AUSTRALIAN HYDROGRAPHERS ASSOCIATION

Australasian Hydrographer

Upper Wanganui River (South Island, New Zealand) in flood 2004

(Photo supplied by Martin Doyle, New Zealand)

August, 2005

The Australasian Hydrographer is the Journal of the Australian Hydrographers' Association Incorporated. ISSN 0812-5090

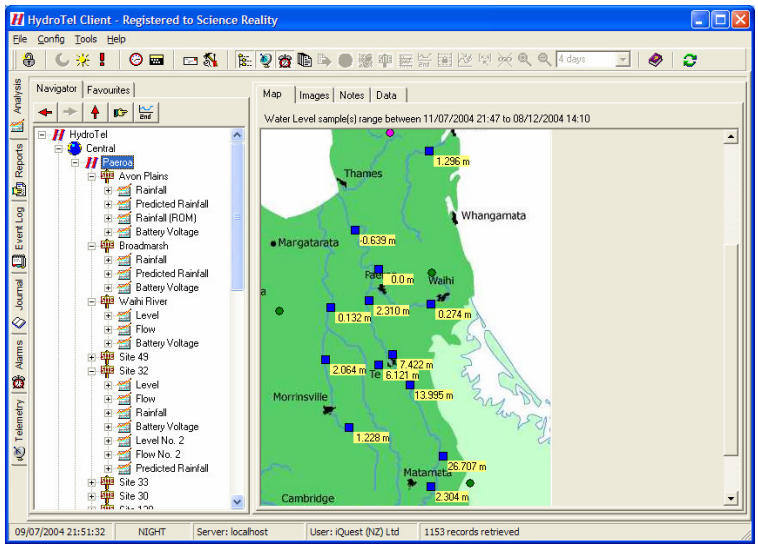
The Very Best in Environmental Telemetry Systems

HydroTel (developed by iQuest New Zealand Ltd) provides the very best user interface available for environmental telemetry operations. Until recently, this product was only available to New Zealand customers where it is clearly the stand-out favourite being used by most of the regional councils as their front-line telemetry system.

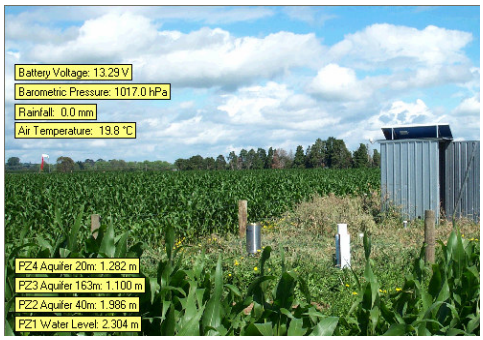
Science Reality is proud to be making this product available to the Australian market and will be providing comprehensive local support as well as high quality systems integration services to ensure a very good fit to existing environmental archiving systems.

Major features:

- Highly graphical & intuitive interface
- Advanced alarm management
  - 3 stage alarm escalation
  - Flexible notification (email, sms, paging, fax etc)
  - Multiple alarm actions
- Extensive communication options
  - Dialup (landline, cellular, satellite)
  - Radio
  - GPRS/UDP
  - TCP/IP
- Compatible with many logger types
- Web browser interface option
- No requirement for special hardware (runs on any Windows computer)
- Data stored in SQL Server database
- Control of barrage gates and pumps
- Compatible with HYDSYS/Hydstra



Main interface with catchment map showing latest readings



Site View showing latest sensor readings

For regular polling, groups of loggers are assigned to named schedules, however HydroTel also enables polling of all sites within a district or catchment as well as individual sites with a single mouse click.

HydroTel provides a very intuitive visual perspective of your environmental monitoring network. The display includes maps of districts and catchments and site images that can be used as the basis for selecting stations to poll and for display of latest readings & recent statistics (eg: rainfall over past 3 hours or other user selectable period).

This is in significant contrast to other major telemetry products based simply around lists of stations and providing nothing like the visual perspective that you get with HydroTel.

HydroTel has been well proven over a number of years as a front-end telemetry system for a variety of environmental archiving systems including Hilltop, HYDSYS, Tideda & TimeStudio.

Science Reality, under the leadership of Chris Misson (former Hydstra Product Development Manager and principal architect of the TimeStudio product suite), is ideally equipped to provide comprehensive high quality local support for this excellent product in Australia.

science REALITY
Intuitive Software Solutions

48 Bingley St, Howrah, Tasmania.
Ph 03 6247 8720, email info@science-reality.com

THIS ISSUE

EDITORIAL

The winter in Cooma slowly draws to an end, though a few weeks ago the kids and I were running around the yard in our swimmers playing with the hose as the temperature crept past 20 degrees. How perceptions change with time. Once upon a time in a warmer clime we would have been whinging as to how cool it was at 20 degrees!

As I have alluded to previously perceptions and memories of the past can't be relied on and real solid long term data is what is needed for making the important decisions for our waters future. But what about the on ground people who maintain, manage and interpret this information for the final decision makers?

The perception of what Hydrographers are and do vary depending on who you talk to. Some remember them as those blokes with boat on the river in flood, standing at the bar in the evening being very loud. Others seem to remember those couple of people measuring things in the water and scraping rocks in a remote river in New Zealand. Yet again some will report that hydrographers are what measure the bumps on the ocean floor that get in the way of ships, and did someone mention that their hydrographers are involved in air quality monitoring in the desert?!

Today's Hydrographer is a multi skilled specialist – if that's not an oxymoron in today's personnel management lexicon, I don't know what is.

In our Association we have members doing all the above and more to meet the demands of a data hungry world. We even have a ***specialist*** educational course specifically designed for us that also enables us to be ***multiskilled*** as well! The course is even accredited under the Australian Qualifications Framework. There's a meteorological component, water quality, hydraulics and specialist instrumentation components as well as Hydrography!

While a hydrographer shortage may not be as politically sensitive as a doctor shortage, sopme are commenting that an apparent skills shortage in our area may be occurring. We must continue to encourage the training and education of the future hydrographers and field hydrologists, particularly in the course of studies that has been developed by the hydrographic industry and members of this Association.

At our recent Annual General Meeting in Canberra, John Mashke of the Australasian Hydrographic Society (which mainly covers marine hydrographers) spoke of the similarities between our organisation and its members, and of similar problems with perceptions of what marine hydrographers are and do. An interesting issue discussed by John was that of accreditation processes for qualified people in marine hydrography and surveying and its applicability to members of our association. Previous to this talk our groups had been talking about the establishment of a relationship between the two groups and this line of investigation is now underway and 'friendship' has been established between our two organisations which is expected to develop into the future.

Mic Clayton, Editor and Publicity Officer

The **Australasian Hydrographer** is the Journal of the **Australian Hydrographers' Association Incorporated**. The Journal is distributed quarterly to Members. **ISSN 0812-5090**

Visit our **Web Site** at: **http://www.aha.net.au** to download a Membership application and to find contact details for your state representative.

Editorial and advertising enquiries should be directed to the association's **Publicity Officer**, Mic Clayton.

e - mail publicist@aha.net.au , or
PO Box 843, COOMA, NSW, 2630.

THE 25TH ANNUAL GENERAL MEETING OF THE AUSTRALIAN HYDROGRAPHERS' ASSOCIATION, THE CROWNE PLAZA, 1 BINARA STREET, CANBERRA

WEDNESDAY AUGUST 3RD, 2005.

Attendees:
Members: Scott Walker, Max Hayes, Mick Sievers, Ross James, Alex Springall, Andrew Karr, Adam Wiggins, Brian Chester, Paul Corbett, Simon Cruikshank, Tony Polchleb, Bill Barrett, Bill Steen, Michael Lysaght, John Hayes, Gary Newton, Nathan Rugless, Michael Whiting
Visitors: Phil White, Jeff Garbut, Tony Garr, Murray Melmuth, Wartini Siran, Dave Garforth, John Mashke.

Apologies: Graham Armstrong, John Skinner, Ray Alford, David Williams, Jim Tilley, Matin Doyle, Anthony Skinner

Opened: 1655 hrs

Mic Clayton to Chair meeting in the absence of Chairman Graham Armstrong
Moved Mic Clayton
Seconded Scott Walker
Accepted

In welcoming everyone to the 25th Annual General Meeting of the Association, Mic commented on the fact that the Association had reached a milestone in its history at having completed 25 AGMS.

Visitors from the Australasian Hydrographic Society, John Maschke (Chair AHS), Dave Garforth and Wartini Siran, were welcomed to the Annual General meeting.

Agenda for 25th AGM approved:
Moved Bill Steen
Seconded Michael Lysaght

Minutes of 24th AGM of AHA, 2004 read and approved.
Moved Bill Steen
Seconded Gary Newton

Business arising from the minutes – Nil

Reports:
AHA CHAIRMAN'S REPORT FOR 2005

The past 12 months have presented the AHA with some major challenges, particularly whether we continue as a stand-alone Association or merge with another group to gain some additional clout in the water industry. Over the past 12 months we have met with two organisations that may provide us with the extra robustness we are looking for. Scott Walker and Tony Polchleb attended a meeting of the Hydrological Society earlier this year and I am sure they can elaborate on their findings if required. Also, Scott, Mic Clayton, Michael Lysaght and I met with Chris Davis from the Australian Water Association (AWA). The meeting with AWA discussed the merger of our organisations and the options for a technical accreditation scheme for the hydrographic industry. This was reported in the previous AHA Journal.

This is probably the most critical decision that needs to be made in the history of our Association. Do we continue to stand alone or do we align ourselves with another organisation. Can our existing Association grow its current membership? Will we lose our identity by merging? Will the benefit to members be enhanced or eroded by a merger? These are all difficult issues that we must address. If we stay as we are will we become less relevant in the industry – our membership has not really expanded with the growth in the industry. The industry has changed but have we changed with the times – do we meet our members needs?

Whether we merge or not, there is still the need for greater participation by members. The reasons that we want to be a part of an association do not change whether we stand alone or not. We want contact with others in our industry and we want to share experiences with others. To do this we need everyone to participate. If, for example, we became part of the AWA we would become a small hydrographic "interest group" within a large organisation. It will still be up to us to promote our industry and to participate in activities that are of interest to us. I hope that we can start some dialogue on the issue and I encourage everyone to participate in the discussion so that at he end of the day we end up meeting the needs of all of our members.

Graham Armstrong
Moved: Michael Lysaght, Seconded: Bill Steen. Accepted

AHA SECRETARY'S REPORT FOR 2005

This will be my last secretaries report as I have decide not to seek re-election. This is by no means a reflection of my commitment to the industry. It is simply that my plate is pretty full and something had to give. I enjoyed the privilege immensely and wish my successor all the best and of course will help out in whatever capacity I can as they get up to speed.

