

# **ANNUAL REPORT**

**2001**

**Centre for Fish and Fisheries Research**

**School of Biological Sciences and Biotechnology**

**Division of Science and Engineering**

**Murdoch University**

**Murdoch**

**Western Australia 6150**

# **ANNUAL REPORT**

## **2001**

### **Centre for Fish and Fisheries Research**

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# Centre for Fish and Fisheries Research

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# 1. ADMINISTRATIVE DETAILS

## Centre members as at 31 December 2001

<i>Director</i>	Ian Potter, PhD (DSE)	
<i>Assistant Director</i>	Norm Hall, PhD (DSE)	
<i>Academic staff</i>	Stuart Bradley, PhD (DSE) Jennie Chaplin, PhD (DSE) Stan Fenwick, PhD (DVBS) Howard Gill, PhD (DSE) Russell Hobbs, MSc (DVBS) Alan Lymbery, PhD (DVBS)	Phillip Nicholls, PhD (DVBS) Shane Raidal, PhD (DVBS) Malcolm Tull, PhD (DBITL) Graham Wilcox, PhD (DVBS) Ron Wooller, PhD (DSE)
<i>Adjunct appointments</i>	Belinda Cannell, PhD (DSE) Nic Dunlop, PhD (DSE)	Rod Lenanton, PhD (DSE) Jeremy Prince, PhD (DSE)
<i>Research fellows</i>	David Morgan, PhD (DSE) Margaret Platell, PhD (DSE)	Gavin Sarre, PhD (DSE) Glen Young, PhD (DSE)
<i>Postgraduate students</i>	Steve Beatty (DSE) Simon de Lestang (DSE) Rob Doupé (DVBS) David Fairclough (DSE) Alex Hesp (DSE) Richard Hoddell (DSE) Steeg Hoeksma (DSE) Gary Jackson (DSE, FWA) Alan Kendrick (DSE) Indre Kirsten (DSE) Christine Lamont (DSE) Heather McClethie (DVBS) Carina Marshall (DSE) Lisa Nicholson (DSE)	Karen Paton (DSE) Matthew Pember (DSE) Kellie Pendoley (DSE) Chris Powell (DSE) Emilia Santos-Yap (DSE) Ertug Sezmis (DSE) Kimberly Smith (DSE) Richard Steckis (DSE, FWA) Fran Stephens (DVBS) Robyn Thomson (DSE) Michael Travers (DSE) Fiona Valesini (DSE) William White (DSE) Brent Wise (DSE)
<i>Histologist</i>	Gordon Thomson (DSE)	
<i>Director's secretary</i>	Colleen Hubbard (DSE)	
<i>Other staff</i>	Michelle Costello (DSE)	Linda Schafer (DSE)

DBITL  
DSE  
DVBS  
FWA

Division of Business, Information Technology and Law  
Division of Science and Engineering  
Division of Veterinary and Biomedical Sciences  
Department of Fisheries WA

## Management board

<i>Chair</i>	Professor Tony Tate
<i>Director</i>	Professor Ian Potter
<i>Assistant Director</i>	Associate Professor Norm Hall
<i>Secretary and Postdoctoral representative</i>	Dr Margaret Platell
<i>Centre member</i>	Dr Howard Gill
<i>Centre member</i>	Dr Jennie Chaplin
<i>Head of School</i>	Associate Professor Stuart Bradley
<i>External representative</i>	Associate Professor Rod Lenanton

## Director's report

### *New staff appointments*

Dr Norm Hall joined us as an Associate Professor in January, thanks to the provision of funding by the Australian Fisheries Research and Development Corporation (FRDC). Prior to coming to the Centre, Norm was Supervising Scientist, Stock Assessment & Data Analysis, with Fisheries WA, where he was responsible for developing new fisheries models for the main commercial finfish and invertebrate species. These complex models were innovative and allowed a far greater level of prediction of the potential impacts of fisheries activities on those species. They enabled, in particular, the managers within Fisheries WA to have a far better handle on the best ways of managing the very valuable fishery for the western rock lobster *Panulirus cygnus*. Norm was also heavily involved in providing advice on stock assessments for a wide range of species.

