



**Australian Government**  
**Fisheries Research and  
Development Corporation**

# FINAL REPORT

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Innovative Solutions for Aquaculture Planning and Management

## **Extension, communication and adoption of the outputs from the PIRSA and FRDC initiative**

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Peter R. Lauer and Sita Balshaw

July 2009

FRDC Project No. 2004/203



Innovative Solutions for Aquaculture Planning and  
Management:

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outputs from the PIRSA and FRDC initiative**

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Final report compiled and edited by  
Sita Balshaw and Peter Lauer.

**Cover image**

Harvest of sea-cage cultured Southern bluefin tuna, *Thunnus maccoyii*.  
(Photo: Hamish M. Aiken)

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2004/203	Extension, communication and adoption of the outputs from the PIRSA and FRDC initiative
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**OBJECTIVES:**

1. Develop a comprehensive and effective communications strategy for the Innovative Solutions for Aquaculture projects incorporating and involving all stakeholders.
2. Implement the communication strategy so that the project outputs are communicated effectively to all stakeholders.

**NON TECHNICAL SUMMARY**

<p><b>OUTCOMES ACHIEVED</b></p>
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<p>Through effective relationship building, communication strategies, and extension programs, outputs of the IS projects have been communicated to a range of stakeholders including government and industry groups. Effective communication and extension of IS research outcomes has facilitated the integration of research driven management practices with greater public and stakeholder awareness and acceptance.</p>
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The Innovative Solutions for Aquaculture Planning and Management (IS) initiative commenced in 2002 and encompassed a suite of Fisheries Research and Development Corporation (FRDC) and Primary Industries and Resources South Australia (PIRSA) co-funded strategic research projects designed with the aim of further developing aquaculture management practices through improved environmental and planning knowledge, processes and technologies.

FRDC project 2004/203 was an umbrella project developed to ensure that the outputs from all IS projects were communicated and extended to end-users and beneficiaries both in SA and nationally.

The clear communication and extension of IS research outcomes to all stakeholders has assisted in the integration of research outcomes into decision making processes such as those associated with aquaculture zoning, disease control, and managing interactions with protected wildlife species.

**KEYWORDS:** Aquaculture, management, development, research extension, communication, adoption

## ACKNOWLEDGMENTS

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This research project was funded by Primary Industries and Resources South Australia (PIRSA) and the Fisheries Research and Development Corporation (FRDC) grant no. 2004/203 under the Innovative Solutions for Aquaculture Planning and Management initiative. We would like to thank Patrick Hone and Peter Horvat from FRDC, together with Ian Nightingale (formerly PIRSA Aquaculture) and Heather Montgomerie from PIRSA Aquaculture for the guidance provided to this project, as well as Lara Damiani for her energy and enthusiasm in delivering against its objectives. Finally, thanks to Sita Balshaw for her invaluable assistance in preparing this final report.

## BACKGROUND

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Aquaculture is a new and developing primary industry that is greatly contributing to South Australia's (SA) economic growth and regional development.

In 2007/08 the total value of the SA aquaculture industries output was estimated at over \$657 million (EconSearch, 2009). Direct employment was estimated to be 1,454 fte with approximately 1,628 flow-on jobs, giving total employment of approximately 3,083 fte. Over 66% of these jobs were generated in regional SA (EconSearch, 2009).

For the state as a whole, the industry was estimated to have a farm gate value of \$263.6 million with associated direct business turnover impacts in the processing, transport, retail and food sectors of \$71.2 million. Moreover further business turnover from aquaculture is estimated at over \$322 million in other SA industries (EconSearch, 2009).

Aquaculture production in SA represents 56% of the states total seafood production (EconSearch, 2008). The demand for seafood, both domestically and internationally is expected to continue to grow (ABARE, 2007 and FAO, 2007). CSIRO estimate future aquaculture production will double in tonnage by 2020, and then double again by 2050.

Expected expansion of the aquaculture industry is crucial in the state meeting the SA Seafood Plan's combined seafood revenue target of \$2 billion by 2015 (SIDSC, 2005).

To support the SA government's ambitious seafood growth targets PIRSA Aquaculture is responsible for leading a collaborative approach with industry,

other government departments, and other PIRSA Divisions to deliver a range of aquaculture related services.