This last year we have looked to embolden our industry by exploring the world of accreditation. Our friends at the Australian Hydrographic Society provided us with some insight into this area when we attended the AHS-East General Meeting in August last year. Jim Connolly (Spatial Sciences Institute), Steve Blake and Craig Sandy spoke on behalf of the SSI, L&HS Commission and ANZLIC. The general issues and priorities of various government jurisdictions are important matters that affect the professional accreditation of AHS members. Discussions after the meeting lead us to think that if the AHS explores an accreditation system then we might be able to learn from their experience.

We approached the AWA with the concept of accreditation. In a nut shell for this to happen it looked as though the association would come totally under their auspices. This may be a too big a pill to swallow for members so it is now that I ask for a direction on this matter.

Our salty counterparts noticed that the SSI also wanted to take over the running of their society and this outcome proved to be undesirable for their members. Another similar problem afflicting the AHS is the constant lack of newsletter material, but that is the Publicity Officer's problem.

Most correspondence to and from the secretary's desk is via e-mail so the following is a summary
Copies of e-mails are available upon request.

Correspondence In:
Aqualab & Tony Jarvis re: advertising in newsletter.
Sontek "advertorial"
13th conference proposal
Invitations to Symposiums, Expos, trade shows and field days.
Membership applications – Various

Correspondence Out:
Membership updates - Mic Clayton & Max Hayes
Membership clarifications – Various
Report on 12th Workshop – Published WATER magazine
Recognition of AHA membership – Sydney Catchment Authority
Accreditation issues – AHS and AWA
Request for services – Bowral bowling club

The Future:

2006 will see a new secretary. Please be kind to him (or her) as you all have for me. I look forward to catching up with you all again in Darwin.

Sincerely
Scott Walker
AHA Secretary
03/08/05
Moved: Adam Wiggins, Seconded: Gary Newton. Accepted

AHA TREASURERS'S REPORT FOR 2005

Max Hayes

Auditors Declaration

I have examined the records relating to income and expenditure transactions carried out by the Australian Hydrographers Association Incorporated for the period 1 January 2004 to 31 December 2004.

The accounts presented are a true and fair view of income and expenditure carried out by the Association.

Stephen Kearney A.S.A 1225138.

18-Jun-05

AHA Statement of Receipts and Expenditure

1/1/04 to 31/12/04

Receipts

Subscriptions	$4,090.00
Interest	$134.27
Unspecified	$3,788.32
AHA Workshop	$116,175.68
Total	$124,188.27

Expenditure

Miscellaneous	$1656.30
AHA Workshop	$81,442.32
Bank Fees	$146.00
Unspecified	$6142.34
Newsletter	$2841.32
Total	**$92,228.28**

Bank of Melbourne Account 033-259 13-0104

Opening Balance: 1 January, 2004
$29,999.20

Income
$124,188.27

$154,187.47

Expenditure:
$92,228.28

Closing Balance, December 31, 2004
$61,959.19

Reconciliation:

Closing Balance, December 31, 2004
$61,959.19

(as per statement)

Plus Receipts not credited:
$0

Less Unrepresented Cheques:
$0

Closing Balance, December 31, 2004:
$61,959.19

Moved: Bill Barrett, Seconded: Alex Springall. Accepted

Alex Springall noted that Max Hayes had been the treasure since the inaugural Annual General Meeting of the Association. Everyone extended their congratulations and thanks to Max for his service to the Association over the years.

AHA PUBLICITY OFFICER'S REPORT FOR 2005

Mic Clayton

04 through to 05 has seen continued development of the website and continued publication of the Journal.

Journals were published:

- August - November 2004, 34 pages (This was a combined edition to begin coverage of the last conference in Queensland)
- February 2005, 32 pages
- May 2005, 32 pages

Copies of the Journal continue to be forwarded to the State Library of New South Wales for archiving and courtesy copies continue to be forwarded to the New Zealand Hydrological Society for their information and delight. Articles in our publication have occasionally been mentioned in dispatches in their publication "Current".

In the last 12 months contributions from Tasmania, Queensland, Western Australia and the Northern Territory were welcomed by me with open arms and science wasn't forgotten with an in depth analysis of pipes by Glenn Mc Dermott from New South Wales. We even had an item from an ex pat Kiwi who returned to the home land on a holiday and prepared a small piece for publication (Thanks Simon)

The August 2005 Journal will appear shortly as I will be including the minutes from this AGM.

Advice for this AGM was prepared and sent to members in July, 2005 as well as posted on the website.

Speaking of websites, the site suffered a glitch late last year when the ISP began 'not returning calls' so to speak and the ability to update the site ceased. Many thanks to Scott who assisted with brokering a replacement ISP late last year. The site was transferred almost seamlessly though we have lost some of the good web tools the old provider had for the moment. We are slowly reformatting pages as required and new skills are learnt with the tools available with the new ISP. Our Domain name (www.aha.net.au) was preserved during all the confusion and that side if things has behaved as normal.

Over the last 12 months, besides preparing the Journals, information newsletters and maintaining the web site, a number of job ads were forwarded to members via email lists. Last year saw 12 job ads passed on to members as being posted up on the AHA web site.

Following on from a request from the floor last year, membership expiries are now printed on every journal mailout label. If the proposed amendments regarding membership go through it will be nice to see a label with an 06/something on it!

Again we had had a smattering of "I haven't seen something' or 'received my Journal". Often it is a result of the person moving and neglecting to advise committee of the changes. Please advise as soon as possible. I don't know what I can do about Queensland Natural resources though , they keep changing their addresses then, when I sort out the email lists, they change it back to the previous one!

I have enjoyed working on the Journal and working with Scott to get the web site operational over the last three years. But you know what my greatest satisfaction is, getting those rare gems called articles – they are what you as members can contribute to the Association. They don't need to be a thesis – so give it a go if you haven't already.

Moved: Michael Lysaght, Seconded Bill Steen. Accepted

State Representative Reports:

Western Australia, Michael Whiting
Presentation of state report consisted of input by three organisations

Western Australian Water Corporation

Monitoring activities in the Water corporation continue to expand as the need for good quality data continues to grow, through immediate and long term needs for asset condition, planning and compliance requirements. Areas of growth include ambient meteorological monitoring for odour buffer modeling, and sewer flow monitoring.

Recent alignment of main data collection group Asset Monitoring Services to the centralised Tactical Asset Management group is seen as a positive step towards standardizing monitoring activities across the Corporation, and reaffirms the need for collecting good quality data.

There is a strong emphasis on employing staff with the appropriate hydrographic qualifications, and redressing any qualification shortfalls through ensuring current

Mindata Ad here

staff also complete the Certificate IV/Diploma in Hydrography.

Two trainee hydrographers have been employed with an emphasis on completing the Certificate/Diploma in Hydrography and qualifications, as a condition of continued employment.

We continue to consolidate instrumentation based around the Unidata Data Logging platform, and strengthen the instrument Quality Management Systems, using Hydstra.

Currently trying to resolve issues with the accuracy of electromagnetic current meters at flows lower than 1 m/s, where manufacturer claims and tow tank calibrations don't match.

Western Australian Department of Environment

The Department of Environment is the government agency in Western Australia responsible for managing the State's water resources. Until recently, the importance of measuring water resources in meeting this responsibility was not widely appreciated. The result was a decline in the standard of hydrographic services to a point where data reliability was impacting significantly on the department's ability to make confident decisions about water resources management. Following a revealing State audit, that clearly identified the situation, additional funding is now being provided and a resurrection is underway. For example, six new hydrographic staff have just been recruited and funds for twelve more have been requested. Substantially more capital funding has been provided to upgrade and adequately maintain the inventory of water measurement assets - hydrologic instrumentation, gauging stations and bores.

Hydrographic skill shortages prevail across the State, a situation that will only worsen as the "baby boomer" hydrographers retire. The priority over the next few years will therefore be recruitment and training of the next generation. To this end, the department strongly supports the OTEN NSW Hydrography Certificate IV as an essential qualification for all staff undertaking water measurement activities.

There is a reshaping of the State government's water management structure. Significantly the Premier has claimed the water portfolio, assisted by another Minister. There may be some fine tuning of DoE and other government agencies performing hydrographic work.

Conflicts for water are increasing as State development continues to thrive in an atmosphere of growing community concern for environmental sustainability. Reduced recharge due to climate change is exacerbating the difficulties of managing water resources. It can be expected that demands for hydrographic skills will only increase in the foreseeable future to ensure scientifically robust data are available for the critical decisions that will need to be made.

There has been a slow start over the last few years getting hydrographers together in WA across various organizations; however this will be moved forward.

ECOWISE Western Australia

ECOWISE Environmental WA provides a broad range of environmental monitoring services. Apart from Hydrographic projects, monitoring expertise extends into areas such as Ambient Air and Meteorological Monitoring.

With a predominance of mining industry based monitoring contracts, hydrographic monitoring has developed beyond basic surface water discharge and groundwater level monitoring into such areas as:

- Total Suspended Solid (TSS) load calculation,
- Sulphate (SO_4) and Magnesium Sulphate ($MgSO_4$) load calculation,
- Acid Rock Drainage monitoring,
- Water Use Efficiency monitoring in irrigated areas.

A thorough understanding of hydrographic principles has allowed the delivery of cost effective stream-monitoring services, usually in situations where large scale civil works are financially and/or environmentally unfeasible.

ECOWISE Environmental WA's success in retaining and extending current monitoring contracts can be largely attributed to an ability to convert the collection of basic monitoring contracts into quantitative environmental information. This enables a 'value added' service to the collection of such data variables as EC, pH, and turbidity.

Major environmental contracts exist with:

- Argyle Diamonds – Surface water, Ground Water and Meteorological monitoring,
- BHP (Newman) – Surface Water, Ground Water and Meteorological monitoring,
- ALCOA – Ambient Air and Meteorological monitoring.

Any interest by AHA members or associates in current and future projects is very welcome and should be addressed to Jeff Waddington, WA Manager

Queensland, Ray Alford

The wet season was again disappointing this year despite a promising start. There were some good falls of winter rain in the south and south west of the state rain resulting in some brave hydrographers having to measure the icy flows.

Unusually heavy rainfall fell on the Gold Coast in June with 450 mm falling within about 12 hours. This heavy rain did not penetrate inland enough to help fill the dams in the south-east corner.

