Photographs: Bryn Farmer and James Tweedley (estuaries), Peter Coulson (otoliths), Gordon Thomson and David Bird (lampreys) and Marianne Nyegaard (sunfish)
An archer fish in a pool in the Kimberley. Photograph: Brendan Ebner

David Morgan and Team Sawfish measuring a freshwater sawfish in the Fitzroy River. Photograph: Simon Visser
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A double-tagged Samson fish prior to release and just before capture. Photographs: Shikari Charters
Welcome

Murdoch University

Vice Chancellor

Our 21st Century Vision for Murdoch University is a leading international research-led university pursuing excellence in select areas of knowledge production and dissemination.

From its first 1975 intake of 510 undergraduates, the University’s student body has evolved to over 22,000 – drawn from the growth state of Western Australia, a rapidly developing Asia and a wide range of other countries. We are fully committed to being a truly international university engaging with students and communities in both Australia and abroad to offer our degrees and undertake collaborative research in a number of global locations.

Murdoch, as a research-led university, is a member of Innovative Research Universities Australia. It hosts global-scale research projects across a variety of areas, including agriculture, water, contemporary Asia, veterinary, biotechnology and bioinformatics, hydrometallurgy, ecosystem management and restoration, social justice, interactive media, and learning, leadership and policy.

The University continues on its upward and forward trajectory. In 2013, a serious milestone in the University’s new strategy was achieved, when Murdoch entered the Times Higher Education (THE) Top 100 Under 50 rankings – at number 57.

This is a great time to join Murdoch. The state of Western Australia is experiencing a resource-driven economic boom and Murdoch has a vital role to play in this boom, with many of its teaching and research areas focused on state-wide areas of strength, growth and need.

Professor Richard Higgott Vice Chancellor
About Murdoch University

Murdoch University prides itself on being a University whose 22,000 students and 2,000 staff are free thinkers, with a strong desire to discover, to reach their full potential and to use their imagination to make a difference.

Our main South Street campus in Perth – at 225 hectares, Australia’s largest – is an attractive mix of bushland and teaching and research spaces, providing state-of-the-art facilities.

The South Street campus is particularly well positioned for the future as part of the State Government’s Strategic Activity Centre – a major research, development and commercial biotechnology and health hub housing important institutions: the University, an existing private hospital, a new $2 billion public hospital scheduled for completion in 2014 and a range of allied health partners.

Recently, a number of initiatives have been established to revitalise the University, including the formation of a new Senior Leadership Group, a university-wide commission to review curriculum, the reorganisation of academic units and the restructuring of professional services.

How we compare

• Ranked in the top 5% of universities worldwide (Times Higher Education [THE] 2012-13 and 2013-14, QS World University Rankings 2012). Murdoch was one of only two Western Australian universities to make the THE list.

• Ranked at 57 in the 2013 Times Higher Education Top 100 Universities Under 50, recognising institutions less than 50 years old.
Murdoch University

World-class research

Murdoch University is well placed to build upon its strength as a world-class research institution.

Our researchers regularly engage with significant social and scientific challenges, adding to the existing body of knowledge across a range of disciplines. A number of projects have also been applied practically for the benefit of both the local and global community.

Many of our areas of expertise have global implications, including fisheries science, climate change, food security and production, infectious diseases, veterinary and medical science, mental health, politics and governance. As part of Murdoch’s strategic vision for the future, we are looking to embed research further into the culture of all parts of the University. Research skills are an important part of the curriculum, while our staff development and recruitment practices enable us to continually build a research workforce focused on creating new knowledge. In short, we deliver research led teaching and evidence based practice.

Our research effort continues to focus on key areas of research reflecting national and international priorities, ensuring we play a part as global citizens.

Whether you are an academic, student or potential collaborator, you will find opportunities to achieve research excellence in a meaningful way at Murdoch University.

Professor David Morrison
DEPUTY VICE CHANCELLOR, RESEARCH

Measuring a Samson fish prior to release. Photograph: Mike Mackie

Researchers in the State Agriculture and Biotechnology Centre.
The Centre for Fish & Fisheries Research

Background

The Centre for Fish and Fisheries Research was established in 2000 in recognition of a history of sustained and internationally recognised excellence in research and postgraduate training in fish and fisheries biology.

Our main objectives are to test traditional paradigms regarding fish and ecosystems and facilitate their sustainability. Our studies have focussed on the faunas and ecosystems of Western Australia, which have highlighted their uniqueness globally and refined our understanding of key aspects of fish biology and ecosystem function.

The quality of research and postgraduate training is reflected in members of the Centre having published over 600 papers in leading international journals, the receipt of very substantial funding from state and national sources and the graduation of approximately 80 PhD students.

In 2010 Murdoch was one of five universities in Australia to be assessed as at or above world standard in Fisheries Science. In 2012 we were one of only six universities assessed in this field and were again the only university in Western Australia to be assessed in Fisheries Science.