Importantly, PIRSA's adaptive management regime for aquaculture relies on sound science and an innovative management approach. Given the importance of aquaculture to South Australia – and Australia more broadly – the collaboration between PIRSA Aquaculture and FRDC to deliver the Innovative Solutions for Aquaculture Planning and Management (IS) initiative was an important milestone for aquaculture development in Australia.

The IS initiative commenced in 2002 and encompassed a suite of FRDC and PIRSA co-funded strategic research projects designed with the aim of further developing aquaculture management practices through improved environmental and planning knowledge, processes and technologies.

Projects encompassed in IS were:

- 2003/220 Potential for parasite interactions between wild and farmed Kingfish, discrimination of farmed and wild fish, assessment of migratory behaviour.
- 2003/221 Assessment of novel monitoring and modelling techniques for monogenean skin and gill parasites.
- 2003/222 Spatial impacts and carrying capacity – further developing, refining and validating existing models of environmental effects of finfish farming.
- 2003/223 Environmental audit of marine aquaculture developments in South Australia.
- 2004/201 Addressing seal interaction in the finfish aquaculture industry.



2006/078 Development of rapid environmental assessment and monitoring techniques for application to finfish aquaculture in South Australia.

Successful implementation of management practices resulting from the IS initiatives was dependent on the ability to develop and coordinate integrated delivery mechanisms within government and across a range of stakeholders, nationally and within the State.

Consequently, FRDC requested the development of project 2004/203 Innovative Solutions for Aquaculture Planning and Management: extension, communication and adoption of the outputs from the PIRSA and FRDC initiative. FRDC project 2004/203 was an umbrella project developed to ensure that the outputs from all IS projects that PIRSA and FRDC have co-funded were communicated and extended to end-users and beneficiaries both in SA and nationally. Particularly important were communications with industry and grass level industry groups who may not have otherwise received key messages from the research outcomes.

## NEED

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Project 2004/203 was developed at the request of FRDC to ensure that the outputs from the projects that PIRSA and FRDC have co-funded through the IS initiatives are communicated and extended to end-users and beneficiaries both in SA and nationally. It was recognised that the benefits of the IS initiatives needed to be clearly communicated to all stakeholders and for research to be translated into communicative results which can easily assist in the management decision making processes and adoption of research driven management strategies into state policy. Particularly important were communications with industry and grass level industry groups who may not otherwise have received key messages from the research outcomes. The intent of doing so was to ensure that all stakeholders felt engaged and involved with the project developments but most importantly, the project benefits and how they would affect each stakeholder group.

There was also a need to facilitate and manage other communication processes such as media management and other public relation exercises.

## **OBJECTIVES**

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**Objective 1** Develop a comprehensive and effective communications strategy for the Innovative Solutions for Aquaculture projects incorporating and involving all stakeholders.

**Objective 2.** Implement the communication strategy so that the project outputs are communicated effectively to all stakeholders.

## METHODS

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### **Identification of target audiences and communications avenues:**

Prior to development of the communications strategy for the IS initiatives, the target audience for IS project outcomes/messages were identified as follows:

- Industry e.g. Australian Tuna Boat Owners Association (ATBOA), SA Oyster Growers Association (SAOGA), SA Marine Finfish Farmers Association Inc, SA Abalone Growers Association, National Aquaculture Council, Fisheries Research and Development Corporation (FRDC).
- Government e.g. PIRSA Aquaculture and SA Research and Development Institute (SARDI) .
- Non government organisations e.g. Conservation Council, World Wildlife Fund
- Aquaculture and/or environmental consultants/service providers
- General public

The existing communications avenues favoured by each target audience group were established and confirmed through consultation with each audience group.

Existing communications avenues which were favoured by multiple target audience groups were selected for the communications strategy. This ensured that the outputs of the IS projects were documented in a format that was proven to achieved the greatest impact with target audiences.

