

CURRICULUM VITAE

NAME: Dr Jason P ANTENUCCI

CURRENT PROFESSIONAL POSITIONS:

Deputy Director, Centre for Water Research, University of Western Australia.

Contract Research Group Manager, Centre for Water Research, University of Western Australia.

Senior Research Fellow, University of Western Australia

POSITION DESCRIPTION:

Deputy Director of the Centre for Water Research. Responsible for all financial and strategic planning.

Management of the Contract Research Group (CRG), a team of ten professional research scientists and engineers. Responsible for scientific direction, business development, client liaison, strategic management and technology transfer.

EDUCATION:

2001 PhD, Environmental Engineering, The University of Western Australia, AUSTRALIA

1997 BE(Hons-First Class), Environmental Engineering, The University of Western Australia, AUSTRALIA

1997 BCom, General and Strategic Management, The University of Western Australia, AUSTRALIA

MEMBERSHIPS:

Institution of Engineers, Australia

Australian Water Association

American Geophysical Union

AWARDS:

2003 Australian Water Association SA Branch Award for "Studies, Plans and Investigations" for the project "Hydrodynamic distribution of pathogens in lakes and reservoirs"

1999-2000 FS Shaw Memorial Postgraduate Award for Applied Mechanics

1997-2000 Australian Postgraduate Award

INTERNATIONAL EXPERIENCE:

Projects conducted in the following countries: Argentina, Australia, Brazil, Canada, Chile, Colombia, Germany, Israel, Italy, Japan, Kenya, Laos, Singapore, USA.

KEY QUALIFICATIONS:

- Assessment and recommendation of management strategies for remedial actions of aquatic systems.
 - Conceptual and numerical modelling of physics, biogeochemistry, and ecology in aquatic systems
 - Reservoir management strategies, including destratification system assessment and design.
 - Technology management, commercialisation and distribution
 - Environmental and geophysical fluid mechanics
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PREVIOUS EMPLOYMENT:

2004 – 2006: Research Fellow, Centre for Water Research (promoted to Senior Research Fellow June 2006)

2001 – 2004: Research Associate, Centre for Water Research (promoted to Research Fellow Sept 2004)

2000 – 2002: Project Engineer, Centre for Water Research (promoted to Contract Research Group Manager Sept 2002)

SUMMARY OF EXPERIENCE:

<i>CRG & Project Mgr</i>	Kranji Reservoir Real-Time Management System	2006-2007	Singapore
<i>CRG Mgr</i>	Decision support tools for managing hydrological threats to biodiversity assets - Lake Bryde	2005-2006	Australia
<i>CRG Mgr</i>	Upper Yarra Reservoir Turbidity Study	2005-2006	Australia
<i>CRG & Project Mgr</i>	Bodensee Online water quality modeling system	2005-2006	Germany
<i>CRG & Project Mgr</i>	Developing water quality remediation options for Peace River Reservoir	2005	USA
<i>CRG & Project Mgr</i>	Torrens Lake algal management plan review	2005	Australia
<i>CRG Mgr</i>	Pathogen micro-organism modeling in the Lower Brisbane River and Moreton Bay	2005	Australia
<i>CRG & Project Mgr</i>	Cyanobacterial management in Harvey Dam	2005	Australia
<i>CRG & Project Mgr</i>	Pilot study on hydraulic conditions over Rusinga Channel and Winam Gulf of Lake Victoria	2004-2005	Kenya
<i>CRG Mgr</i>	Pilot study in modelling a Singaporean catchment/reservoir system	2004-2006	Singapore
<i>CRG & Project Mgr</i>	Simulation model for Coeur d'Alene Lake: Investigation into heavy metal fate and transport	2004-2006	USA
<i>CRG & Project Mgr</i>	Hydrodynamic modelling of the Venice Lagoon	2003-2004	Italy
<i>CRG & Project Mgr</i>	Mathematical model of the Tiete River Basin	2003-2004	Brazil
<i>CRG & Project Mgr</i>	Transport processes in Silvan Reservoir	2003-2004	Australia
<i>CRG & Project Mgr</i>	Destratification design for the Peace River Authority	2003	USA
<i>Principal Investigator</i>	The response of phytoplankton to artificial destratification in a drinking water supply reservoir	2003	Australia
<i>Co-Principal Investigator</i>	Hydrodynamic distribution of pathogens in lakes and reservoirs	2002-2003	Australia/ USA
<i>CRG Mgr</i>	Hydrodynamic modelling of Cienaga de El Totumo	2002	Colombia
<i>CRG Mgr</i>	Water quality modelling of Mundaring Weir	2002-2003	Australia
<i>CRG Mgr</i>	Hydrodynamics of Brownlee Reservoir	2001-2002	USA
<i>CRG Mgr</i>	Limnological modelling systems for Lake Burragorang and Prospect Reservoir	2001-2003	Australia
<i>CRG Mgr</i>	Hydrodynamic and ecological modelling of Barbamarco Lagoon	2001-2003	Italy
<i>CRG Mgr</i>	Aquatic macrophyte control in Jupia Reservoir	2001-2003	Brazil
<i>CRG & Project Mgr</i>	Lake Kinneret water quality management system	2001-2004	Israel
<i>Project Manager</i>	Development of nutrient and metals budgets for North Pine Dam	2002	Australia
<i>Project Manager</i>	Strategies for the improvement of water quality in San Roque Reservoir	2001-2002	Argentina
<i>Project Manager</i>	Feasibility Study - Numerical modelling of Alumina Residue Ponds	2001	Australia
<i>Project Engineer</i>	Investigation into extreme bottom currents on the North-West Cape	2001	Australia
<i>Project Engineer</i>	Limnology of Lake Burragorang during boil water alerts	1998	Australia
<i>Project Engineer</i>	Prediction of water quality in the proposed Nam Theun 2 Reservoir	1997	Laos
<i>Project Engineer</i>	Hydrobiological modelling of Rapel Reservoir, central Chile	1996	Chile