Our Minister's smart state money is increasing the number of gauging stations in Queensland and some is going towards updating instrumentation and telemetry at existing sites. Three new gauging have been erected to measure flows into Lake Eyre at sites which were closed down in the 1980's. As usual, there doesn't seem to be matching operational money to go with the new stations.

Hydrographic staff numbers in Qld remains constant with some turnover of our younger members. Reclassification of some senior positions is bring some standardisation to the Regional structures.

New Zealand – Martin Doyle

Hydrography in New Zealand is slowly but surely changing – life is no longer an endless round of darts and games of pool after a hard day's work standing in the river somewhere.

Niwa continues to look after hydrometric sites of national interest, being supported by national science funding for this purpose. Hydrology work is only a small part of what Niwa does, being very involved in research in the areas of freshwater fisheries, marine ecosystems, climate, tides, aquaculture, natural hazards and so on. Funding constraints at the national level grow tighter, and Niwa does a good job of keeping sites open, often sharing resources with Councils or commercial clients such as hydroelectricity companies. Niwa hydrographers can now sometimes be seen on trawlers in the Southern ocean, or collecting data for wind farms. Dave Johnstone will be known to some of you in Australia, and he retired from Niwa recently to make better use of his yacht.

At the regional level, the hydrography is carried out by Councils, and a number of changes are also occurring. The widening of tasks continues to increase, with water quality and air quality measured by most Council 'hydrographers' (most are known now as some sort of Environmental Monitoring officer), along with a variety of other parameters. Measurement of river flows, flood forecasting, and the supply of data continue to be principal tasks however.

Software changes are occurring in New Zealand as well as Australia. While watching the Hydrol/Time Studio/Hydstra/Kisters movements with interest, most NZ Councils have settled on "Hilltop" as the standard hydrological software in New Zealand. Hilltop grew from Tideda which has been the standard in NZ for many years, but Hilltop is seen by many Councils as better able to handle the complexities of wider environmental monitoring.

A NZ rainfall record was broken last year in the Southern Alps. The total for hourly rainfall increased from the previous 105m mm to 134mm, which while not great by tropical thunderstorm proportions, is significant for orographical rain. A photo taken in a nearby river for the same flood is attached. It is not known if anyone bothered to cross the bridge.

Upper Wanganui River (South Island) in flood 2004

A well attended hydrography workshop was run in Timaru recently, with some good speakers providing interesting topics. Three came from Australia and gave the locals plenty to think about. It was obvious that exposure to cross Tasman experience will continue to benefit our entire region, and should be encouraged.

Water continues to be a hot topic in the press. Perhaps the most reported issues are water quality degradation from agricultural runoff (particularly dairy farms), and competition for water resources. Of the latter, the most

topical has been the ongoing clash over water from the Waitaki River, which is one of New Zealand's largest, and a provider of much of NZ's hydroelectric power. The courts are at present deciding on the relative priorities of use – the main proponents being fishermen, agricultural users, and hydroelectric developers.

Northern Territory – Dave Williams

Hydrographic work continues in the NT much the same as always. In isolation I mean, our hydrographic section doesn't have much of a relationship with the people that rely on the data.

So if H's want to know why the industry is not well supported they should come up here and have a look.

The hydrographic conference is progressing. The venue has been booked and we are now starting to get a web page and flyer organised. Having it in the hands of an event organiser is good for me otherwise it would be a near impossibility to get anything co-ordinated.

I have also preliminarily booked to key speakers who are very well known in their fields internationally.

I am happy to continue as NT Rep until after the conference in 2006. I think then may be the time to pass it on. I would like to concentrate my efforts in the acoustics arena as that is here I'm doing most of my work these days.

The Theme for the conference will be Interactive Hydrography……Future Directions. At least that is the working theme and may change later.

Given my beginning comments I think it a fit topic.

Best wishes to all at the meeting, I hope everyone is in good spirits and health and I look forward to everyone coming to Darwin next year.

Matters Arising From Reports:
Chairman – Nil
Secretary – Andrew Karr thanked Scott for his efforts over the last 3 years.
Treasurer – Mic Clayton – it is anticipated that seeding funds will be required for the 2006 conference and that means of financial assistance for self funded participants for the conference will be investigated.
Publicity Officer – Nil
State Representatives – Nil

AHA Committee Election.

Alex Springall was requested, and subsequently agreed, to act as monitor for the election of the new committee for the next three years. Moved: Mic Clayton, Seconded: Scott Walker, Accepted.

The current Committee was dissolved.
New Committee elected as follows:

Chair Person – Graham Armstrong (Elected Unopposed)
Secretary – Michael Whiting (Elected Unopposed)
Treasurer – Max Hayes (Elected Unopposed)
Publicity Officer – Mic Clayton (Elected Unopposed)
Committee Members – Michael Lysaght, Scott Walker (Elected Unopposed).

Appointed Positions:
Additional Committee member – Bill Barrat Nominated by Bill Steen - Accepted
Additional Committee member – Bill Steen Nominated by Mic Clayton - Accepted
Public Officer – John Skinner - Accepted
State Representatives – Anthony Skinner (NSW), Max Hayes (Victoria), Michael Whiting (WA), David Williams (NT), Stephen Buckland (Tas), Ray Alford (Qld), Bill Steen (ACT), Martin Doyle (NZ). No representative for South Australia at present. All appointments accepted

Constitutional Amendments

Constitutional Amendments as proposed were passed and accepted as follows:

Constitution Section 4.4, b:

Any member whose subscription shall be more than three months in arrears shall be deemed to be an unfinancial member and may have his/her membership terminated at the discretion of the Committee.

Constitution Section 4.19 e

Business shall be transacted by facsimile, telephone, email or other electronic contact
and the Secretary shall record each members consent or dissention to the business
transacted

Constitution Section 4.22

4.22 Public Officer

a. The Committee of the Association shall, within fourteen days after the incorporation of the Association,

appoint a resident in the Australian state or territory nominated by the Committee (the deemed state/territory) to be the Public Officer of the Association and, if the office becomes vacant, shall within fourteen days after it becomes vacant, appoint a person resident in the deemed state/territory to fill the vacancy.

b. The office of the Public Officer becomes vacant if the person holding that office:

i. Dies;
ii. Becomes bankrupt or applies to take or takes advantage of any law relating to bankrupt or insolvent creditors or compounds with his or her creditors;
iii. Becomes of unsound mind;
iv. Resigns his or her office by writing under his or her hand addressed to the Committee;
v. Ceases to be a resident of the deemed state/territory; or
vi. Ceases to be a member of the Association.

Matters Arising from Constitutional Amendments
Membership fees will now all be due as at June 30th – Accepted
Max Hayes indicated that 30 members will have pro rata adjusted invoices forwarded to members whose memberships expire in the future. This will make them financial until 30/6/06.

2006 Conference
Proposed them is Interactive Hydrography and appears to be on track for August 2006.
Request from meeting floor that there be follow up with Dave Willliams (NT) to ensure that there is no conflictof Kisters User Group meeting with competing activities as this was an issue at the Queensland Conference in 2004. Mic Clayton to follow up on this and report bacvk to Committee and members, via normal services (Journals, email news, website)

AHA/AWA/AHS relationships
John Maschke of the Australasian Hydrographic Society (AHS) was invited to present to the meeting an information session about the AHS. Transcript of Johns Address follows:
Presentation to the AHA 25th AGM on 3 August 2005 at Canberra

Thank you to the members of the AHA for inviting myself and Dave Garforth (AHS EAR Secretary) and providing the opportunity for me to speak to you today. I believe that a closer affiliation will be of great benefit to both organisations. I would like to provide a brief outline of what the AHS is and the benefits that might be gained by closer affiliation. During the course of the AHA AGM proceedings today, I have observed that the AHA is a strong and vibrant association.

The Australasian Hydrographic Society (AHS) was established in 1978 and membership is open to any person interested in Hydrography either for work, commercially or even as a hobby. The AHS has three areas - West Australia, East Australia and New Zealand. We also have members from S.E. Asia, Singapore, Malaysia and Indonesia, and we are endeavouring to establish new regional groups within the Australasian region. The AHS has a total Membership of around 150 private or individual members, plus 21 corporate members. Annual fees are AUD$80 for individual members and AUD$600 for corporate members; reduced rates apply for students and retirees. There are obviously a number of ways in which the AHA may become closer to the AHS. One obvious way is by becoming individual members, however to ensure that the identity and culture of the AHA is not lost, we will have to work out a mechanism that is acceptable to both of our organisations.

The AHS is a Member of the International Federation of Hydrographic Societies (IFHS). In fact the current President of the AHS is the Chairman of the IFHS. The IFHS was established last year to replace an earlier Society which was centered in the U.K. The IFHS has a current membership of around 1200 with some additional national Societies applying for Membership. Membership of the IFHS puts Australia on the map internationally, which in turn increases our credentials when representing our membership's interests to the world of bureaucracy. Countries in the IFHS are Canada, USA, U.K. the Benelux and of course Australia/New Zealand. Applications have been received from the Danes, South Africa and I believe the Russians. As part of an international organisation, there is benefit through networking and access to ideas and innovations, which may not otherwise occur nationally.

The AHS is registered as a non profit Organization. It has a strong voice in the Hydrographic Accreditation Board – in fact I believe that all members of the Accreditation Board are Members of the AHS. The Accreditation Board is chaired by the Australian Hydrographer. Accreditations are recognised and accepted nationally and internationally.

Given that the membership of the EAR is drawn from Victoria, NSW and Queensland plus a few people in S.A. and Tasmania, meetings are arranged in various locations. In general, however, meetings are held in Sydney, Newcastle, Wollongong and Cairns. At our

regular meetings we usually have a speaker to give a talk or presentation on topics of interest.

Members receive two publications as part of their membership. HYDRO International is a commercial publication that provides articles of hydrographic and marine industry interest to hydrographers, while the Hydrographic Journal is a more learned publication providing articles of academic and research orientation.

Further benefits of individual membership include the opportunity to network with others working in the same field as themselves, a chance to voice their opinions as "ONE" to the various governmental authorities and perhaps as important for any for professional hydro surveyors to make sure that their 'voice and concerns' are heard before decisions are made on their behalf by the Land Surveyor Institutes.

The AHS also runs an awards committee which makes annual awards to those who've shown more than usual initiative or innovation in matters related to Hydrography. Members are invited to nominate a person(s) who are worthy of recognition; they need not be members of the AHS. Nominations are assessed by an awards committee and awards are provided as appropriate in categories such as:

Emeritus
Career Achievement
Scientific & Technological Achievement
Industry Achievement
Corporate Achievement
Environmental Achievement
Maritime Safety Achievement
Information Management Achievement
Literary & Media Achievement
Exhibition Achievement
Service Achievement (to the Australasian Hydrographic Society) President / Chairman's Certifications of Appreciation

The AHS also has an Education Award Scheme and fund from which an annual grant is made to a student selected by a sub committee as a deserving recipient.

