ASSAY
A NEWSLETTER ABOUT ACID SULFATE SOILS

No 30. February 2002

East Trinity workshop focuses on acid sulfate soils

A group of stakeholders and scientists braved the heat, sandflies and terrain of the Queensland Government's East Trinity site as part of a series of local workshops to discuss management strategies for the site.

The Department of Natural Resources and Mines' Queensland Acid Sulfate Soils Investigation Team (QASSIT) led the workshop, which proved to be a successful knowledge-sharing exercise. The forum presented the opportunity for a technical panel to share their expertise and findings with those having an extensive local knowledge and interest in the East Trinity site.

"Located across the waters of Trinity Inlet, the land has attracted much attention from both potential developers and environmental groups over the years," QASSIT team leader Bernie Powell said.

"This workshop aimed to inform stakeholders about the issues Government is facing and look at the progress achieved in the management and remediation of the land.

"The State government purchased East Trinity last year and has allocated $2.865 million over four years to reverse the effects of former land utilisation and management practices."

Mr Powell said the land was originally mangrove swamp and salt marsh but a decision was made more than 20 years ago to drain the land and use it to grow sugar cane.

"The withdrawal of the influence of tidal salt water from the site has led to the drainage of pyritic layers in the soil, which release acid that has the potential to adversely impact on the adjoining environment," he said.

"QASSIT soil scientists commenced monitoring, sampling and testing the soil and creeks on the site as the first stage of delivering a stable, environmentally friendly remediated soil."

Mr Powell said the scientific measurements and monitoring being conducted on the site would provide valuable information in managing other lands affected by the disturbance of acid sulfate soils.

"As treatment measures are tested on the site and more information comes to hand, there will be further forums with stakeholders on progress," he said.

CASSP is a Federal Government funded Natural Heritage Trust program that works with the State Government, JCU and CSIRO to develop East Trinity as a demonstration site for managing acid sulfate soils.

Further information: Bernie Powell, phone: 07 3896 9398, mobile 0408 728 338

East Trinity workshop.
photo courtesy of QASSIT

Environmental Services Scheme for rural areas

In a move to provide greater recognition for the environmental benefits produced on farms, the NSW Government will seek landholders to take part in the development of an Environmental Services Scheme.

Staff from the Department of Land and Water Conservation, State Forests and NSW Agriculture will work with 20 landholders or landholder groups to identify and implement land use changes focusing on salinity control, carbon sequestration, biodiversity enhancement and control of coastal acid sulfate soils.

Activities such as changing pasture and grazing management, planting new forests, managing regeneration of native vegetation, replanting riverbank vegetation, or re-establishing wetlands all have the potential to generate environmental services, and will be integrated with regular on-farm production activities during the project.

Practical issues like the costs associated with including such environmental services within rural production, how to define and create ownership of the services produced, and the type of financial, contractual and incentive arrangements necessary will all be examined.

Participants will represent a range of locations, enterprise types, and environmental and production benefits, with the land use changes funded through $2 million from the NSW Salinity Strategy.

Those landholders involved will have the opportunity to enhance the sustainability of their property, improve their catchment and help explore ways of achieving a new approach to natural resource management.

The information gained will help to expand the scheme to other areas and, eventually, to develop markets through which a range of environmental services can be traded.

Landholders interested in the scheme can call 1800 353 104 for an information package. Expressions of interest are expected to be called in the first half of 2002.

ASSPRO - what has been achieved, and the way forward.

NSW Agriculture has appointed Umwelt (Australia) Pty Ltd to conduct an independent review of ASSPRO (the NSW Acid Sulfate Soil program). Over the last five years, ASSMAC has invested a total of $3.425 million of ASSPRO funds in some 70 projects to enhance the management of acid sulfate soils in NSW. Activities that have been funded include acid sulfate soil risk mapping, acid sulfate project officers, innovative floodgate designs, drain and floodgate management plans, water sampling programs, and wetland and scald rehabilitation. Community participation in these projects has greatly raised awareness of acid sulfate soil management issues and options, and has prepared floodplain communities to take ownership of land and water management solutions.