INVITED PRESENTATIONS:

Invited Presentation: *Water crisis or Leadership Crisis?*, Australian Institute of Environmental Health (WA/NT)

branch) 60th Annual State Conference, Fremantle, Australia, 2006.

Invited Presentation: *Decision support systems for source water management*, Australian Water Association South Australian Regional Conference, Adelaide, Australia, 2004.

Invited Presentation: *Monitoring and management of reservoirs across socio-economic scales*, 3rd World Water Forum, Special session on Ecosystem Approaches to Water Monitoring and Management, sponsored by the UN Environment Program and the Japanese Ministry of the Environment, Kyoto, Japan, 2003.

Plenary Presentation: *Numerical modelling of water quality in lakes – the challenge of coupling physics and biology*, ENIEF 2001 - Argentinean Association of Computational Mechanics, Cordoba, Argentina, 2001.

TECHNOLOGY TRANSFER:

Technology (hardware and software) developed by the Centre for Water Research assists in managing the drinking water supplies of 50% of the Australian population (~10 million people), and approximately 40 million people internationally. The majority of this activity has occurred during the last 5 years.

Responsible for the development and distribution of the lake and reservoir management model DYRESM-CAEDYM. Since instigating the release of the model via the Internet as freeware in January 2001, the model has attracted more than 1500 users in over 80 countries. The rapid uptake and worldwide distribution of model users has resulted in the model rapidly becoming the international standard for management of lakes and reservoirs.

I also developed an online training course in 2003 for DYRESM-CAEDYM for delivery of training in the software. The course is accredited with the Engineers Australia. In the last two years, the course has attracted more than 130 participants from 13 countries including Australia, Bolivia, Canada, Chile, Hong Kong, Israel, Italy, Japan, Mexico, New Zealand, Singapore, Spain, and the USA.

CURRENT PHD STUDENT SUPERVISION:

Gomez-Giraldo, E.A. *Energy redistribution by high frequency internal waves in stratified lakes* (with J.Imberger).

Hipsey, M.R. *Pathogen dynamics in aquatic systems* (with G.Ganf and J.Brookes).

Morillo, S. *Engineering solutions to water quality problems in lakes* (with J.Imberger).

PUBLICATIONS:

Journal papers:

Antenucci, J.P., J. Imberger and A. Saggio. 2000. Seasonal evolution of the basin-scale internal wave field in a large stratified lake. *Limnology and Oceanography*. 45:1621-1638.

Antenucci, J.P. 2001. Lake Burragorang dynamics: the Sydney “Boil Water” alerts. *Water – Journal of the Australian Water Association*. 28(2): 34-35.