We hold Hydrographic Conferences from time to time. The last one was in New Zealand October, 2004 and the next will be held in Cairns in September 2007. These conferences attract around 200-300 people and attendees are drawn from the AHS and internationally. The 2007 conference will follow a three-day Australian Hydrographic Service symposium (held by the Royal Australian Navy). The 2007 Hydrographic Society Conference and Australian Hydrographic Service Symposium will then be followed by a multibeam sonar course run jointly by the Australian Hydrographic Service and the University of New Brunswick (Canada).

Considerable benefits to both the AHA and the AHS will derive from a closer association between the two organizations. Obviously a stronger voice in bureaucratic affairs would be one of those benefits. We believe that each organization can learn from the other. How that closer association is achieved needs thought and consideration and we will be happy to work through this with your representatives to see what could/would be acceptable to all. I look forward to our closer affiliation as I am sure it will bring benefits to both our organisations.

Responses from the Floor: Bill Steen keen to pursue a relationship. Perhaps arrange a meeting at a convenient venue – possibly Wollongong, Sydney or Canberra. Positive reponses from the meeting in general.

General Business

Item 1. Corporate Membership
Members were advised that the committee had been reviewing Corporate membership strategies for the AHA.
At present Corporate Membership effectively buys adverting space for corporate members as well as internet links to corporate web sites. Previous versions of corporate membership included discounts on individual membership fees for members whose employer was a corporate member but this had proved difficult to manage, with members being unaware that their employees no longer held corporate membership in some instances.
Some examples of possible scenarios were presented including a tiered structure which saw a number of memberships attached to corporate memberships.
Discussion at this stage encourages members to forward ideas to committee for consideration of a possible corporate membership structure.
Response from the floor:
John Hayes – not an impossible concept for DIPNR
Mick Whiting – encouraging concept
Other Members – YES, lets look into it.
Scott Walker / John Mashke (AHS) – Like the idea of a reciprocal AHA/ AHS corporate membership arrangement
Mic Clayton - wants it sorted by Xmas this year.

Item 2 Quality and Standards
John Hayes– Standards in Variables and Quality codes.
Paul Corbett - AWRC is gone why doesn't the AHA take up this role?
Scott Walker – We need volunteers and commitment. Very thin on the ground

Ross James – Awareness issues re: State Water Agencies
It was noticed that Volker Aeuckens Previously a committee member of the AHA was involved in the – National Water commission: could this be the new AWRC?
Brian Chester – Commonwealth money could be source so as to promote what we stand for / standard and not to let others "re-invent the wheel"
John Hayes – lets explore National Water Initiative funding.
Bill Barrett – Grant money is for State water initiatives and community group funds, a good possible source.

Item 3 – Warragamba Deaths
Scott Walker – Notification of a fatality (drowning) of a Sydney Water colleague on Warragamba Dam today. – A reminder to always consider safety when working on or near water.

Item 4 Next Committee Meeting
Expected before Christmas, possibly in conjunction with AHS.

In closing the Annual General Meeting, Kisters (and in particular Bill Steen) were thanked for their support in enabling the use of the Kisters user group meeting conference venue at the Crown Plaza in Canberra for this years Annual General Meeting as well as the provisoon of refreshments for the meeting. Kisters support of the AHA and some of its activities is greatly appreciated.

Next Annual General Meeting – Expected to be held in conjunction with the 2006 Hydrographic Conference in August in Darwin, Northern Territory.

The 25th Annual General Meeting Closed at 1835 hrs.

Australian Hydrographers Association Annual General Meeting, August 2005.

John Mashke, representing the Australasion Hydrographic Society (Eastern Region) addresses the Annual General Meeting about the activities of the AHS.

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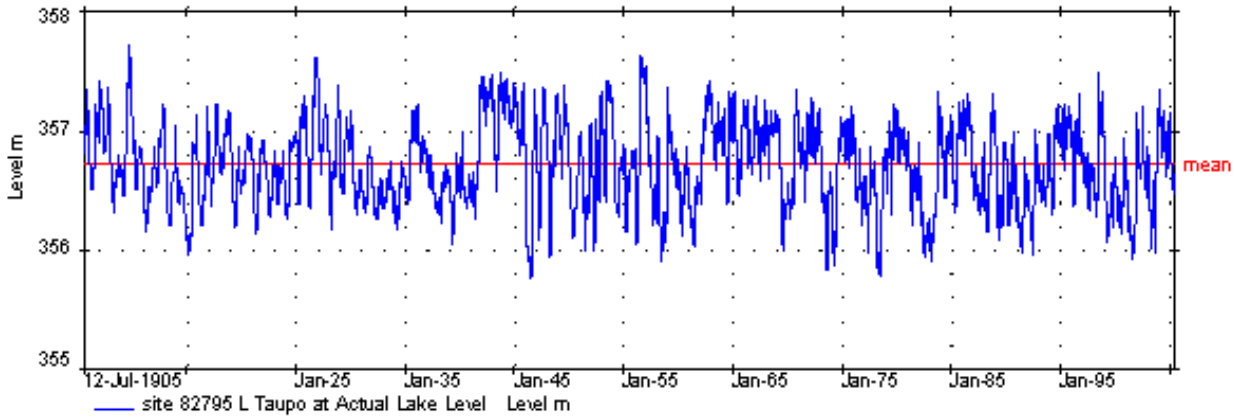
A Birthday Across the Ditch

On 12 July 1905 the lake Taupo water level record began. It has now reached 100 years of continuous record. This makes it the longest flow/level record in New Zealand and the only one that is 100 years long (Paul White tells me there is an older Groundwater record in Christchurch)
In 1903 PS Hay superintending Engineer of the Public works department presented to both houses of parliament his report "New Zealand Water Powers Etc" Several Power schemes were discussed on the Waikato with control of lake Taupo mentioned.
Shortly after this report records commenced on lake Taupo under the impetus of hydro power development Over the years various organisations have been involved in level and flow data collection on Lake Taupo. Theses are:
PWD, MWD, MOW, State Hydro, ECNZ, NIWA, Mighty River Power, Contact Energy and Genesis Power.
Over the years we have carried out several quality checks on the record.
Nearby L Rotoiti also has a long record starting in Sept of 1905.



Horace Freestone, NZ

Contributions to the Journal and Newsletter

Member contributions to the Journal and newsletters are encouraged. You are the Association and hence it is helpful if you provide input into it.

Contributors and advertisers are requested to supply copy in Word format, but if PDF is supplied please ensure that protection features are disabled so that cut and pasting can occur as required for AHA use.

I look forward to getting summaries of papers from the conference from those who have indicated that they are willing to provide them. Summaries of the summaries are also welcome as I can use them as a precursor in the newsletters for items appearing in the next Quarterly Journal.

Photographs are also welcome for the cover of the newsletter - final use of a submitted photo will depend on how well the image transposes onto the cover of the Journal, so the clearer the better. With improvements in digital technologies and the ease of its use, there should be no shortage of interesting photos for the cover!

Membership Renewals

At the 2005 AGM it was resolved that all membership subscriptions would be due at the end of June each year. Constitutional amendments were made to allow three months grace for payments of annual subscriptions after this date.

Over the last couple of years a number of subscription renewal processes have been tried, including basing applications on a quarterly basis, having renewal dates included on mailing labels and reminder letters to overdue memberships.

Going to a single expiry date has been decided as the easiest way to manage the membership subscriptions. New applications for membership that arrive outside the June date will be pro rata charged, for example a new membership application arriving in December would be at a pro rata rate of 50% of the annual subscription**,** after which renewal would be due at the end of June at 100% of the subscription rate.

Many renewals are now due or overdue so please take the time to fill in the renewal form contained in this issue or download from the website www.aha.net.au if you don't want to cut up your Journal.

A Rating in A Day.

Or

Rating Development For An Alpine Aqueduct using Velocity Index Methods and Common HYDSYS tools

Presented by Mic Clayton, Snowy Hydro Ltd, at the Kisters User Group Conference, August, 2005

Introduction.

Throughout the Snowy Mountains a number of alpine streams are 'captured' by a series of aqueduct intakes that divert water into the Scheme's storages.

Following the Snowy River Water Inquiry, recommendations included the turning out of some inflow sources entering these systems with a subsequent increase in environmental flows to montane sections of some of these alpine streams.

Continual developments in the ski resorts has also seen the development of reservoirs that store water for snow making purposes, with attached water extraction/use licences being granted by the Department of Infrastructure Planning and Natural Resources.

Design yields for sub catchments in the aqueduct catchments were developed in the early years of the design of the Snowy Mountains Scheme, but the drought episodes of recent decades coupled with the environmental release requirements have highlighted the need to review these design yields.

To assist in further understanding flow regimes of this part of the aqueduct system, an aqueduct flow monitoring site has been established for investigation purposes on the Perisher aqueduct upstream of ski resort water offtakes to assess impacts on the system and to assist with the design of the expected future montane release patterns.

As this is currently in an investigation phase it was decided to install an in situ acoustic doppler system to monitor water level, velocity along with water temperature. A Unidata Starflow system was installed at the investigation site. Measurement Engineering Australia assisted with the configuring of the Starflow system which is SDI-12 linked to a Starlogger logging platform operating with Maqpie software, installed beside the aqueduct.

The advantage of this type of installation for this investigation phase was a relative low cost, non destructive installation methods (the aqueduct is of wire wound construction), ease of use and a reduction in the need to enter the aqueduct.

Having a defined shape of channel (circular) and hence a defined area and the availability of some sort of velocity data at the location, makes the development of rating tables for various parameters an ideal task for this monitoring site.

The moment the flow passes the sensor and is recorded, and as the level changes and velocities vary, there is a rapidly developing set of basic data that enables quick derivation of a standard stage/discharge rating. In a short time, assuming variable depths occurring, a wealth of further data is available. In effect the system is creating a gauging data set with each recorded point, admittedly only a rough gauging as some sort of correction factor is required.

It is widely accepted by users that most velocity sensing systems do not measure the mean velocity of the total cross section of flow, though some manufactures would claim that theirs is a set and forget system! Systems can send a diverging signal beam out into the process and measure and interpret the returning signals, some systems just look vertically through one small plane and determine the various velocities occurring through the vertical section, while other systems can be side looking . Clamp on systems have sensors that send signals through the pipe and across the flow to a receiving sensor (after going through the wall again) and correction factors are needed for the wall material as well as the flow!