Communication avenues utilised by target audience included (but was not limited to):

#### Industry

- Existing industry newsletters
- Industry magazines

- Web based information systems
- CD ROM/DVD communication tools
- A regular newsletter (print and/or electronic)
- Industry association meetings
- Industry events
- Training manuals
- Fliers, brochures, leaflets
- Workshops
- One-on-one meetings

Government, non government organisations and affiliated consultants:

- Existing newsletters
- Web based information systems
- CD ROM/DVD communication tools
- A regular newsletter (print and/or electronic)
- Fliers, brochures, leaflets
- Workshops
- One-on-one meetings

General Public

- Media – electronic, print, radio and television
- Fliers, brochures, leaflets

### **Development and implementation of communications strategies**

The communications strategies were developed to utilise each of the proven effective communications avenues. Research initiatives, aims and outcomes were communicated through a multitude of avenues with consistent branding.

Stakeholders were kept abreast of research progress throughout the duration of the IS projects. Regular communication and extension activities were organised with a view to facilitate a maximum exchange of expertise and cooperation between industry, aquaculture organisations, research institutions and the public sector throughout the research initiatives.

This exchange was facilitated through communication processes such as media management, public relations exercises and creating and maintaining excellent working relationships with all stakeholder groups.

These relationships were maintained through a regular, highly visible and consistent involvement with researchers and all stakeholders throughout the duration of the IS projects.

Moreover, this consistent communication with stakeholders facilitated the adaptive management of communication and extension activities as required.

## RESULTS AND DISCUSSION

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The objectives of project 2004/203 were achieved through the development and co-ordination of research extension events and materials used to ensure that the research outputs were documented in a format that ensured maximum adoption and impact with the target audience.

The outputs of Project 2004/203 included:

- **Project branding:** Innovative Solutions for Aquaculture Planning and Management project logo's, branding and presentation templates were developed and used consistently in all communications with industry, PIRSA and FRDC and other stakeholders. (e.g. website, fliers, banners, emails, brochures, project reports and project presentations).
- **Project banners:** Full colour project banners were produced and displayed within PIRSA Aquaculture when not on display at project briefings and other project extension events, such as the Australasian Aquaculture conferences in 2006 and 2008.
- **Project website:** The Innovative Solutions for Aquaculture Planning and Management website was developed and maintained. The website provided a readily accessible forum to communicate project summaries, progress updates, news and events related to the IS projects. The website was launched by the Minister for Agriculture, Forestry and Fisheries. The event was preceded by project presentations by the PI's/researchers involved in the suite of IS projects.
- **Project DVDs:** One DVD presentation for the IS initiative was produced and distributed to national bodies as well as the FRDC and PIRSA. A second DVD presentation was developed on the broader aspects of aquaculture in SA, incorporating multilingual dialogue, and was launched in Adelaide on 25<sup>th</sup> June 2009.

- **Project newsletters:** project newsletters were designed, produced and distributed to key stakeholders through the project website, email, post, and handed out at SARDI Open Day (26 February 2006).
- **Project Articles:** an article publicising the IS initiative was published in national and international industry magazines and websites.
- **Project extension events:** participation in and co-ordination of a number of project extension events was achieved including, project briefing days (28 June 2005, 9 September 2005, 30 August 2006); meetings of the environmental audit project working party (7 September 2005, 14 November 2005); SARDI open day (26 June 2006); Skretting Australasian Aquaculture Conference. Media coverage for these events included printed publications, online publications in a variety of recognised websites, radio coverage and television advertising. Project communication extension was further achieved through promotional materials which were handed out at events.
- **Public relations resolution:** A work-shop was co-ordinated between representatives of PIRSA, the project communications consultant and members of the Friends of Sceale Bay committee. The work-shop addressed concerns in relation to the seal interaction project (project 2004/201) following negative media coverage generated by the Friends of Sceale Bay. The outcome was very positive and led to good relations between the two groups for the future.

The success of project 2004/203 can however be gauged through the extent of adoption of IS initiative outcomes into aquaculture management strategies. For example some interesting outcomes from the IS projects are summarised in the following.



*Potential for parasite interactions between wild and farmed kingfish, discrimination of farmed and wild fish and assessment of migratory behaviour (FRDC Project number 2003/220)*

The project studied the potential for parasite interactions between wild and farmed kingfish, ways of distinguishing wild from farmed kingfish and assessing migratory behaviour of wild kingfish.