Antenucci, J.P. and J. Imberger. 2001. On internal waves near the high frequency limit in an enclosed basin. *Journal of Geophysical Research - Oceans*, 106(C10): 22465-22474.

Antenucci, J.P. and J. Imberger. 2001. Energetics of long internal gravity waves in large lakes. *Limnology and Oceanography*, 46:1760-1773.

Antenucci, J.P. and J. Imberger. 2003. The seasonal evolution of wind / internal wave resonance in Lake Kinneret, *Limnology and Oceanography*, 48: 2055-2061.

Antenucci, J.P., R. Alexander, J.R. Romero and J. Imberger. 2003. Management strategies for a eutrophic water supply

reservoir – San Roque Reservoir (Argentina), *Water Science and Technology*, 47(7-8) :149-155.

Boegman, L., J. Imberger, G.N. Ivey and J.P. Antenucci. 2003. High frequency internal waves in large stratified lakes, *Limnology and Oceanography*. 48: 895-919.

Gal, G., J. Imberger, T. Zohary, J.P. Antenucci, A. Anis and T. Rosenberg. 2003. Simulating the thermal dynamics of Lake Kinneret. *Ecological Modelling*, 162(1-2): 69-86.

Brookes, J.D., Antenucci, J.P., Hipsey, M.R., Burch, M.D. Ashbolt, N.J. and Ferguson, C. 2004. Fate and transport of pathogens in lakes and reservoirs. *Environment International*. 30(5): 741-759.

Lemckert, C.J., Antenucci, J.P., Saggio, A. and Imberger, J. 2004. Physical properties of turbulent benthic boundary layers generated by internal waves. *ASCE Journal of Hydraulic Engineering*. 130(1): 58:69.

Romero, J.R., Antenucci, J.P. and Imberger, J. 2004. One- and three-dimensional biogeochemical simulations of two differing reservoirs. *Ecological Modelling*. 174: 143-160.

Hipsey, M.R., Antenucci, J.P., Brookes, J.D., Burch, M.D., Regel, R. and Linden, L. 2004. A three-dimensional model of Cryptosporidium dynamics in lakes and reservoirs: a new tool for risk management. *International Journal of River Basin Management*, 2(3): 1-17.

Antenucci, J.P., J.D. Brookes and M.R. Hipsey. 2005. A simple model for quantifying Cryptosporidium transport, dilution and potential risk in reservoirs. *Journal of the American Water Works Association*, 97(1): 86-93.

Antenucci, J.P., A. Ghadouani, M.A. Burford and J.R. Romero. 2005. The long-term effect of artificial destratification on phytoplankton species composition in a sub-tropical reservoir. *Freshwater Biology*, 50: 1081-1093.

Brookes, J.D., Hipsey, M.R., Burch, M.D., Regel, R.H., Linden, L.G., Ferguson, C.M. and Antenucci, J.P. 2005. Relative value of surrogate indicators for detecting pathogens in lakes and reservoirs, *Environmental Science and Technology*, 39(22), 8614-8621. DOI: 10.1021/es050821+.

Brookes, J.D., C. Davies, M.R. Hipsey and J.P. Antenucci. 2005. Determining the size of Cryptosporidium-associated particles from cow feces under simulated rainfall and risk reduction by settling within water supply reservoirs. *Journal of Water and Health*, DOI:10.1007/s11270-006-3010-6.

Antenucci, J.P. 2005. Comment on “Are there internal Kelvin waves in Lake Tanganyika” by Jaya Naithani and Eric Deleersnijder, *Geophysical Research Letters*, 32, No. 22, L22601., doi:10.1029/2005GL024403.

Gomez-Giraldo, A., J. Imberger and J.P. Antenucci. 2006. Spatial structure of the dominant basin-scale internal waves in Lake Kinneret. *Limnology and Oceanography*, 51:226-246.

Antenucci, J.P. 2006. Management of reservoirs across socio-economic scales and the quantification of ecosystem services. In Y. Yamashiki and T. Nakamura (eds). *Ecosystem Approaches to Water Monitoring and Management*. United Nations Environment Program (UNEP). (ISBN) (in press).

Antenucci, J.P. and Ivey, G.N. 2006. Observations of bottom intensification of temperature and velocity fluctuations induced by tidal interactions with a slope, *Marine and Freshwater Research. Internal Waves and Coastal Currents Research Forum*. 57(3):255-263.