What is common to many systems is that they only measure a part of the velocities thus there is often a need to verify and develop a factor or coefficient of correction to correct the recorded raw velocity data. There may also be a need to develop a range of correction factors for different flow situations and depths

One method of ascertaining this factor(s) is known as Velocity Indexing, essentially a series of velocity readings taken throughout the section in line with common gauging methods.

The mean of all these velocities is compared against the velocity data the sensor is seeing and the correction factor developed from these. Obviously if these are undertaken at a steady depth and a good coverage or grid is applied to the velocity section, consistent results should be obtained.

Half the battle of obtaining accurate flow data is overcome by virtue that the cross section is beautifully defined by the enclosing pipe, unlike the errors and uncertainties that can apply to natural stream sections.

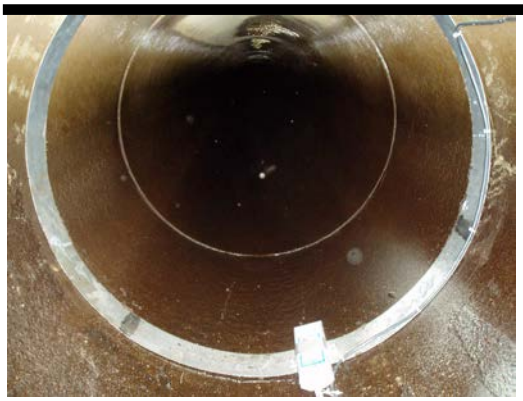


Fig 1. Starflow Installation in Aquaduct – Non destructive installation.

Steps in developing the rating table for free flow conditions.

1. Collect level and velocity data from the installation.

Data collected from the Starflow System is imported into the Hydstra database. Level was corrected at import to allow for offset of Starflow unit away from possible silt build up areas. Velocity data was initially imported without correction for the initial analysis of flow characteristics of the site.

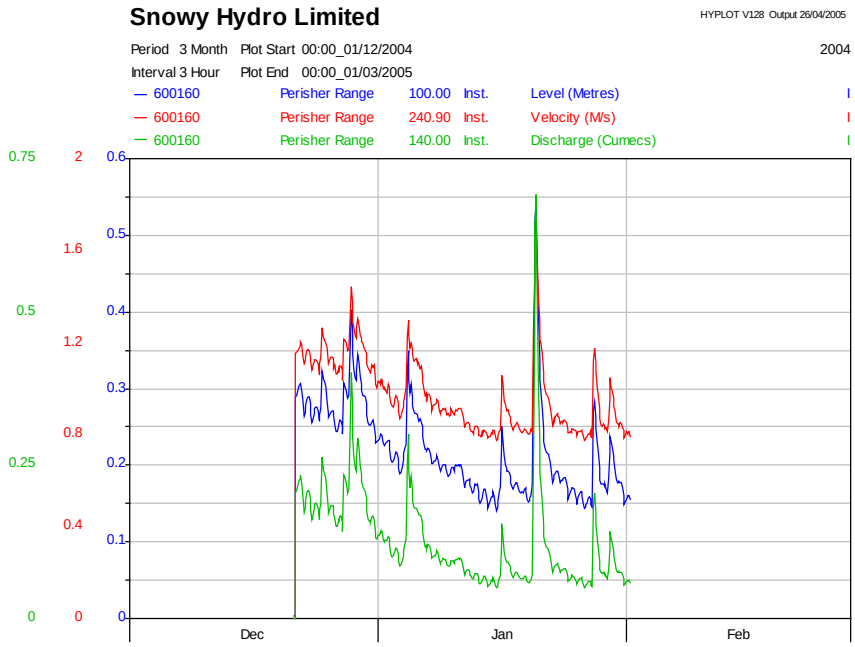


Fig 2. Data sample

2. Undertake velocity profiling/indexing of the aqueduct flows.

Given that the aqueduct is opposite in characteristics to a sewer, that is it is clean!, longer exposure times for the gauging meter can be undertaken.

The choice of profiling pattern for these profile readings can range from a set of individual spot readings in a grid pattern through the section, through to an integrated velocity profile by moving the meter in a pattern through the flow section. This latter method has been investigated by various authorities and it was found that the type of pattern used often had close correlation with more standard grid profiling – as long as the operator maintained a slow steady movement of the meter (generally electromagnetic or acoustic units) and understood the possible errors and limitations of these methods, mainly related to the speed of movement of the meter through the section.

3.Develop a correction factor for velocity data.

It is preferable to obtain a number of velocity profiles under a variety of conditions to identify if a range of corrections may apply to the flows or if a single correction factor is applied. Of course this correction factor analysis through a range of flows may take a period of time as higher flows, by their nature, occur less frequently.

From the initial velocity index gaugings to date, the correction factor has been found to be close to 0.95.

4. Investigate the extent of correlation of level, velocity and computed discharge data.

From the available data a number of comparisons of various variables was undertaken to enable better understandings of the flow characteristics of the site.

HYPLOTXY was used to undertake comparisons of:
Stream Water Level Vs Computed Stream Discharge
Stream Water Level Vs Velocity Data
Flow Velocity Vs Computed Discharge

In these initial stages of the investigations computed discharge was an application of a depth/Area rating table multiplied by the measured velocity.

The depth/cross sectional area rating table was developed using HYCHANNL and HYRATED.

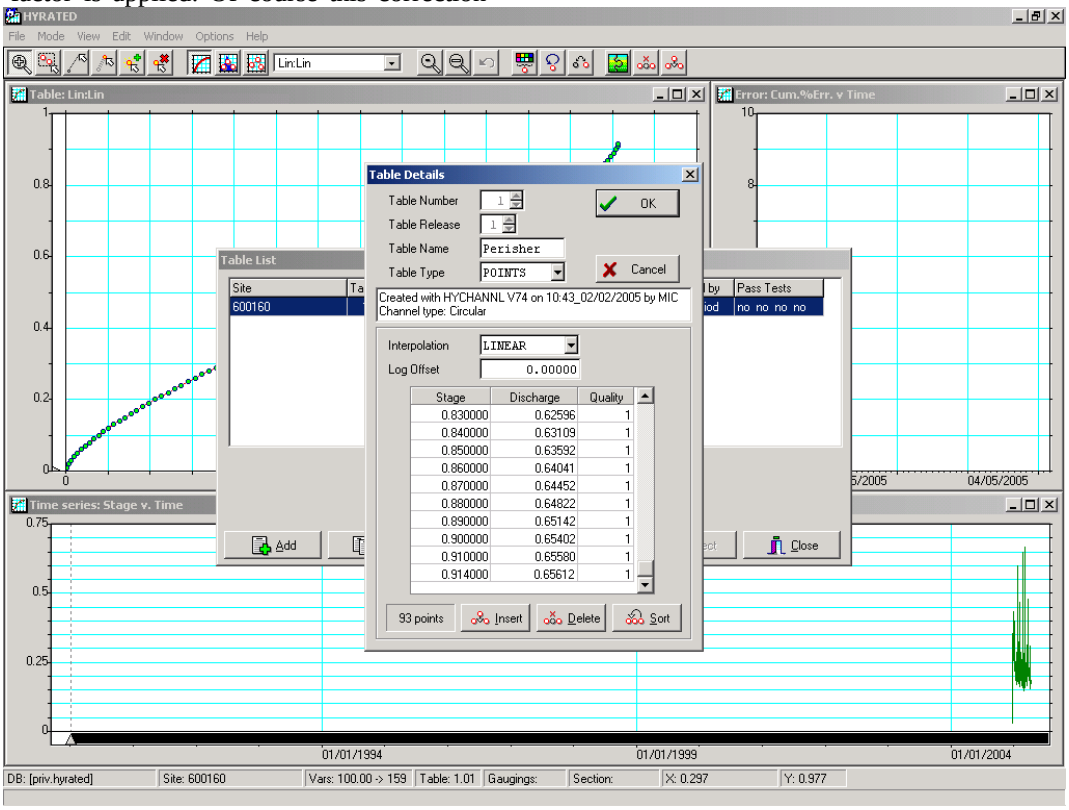


Fig 3 Constructing Area table in HYDSYS

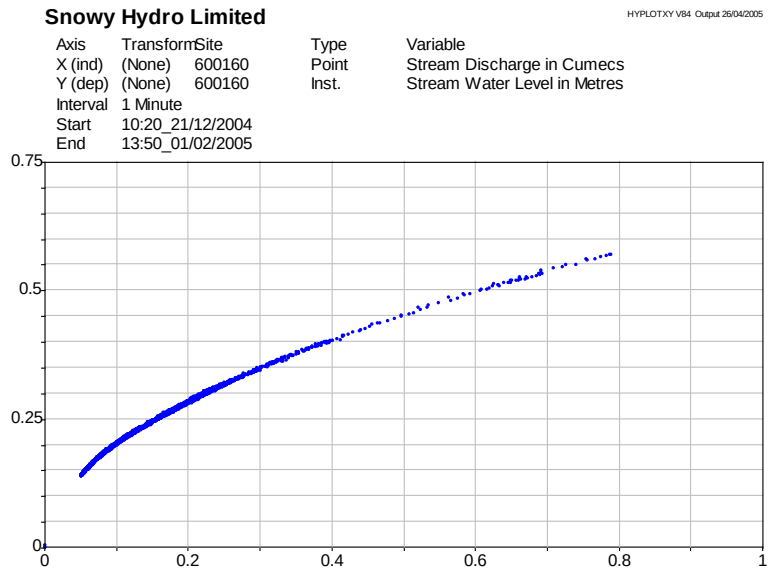


Fig 4 Correlation Of Stream Level against flow based on Computed Discharge from Starflow data.

Immediately from the short period of record it can be seen that a good correlation exists based on the initial uncorrected data.