Wild fish migrate past kingfish sea-cages in Fitzgerald Bay in summer. This knowledge creates the potential to better manage parasite infestation during periods of increased interaction between farmed and wild kingfish. Given that parasite eggs hatch more quickly in warmer sea temperatures, surveillance and management effort for infections by monogenean parasites should be concentrated on this period.

Although few reliable methods are available to distinguish natural fish from farmed fish, marking otoliths has emerged as a potential tool that could be used to discriminate any farm escapees from wild fish.

The key outcomes of this project included the development of standard sampling methods for ongoing assessment of parasite prevalence and intensity in wild and farmed kingfish. These sampling techniques are expected to be incorporated into an ongoing sampling program for effective parasite management. Farm management practices to reduce the impact of parasites include regular net changes and strategically timed treatments across entire farm leases.

*Assessment of novel monitoring and modelling techniques for monogenean skin and gill parasites (FRDC Project 2003/221)*

A reliable and consistent means of measuring the level of gill and skin fluke infestation of farmed kingfish has been developed based on a computer driven scanning system. This novel technology is faster and more cost-effective than current methods, and will greatly enhance industry's ability to

monitor and therefore control fluke infestations, through more precisely timing the application of control measures.

*Spatial impacts and carrying capacity – Further developing, refining and validating existing models of environmental effects of finfish farming (FRDC Project number 2003/222)*

The project studied the nutrients released from yellowtail kingfish aquaculture in Fitzgerald Bay, and based on these data two models were produced that assist environmental management decisions. At the site scale, a seafloor deposition model was developed that predicts that areas of high sedimentation are localized around individual pens. At a more regional level, a carrying capacity model has been developed that can be used to predict the level of increased nutrient loadings in the water column associated with increases in yellowtail kingfish production.

The physiology of yellowtail kingfish and mulloway was studied, with the focus on determining their oxygen consumption under a variety of environmental conditions. This information is important for the modeling, as it allows for an estimate of how much of the feed is metabolized by the fish.

The outcomes of this work will allow PIRSA Aquaculture to make more informed decisions on total allowable biomass within the Fitzgerald Bay zone, as well as optimal stocking densities for individual leases. These models can also be adapted to environmental conditions for other zones. As well as PIRSA Aquaculture, farm managers will be able to utilise the seafloor deposition model to investigate patterns of sedimentation within a lease, allowing for decisions on how best to arrange pens so as to minimise localised seafloor sedimentation and where to place pens for fallowing.

*Environmental audit of marine aquaculture developments in South Australia  
(FRDC Project number 2003/223)*

The project examined the impacts of yellowtail kingfish aquaculture in Fitzgerald Bay, and of land-based abalone aquaculture around South Australia, on a range of environmental variables. The results indicate that the environmental impacts of both sectors are minimal as currently undertaken. Additionally, the project included a pilot study on light availability to seagrass beds off Cape Jaffa in the South East of the state. The results from that indicate that any aquaculture undertaken in this region would have to be conducted so as to minimise light reduction to seagrasses. Finally, research was conducted into shading effects of intertidal shellfish long-line farming infrastructure at South Spit, Stansbury. While the relative area and degree of shading effects on seagrass meadows is low, a number of recommendations were made to reduce any potential lethal and sub lethal impacts. This project also reviewed current environmental monitoring programs. Overall, this project provides the basis for the enhancement of current environmental monitoring programs.

*Addressing seal interactions in the finfish aquaculture industry (FRDC Project number 2004/201)*

The project has provided comprehensive appraisal of the status of the Australian sea lion population in southern Spencer Gulf and the Nuyts Archipelago, including identification of several new breeding populations. Based on satellite tracking studies of the Australian sea lion in southern Spencer Gulf, there was limited spatial overlap in the major areas used by seals and the tuna farming zone. A questionnaire survey of tuna farmers confirmed that operational interactions with seals are a continuing problem, although there were opposing views on whether they are increasing or decreasing. Australian sea lions were considered to be responsible for most attacks on tuna. New Zealand fur seals were not considered a threat to farmed tuna, being too small to attack them successfully.

Extensive tracking in the Nuyts Archipelago from 6 different colonies showed that there were marked inter-colony differences in foraging behaviour, and evidence of two broadly different foraging patterns - inshore (shallow) and offshore (deep) foragers.