Norm is responsible for supervising a FRDC project, which is aimed at developing research methodology and quantitative skills for integrated fisheries management in Western Australia. Norm is fortunate in having attracted a First Class Honours in Mathematics (Sara Belmont) to conduct PhD studies that will help underpin his broad-based project.

Norm has become the coordinator of the Fish and Fisheries Biology undergraduate unit, taking over from Dr Margaret Platell. This is an important unit, since it provides potential research students with an appropriate introduction to fisheries science and makes other students aware of the problems that, in terms of resources, are currently being faced worldwide by fisheries and their managers.

We are delighted that Dr Lynnath Beckley will be taking up an appointment in January 2002 as Senior Lecturer in Marine Science in the School of Environmental Science and thus be able to play a major role in the development of the Centre for Fish and Fisheries Research in future years.

Lynnath undertook her BSc, Honours and Masters at the University of Port Elizabeth and her PhD at the University of Cape Town. Her Masters thesis involved a study of intertidal benthos, while, for her PhD, she investigated the nursery areas of coastal fishes. Following the completion of her PhD, Lynnath came to Murdoch on a postdoctoral fellowship to work on fish. During her time in Perth, she was involved in studies on the zoo- and ichthyoplankton of the Swan Estuary.

On her return to South Africa, Lynnath accepted a research position at the University of Cape Town, where she undertook a range of studies on larval fish, including a detailed investigation of the role that the Agulhas Current plays in the dispersal of fish larvae along the east coast of South Africa. I visited Lynnath during my study leave in 1989, and together we wrote a comparative review of the role that estuaries play in the life cycles of fish in south-western Australia and southern Africa.

In 1992, Lynnath was appointed to the position of Principal Scientist at the Oceanographic Research Institute in Durban, where she oversaw the activities of the staff involved in fish and fisheries research. In addition, Lynnath coordinated the honours course in fisheries science at the University of Natal and supervised research students from various universities.

Lynnath is renowned for her ability to withstand appalling conditions whilst sampling for fish larvae at sea. This ability is not surprising in view of her very extensive experience in ocean racing, which included being the navigator for the all woman crew that competed in the 1997-98 Whitbread Around the World Yacht Race.

There is no doubt that Lynnath's expertise with fish will be a great asset to the Centre.

### ***Activities***

During 2001, Norm attended a Northern Prawn Fishery Assessment Group meeting in Cairns to present the results of his modelling of the banana prawn fishery. Subsequently he was invited to attend the FRDC Fish Futures workshop in Canberra, at which projections for Australia's fisheries in 2020 were discussed. Later in the year, Norm travelled to the North-East Fisheries Science Center at Woods Hole, Massachusetts, where he was an independent reviewer for the 33<sup>rd</sup> SAW Stock Assessment Review Committee (SARC) meeting, which examined the status of the important fisheries for cod, redfish and white hake in the Gulf of Maine.

The Centre was very well represented at the Annual Conference of the Australian Society for Fish Biology, which was held in Bunbury. We were all delighted that Mr Michael Travers won the Gilbert P. Whitley award for best junior student paper, which was entitled "Comparisons between fish faunas of sand and seagrass habitats in Shark Bay".

Ms Fiona Valesini and I attended the European International Congress of Ichthyologists in Prague, where Fiona gave a paper on our new approaches to classifying nearshore coastal marine habitats, which attracted a great deal of interest.

Mr Kimberly Smith attended an international conference on deep sea crabs in Anchorage, Alaska, where he gave a talk on the biological studies he's carrying out on the champagne crab *Hypothalassia armata*.

Mr Simon de Lestang attended an international conference on crustaceans in A Caruna, Spain. His talk on the reproductive biology of the blue swimmer crab *Portunus pelagicus* created considerable interest and Simon feels he benefited greatly from the feedback he received from the experts who attended that conference.

After many interruptions, including visits to the Antarctic, it is a pleasure to record that Mrs Pia Orr finally submitted her thesis in 2000 and that her PhD was awarded in the early part of 2001.

During the past year, Dr Bob Clarke of the Plymouth Marine Laboratory paid us a visit, during which he spent much of his time working with Fiona Valesini and I in developing statistical approaches aimed at identifying quantitatively the different types of habitats found in nearshore waters along the lower west coast of Australia. Bob also gave us his expert opinion on how we might overcome some recurrent statistical problems associated with analysing the complex ecological data we collect for fish. Bob was also kind enough to give an impromptu seminar to the Centre members on some of the subroutines in his PRIMER package, which were pertinent to our ongoing studies.