Aims

- Undertake and publish innovative research that addresses fundamental questions in fisheries biology and fish and invertebrate ecology and evolution.
- Provide high-quality quantitative data for sustaining fisheries and aquatic ecosystems.
- Increase the impact, value and uptake of research output through adopting a multidisciplinary, integrated approach.
- Foster research interaction with scientists in other universities and governmental agencies.
- Communicate the implications of results to scientists, stakeholders and the community.
- Produce postgraduates with attributes that will ensure their success in future research and employment.

Research strengths

The Centre has two main research themes:

1) Community ecology and ecosystem function.
   - Freshwater environments
     ![Sampling for sawfish in the Fitzroy River. Photograph: Simon Visser](image1)
     - Sampling for sawfish in the Fitzroy River. Photograph: Simon Visser
   - Estuaries and nearshore environments
     ![Sampling for river prawns in the Swan River Estuary. Photograph: Swan River Trust](image2)
     - Sampling for river prawns in the Swan River Estuary. Photograph: Swan River Trust
   - Offshore environments
     ![Sunfish surrounded by tourists. Photograph: Marianne Nyegaard](image3)
     - Sunfish surrounded by tourists. Photograph: Marianne Nyegaard

2) Population biology and evolution.
   - Population biology
     ![Different life stages of the blue groper. Photograph: Peter Coulson](image4)
     - Different life stages of the blue groper. Photograph: Peter Coulson
   - Genetics and evolution
     ![Morphological versus molecular phylogenies of lampreys.](image5)
     - Morphological versus molecular phylogenies of lampreys.

Complementary themes include: socio-economics, recreational fishing issues, remote sensing and spatial analysis and human use mapping.

![A dhufish being released with a release weight. Photograph: Shikari Charters](image6)
- A dhufish being released with a release weight. Photograph: Shikari Charters
What we have to offer

Facilities and equipment

Facilities

On our main campus at Murdoch we have four laboratories dedicated to fish and fisheries research that are equipped with a wide variety of compound and dissection microscopes, bone saws and computers in addition to several aquaria and constant temperature rooms. Shared facilities on the main campus include a histology laboratory, several electron microscope suites, X-ray equipment and the staff with expertise to support population and evolutionary studies in all aspects of fish and fisheries science. In addition to our main campus we have laboratories and facilities in the nearby port town of Fremantle, where aquaculture facilities have allowed us to explore a world-first of re-stocking recreationally important species of fish and crustaceans in estuaries.

Facilities

The Centre owns five 4-wheel drive vehicles,
six vessels, ranging from 4-7 metres, which include a dedicated electrofishing boat, and we also have access to other vehicles and boats owned by the school. In addition to vehicles and boats the Centre also owns all the seine, gill, trawl, larval and fyke nets,

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Our Locations
Murdoch University

The University offers courses at its three Western Australian campuses in Perth, Rockingham and Mandurah and internationally through partnerships in Singapore, Malaysia and Dubai. Our main campus is the South Street campus in Perth, the capital city of the state of Western Australia (WA). The campus is close to Perth’s CBD and easily accessible by train, bus or car.

The Centre

The Centre is situated on the main campus at Murdoch where we have four laboratory suites, dedicated aquarium facilities, compounds for boats equipment and vehicles and staff, postgraduate and graduate offices. We also have offices and laboratory facilities at the Challenger Institute of Technology’s Australian Centre for Applied Aquaculture Research in the port city of Fremantle. In addition to these local facilities we also have access to laboratories and accommodation Murdoch’s Coral Bay research facility in the north-west of the state and vehicles and boats in the Kimberley in the far north of the state.

The City of Perth

With a population of almost 1.7 million people, Perth is a thriving, cosmopolitan city. Life is relaxed and focuses on the outdoors. Perth enjoys more hours of sunshine than any other capital city in Australia. It is a ‘water’ city – sitting on the Swan River and on the Indian Ocean coast.

There are premium wineries, beaches and bushland within easy reach, and a sophisticated mix of cafes, restaurants, boutiques and department stores in the city.

Perth has a lively cultural and artistic life, with art galleries and museums, international film festivals, writers’ festivals and the world-renowned Perth International Arts Festival being just some of the cultural offerings. Because of the long dry summer, many of these events take place outdoors in spectacular venues.

Western Australia

Western Australia (WA) covers one-third of the Australian continent,
and global in outlook with rapidly expanding international business partnerships.

For a fisheries scientist the size of the state and the different climatic zones and biogeographic regions it covers is exciting and leads to countless research opportunities not available elsewhere in the world. For example, the freshwaters of the state encompass three distinct provinces, one, in the southwest, is a biodiversity hotspot that is dominated by endemic species that include the salamander fish, the only fish that can ‘bend its neck’ and the marron, one of the world’s largest freshwater crayfish.

Freshwater species that range from large species such as bull sharks, whip rays and sawfish and barramundi to small species such gudgeons, silversides and rainbowfishes.