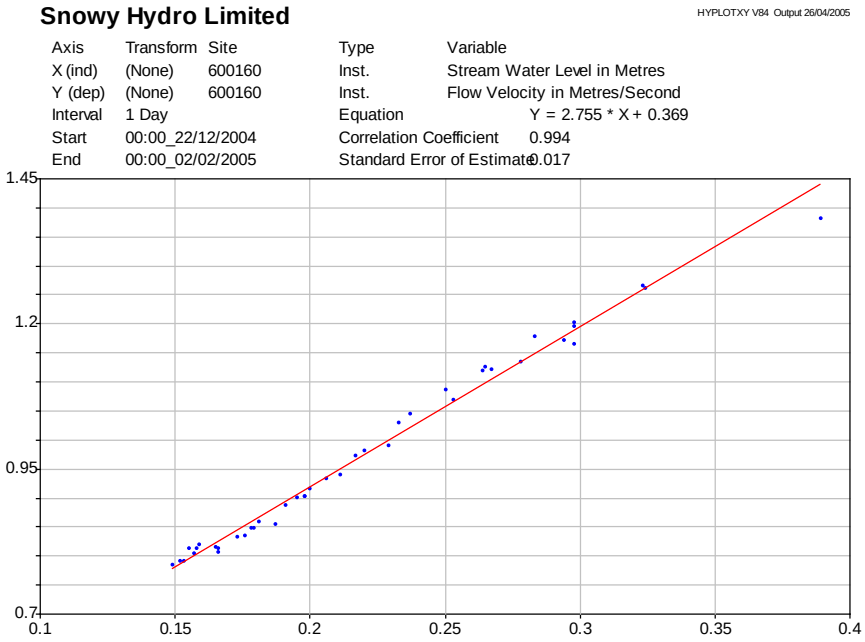


Fig 5 Correlation of Level and Velocity data from Starflow system

A comparison of the initial level and velocity data showed strong correlation. What is interesting to note is a slight sinusoidal pattern through the range monitored to date.

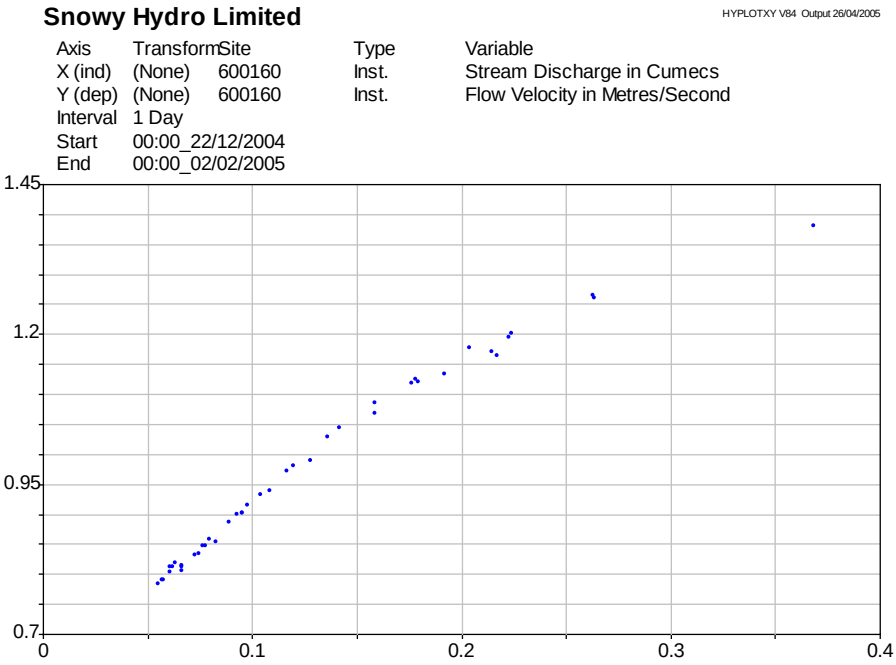


Fig 6 Comparison of Computed Discharge against Starflow Velocity

Again a good correlation is occurring for the initial available data.

A further 3 months data provided additional data that extended the level data slightly (about 100 mm) and velocity data from about 1.4 m/s to about 1.7 m/s.

This extension enabled data covering 70% of the aqueduct depth range (0.910metres) to be available for the rating development.

The additional data further confirmed the suspected sinusoidal tendency of the Level/Velocity relationship.

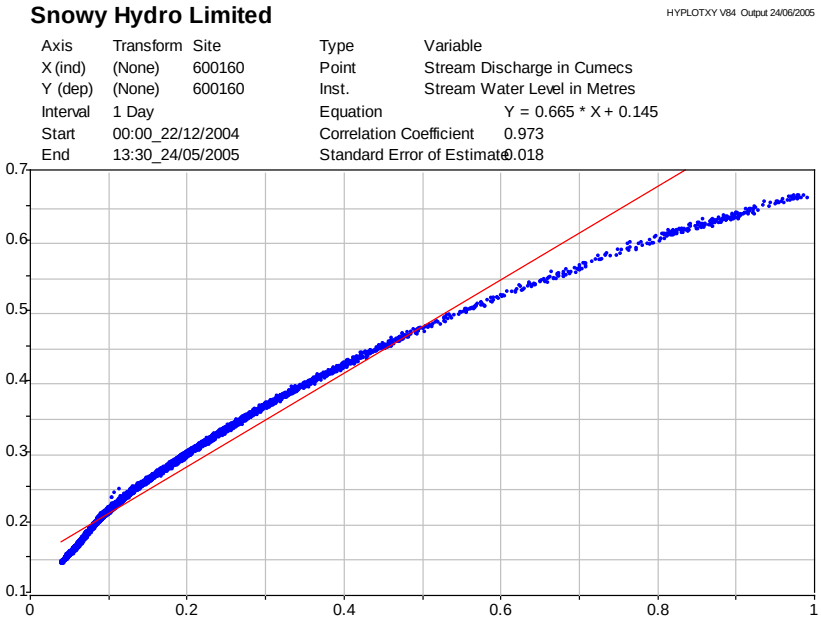


Fig 7 Additional data strengthens the level/discharge correlation.

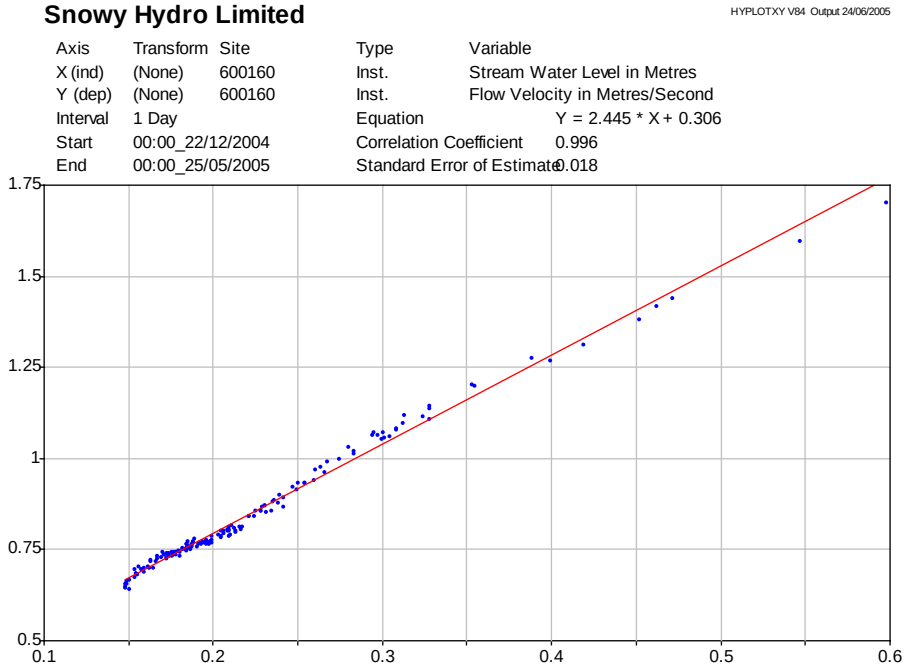


Fig 8 Effect of additional data for Level/Velocity relationship

5. Preparing the information for Rating Table Development.

Given the strength of the correlations confidence in a development of a Level/Discharge rating can commence at this point.

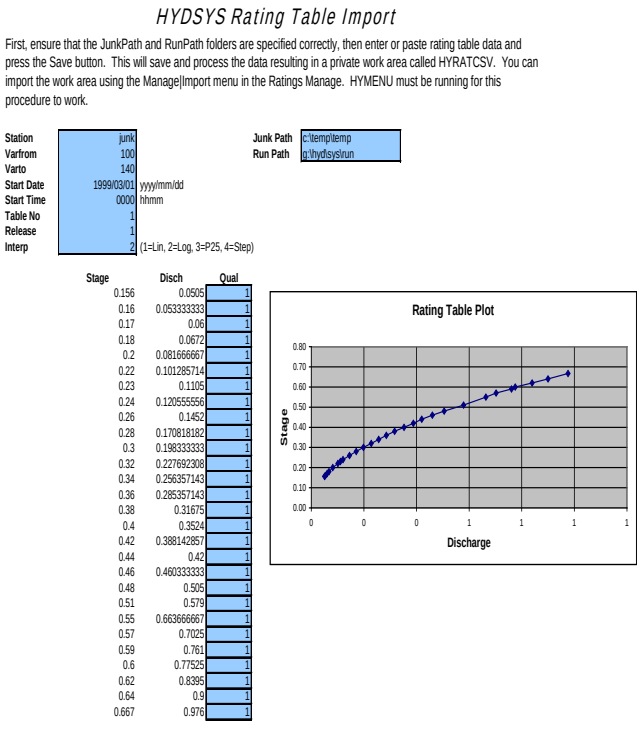
The simplest method was to export the level and computed discharge data into a spreadsheet program, such as Excel, sort the data by stage height and then reduce the data set to just a number of points required through the range.

The data available ranged from 0.156 metres depth to 0.667 metres depth, with more data available at lower depths.

Depths in the range were broken up into 0.02 metre increments, though at the lower and top ends of the available data this increment was reduced to 0.01 metre increments.

At each chosen depth value the mean of all the velocities recorded at these points were used to provide a series of single depth point/velocity point value at the chosen incremental depths.

Import of this final set in Excel format into HYDSTRA was then undertaken using the HYDSYS Rating Table Import function



STIL Flow Monitor and Logger

To manage increasing demand for limited water resources, consent authorities throughout New Zealand are introducing mandatory monitoring and logging of all water use – surface and groundwater.

STIL have developed a Flow Logger to meet the needs of both consent holders and consent authorities. The Flow Logger is compatible with standard water meters (contact closure) and typically operates in conjunction with the water meter mechanical total. The logger normally displays flow (l/sec or gal/sec according to setup), but can also display total, as a cross check against the mechanical meter.

The construction of the flow logger is particularly robust. All electronics are encased in solid epoxy resin and under normal use the battery has an operational life of 10 years.

The Flow Logger is equipped with a waterproof infrared port so PCs or PDAs with standard IRDA and Flow Logger software can be used to recover the store memory of up to 200,000 date and time stamped data points.

In addition to physical security, the logger is designed with software security. Anybody may download data from the logger, but only those in possession of a password (over 14 million possible combinations) can reset the logging or modify the configuration.