<b>Honours students</b>	<b>Abbreviated thesis title and other details</b>
Mr Mark Allen	Biology of the Murchison River hardyhead Supervisors: Howard Gill and David Morgan (DSE) Full-time, completing in 2002
Ms Stephanie Chin	Vocalisations of little penguins. Supervisor: Ron Wooller (DSE) Full-time, Completed (Class I)
Ms Natasha Coen	Distribution and abundance of epibenthic invertebrate communities in nearshore waters of WA. Supervisors: Margaret Platell and Ian Potter (DSE) Part-time, completing in 2002
Ms Michelle Costello	Composition of benthic macroinvertebrate communities in nearshore metropolitan waters of WA. Supervisors: Margaret Platell and Ian Potter (DSE) Part-time, Completed (Class I)
Ms Melanie Crockford	Genetic characterisation of the pilchard <i>Herpes</i> virus. Supervisors: Brad Chadwick (FWA) and Graham Wilcox (DVBS) Part-time, completing in 2002
Mr Mat Hourston	Implications of opportunism and resource partitioning for the diets of selected nearshore marine fish species in south-western Australia. Supervisors: Margaret Platell and Ian Potter (DSE) Part-time, completing in 2002
Mr Justin King	Fish faunas of mangroves in Shark Bay. Supervisor: Ian Potter (DSE) Part-time, completing in 2002

<b>MSc students</b>	<b>Abbreviated thesis title and other details</b>
Mr Andrew Chapman	Biology of spotted minnow in south-western Australia. Supervisors: David Morgan and Howard Gill (DSE)
Ms Heather McCletchie	Rapid diagnosis of <i>Aphanomyces astaci</i> , the causative agent of crayfish plague Supervisor: Stan Fenwick and Phil Nicholls (DVBS)

<b>PhD students</b>	<b>Abbreviated thesis title and other details</b>
Mr Steve Beatty	Biology of freshwater decapods in south-western Australia Supervisors: Howard Gill and David Morgan (DSE)
Mr Simon de Lestang	The biology of the blue swimmer crab <i>Portunus pelagicus</i> in Western Australia. Supervisor: Ian Potter (DSE)
Mr Rob Doupé	Selection for faster growing black bream. Supervisor: Alan Lymbery (DVBS)
Mr David Fairclough	Biology of selected tuskfish species in Shark Bay. Supervisor: Ian Potter (DSE)
Mr Alex Hesp	Biological studies on two species of sparid in Australian waters.

Mr Richard Hoddell	Supervisor: Ian Potter (DSE) Evolutionary history of selected teleosts in coastal waters. Supervisors: Jennie Chaplin and Ian Potter (DSE)
Mr Steeg Hoeksma	Biology of black bream in different water bodies of south-western Australia. Supervisor: Ian Potter (DSE)
Mr Gary Jackson	Fisheries biology and management of the pink snapper stocks in the inner gulf of Shark Bay. Supervisors: Ian Potter (DSE) and Rod Lenanton (FWA)
Mr Alan Kendrick	Habitat selection and biology of pipefishes (Syngnathidae) in shallow marine habitats of south-western Australia. Supervisor: Glen Hyndes (ECU) and Ian Potter (DSE)
Ms Indre Kirsten	Nestling provisioning in two shearwater species on the west coast of Western Australia. Supervisor: Ron Wooller and Stuart Bradley (DSE)
Ms Christine Lamont	Egg production, maternal body condition and offspring sex ratio of the silver gull. Supervisor: Stuart Bradley and Ron Wooller (DSE)
Ms Carina Marshall	The genetic structure of barramundi ( <i>Lates calcifer</i> ) in Western Australia. Supervisor: Howard Gill (DSE) and Alan Lymbery (DVBS)
Ms Lisa Nicholson	The comparative breeding ecology of three tern species on the Lowendal Islands, north-western Australia. Supervisors: Stuart Bradley and Ron Wooller (DSE)
Ms Karen Paton	Enzymatic mechanism(s) involved in the partitioning of fatty acids into either catabolic or anabolic processes. Supervisors: Max Cake and Ian Potter (DSE)
Mr Matthew Pember	Fish communities in nearshore waters of northern WA and the biology of two threadfin salmon species. Supervisors: Ian Potter (DSE) and Steve Newman (FWA)
Ms Kellie Pendoley	Sea turtles and environmental management of industrial activities in north-western Australia. Supervisor: Stuart Bradley (DSE)
Mr Chris Powell	Nestling provisioning by the fleshfooted shearwater <i>Puffinus carneipes</i> . Supervisors: Ron Wooller and Stuart Bradley (DSE)
Ms Emilia Santos-Yap	Population genetic structure of the black bream and blue swimmer crab in Western Australia. Supervisors: Jennie Chaplin and Ian Potter (DSE)
Ms Fiona Scarff	Predicting community viability in the face of species loss. Supervisor: Stuart Bradley (DSE)
Mr Ertzug Sezmis	Population genetic structure and evolutionary history of the blue swimmer crab in Australia. Supervisors: Jennie Chaplin and Ian Potter (DSE)
Mr Kimberly Smith	The biology of two deepwater crabs, <i>Chaedon bicolor</i> and <i>Hypothalassia armata</i> , endemic to Australia. Supervisor: Ian Potter (DSE)