Conference papers:

Antenucci, J.P. and J. Imberger. 2000. Observations of high frequency internal waves in a large stratified lake. In G.A. Lawrence, R. Pieters and N. Yonemitsu [eds]. *Proceedings 5th International Symposium on Stratified Flows*. 1:271-276. University of British Columbia.

Deen, A., R. Craig and J.P. Antenucci. 2000. The Sydney Water contamination incident of 1998 - monitoring and modelling. *Proceedings Hydro 2000 - 3rd International Hydrology and Water Resources Symposium of The Institution of Engineers, Australia*. 1:103-109.

Brookes, J.D., Antenucci, J.P. and Hipsey, M. and Burch, M.D. 2002. Pathogen fate and transport: a review of the

critical variables in Myponga Reservoir. Keynote paper at the *Environmental Engineering Research Event, Blackheath*, Dec 3-6, 2002. (ISBN 0-9580158-0-5).

Romero, J.R., Dallimore, C.J., Antenucci, J.P., Hamilton, D.P., Imberger, J., Horn, D.A. and Deen, A. 2002. Application of 1D and 3D hydrodynamics models coupled to an ecological model to two water supply reservoirs. *International Environmental Modelling and Software Society (IEMSs 2002)*, University of Lugano, Switzerland. A.E. Rizzoli and A.J. Jakeman [Eds.] , 24-27 June 2002 , 2: 307-312.

Lewis, D.M., Antenucci, J.P., Brookes, J.D. and Lambert, M.F. 2002. Numerical simulation of surface mixers used for destratification of reservoirs. *MODSIM'2001 International Congress on Modelling and Simulation*, The Australian National University, Canberra, Australia, 10-13 December 2001., 311-316.

Antenucci, J.P. and Imberger, J. 2003. The effectiveness of reservoirs as water quality barriers. *AWA 20th Convention - 2003 OzWater conference*, Perth, Western Australia, 7-10 April 2003.

Antenucci, J.P., Hipsey, M.R., Brookes, J. and Burch, M. 2003. A model for Cryptosporidium fate and transport in lakes and reservoirs. *AWA 20th Convention - 2003 OzWater conference*, Perth, Western Australia, 7-10 April 2003.

Hipsey, M.R., Antenucci, J.P. and Brookes, J.D. 2003. Coupling a Cryptosporidium fate model to a 3D hydrodynamic model: results from Myponga Reservoir, SA. *AWA 20th Convention - 2003 OzWater conference*, Perth, Western Australia, 7-10 April 2003.

Ewing, T.C., Okely, P.N., Antenucci, J.P., Romero, J.R., Horn, D.A. and Malita, G. 2003. The influence of pumpback operation upon the dynamics of a reservoir. *AWA 20th Convention - 2003 OzWater conference*, Perth, Western Australia, 7-10 April 2003.

Romero, J.R., Imberger, J., Ewing, T.C., Antenucci, J.P., Deen, A. and Craig, R. 2003. A real-time decision support system for reservoir management. *AWA 20th Convention - 2003 OzWater conference*, Perth, Western Australia, 7-10 April 2003.

Ewing, T.C., Romero, J.R., Imberger, J., Antenucci, J.P., and Deen, A. A Real-time Reservoir Decision Support System. *HYDROINFORMATICS (In 3 Volumes, with CD-Rom)*. Proceedings of the 6th International Conference, Singapore 21 - 24 June 2004 edited by S-Y. Liong, K-K. Phoon and V. Babovic, 8 pp, 2004.

Hipsey, M.R., Antenucci, J.P., Brookes, J.D., Burch, M.D. and Regel, R.H. Simulation tools for minimizing pathogen risk in drinking water reservoirs. *HYDROINFORMATICS (In 3 Volumes, with CD-Rom)*. Proceedings of the 6th International Conference, Singapore 21 - 24 June 2004 edited by S-Y. Liong, K-K. Phoon and V. Babovic, 8 pp, 2004.

Antenucci, J.P., Ewing, T.C., Romero, J.R. and Imberger, J. 2004. Decision support systems for source water management. *Australian Water Association South Australian Regional Conference 2004*, Adelaide, South Australia 18 August 2004.