The aim of the review is to evaluate the success of the program to date, so that future funding can be targeted for maximum environmental and community benefits. The review will provide ASSMAC with advice on:

- The major achievements of ASSPRO, particularly in regard to cumulative benefits in acid sulfate soil management;
- Outstanding and emerging issues that need to be addressed; and
- A framework for future investment in ASS management.

The assessment of ASSPRO will be based on wide ranging consultation, together with a review of changes to the policy and planning context of ASS management and an assessment of the information provided in project reports. Central to the review process are a survey of funding recipients, and a workshop to discuss current outcomes and the way forward. The workshop, to be held in Port Macquarie will draw on the knowledge of funding recipients, land holders, state and local government staff, floodplain management authorities and waterway users such as commercial fishers. A short discussion paper will be circulated with invitations to the workshop, early in April.

For more information please contact Pam Dean-Jones at Umwelt, on 02 49505322, or by email at *pdeanjones@umwwelt.com.au.*

Draft State Planning Policy: Planning and Managing Development Involving Acid Sulfate Soils

An immediate need for planning certainty and consistent management of acid sulfate soils throughout the State has been recognised by the Queensland Government. To address this, the temporary **"State Planning Policy 1/00: Planning and management of coastal development involving acid sulfate soils"** was released on 20 November 2000. The temporary Planning Policy ceased to have effect from 18 November 2001.

The Queensland Department of Natural Resources and Mines in conjunction with the Queensland Department of Local Government and Planning has now released a **"State Planning Policy and Guideline"** to replace the temporary Policy.

The proposed State Planning Policy and Guideline apply to disturbances below +5 m Australian Height Datum for local government areas on the coast and to most assessable activities that involve excavations greater than 100 m3 in volume or filling greater than 500 m3 in volume with an average depth greater than 0.5 m. Activities only assessable under the Standard Building Regulation are excluded.

As the temporary Policy ceased to have effect on 18 November 2001, local governments are not required to refer to it during planning scheme preparation or consider it when assessing certain development applications. However, acid sulfate soils continue to be a significant issue in which the State has an interest. The proposed SPP and Guideline should therefore be referred to as representing the State's interest in acid sulfate soils for the purposes of making planning schemes, even though the proposed State Planning Policy has no statutory status until it is adopted.

Although there is no legal requirement for the proposed State Planning Policy to be used in development assessment before it is adopted, the potential environmental harm from disturbing ASS still needs to be addressed. Local governments are recommended to use the proposed State Planning Policy and Guideline as a basis for assessing development applications against these criteria.

For further information contact: Phil Kohn (07) 3237 1752. or email *phil.kohn@dlpg.qld.gov.au*

Drain Weed Clearing Excavator Bucket

NSW has thousands of kilometres of drains in acid sulfate soil areas that require regular maintenance and weed clearing. Draining maintenance and weed clearing activities have the potential to cause significant impact on the water quality in the drain and adjoining creeks and rivers, if the works are not undertaken with due diligence.

The build up of weeds in drains will reduce their efficiency to remove water during flood periods. More regular clearing of drains will prevent the build up of plant material and the subsequent settling of iron monosulfide in the base of drains. While regular drain maintenance is expensive, the cost of irregular maintenance may be much higher - the cost of lime treatments, dealing with long term accumulation of material and bank erosion and the loss of drainage ability are economic factors to consider.

