellis     |
| Assessment of fish movement between Butlers Creek and the Murray River, Winter - Ref no: 399   | Mallee Catchment Management Authority        | 2011 – 2012 | Iain Ellis     |
| Assessment of lateral fish movement to and from Margooya Lagoon when re-connection to the Murray River is provided – Ref no: 355                 | Mallee Catchment Management Authority        | 2010        | Iain Ellis     |

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| Assessment of the fish community in Lake Kramen (North West Victoria) upon re-inundation after a 17 year dry spell - Ref no: 392  | Mallee Catchment Management Authority                  | 2010 – 2011           | Iain Ellis        |
| Assessment of fish movement in Sandilong Creek, Spring 2012 - Ref no: 440   | Mallee Catchment Management Authority                  | Spring 2012 – 2013    | Iain Ellis        |
| Assessment of the response of aquatic taxa to blackwater in the southern Murray-Darling Basin - Ref no: 419   | Arthur Rylah Institute                                 | 2011 – 2012           | Bernard McCarthy  |
| Barmah-Millewa Blackwater Monitoring - Ref no: 376  | Goulburn Broken Catchment Management Authority         | 2011                  | Rob Cook          |
| Biological Assessment of the Murray-Darling Basin using monitoring of the macroinvertebrates community structure – Ref no: 368  | Murray Darling Basin Authority                         | 2010 – 2011           | John Hawking      |
| Broken River environmental flow study - Ref no: 437   | Peter Cottingham and Associates                        | 2012 – 2013           | Darren Baldwin    |
| Captive maintenance and breeding of Murray Hardyhead from South Australian populations (Disher Creek and Berri Evaporation Basin) - Ref no: 310   | SA - Dept for Environment & Natural Resources          | June 2011 – June 2012 | Iain Ellis        |
| Chowilla Floodplain: Water Quality risks associated with Schedule A (2009/2010) watering of Chowilla floodplain at Coppermine Floodplain and in an channel water level rise at Punkah Creek – Ref no: 335 | South Australian MDB Nat Res Management Board          | 2009 – 2010           | Todd Wallace      |
| Climate Change Monitoring in the Murray River Catchment using Macroinvertebrates – Ref no: 318  | Murray CMA – Local Land Services                       | 2010                  | Rob Cook          |
| Collate data relating to Blackwater events currently occurring in the basin - Ref No: 380   | Murray Darling Basin Authority                         | 2010 - 2011           | Kerry Whitworth   |
| Comprehensive Review of the 1980–2008 Murray River Monitoring Data – Ref no: 330  | Murray Darling Basin Authority                         | 2009 – 2011           | John Hawking      |
| Determining the resilience of fish populations to drought in unregulated rivers – Ref no: 272   | NSW Department of Water and Energy                     | 2009-2010             | Rick Stoffels     |
| Determining Watering Regimes to Protect Floodplains under Hyper-Drought Conditions - Ref no: 246  | Department of Environment, Water Heritage and the Arts | 2008-2011             | Darren Baldwin    |
| Drought Contingency Monitoring of NSW Wetlands – Back Creek and Tumudgery Creek – Ref no: 250   | Murray Darling Basin Authority                         | 2007-2010             | Bernard McCarthy  |
| Drought Contingency Monitoring of NSW Wetlands–Euston Lakes system (Extension) – 2011 Single Survey of Euston Lakes - Ref no: 247   | Murray Darling Basin Authority                         | 2009-2011             | Bernard McCarthy  |
| Drought Monitoring – Ref no: 214b   | MDFRC  | 2010 – 2012           | Ben Gawne         |
| Ducks Foot Lagoon, Baggs Lagoon and Sandilong Creek backwater for Acid Sulfate Soil Assessment – Ref no: 345  | Mallee Catchment Management Authority                  | 2010                  | Iain Ellis        |
| Ecological responses to altered flow regimes - Ref no: 342  | Griffith University                                    | 2010 – 2015           | Ben Gawne         |
| Ecological Risk Assessment Mullaroo Creek – Ref no: 357   | Mallee Catchment Management Authority                  | 2010 – 2011           | Todd Wallace      |
| Effects of turbidity on native fish populations: an ecosystems-scale experiment – Ref no: 292   | Goulburn Broken CMA                                    | 2010                  | Rick Stoffels     |
| Enhance the quality and value of MDFRC macroinvertebrate collection through application of genetic barcoding - Ref no: 444  | Murray Darling Basin Authority                         | 2012 – 2013           | Ben Gawne         |
| Etwanda and Bob Corbound Wetlands ‘State of the Wetlands’ Surveys – Autumn 2012 - Ref no: 421   | Mildura Rural City Council                             | 2011 – 2012           | Michelle Kavanagh |
| Fish monitoring in Carrs, Cappitts and Bunberoo Creek system, Lower Murray Darling NSW - Ref no: 441  | NSW Office of Environment & Heritage                   | 2013                  | Iain Ellis        |
| Fish requirements for the proposed river rehabilitation of the Lindsay-Mullaroo System – Ref no: 337  | Fishway Consulting Services                            | 2010                  | Clayton Sharpe    |