With respect to farm interactions, procedures for minimising finfish mortality attributable to seals include incorporation of seal fences on the pens, regular and frequent net maintenance and, removal of tuna carcasses. Also, efforts should be made to improve procedures for recording causes of death of farmed finfish to monitor the consequences from seal interactions.

*Development of rapid environmental assessment and monitoring techniques for application to finfish aquaculture in South Australia (FRDC Project number 2006/078)*

The project is an extension of previous work undertaken to improve the tuna environmental monitoring program. The project is underway and aims to determine similarities and differences in the DNA of benthic infaunal communities associated with finfish farming at Fitzgerald Bay, Arno Bay and Boston Bay. The number of individuals and the types of species of benthic infauna that live in the seafloor sediments are used to monitor the biological health of the environment around finfish farms.

This project will decrease the time taken for an assessment of the environment and improve the accuracy of the assessment. Information from this project will be used to standardise the finfish environmental monitoring program in line with the tuna environmental monitoring program.

These outcomes of IS projects were integrated into decision making processes such as those associated with aquaculture zoning, disease control, and managing interactions with protected wildlife species. The program's research findings enhanced PIRSA Aquaculture's environmental monitoring programs through, for example, the use of genetic technology to monitor the health of animals that live in the seafloor under aquaculture sites. The research findings

also provide valuable information that enhances industry's farm husbandry practices, such as automated measures of gill parasites on finfish to better inform treatment procedures.

## BENEFITS

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Project 2004/203 was instrumental in communicating IS natives research outcomes to stakeholders and facilitating the adoption of research based aquaculture management strategies for the sustainable development of SA's aquaculture industry.

Benefits of the project include the successful translation of research outcomes into practical and communicable management strategies in a format which achieved adoption by stakeholder groups such as government and industry.

Adoption of these management practices has in turn lead to increased aquaculture development in a sustainable and profitable manner through improved environmental planning knowledge, processes and technologies. This is evident in the continued expansion of the SA aquaculture industry since the commencement of the IS initiative in 2002 (EconSearch, 2003; EconSearch, 2006a; EconSearch 2006b; EconSearch 2007; EconSearch 2008; EconSearch, 2009). The introduction of the *Aquaculture Act 2001* also coincided with the start of the IS initiative. Since the commencement of the IS initiative in 2002 the total value of SA aquaculture industry outputs have increased by \$15.5 million from an estimated value of \$641.5 million in 2002 up to \$657 million in 2008 (EconSearch, 2003 and EconSearch, 2009). Accepting that the total value of the SA aquaculture industry is strongly influenced by tuna production and market fluctuations in the currency exchange, it is noteworthy that the production of species other than tuna (i.e. oysters, marine and freshwater finfish, yabbies, marron, mussels, and abalone) has increased 2.6 times over the same period, with a total value increase of 3.3 times.

## FURTHER DEVELOPMENT

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While outputs of the 2002 IS projects have been successful in developing the SA aquaculture industry, continued growth is still needed to meet SA Seafood Plan's combined seafood revenue target of \$2 billion by 2015 (SIDSC, 2005).

To a large degree, the aquaculture industry has only made use of some of the opportunities offered by the marine environment. Indications are that there is a great potential for further growth, not only in more established sectors such as tuna and oyster farming, but also in marine finfish, shellfish, biotechnology and land-based aquaculture.

To build on the success of previous IS projects, and to support continued growth and development of the SA aquaculture industry, PIRSA and FRDC have agreed to a further suite of IS projects (Innovative Solutions #2)

## PLANNED OUTCOME

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**The sustainable and profitable development of aquaculture through improved environmental and planning knowledge, processes and technologies.**

The planned outcome of the IS initiative is the sustainable and profitable development of aquaculture through improved environmental planning knowledge, processes and technologies. The outputs of project 2004/203 have contributed to this outcome by developing appropriate extension material from the IS initiative which has facilitated the implementation of research driven management practices into state policy and farm husbandry practices.

The outcomes of IS projects were integrated into decision making processes such as those associated with aquaculture zoning, disease control, and managing interactions with protected wildlife species. The program's research findings enhance PIRSA Aquaculture's environmental monitoring programs through, for example, the use of genetic technology to monitor the health of animals that live in the seafloor under aquaculture sites. The research findings also provide valuable information that enhances industry's farm husbandry practices, such as automated measures of gill parasites on finfish to better inform treatment procedures.

