

HydroJournal

Issue No. 11
December 2009

Welcome to the December edition of HydroJournal. The year is almost over and Christmas parties are on the horizon. Time flies!



Staff

August saw Dustin and Michelle Hobbs move from the Queensland office to Perth for Dustin to begin a two-year secondment assisting the WA team with existing projects and marketing. Michelle returns from maternity leave to work part time.

We are pleased to announce that Ida Vincent has joined the biology team on a permanent full-time basis, and we have also welcomed Clwedd Burns and Subhadra Jha to the Queensland office. Congratulations to Lachlan MacArthur, who was married in October to fiancé Katherine. Congratulations also to Dustin Hobbs who has just marked his 5-year anniversary with the Company with a nice bottle of Red.



New Webpage

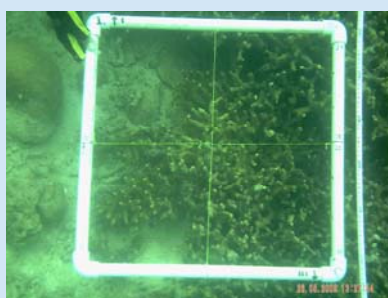
Hydrobiology's webpage has recently been upgraded. Please visit our homepage at:
<http://www.hydrobiology.biz/>

Acoustic Monitoring

We are pleased to announce a significant upgrade to our freshwater and marine monitoring capabilities, with the purchase of a new 600 kHz ADCP, and the upgrade of our existing 300 kHz Broadband. These units will allow for both boat-mounted or bottom-moored deployments. This adds to our existing fish hydroacoustic equipment, and will allow us to monitor fish, flows and sediments simultaneously.

Projects Update

A mining pre-feasibility project in Mindanao, Philippines continues to keep our field teams busy. Shirley Connelly, Ida Vincent and Lachlan MacArthur carried out a marine study, including quarterly water quality sampling, and SCUBA diving for a corals and habitats survey, while Phil Whittle continues the monthly surface water and sediment monitoring for the project.



Photos: Quadrat for assessing coral communities, and SCUBA diving equipment.

Conference News

Shirley Connelly recently attended the International Ports Conference in Amsterdam, giving a talk on hydroacoustics.

Phil Whittle hosted a booth at the Water in Mining Conference recently, also chairing one of the sessions.

Ross Smith and Dustin Hobbs attended the Australian Society for Ecotox conference in August.

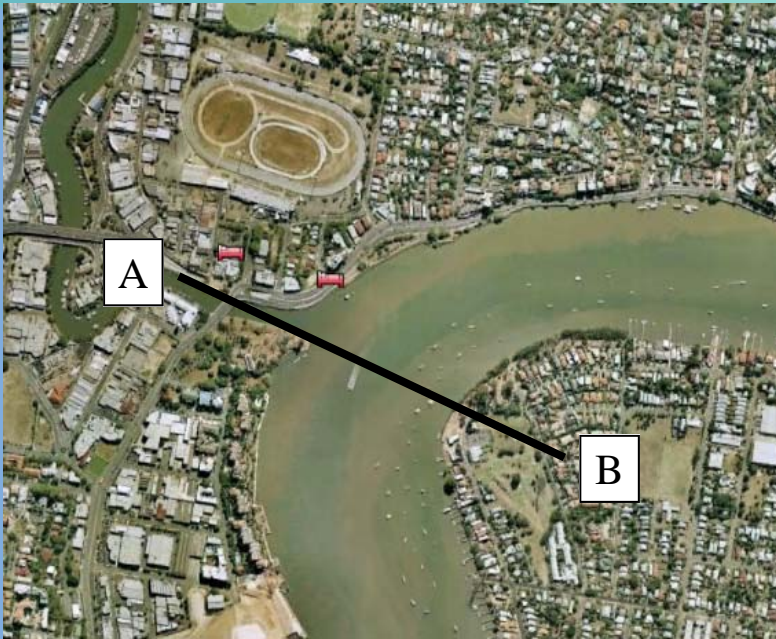
Awards

Hydrobiology QLD achieved a podium finish in the 2009 Queensland Export Awards—for the second year running—as a finalist in the Small-Medium Services category. Not only did we achieve this in difficult market conditions, but we jumped up a category too. Well done to everyone and thanks to our Clients for their continued support.