Mr Richard Steckis	Biology of tailor ( <i>Pomatomus saltator</i> ) in Western Australia. Supervisors: Ian Potter (DSE) and Rod Lenanton (FWA)
Ms Fran Stephens	Health problems of Western Australian dhufish. Supervisors: Shane Raidal and Jan Thomas (DVBS)
Mr Michael Travers	Fish communities in offshore waters of the Kimberley. Supervisors: Ian Potter (DSE) and Steve Newman (FWA)
Ms Fiona Valesini	Interrelationships between fish and invertebrate faunas and the physical characteristics of nearshore habitats in marine and estuarine waters of south-western Australia. Supervisor: Ian Potter (DSE)
Mr William White	Age compositions, growth, reproductive biology and resource partitioning amongst chondrichthyan fishes in a marine embayment. Supervisors: Ian Potter and Norm Hall (DSE)
Mr Brent Wise	Ageing and growth of various fish species in south-western Australia. Supervisors: Ian Potter and Norm Hall (DSE)

**PhD students  
completed in 2001**

**Abbreviated thesis title and other details**

Dr Pia Orr (nee Geijsel)	Biology of four commercial fish species in a seasonally closed estuary. Supervisor: Ian Potter (DSE)
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## 2. RESEARCH ACTIVITIES

### **Fish and crustacean population and community research**

The Centre continues to attract substantial funding for its research activities (see following list). Our population studies have focused on determining the biological and genetic data required by Fisheries WA for managing a number of important fish and crustacean species, such as baldchin groper and other tuskfish species, king and blue-nose threadfin salmon, black bream, tarwhine, western yellowfin bream, barramundi, the champagne crab and the blue swimmer crab. The community ecology studies are concentrating on determining the ways in which the fish communities in nearshore coastal waters and estuaries are influenced by habitat type and time of year. These studies are being conducted as far afield as the Stokes Inlet on the south coast to as far north as the Kimberley region in the northwest of the state.

A considerable amount of work has been carried out on the dietary compositions of fish in various environments, using approaches developed by Margaret Platell.

Genetic studies are concentrating on determining the stock structure of exploited species, such as the blue swimmer crab, and on elucidating the evolutionary history of species, such as the atherinid *Leptatherina wallacei*, that are common and widespread in nearshore marine and other coastal environments in Western Australia.

Gavin Sarre, in conjunction with colleagues at the Aquaculture Development Unit (ADU) at Fremantle, is continuing his aquaculture work, which is aimed at growing black bream in inland salt lakes. Black bream is also the focus of the work being conducted by Simon de Lestang and the ADU. This work is developing approaches and methodology for stocking black bream in the Blackwood River estuary.

The ACIAR project on artisanal shark and ray fisheries in Indonesia is progressing very well. William White, who is working closely with Peter Last of CSIRO, has been visiting fish markets and recording the biological data for shark and ray species that are caught and sold by local fisheries. Malcolm Tull is studying the socio-economic aspects of these fisheries.