Weed Bucket

Excavator operator Ron Macarthur of Ballina and Broadwater engineer Jack Mathers designed and built a prototype reed bucket to clean weed, reeds and debris from drains with minimal disturbance of ASS material. The bucket has taken 10 years to develop and is a refinement of more basic reed buckets used by other excavator operators

The features of the weed bucket are:

- It enables drains to be cleared in up to half the time of conventional reed buckets
- It is cheaper to use than chemical sprays
- It can be used as a "broom" to sweep along drains
- It is suitable for large or small drains, in both dry or wet conditions.
- The tines, which are made of spring steel, can be removed individually
- Every second tine can be removed to enable the bucket to be used for clearing heavily overgrown drains.
- The tines have slight movement that helps soil, rocks and sediment material to be shaken through leaving only organic matter
- The shape of the bucket makes it able to fit behind trees
- It is suitable for use on "extender excavators for very wide drains.

Field Days

A series of field days will be held later in the year to highlight the use of the weed bucket. For further information, contact Chrisy Collins *christina.collins@agric.nsw.gov.au* (02) 6626 1355.

For further information on the weed bucket:

Please contact Ron Macarthur on
(02) 6686 2336 Mobile 0418 665 592

Graziers eat their rewards

A recent field day held in the Coldstream area of the Clarence Catchment focussed on farm assessment techniques and land management techniques. The field day was jointly developed by NSW Agriculture, Clarence River County Council and the Clarence River Fishermen's Co-operative. The field day specifically targeted graziers in the Swan Creek/Coldstream area and was well attended.

The first half of the field day focussed on landowners learning how to assess their own properties for potential acid sulfate soil risk using the 'Keys to Success' booklet. Later in the day, attendees observed how landowners Bernie Kenny and George Want manage Colletts Swamp. The landowners in Colletts Swamp have been practicing backswamp rewetting for many years and have seen an increase in productivity and improved water quality levels.

The day concluded with lunch and a time

Enjoying the seafood lunch at the Coldstream Field Day.

for interaction for participants. A highlight of the field day was the seafood lunch kindly donated by the Clarence Fishermen's Cooperative. Someone mentioned (not entirely jokingly) that the landowners were eating the 'fruits of the labour' in regards to backswamp management and improved fish stocks. Contact Chrisy Collins, ph 6626 1355 *christina.collins@agric.nsw.com.au* or

Waterways Lime Spreader

Tweed cane farmer, Robert Quirk, is one of the forerunners of on-farm acid sulfate soils management. Robert has achieved some excellent results from his whole farm management approach. In July, 2000, the Assay magazine reported that Robert was trialing a new lime dispensing technique to neutralise the acid water discharged into his drains.

A trial model of the Waterways Lime Spreader is now fully operational and has achieved some excellent results. The Waterways Lime Spreader is an innovative approach to the control of acidity, particularly for ad hoc or unexpected events. Even a fully integrated management system cannot cope with every eventuality, and this machine is an excellent way to 'mop up' acid that escapes other control factors such as laser levelling, liming of paddocks and floodgate operation.

The Waterways Lime Spreader (patent pending) was designed and manufactured by Jim Dixon of Marrison Hydraulics after seeing similar machines used in the mining industry to treat dams used for acid mine drainage.

This model of the Waterways Lime Spreader is mounted on the back of a tractor, and runs off domestic electricity supplies, but can be adapted to work off a generator or solar panels. Limestone quarry aggregate of up to 40 mm is fed into the hopper by a conveyor belt. Water is piped in from the creek and is used to lubricate the crushing process. The machine uses the rock to crush itself, rather than a mill, thus minimising wear and tear.

The Waterways Lime Spreader can run at variable speeds, and a fully automated version is currently in production. In the trial model, the tumbler can take up to 100kg of calcium carbonate rock at a time. The rock is lubricated with water, and the ensuing thin paste is fed back into the creek or drain. The pH can be monitored during the entire process, so that as soon as the desired pH is reached, the machine can be turned off.

The limestone powder produced is extremely fine, +- 3 - 5 microns. It is suspended within the water, and does not immediately flocc out as does Agricultural Lime. No dust is produced, because the powder is lubricated with water. It is impossible to overdose the water,

Waterways lime spreader in use.

as the paste is pure calcium carbonate. The use of the lime paste can help negate the loss of bicarbonate which is associated with using sea-water to neutralise acid in drains and creeks.