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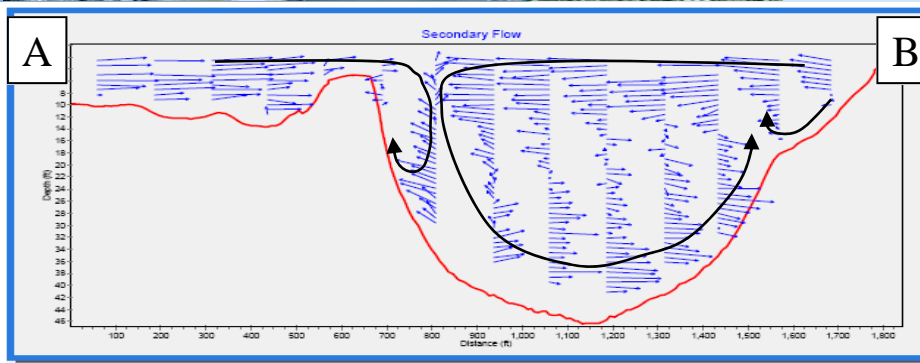
Technical Focus - Using ADCPs to Visualise Flow Structures



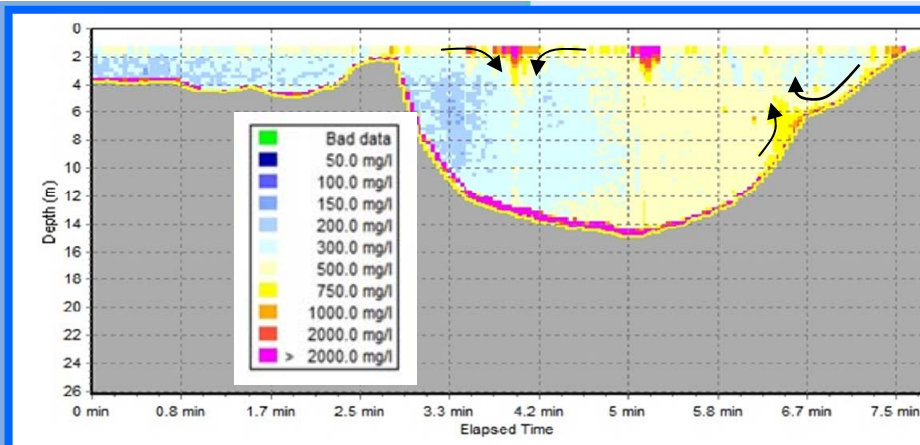
Secondary currents develop in flows along both straight and meandering channels and. River flow has both downstream (primary) and cross-stream (secondary) components and the combined effect of primary and secondary flow is a spiralling motion of the water as it flows down a channel, often referred to as 'skew-induced flow'. Skew-induced flow can only occur in curved channels and is the result of a cross-stream force balance set up as the flow travels around a bend.

The attached diagrams show results obtained from an Acoustic Doppler Current Profiler (ADCP) that was used to measure flow in the Brisbane River. The transect [A-B] was run across the river and for some distance up a tributary. The survey, undertaken on a falling tide as flow discharged from the tributary to the main river, also showed

a typical secondary flow pattern with fast surface waters moving outwards (B to A) and slower, near bed waters moving inwards (A to B). The outward moving surface waters converged with the tributary outflow to create a zone of downwelling near the tributary lip.



Using specialised software, the ADCP acoustic return signal was processed to yield contours of suspended sediment concentration which show the 'plume' of lower turbidity water entering the main river, and a zone of near-bed upwelling near the inner bank. Surface turbidity 'hotspots' were interpreted to represent debris zones resulting from converging surface currents.



The technology is particularly useful for visualising flow structures and plume movements in rivers, lakes and the marine environment.

For further information contact Andy Markham