Fish population and community studies are also being undertaken in freshwaters in the latter region, and also in south-western Australia, where they represent a logical extension of work that was initiated by the late Dr Luke Pen while he was at Murdoch University in the 1980s. These projects include (1) biology and genetics of barramundi in the Kimberley, (2) biology of the trout minnow, spotted minnow, Murchison River hardyhead, marron, gilgy and introduced yabby, (3) diets of salamanderfish and black-stripe minnow, (4) distribution of fish in the Fitzroy River, which is being carried out in conjunction with the Kimberley Land Council and whereby the common names in five Aboriginal languages of the region were recorded and collated in a brochure, (5) distribution of inland fish in the Pilbara, (6) impacts of salinity on fishes in south-western Australia, (7) diets of the introduced swordtail, tilapia and one-spot livebearer, (8) biology and impacts of the introduced redfin perch and (9) relocation of native fish and decapods from the draindown of Waroona Dam and the culture of these fish and decapods at the ALCOA Yarloop Marron Farm.

## **Lamprey research**

Work on the morphology and physiology of lamprey eyes continues. This represents a collaborative study between Ian Potter and Shaun Collin (University of Queensland) and other colleagues in Australia and the UK. The studies, which, from January 2002, will be supported by a three year Discovery grant from the Australian Research Council, is concentrating on elucidating the significance of the very marked differences in the types of photoreceptors present in the retinae of the different species.

Howard Gill and Ian Potter are continuing their cladistic studies of lampreys with Rick Mayden and Kevin Ho in the United States and Claude Renaud and Francois Chapleau in Canada. This work is supported by a grant from the National Science Foundation.

Karen Paton, Max Cake and Ian Potter continue their studies on the bioenergetics of the lamprey *Geotria australis* during its upstream migration. This species is a particularly good model for this type of study as it does not feed during this spawning run and thus has to rely totally on stored reserves as an energy source to fuel this upstream movement and facilitate the development of its gonads.

## **Seabird research**

The members of this group, headed by Stuart Bradley and Ron Wooller, study a range of seabirds off the Western Australian coast. On Penguin Island, near Perth, Belinda Cannell is now studying the endocrinological basis of the moult of little penguins. In the waters of the north-western shelf, Lisa Nicholson has completed her sampling of the seabirds of the Lowendal group, and is in the process of writing her thesis. On the south coast, Chris Powell is extending his initial work on nestling provisioning in the flesh-footed shearwater, by enrolling in a PhD this year. Christine Lamont, who works with silver gulls, and Indre Kirsten, who is studying little and wedge-tailed shearwaters, are also continuing their PhD studies. Nic Dunlop continues his long-term studies of the distributions, range extensions and interannual variability in reproductive performance of seabirds in the Indian Ocean, and relating these to the strength of ENSO events and the Leeuwin Current.

## **Fish health research**

The Fish Health Unit is going from strength to strength and will increasingly provide an important service for members of the fishing and aquaculture industries who encounter disease problems with their fish or crustaceans. Researchers within the Division of Veterinary and Biomedical Sciences have formalised the establishment of a Fish Health Unit within the Centre for Production Animal Research as well as in the Centre for Fish and Fisheries Research. The aim of this Unit is to promote research and teaching of all aspects of the production and health of aquaculture and wild capture fisheries species. We are currently negotiating with the University to establish a physical presence for this Unit, that will include offices, laboratories and seminar rooms.