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| Fish Spawning and Recruitment in the Lachlan River – Stage 2 – Ref no: 317  | Riverina Local Land Services                                  | 2010        | Todd Wallace   |
| Fish Surveys of Carrs, Cappitts and Bunberoo Creek System, Lower Murray Darling NSW - Ref no: 420   | Murray Darling Basin Authority                                | 2011 – 2012 | Iain Ellis     |
| Focus Farm Wetland Study – Ref no: 348  | Charles Sturt University                                      | 2010        | Daryl Nielsen  |
| Guidance to River Murray operations on water quality risks 2011-2012 - Ref no: 412  | Murray Darling Basin Authority                                | 2011 – 2012 | Darren Baldwin |
| Gunbower Island Annual Fish Monitoring Autumn 2011 - Ref no: 390  | North Central Catchment Management Authority                  | Autumn 2011 | Clayton Sharpe |
| Gunbower, Koondrook, Perricoota Icon Site Fish Surveys – Ref no: 353  | North Central Catchment Management Authority                  | 2010        | Clayton Sharpe |
| Impact of Lake Mokoan Decommissioning on Water Quality and Fish Communities within the Broken River– Ref no: 378  | Goulburn Broken CMA   | 2010 – 2014 | Rick Stoffels  |
| Impact of sulfidic sediments on the viability of dormant propagules – Ref no: 328   | Environmental Trust   | 2010        | Daryl Nielsen  |
| Implementing a systems approach to support adaptive management of river wetland health in the Murray-Darling Basin - Ref no: 248  | Murray Darling Basin Authority                                | 2010 – 2012 | Ben Gawne      |
| Improving capacity to manage blackwater in the southern Murray-Darling Basin - Ref no: 439  | Murray Darling Basin Authority                                | 2012        | Darren Baldwin |
| Improving the efficient use of environmental water (NERP) - Ref no: 424   | Natural Environmental Research Program                        | 2013        | Ben Gawne      |
| Integrated Ecological Condition Assessment (IECA) Framework ‘Proof of Concept’ trial at two Victorian Living Murray Icon Sites (Hattah Lakes and Barmah Forest) - Ref no: 413   | Department of the Environment                                 | 2011 – 2013 | Ben Gawne      |
| Interim maintenance and breeding of captive Murray hardyhead from Rocky Gully Wetland (Murray Bridge, South Australia) – Ref no: 310  | SA - Dept for Environment & Natural Resources                 | 2010        | Iain Ellis     |
| Investigating the influences of changes in the River Murray water quality monitoring program on future capacity to detect trends in water quality - Ref no: 445   | Murray Darling Basin Authority                                | 2012 – 2013 |                |
| Living Murray Monitoring 2012 -2013 – Ref no: 428   | Mallee Catchment Management Authority                         | 2012 – 2013 | Mark Henderson |
| Long term implementation of the Commonwealth Monitoring Reporting and Improvement framework - Ref no: 435   | Department of the Environment                                 | 2012 – 2013 | Ben Gawne      |
| Macroinvertebrate Monitoring Program 2007/08 to 2009/10– Ref no: 244  | Murray Darling Basin Authority                                | 2007 – 2010 | John Hawking   |
| Margooya Lagoon Fish Movement Spring 2010 – Ref no: 371   | Mallee Catchment Management Authority                         | 2010        | Iain Ellis     |
| Minimising Environmental Damage from Water Recovery from Inland Wetlands: Determining water regimes to minimise the impact of sulfidic sediments (potential acid sulfate soils) - Ref no: 228   | NSW Murray Wetlands Working Group (National Water Commission) | 2010 – 2012 | Darren Baldwin |
| Mitta Mitta River Catchment Long-Term Monitoring project: Continuation of the existing ecological monitoring of the river health below Dartmouth Dam and the additional monitoring sites in the Upper Mitta Mitta Catchment (Continuation of project 266) – Ref no: 291 | Murray Darling Basin Authority                                | 2009 – 2015 | John Hawking   |
| Monitor dissolved oxygen and water quality around Barmah Millewa Forest - Ref no: 408   | Goulburn Broken CMA   | 2011 – 2012 | Rob Cook       |