Data security extends to the recovered ASCII data file (csv), with the last line including a 3DES encrypted file check value. Any subsequent changes to the file text will invalidate the check value.

This arrangement allows consent holders to email data files to regional authorities (as a condition of their consent). The authorities can process the data, secure in the knowledge that it is valid.

The STIL Flow Logger is well established, with units installed in Canterbury, Otago, Hawkes Bay and Taranaki – mainly for water bore use.

Developing and testing is also well advanced for units with cellular telemetry, using GPRS and CDMA networks. This will ultimately provide users and authorities with near real time data. These cellular units are expected to be released for general distribution in Australia in early 2005.
STIL Gauging Logger – The standard for river gauging in Australia and New Zealand.

- **Measures Velocity Directly**
- **Records and Stores Whole Gaugings**
- **No Paper, Pencils, Calculators needed**
- **Improved Gauging Quality**
- **Instant Discharge Results**
- **Computer Software Included**
- **Operates with Reed Switch and Wiping Contact Meters.**
- **Direct Import to Hydsys and other TS Software.**

For more information: **www.scottech.net**

Email: info@scottech.net ph +64 7 8470646 fax +64 7 8470647

Once imported into the Ratings database, HYRATED was again employed to refine the rating, particularly with an extension to the zero depth/zero flow point of the rating.

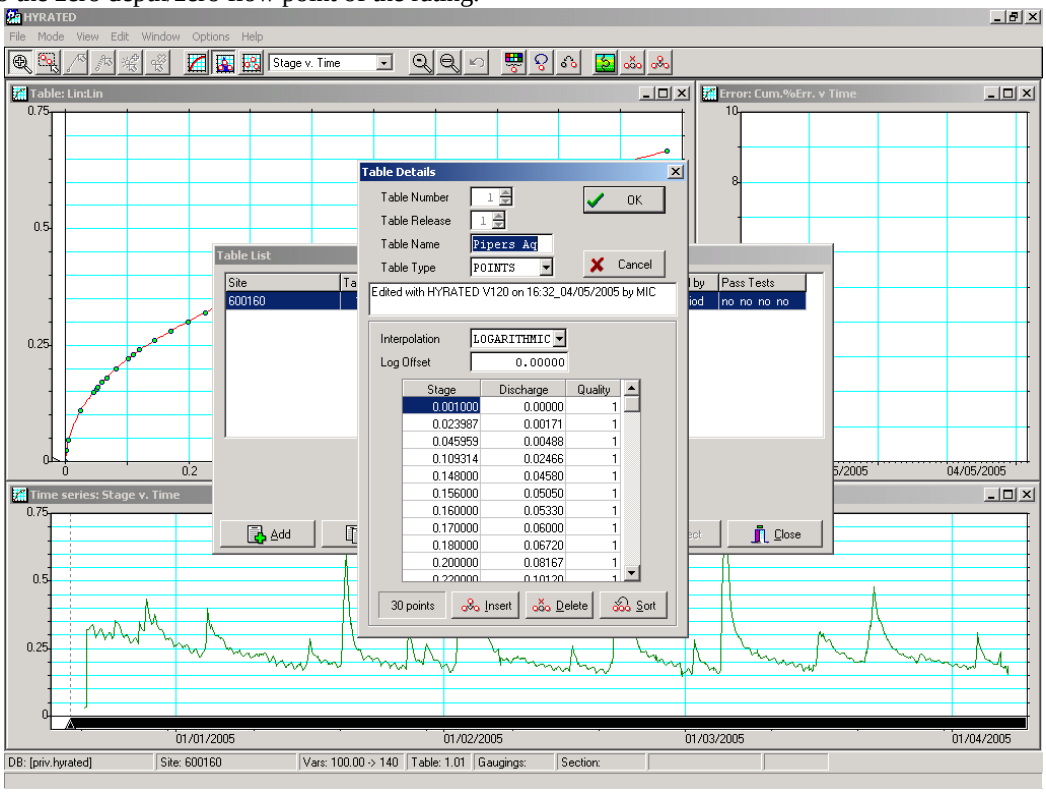


Fig 9 Fine Tuning the rating in HYRATED

At this stage extension past the top end of the available data has not occurred as, given the good correlation of data available to date, this extension can be quickly added to the rating once the higher flow data is available.

Of particular interest for this site will be if full pipe flow conditions occur at any stage and the extent of the kickback in the rating that is expected to occur, as normally occurs with full pipe flow situations.

6. Comparison of the Developed rating table and the Computed discharge from Starflow Data.

Again HYPLOTXY was utilised to undertake the analysis. While it would be assumed that there shouldn't be any problems with the developed rating table, this step is a good quality assurance step to ensure that an error in data, or poor application of assumptions in regards to the rating, have infiltrated the final rating.

The independent variable was the developed rating with the dependant variable being the discharge computed from the Starflow data.

As can be seen from the following plots correlation between the two are strong.

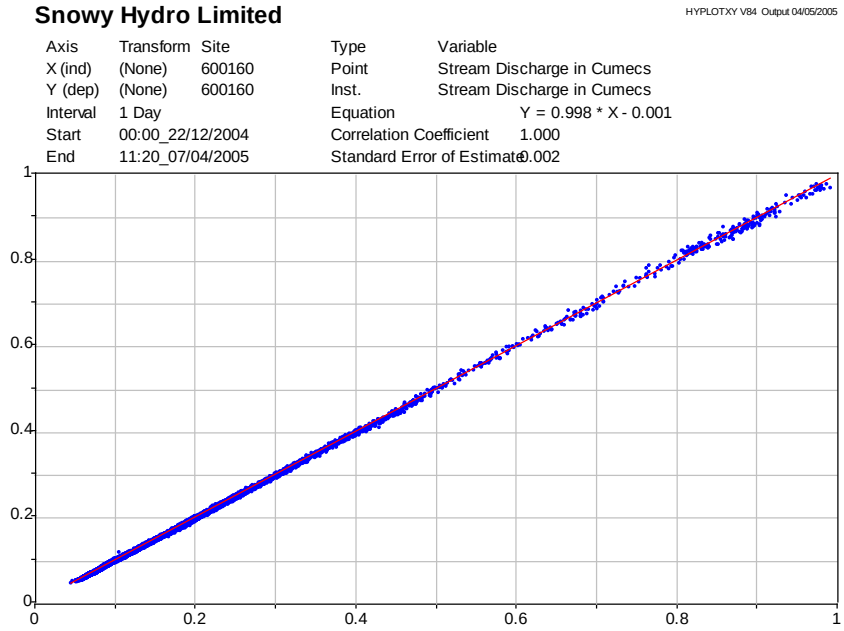


Fig 10 HYPLOTXY correlation check of developed rating against Starflow Data calculated discharge

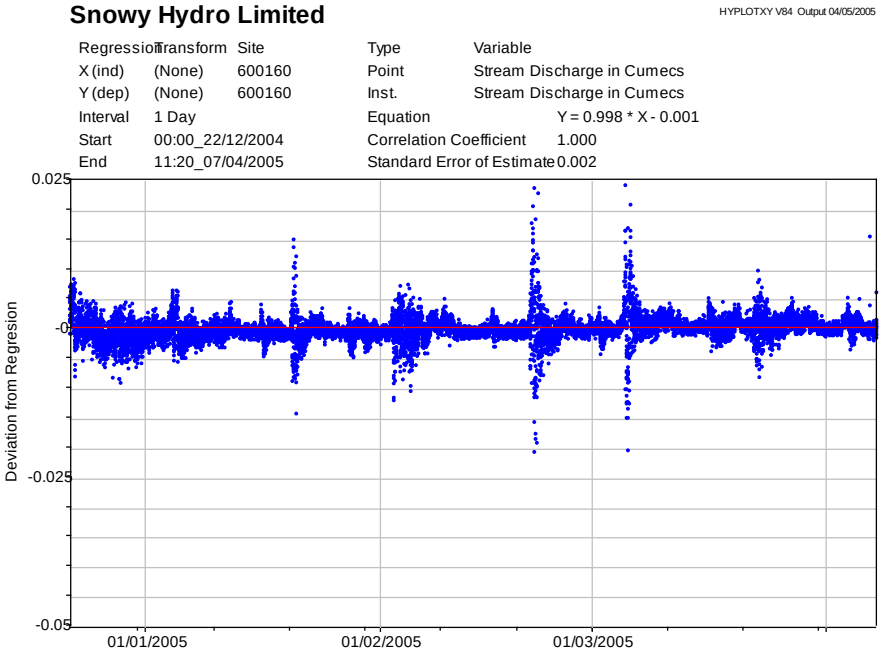


Fig 11 Regression plot analysis of the two discharge from HYPLOTXY routine

As can be seen from the regression plot a couple of short periods of fluctuations occurred in the regression. When investigated this was shown to occur during freshes, aqueduct maintenance and the subsequent rapid change in flow conditions and at the short peak periods of higher flows. Checking the scale though shows that these deviations are small approximately 0.025 cumecs!

Summary

While some may not necessarily consider the method outlined as rocket science, the tools found in HYDSYS can assist with the quick development of ratings for sites where suitable data is available.

In this instance some may say 'Why bother with this when you are recording the level and velocity anyway?" The answer to this is that on the occasion that one of the monitored variables fails you can move

to discharge calculations based on the rating developed for the variable that is still working. The Velocity/Discharge rating is yet to be developed for this site, but the rating appears at this stage to be less sensitive and may be of a lesser quality if required to be used.

The remote location, and particularly more difficult access conditions in winter due to snow, make it difficult to get in and replace a sensor if it fails so having the ability of calculating discharge from other variables is an advantage.

Further work is still required at this site including further index velocity gaugings at higher flows, as well as investigation of the pipe full flow scenario.

The Starflow system has performed well to date, even in this very clean alpine water environment, but the impact of algal build up on the sensors face (if any actually occurs) is yet to be determined.

In The News

NR&M hydrographers brave the elements

It is a common anecdote that only mad dogs and Englishmen go out in the midday sun.

In South West Region, the saying may change slightly after an incident last week when a Scotsmen was wading waist deep in a flooded stream in the middle of winter near Killarney … with a small hole in his waders.

Ali Cameron is one of those rare breeds in the Department of Natural Resources and Mines (NR&M) called hydrographers who mobilise the moment the weather becomes foul to measure stream flows across the region.

“The information we gather can be used for a myriad of things and if its not there it makes life difficult for a whole range of people,’’ Ali said as he sloshed about in his leaky waders.

“Engineers use the information for bridge building, it is used for calculating irrigation and licence entitlements, landholders need it for pumping downstream … it is critical for environmental management of our streams,” he said.