## External funding

Name	Project	Funding Body	Duration	Total funds (\$)
Ian Potter & Roy Melville-Smith (FWA)	Biological and fisheries data for managing deep sea crabs in Western Australia	Fisheries Research and Development Corporation	Jul 2001 – Dec 2005	347,677
Alan Lymbery	Environmental management system for trout production in inland saline waters	Rural Industries Research and Development Corporation	Jul 2001 - Dec 2004	163,122
Stan Fenwick & Phil Nicholls	Rapid diagnosis of <i>Apahonomyes astaci</i> , the causative agent of crayfish plague	Fisheries Research and Development Corporation	Jul 2001 – Dec 2003	170,631
Alan Lymbery & Robert Doupe	Selection for faster growing black bream	Rural Industries Research and Development Corporation	Jul 2001 - Dec 2001	78,000
		Aquaculture Development Fund	Jul 2001 – Dec 2001	22,072
Norm Hall	Development of research methodology and quantitative skills for integrated fisheries management in WA	Fisheries Research and Development Corporation	Jan 2001 – Dec 2005	579,814
Ian Potter, Malcolm Tull & William White, with CSIRO	Artisanal shark and ray fisheries in East Indonesia: their socio-economic and fishery characteristics and relationship to Australian resources	Australian Centre for International Agricultural Research	Jan 2001 – Jun 2003	134,466
Ian Potter & Alex Hesp	Comparisons between the habitats, age composition, growth and reproductive biology of the tarwhine ( <i>Rhabdosargus sarba</i> ) in Shark Bay and Perth metropolitan waters	Fisheries WA (Fishcare)	Jan 2001 – Dec 2001	3,234
Ian Potter	Preliminary investigations of the biology of sharks in intertidal mangroves and over sand in Shark Bay.	Fisheries WA (Fishcare)	Jan 2001 – Dec 2001	3,234

Name	Project	Funding Body	Duration	Total funds (\$)
Howard Gill & David Morgan	Biology and distribution of fish in the inland waters of the Pilbara region	Natural Heritage Trust Fisheries WA Water and Rivers Commission	Dec 2000 – Dec 2002	189,300
Howard Gill & David Morgan	Fish surveys of the Fitzroy River, Kimberley	Natural Heritage Trust Kimberly Land Council	Dec 2000 – Dec 2002	30,000
Ian Potter & Rod Lenanton (FWA)	Restocking of the Blackwood River Estuary with black bream ( <i>Acanthopagrus butcheri</i> )	Fisheries Research and Development Corporation	Jul 2000 – Jun 2004	161,734
Ian Potter	The importance to commercial and recreational fish species of the various habitats in the nearshore marine waters and estuaries of south-western Australia	Fisheries Research and Development Corporation	Jul 2000 – Jun 2003	277,688
Ian Potter	Determination of biological parameters required for managing the fisheries of four tuskfish species and western yellowfin bream	Fisheries Research and Development Corporation	Jul 2000 – Jun 2003	186,868
Steve Newman (FWA) & Ian Potter	Characterisation of the inshore fish assemblages of the Pilbara and Kimberly coasts	Fisheries Research and Development Corporation	Jul 2000 – Jun 2003	141,604
Gavin Sarre & Ian Potter	Factors required for the successful aquaculture of black bream in inland water bodies	Fisheries Research and Development Corporation	Jul 1999 – Jun 2002	244,679
Ian Potter & Roy Melville-Smith (FWA)	Determining biological characteristics of the champagne crab	Fisheries Research and Development Corporation	Jul 1999 – Jun 2002	207,632
Shane Raidal	Dhufish health	Fisheries Research and Development Corporation	Jul 1999 – Jun 2002	14,003
Ron Wooller	Feeding ecology of seabirds nesting at the Abrolhos Islands, Western Australia	Fisheries Research and Development Corporation	Jul 1999 – Jun 2001	153,944

Our sincere gratitude is expressed to the various funding bodies which have supported our research activities and in particular the Fisheries Research and Development Corporation, Fisheries WA, Natural Heritage Trust, the Western Australian Water and Rivers Commission and the Rural Industries Research and Development Corporation.

### **Internal funding**

Name	Project	Funding Body	Duration	Total funds (\$)
David Morgan	Biology of barramundi in the Kimberley	Murdoch SRG	Jan 2001 – Dec 2002	28,540
Stuart Bradley	Nestling provisioning in the flesh-footed shearwater	Murdoch SRG	Jan 2001 – Dec 2001	17,455
Alan Lymbery, Howard Gill & David Morgan	Phylogenetic analysis of mitochondrial DNA to identify different stocks of barramundi ( <i>Lates calcarifer</i> ) in WA	Murdoch SRG	Jan 2001 – Dec 2001	11,500
Ian Potter	Centre for Fish and Fisheries Research	Board of Research	Jan 2001 – Dec 2001	40,000