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| Monitoring and assessment of the efficiency of the Gunbower Weir fishway and Thompsons Weir fishway – Ref no: 372                             | Kingfisher Research                            | 2010 – 2011 | Clayton Sharpe               |
| Monitoring impacts of the carp migration into Washpen Creek - Ref no: 415   | Western Local Land Services                    | 2012        | Rick Stoffels                |
| Monitoring of Broken Creek: Water Quality and System Understanding - Azolla III – Ref no: 211-12  | Goulburn Broken Catchment Management Authority | 2010        | Gavin Rees                   |
| Monitoring program for fish and vegetation communities in Kings Billabong 2011-2012 - Ref no: 401   | Mallee Catchment Management Authority          | 2011 – 2012 | Iain Ellis                   |
| Monitoring the ecological response of Commonwealth environmental water delivered in 2011-12 - Ref no: 410                                     | Department of the Environment                  | 2011 – 2012 | Ben Gawne                    |
| Monitoring the effects of Willow removal – Ref no: 364  | North East Catchment Management Authority      | 2010 – 2012 | Ben Gawne                    |
| Mt Buffalo Peatlands Ecological Risk Assessment – Water Quality Assessment Program – Ref no: 346  | La Trobe University                            | 2010        | Kerry Whitworth              |
| Murray hardyhead conservation in Victoria – population monitoring, translocation and captive breeding programs 2012-2013 - Ref no: 333        | Mallee Catchment Management Authority          | 2012 – 2013 |                              |
| Murray Icon Sites Application project 2010-2011 – Ref no: 359   | Murray Darling Basin Authority                 | 2010 – 2011 | Cherie Campbell              |
| Murray Irrigation Area Aquatic Ecosystem Monitoring – Ref no: 86  | Murray Irrigation Limited                      | 2007-2009   | Helen Gigney – Lyn Smith     |
| National Climate Change Adaptation Research Facility – Ref no: 302  | Griffith University                            | 2010 – 2012 | Ben Gawne                    |
| Natural versus Artificial watering of floodplains & wetlands – Ref no: 248.2  | Murray Darling Basin Authority                 | 2010        | Ben Gawne                    |
| Optimising Environmental Watering Protocols to Maximise Benefits to Native Fish Populations - Ref no: 229                                     | National Water Commission                      | 2010 – 2012 |                              |
| Reviewing information on the ecology of the purple–spotted gudgeon, <i>Mogurnda adspersa</i> (Eleotridae), in Australian rivers — Ref no: 297 | NSW Dept of Water and Energy                   | 2010        | Amina Price<br>Rick Stoffels |
| River Murray Biological (Macroinvertebrate) Monitoring Program - Ref no: 393  | Murray Darling Basin Authority                 | 2010 – 2014 | Paul McInerney               |
| River Murray Water Quality Monitoring Program: Phytoplankton data trend analysis 1980-2009 – Ref no: 367                                      | Murray Darling Basin Authority                 | 2010        | Leanne Wheaton               |
| Riverina Vegetation Survey – Ref no: 344  | MDFRC  | 2010        | Lyn Smith                    |
| Sandilong Creek Carp Electrofishing - Ref no: 426   | Mallee Catchment Management Authority          | 2011 – 2012 | Iain Ellis                   |
| Scoping study of increased environmental flows between the Hume Weir and Lake Mulwala - Ref no: 395   | Murray Local Land Services                     | 2010 - 2011 | Ben Gawne                    |
| Study into the Blackwater aspects of the Koondrook Perricoota Forest Flood Enhancement project - Ref no: 369                                  | Murray Darling Basin Authority                 | 2010        | Kerry Whitworth              |
| The Farms, Rivers and Markets project: Catchment Scale Demonstration of Integrated Water Management – Ref no: 296                             | University of Melbourne                        | 2010 – 2012 | Ben Gawne                    |
| The Living Murray 2009-2010 Condition Monitoring Lindsay–Mulcra–Wallpolla Islands and Hattah Lakes – Ref no: 323                              | Dept. of Environment, Land, Water & Planning   | 2010 – 2011 | Bernard McCarthy             |
| The Living Murray 2010-2011 Condition Monitoring Lindsay–Mulcra–Wallpolla Islands and Hattah Lakes – Ref no: 363                              | Dept. of Environment, Land, Water & Planning   | 2010 – 2011 | Bernard McCarthy             |
| To analyse the response of a large lowland river to the transition from drought to flood at key sites Barmah-Milewa - Ref no: 394             | Murray Darling Basin Authority                 | 2010 – 2011 | Ben Gawne                    |

Translocation and monitoring of three sites for Murray hardyhead (*Craterocephalus fluviatilis*) 2009-2010; and maintenance of back up captive populations from Cardross Basin 1 and Lake Hawthorn (July 2009-June 2010) – Ref no: 333

Understanding Blackwater generated from the Koondrook-Perricoota Forest - Ref no: 381

Value of environmental watering during drought years - Ref no: 404

Water Quality Monitoring in Lower-darling River associated with the transfer of water from Menindee lakes to Murray River 2011-2012 - Ref no: 407

Wetland and Waterway Condition Assessments – Ref no: 329

Wetland Assessment of Pig Swamp - Ref No: 384

Willows Monitoring – Ref no: 274

Mallee Catchment Management Authority

2009 – 2010

Iain Ellis

Murray Darling Basin Authority  
NSW Office of Environment & Heritage

2010 – 2011

Darren Baldwin

2011 – 2012

Cherie Campbell

Murray Darling Basin Authority

2011 – 2012

Leanne Wheaton

North Central Catchment Management Authority

2010 – 2011

Cherie Campbell

North Central Catchment Management Authority

2010 – 2011

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North East Catchment Management Authority

2008 – 2010

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