“Really, this information is a State asset.’’

Now back to those leaky waders.

No stranger to cold water, Ali’s first experience as a hydrographer was in the highlands of Scotland before he ventured to New Guinea and then Australia to ply his trade.

“Aye, I have had a leak or two before, but it doesn’t make it any more comfortable,” he said. “I thought this set of waders had a hole in them, but now I know for sure I will be throwing them away when I get back to the office.’’

“I guess I am going to have to stop and buy some tracksuit pants now to get out of these wet jeans. It’s just part of the job, but apart from the odd leak it is a great job to do.’’

When not waiting for rain events the hydrography staff members in South West are busy preparing for what can be a hectic few weeks when floods water rise across the region.

“There is a lot of equipment to be checked and technical adjustments made to the 62 gauging stations we have got between Stanthorpe and Coopers Creek (near the South Australian border),’’ he said.

“Every four months servicing, calibrating and maintenance work has to be carried out on this stations. They are sensitive pieces of equipment which need a lot of care so we can accurately supply data to those that need it,” he said.

Depending on water heights, hydrographers often need boats fitted with winches to accurate measure the water flow in cubic metres per second in the region’s rivers.

“When you get out above wading depth we use boats with winches to check depths. A cross-section has to be taken so that we can take a sample of velocities to gain a correct perspective on what is happening below the surface,” he said.

“We have two acoustic Doppler profiles in the region which send down sound waves to accurate record the depths and velocities.

“Technology has come a long way from the origins of hydrographer when they used hand measurements inside special sunken wells and chart recording to gauge what was happening in the river next to it.

“Now it is digital recording and sophisticated equipment such as friction-free propellers, gas powered instruments and equipment we can telephone from the office to get the latest information download via computers.

“In saying this the nature of the job has not changed, you still need men in the field to take the measurements and observe the flow to see what is happening.’’

With the advent of technology, the depth of data the hydrographer now gathers has also grown exponentially.

"We gather information for computer modelling, soil loads in the water, salinity research, turbidity and even rainfall data for the Bureau of Meteorology.

"At times we are also asked to act as sweepers (collectors) of macro-invertebrates for biology laboratories so they gain a snap-shot of river health.

"It's a great job, out in the fresh air and the elements even if you occasionally get a hole in your waders.''

The flow rate on the day was 2.723 cumecs (cubic metres per second) which equates to 235 megalitres per day.

Source: Queensland Government Press Release, July 6, 2005.

Advice received recently from Adam Merhab, that Aqualab Scientific is proud to announce that since Feb 2005, they have entered into a contract with OTT (Germany) to exclusively offer their entire range of products.

OTT Hydrometry, a pioneer in hydrometric instruments with over 130 years experience, are no strangers to our shores as you can see from the image below that Adam supplied with an advertising poster from the 1880 Exhibition in Melbourne !

Visit their web site www.aqualab.com.au or OTT's www.ott-hydrometry.de/english to see the latest innovations.

06

So what does this mean?

Following on from the recent AGM the decision was made to have all memberships due at the end of June each financial year. This is to ease the management of the membership lists, everyone will knows when their membership is due and generally makes life easier all around!

New members not joining until after 09 in a given year will be will be charged a pro-rata membership fee. New members joining between 06 and 09 of a year will be charged full membership as they will often receive back copies of Journals if there are any left from the previous print run.

The constitution was also amended such that 3 months grace is allowed to pay due subscriptions after which time the member would generally be considered unfinancial.

It is intended that 'completed' renewal forms will be mailed out to members to correct details as necssary, prior to the end of June each year – one perennial problem is members not advising of changed addresses or situatins and Journals, emails, correspondence and the like going astary as a result, so it is envisaged that this step will ease this problem. The corrected forms, along with the approriate fees, are then returned to the Secreatry so that membership details are maintained promptly and accurately.

Mailout labels will carry 06 on them as a continual reminder of when the fees are due. What could be simpler?

A Techno Head Special
What Americans Do

Technohead was discussing with Psychobabble the new gear on the block known as Acoustic Doppler Current Profilers.

"But there's no ISO or Australian Standard specifically for these bits of gear!" exclaimed Psychobabble. "We have AS3778 for other standard current meters and processes used in our work but I'm not sure how the new technology will sit in our quality system as there isn't a traceable standard for operation and calibration of this new technology."

"I understand your concern," replied Technohead. "The Yanks are also trying to come to grips with the issue and America is where a lot of the new processes are coming from. To try and maintain some control on how the equipment is used and how data is interpreted the Office of Surface Water in the States has issued a policy in regards to the use of this equipment. It's more to try and get a standardised approach to the equipments use as well as the interpretation of data."

"But is there an international standard in the pipeline?" asked Psychobabble.

"I have heard that there is work being done but I'm not sure at what stage its up to at present in the International Standards Organisation," answered Technohead. "In the mean time here's a summary of some of the points the US have issued in their policy. The concepts in it are based on knowledge and experience gained by users to date. The term ADCP is used here to describe acoustic Doppler profiler instruments used for making velocity-profile and discharge measurements from moving platforms and does not refer to any specific brand or model"

Field Measurements

1. After the ADCP is mounted and deployed on the boat and prior to each measurement, the depth of the ADCP in the water should be measured and recorded. The depth of the ADCP is the vertical distance from the water surface to the center of the transducer faces.

When measuring the ADCP depth, make sure that the roll and the pitch of the boat are similar to roll and pitch during the discharge measurement. A bias in the ADCP depth measurement can result in a significant bias in the resulting measured discharges.

2. A minimum of four (4) transects (two in each direction) will be made under **steady- flow** conditions. The measured discharge will be the average of the discharges from the 4 transects. If the discharge for any of the 4 transects differs more than 5 percent from the measured discharge, a minimum of 4 additional transects will be obtained and the average of all 8 transects will be the measured discharge. Whenever possible, reciprocal transects should be made to reduce potential directional biases.

3. It may be necessary to use individual transects as discrete measurements of discharge under rapidly varying flow conditions. The rationale for using individual transects as measurements should be documented and permanently stored with the discharge measurement or applicable station analyses or files. However, whenever possible, pairs of reciprocal transects should be made to reduce directional biases.

4. It is important to select appropriate sites for streamflow measurements. Guidelines as outlined in relevant standards such as AS3778 are still applicable and should not be ignored when using an ADCP. **Many ADCP measurement problems can be solved by moving to a better measurement section.**

5. A moving bed test must be recorded prior to making any measurements. At least one section of the river should be identified where the potential for bed movement is greatest. Although the location of maximum potential bed movement cannot easily be predicted a priori, it often occurs in the region of maximum water velocity. However, at times, bed movement is observed in the low-water flood plain area. When in doubt, make moving bed tests at 3-5 sections across the river.

The vessel used to make the moving bed test should be held in a stationary position for about 10 minutes, provided that this can be done safely. While in this stationary position, ADCP data should be recorded and examined for any apparent upstream movement of the boat relative to the channel bottom. If apparent upstream boat movement is measured, then the water velocity measured by the ADCP will be less than the true water velocity and the discharge measured by the ADCP will be less than the true discharge.

6. For sites where a moving bed condition is observed, a differentially corrected global positioning system (DGPS) can be used instead of bottom- tracking to compute vessel velocity when this condition is present. Of course DGPS has its limitations on small streams that will be encountered in a lot of the time in our work so if you have an ADCP that supports stationary measurement operation, similar to gauging with a current meter, then this option is a very good option at overcoming some of the issues caused by moving beds.

The presence of a moving bed condition likely will be flow-dependent. This information should be included in the station description for the stream gauging station in question.

7. Average boat speed for each transect should be less than or equal to the average water speed. Under certain conditions it may not be possible to keep the boat speed less than the water speed. As a result, additional transects should be made or the estimate of measurement quality downgraded. When using DGPS it is very important to keep the boat speed as low as practical because errors in compass calibrations are additive and will increase with boat speed.

8. Edge distances for estimation of edge discharge must be measured accurately.

9. ADCP's may not accurately measure depths in streams with high sediment concentrations and/or high bedload transport. In these instances it may be necessary to use a vertical depth sounder or even revert to normal suspension methods.

Measurement Documentation And Processing

When processing ADCP measurements, measurement data should be carefully reviewed. Listed below are the most common problems found when reviewing ADCP data.

· No moving bed test

· Boat speed too fast

· Edge distances not measured

· Incorrect blanking distance

· Poor data-archival procedures

· ADCP depth incorrectly set

· Incorrect extrapolation method

· Poor field notes

· Incorrect number of depth cells

· Use of ferrous metal mounts

"So as you can see from what the Yanks are doing, these new ADCP's aren't necessarily the point and shoot bits of gear that some might have you believe. They are just another tool in the toolbox of the hydrographer and field hydrologist," remarked Technohead. "What is important about using this gear is that properly trained and qualified peoplebe responsible for managing the equipment and data produced by it. Suitably trained and experienced hydrographers are the ideal people for this as they understand streamflow behaviour and what actually happens in the real world of water measuring. Maintaining standards is also an important and this is where things are critical for QA processes."

Psychobabble pondered a while longer. "But whats the process for developing these standards?" he finally asked.

"As I mentioned earlier the ISO organisation is doing this at present. ISO standards are developed according to the following principles:

• Consensus

The views of all interests are taken into account: manufacturers, vendors and users, consumer groups, testing laboratories, governments, engineering professions and research organizations.

• Industry-wide

Global solutions to satisfy industries and customers worldwide.

• Voluntary

International standardization is market-driven and therefore based on voluntary involvement of all interests in the market-place.

There are three main phases in the ISO standards development process. The need for a standard is usually expressed by an industry sector, which communicates this need to a national member body.

The latter proposes the new work item to ISO as a whole. Once the need for an International Standard has been recognized and formally agreed, the first phase involves definition of the technical scope of the future standard. This phase is usually carried out in working groups which comprise technical experts from countries interested in the subject matter.

Once agreement has been reached on which technical aspects are to be covered in the standard, a second phase is entered during which countries negotiate the detailed specifications within the standard. This is the consensus building phase.

The final phase comprises the formal approval of the resulting draft. International Standard (the acceptance criteria stipulate approval by two-thirds of the ISO members that have participated actively in the standards development process, and approval by 75 % of all members that vote), following which the agreed text is published as an ISO International Standard."

"So there you have it as it stands at present," finished Technohead. Sleepily Psychobabble looked at Technohead. "Well it sounds like we're in good hands then"

"Let's hope so" commented Technohead as they parted.

Sources: Various from US Office of Surface Water and the International Standards Organisation