## Publications on fish, crustacean, seabird and fisheries research in 2001

### (a) Refereed publications

- Bird, D.J., Potter, I.C., Sower, S.A. & Baker B.I. The distribution of melanin-concentrating hormone in the lamprey brain. *General and Comparative Endocrinology* **121**: 232-241.
- Conlon, J.M., Wang, Y. & Potter, I.C. The structure of *Mordacia mordax* insulin supports the monophyly of the Petromyzontiformes and an ancient divergence of Mordaciidae and Geotriidae. *Comparative Biochemistry and Physiology* **129B**: 65-71.
- Dunlop, J.N., Surman, C.A. & Wooller, R.D. Marine distributions of seabirds from Christmas Island, Indian Ocean. *Emu* **101**: 19-29.
- Kanandjembo, A.N., Platell, M.E. & Potter, I.C. The benthic macroinvertebrate community of the upper reaches of an Australian estuary that undergoes marked seasonal changes in hydrology. *Hydrological Processes* **15**: 2481-2501.
- Kanandjembo, A.N., Potter, I.C. & Platell, M.E. Abrupt shifts in the fish community of the hydrologically variable upper estuary of the Swan River. *Hydrological Processes* **15**: 2503-2517.
- Kritsky D. C. & Stephens F. J. *Haliotrema abaddon* n. sp. (Monogeneoidea: Dactylogyridae) from the gills of wild and maricultured West Australian dhufish *Glaucosoma hebraicum* (Teleostei : Glaucosomatidae) in Australia. *Journal of Parasitology* **87**: 749-754.
- Linke, T.E., Platell, M.E. & Potter, I.C. Factors influencing the partitioning of food resources among six fish species in a large embayment with juxtaposing bare sand and seagrass habitats. *Journal of Experimental Marine Biology and Ecology* **266**: 193-217.
- Lymbery A. & Doupe, R. Genetic management of aquatic species translocations: a horses-for-courses approach. *Austasia Aquaculture* **14**: 35-38.
- Morgan, D.L. & Gill, H.S. Another aquarium fish (green swordtail, *Xiphophorus helleri* Heckel: Poeciliidae) established in the wild in Western Australia. *Records of the Western Museum* **20**: 349-352.
- Paton, K.R., Cake, M.H. & Potter, I.C. Muscle glycogen, lactate and glycerol-3-phosphate concentrations of larval and young adult lampreys in response to exercise. *Comparative Biochemistry and Physiology* **129B**: 759-766.

- Platell, M.E. & Potter, I.C. Partitioning of food resources amongst 18 abundant benthic carnivorous fish species in marine waters on the lower west coast of Australia. *Journal of Experimental Marine Biology and Ecology* **261**: 31-54.
- Potter, I.C., Bird, D.J., Claridge, P.J., Clarke, K.R., Hyndes, G.A. & Newton, L.C. Fish fauna of the Severn Estuary. Are there long-term changes in abundance and species composition and are the recruitment patterns of the main marine species correlated? *Journal of Experimental Marine Biology and Ecology* **258**: 15-37.
- Stephens F. J., Cleary J. J., Jenkins G., Jones B., Raidal S. R. & Thomas J. B. Pathogenesis and epidemiology of spontaneous exophthalmos in the West Australian dhufish, *Glaucosoma hebraicum* Richardson, 1845. *Journal of Fish Diseases* **24**: 515-522.
- Thiel, R. & Potter, I.C. The ichthyofaunal composition of the Elbe Estuary: an analysis in space and time. *Marine Biology* **138**: 603-616.
- White, W.T., Platell, M.E. and Potter, I.C. Relationship between reproductive biology and age composition and growth in *Urolophus lobatus* (Batoidea: Urolophidae). *Marine Biology* **138**: 135-147.

### **Unpublished reports**

- de Lestang, S. & Potter, I.C. *The collection of biological data required for management of the blue swimmer crab fishery in the central and lower west coasts of Australia.* FRDC Final Report.
- Chaplin, J. *Genetic (microsatellite) determination of the stock structure of the blue swimmer crab in Australia.* FRDC Final Report.
- Morgan, D., Hambleton, S., Gill, H. & Sarre, G. *The introduction of golden perch, Murray cod and Australian bass for the purposes of recreational fishing, aquaculture and domestic stocking.* Fisheries WA Discussion Paper.