The beneficiaries and end users of these outputs include government regulators, aquaculture farmers, interest groups, media and coastal communities.



## CONCLUSIONS

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There is increasing recognition that natural resource management requires a focus on stakeholder and community knowledge, attitudes and beliefs, as well as highlighting the contexts in which they occur. This understanding enables decision-making that is responsive to wide ranging interests and concerns and increases the effectiveness of consultation, public education, marketing and communications programs. Outcomes of the current project highlight the benefits of this integrated approach to the management of the states aquatic resources. Through effective relationship building, communication strategies, and extension programs, outputs of the IS projects have been communicated to a range of stakeholders including government and industry groups. Effective communication and extension of research outcomes has facilitated the integration of research driven management practices with greater public and stakeholder awareness and acceptance.

## REFERENCES

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- ABARE (2007) Australian Fisheries Statistics 2006, Canberra, June.
- FAO (2007) State of World Fisheries and Aquaculture 2006, FAO Fisheries Department, Rome.
- EconSearch (2004) The Economic Impact of Aquaculture on the South Australian State and Regional Economics, 2002/03. A report prepared for PIRSA Aquaculture.
- EconSearch (2006a) The Economic Impact of Aquaculture on the South Australian State and Regional Economics, 2003/04. A report prepared for PIRSA Aquaculture.
- EconSearch (2006b) The Economic Impact of Aquaculture on the South Australian State and Regional Economics, 2004/05. A report prepared for PIRSA Aquaculture.
- EconSearch (2007) The Economic Impact of Aquaculture on the South Australian State and Regional Economics, 2005/06. A report prepared for PIRSA Aquaculture.
- EconSearch (2008) The Economic Impact of Aquaculture on the South Australian State and Regional Economics, 2006/07. A report prepared for PIRSA Aquaculture.
- EconSearch (2009) The Economic Impact of Aquaculture on the South Australian State and Regional Economics, 2007/08. A report prepared for PIRSA Aquaculture.
- SIDSC (2005) SA Seafood Food Plan 2005-2015. Seafood Industry Development Steering Committee.

## **APPENDIX 1: INTELLECTUAL PROPERTY**

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The intellectual property and valuable information arising from this report are:

1. Copyright of this report

## APPENDIX 2: STAFF

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Principal Investigator: Peter Lauer<sup>1</sup>

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## APPENDIX 3: SELECTED PUBLICATIONS ARISING FROM THIS PROJECT

---

Joyce, T.C. (2003) Distinguishing aquaculture and wild yellowtail kingfish via natural and artificial elemental signatures in otolith. Honours thesis, School of Earth and Environmental Sciences, The University of Adelaide, South Australia Australia.

Diggles, B. and Hutson, K.S. (2005) Diseases of kingfish (*Seriola lalandi*) in Australasia. Aquaculture Health International. VIP Publications Ltd, Auckland Issue 3, Nov 2005.

Gillanders, B.M., and Joyce, T.C. (2005) Distinguishing aquaculture and wild yellowtail kingfish via natural elemental signatures in otoliths. *Marine and Freshwater Research*, 56, 693-704.

Hutson K.S. and Whittington I.D. (2006) *Paradeontacylix godfreyi* n. sp. (Digenea: Sanguinicolidae) from the heart of wild *Seriola lalandi* (Perciformes: Carangidae) in southern Australia, *Zootaxa*, 1151, 55-68

Hutson, K.S. and Tang, D. (2007). *Naricolax hoi* n. sp. (Poecilostomatoida: Bomolochidae) from *Arius maculatus* (Siluriformes: Ariidae) off Taiwan and redescription of *N. chrysophryenus* (Roubal, Armitage and Rohde, 1983) from a new host, *Seriola lalandi* (Perciformes: Carangidae), in Australian waters. *Systematic Parasitology*, 68, 97-113.

Hutson, K.S., Ernst, I., Mooney, A.J. and Whittington, I.D. (2007). Metazoan parasite assemblages of wild *Seriola lalandi* (Perciformes: Carangidae) from eastern and southern Australia. *Parasitology International*, 56, 95-105.