In regard to marine habitats the state ranges from tropical reefs to sea grass meadows and high-energy beaches to sheltered bays. The estuaries are no less diverse with systems in the south-west being microtidal, with tides often less than a metre. Not only are these estuaries microtidal but they have a large inner basin separated from the sea by a narrow entrance channel, many are separated from the sea for many months of the year (sometimes even years). These estuaries are thus unlike those of the northern hemisphere physically. These physical is also reflected in their faunal characteristics, in that they are home to many species that are strictly estuarine. These differences make them great places to test traditional paradigms and refine our understanding of fish biology and ecosystem function. In contrast to the microtidal estuaries of the south, the estuaries and coastal regions of the north are subjected to some of the world’s largest tides reaching over 10 metres.

The Kimberley region in the north is a tropical region that features a long dry season followed by the wet season when freshwater systems become replenished. The rivers are host to a wide variety of diadromous and purely freshwater species that range from large species such as bull sharks, whip rays and sawfish and barramundi to small species such gudgeons, silversides and rainbowfishes.

Photographs: David Morgan (salamanderfish) and Steve Beatty (marron)

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Photographs: David Morgan (salamanderfish) and Steve Beatty (marron)

The jetty at Derby, a town with the biggest tides in Australia (springs up to nearly 12 m). http://en.wikipedia.org/wiki/Derby,_Western_Australia#mediaviewer/File:Derby_jetty_King_Sound.JPG

The offshore environments off Western Australia are just as diverse and unique as our freshwater, estuarine and...
nearshore environments. One of the reasons for this is that there are no cold water upwellings of any note on the west coast and the predominant current on the west coast is the southerly flowing Leeuwin current that brings warm waters from the north. As such, our waters are relatively unproductive, but are incredibly diverse. For example the waters off Perth contain a mix of tropical and temperate species, so researchers have the opportunity for example, to work on warm water labrids and scombrids and also their cold water congeners. Western Australia really is an ichthyologist’s and fisheries scientist’s dream, with opportunities covering evolutionary studies of ancient to modern fishes, population studies on rare or recreationally/commercially important species, through to community studies in our unique ecosystems.

Living in Western Australia

In addition to the cosmopolitan feel of Perth and Fremantle, the state has a lot to offer from a lifestyle perspective. Put simply, if you appreciate fine-dining, boutique beers and excellent wines, we have first class restaurants serving a variety of cuisines and some of the best micro-breweries and wineries in the world.

Due to the excellent climate West Australians revel in sport and outdoor pursuits. We have two teams in the Australian Football League, the Fremantle Dockers and West Coast Eagles, and have successful teams in the national soccer, cricket, rugby and basketball leagues. Public and private golf courses and tennis courts can be found in nearly every suburb, as can amateur clubs representing all of the main team sports. And at the end of the day there is nothing better than having a cold beer and BBQ with friends whilst watching one of our local teams beating one from the eastern states!

If your thing is bush-walking or cycling there are hundreds of kilometers of bush tracks within easy distance of the city and kilometers of bike tracks throughout the metropolitan region.

If walking and cycling are a little too sedate then we have many motorsport facilities ranging from trail and motocross courses through to world-class drag and circuit racing complexes that host various national and international car and motorcycle events. Should you want to test your skills all of these venues have open days where you can “run-what-you-brung”.

But, perhaps the best thing about living in Perth is that you have unlimited access to rivers, estuaries and the Indian Ocean. Like kayaking or white-water powerboat racing? Perth hosts one of the world’s premier long-distance events, the Avon Descent where participants from around the world test their skills in a two day event that starts in the upper reaches
of the Swan-Avon valley and finishes in Perth. Several other

of these long distance events and also shorter events are held at various other locations in the south-west of the state throughout the year.

More interested in sailing, surfing or diving?

Perth offers everything from dinghy racing in the sheltered waters of the estuary to open ocean events on the Indian Ocean, whilst our surf beaches are second to none.

Divers are well catered for with extensive coral reefs situated to the north and clear blue seas off the metropolitan coast, which, due to the warm southerly currents also offers diving on one of the most southerly coral reefs in the world.

If fishing’s your thing, we have it all! From hitting the snags with soft-plastics and hardbodies for black bream, walking the estuary flats throwing surface lures at whiting, getting a feed of crabs or herring with the kids or going offshore to target sport and gamefish, such as Samson fish and marlin, all are within easy reach of Perth and Fremantle.

Useful links

Murdoch University:  
http://www.murdoch.edu.au

Centre for Fish and Fisheries Research:  
http://www.murdoch.edu.au/Research-capabilities/Centre-for-Fish-and-Fisheries-Research/

City of Perth Information:  
www.perth.wa.gov.au

Local Council Information:  
www.melvillecity.com.au

WA Tourism Information:  
www.westernaustralia.com/au

WA & Perth Lifestyle Information:  
Go to links with photographs and  


http://www.westernaustralia.com/au/Things_to_See_and_Do/Food_and_Wine/Pages/Wineryes_and_Wine_Tasting_in_WA.aspx?cid=dgm:au1415:Experiences%20-  
http://www.recfishwest.org.au


http://www.surfingaustralia.com/wa/