Hutson, K.S., Ernst, I. and Whittington, I.D. (2007). Risk assessment for parasites of *Seriola lalandi* (Carangidae) in South Australian sea cage aquaculture. *Aquaculture*, 271, 85-99.

Hutson, K.S., Smith, B.P., Godfrey, R.T., Whittington, I.D., Chambers, C.B., Ernst, I. and Gillanders, B.M. (Submitted – 01 December 2006). A tagging study on yellowtail kingfish (*Seriola lalandi*) and Samson fish (*S. hippos*) in South Australian waters. *Transactions of the Royal Society of South Australia*, 131, 128-134.

## APPENDIX 4: SELECTED PRESENTATIONS ARISING FROM THIS PROJECT

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Hutson, K. S. Invited Speaker. 'Parasites of wild kingfish (*Seriola lalandi*)'. *Marine Life Society of South Australia (MLSSA)*, Adelaide, Australia. 15 September 2004.

Hutson, K. S., Ernst, I., and Whittington, I. D. 'Parasite interactions between wild and farmed kingfish (*Seriola lalandi*).' *Australian Society for Parasitology*, Annual Meeting, Fremantle, Western Australia. 28 September 2004.

Hutson, K.S. 'Potential for parasite interactions between wild and farmed fish, discrimination of farmed and wild fish and assessment of migratory behaviour'. *Innovative Solutions for Aquaculture*, Adelaide and Port Lincoln, Australia. 29 June 2005, 9 September 2005 and 30 August 2006.

Hutson, K.S. and Smith, B.P. Invited Speakers. 'Why tag fish?' *Junior Field Naturalists Society*, Adelaide, Australia. 4 May 2006.

Hutson, K.S. 'Parasite risk assessment for kingfish aquaculture in South Australia'. *Australasian Aquaculture Conference*, Adelaide, Australia. 30 August 2006.

Hutson, K.S. 'Why little guys matter! A new species of blood fluke infecting wild yellowtail kingfish (*Seriola lalandi*) in southern Australia'. *Royal Society of South Australia*, Adelaide, Australia. 10 August 2006.

Smith B. P. Invited Speaker. 'How to tag and release fish.' *Science Alive*, National Science Week, South Australia, Australia. 13 August 2006.

## APPENDIX 5: SELECTED MEDIA ARISING FROM THIS PROJECT

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Mensforth, S. '*Parasitically Speaking: An Interview with Kate Hutson*'. South Australian Angler Magazine. December 2004/ January 2005 Issue No 160.

Australian Broadcasting Commission (ABC) rural radio '*Parasites of wild kingfish*' Port Lincoln, 13 September 2005.

Hunt S. '*Going Pelagic*.' Blue Water: Boats and Sportsfishing Magazine September/October 2005.

Postcards, Channel 9 South Australia. '*Tagging wild kingfish in Port Augusta*.' October 2 2005.

FAB: Fishing and Boating Channel 7 Network South Australia, Australia. '*Tagging wild kingfish in Port Augusta*.' 12 November 2005.

King, B. (2005). '*Great catch*' The Sunday Mail. 20 November 2005.

Salkow H. '*Brad's catch of the day: yellowtail kingfish, and research!*' Adelaidean News from the University of Adelaide Volume 14, No. 9 2005  
<http://www.adelaide.edu.au/adelaidean/issues/7901/news7906.html>

Gill, T. '*Tough job, but Brad had to do it!*' Southern Fisheries Magazine Lane Print Group, Adelaide, Summer 2005/2006,

ARC/NHMRC Network for Parasitology Network newsletter. '*Network Travel Award for Marine Parasitologist, Kate Hutson*' April 11 2006.  
[www.parasite.org.au/arcnet/Newsletter/Newsletter\\_110406.pdf](http://www.parasite.org.au/arcnet/Newsletter/Newsletter_110406.pdf)



Anon. (2006). '*Kingfish tagging helps determine potential for parasite interactions.*' Fisheries and Research Development Corporation, RandD News, Volume 14, No. 3, 2006.

Crawford, J. (In Press) '*Studying Seriola.*' Fishing World Magazine.