The Waterways Lime Spreader offers a cheap and transferable method of treating field and main drains before an acid slug can negatively impact on water quality. Since using the technology, Robert notes there are more fish in the drains than he has ever seen before. He has also observed juvenile prawns, which indicate that the drains on his property are serving as a nursery for important estuarine species.

Three sizes of Waterways Lime Spreader are available;

1. A large stationary machine of 1000kg capacity for large site working
2. A unit of 100kg capacity suitable for transport to 'hot' treatment spots, and
3. A tractor powered unit of 100-150kg for agricultural use.

Contact Robert Quirk - 0413 677 727
or Jim Dixon of Marrison Hydraulics - 0428 661 658

Automatic Tide Regulator

The Automatic Tide Regulator (ATR) is formatted from a farmer's design at Moto on the Manning River. Due the ATR's simplicity and robust design and efficient operation, it is being trialed at four sites around the Hastings River and is due to be installed for trials early in 2002 at the Coastal Acid Sulfate Soils Project site at East Trinity Inlet, Cairns.

The ATR has two variations: -

a) **(upstream)** - with the float at the back, for gates on culverts where there is room at the back for the float to fit when closed; and
b) **(downstream)** - for flapgates on the end of pipes where there is no room in the pipe for the float when the gate is closed.

Both regulator types can be installed with a completely new floodgate or as a retro-fit to existing floodgates. ATR's can be designed and fixed to floodgates in the factory providing a complete unit that is easily installed.

The ATR is fitted to the river side of the main flood-gate and the drain side is fitted with a float. When the water is lower than the float (eg low tide), the weight of the float opens the Regulator. The ATR is closed by dual actions of the rising tide, the water not only lifts the float, by its buoyancy, while at the same time over tops the flap-gate and putting down pressure on the window itself. This dual tidal action ensures a firm and fast

closer of the gate. The arms of the float have various settings, so the water level that triggers closing the Regulator can be varied. Similarly, the amount it hangs open at low tide can also be varied.

Upstream Device

The upstream ATR is constructed from 10mm aluminium plate (the first batch made were 300mm by 500mm, but can be made in any size). The flotation device is made from 5mm recycled polyethylene plastic. The device is most useful for floodgates where they are attached to open headwalls. It is less prone to flood tide debris as the mechanisms are located on the upstream side. It is acid and UV resistant and costs $550 + GST

Downstream

The downstream ATR is constructed from 10mm aluminium plate (the first batch made were 300mm by 500mm, but can be made in any size). The flotation device is made from 5mm recycled polyethylene plastic. The regulator has about a 60 degree aperture, so is good for fish passage.

This device most useful for floodgates attached to pipe culverts where the working mechanisms and hence calibration are easily accessible and unimpeded. Another is currently being constructed to fit a smaller 450mm circular floodgate. The device can thus be made in very small dimensions. The structure is acid / UV resistant and costs $650 + GST.

Downstream Automatic Tide Regulator.

Benefits

The main benefit is the automation of operation. This virtually eliminates the risk of drain overtopping, while still allowing regular and frequent water exchange, thus allowing controlled amounts of saline water exchange for neutralising acid, and improving DO, as well as allowing some fish passage.

Weaknesses

Some weaknesses include the risk of debris (such as logs and vegetation) getting caught in the arms during discharge and disrupting the mechanism (possibly breaking the float or bending the arms). Debris from the river may also prevent full closing of the Automatic Tide Regulator. This latter happens with ordinary flood-gates. Possible solutions include having a single float arm and a streamlined float, or placing the float on the river side of the Regulator (placing the float on the river-side of the gate means the float is operated by cantilever arms which provide greater opportunity for fouling.)

The best (most cost-effective) time to install these on a large scale, is at the time when the flood-gates themselves are replaced.

For information on the Automatic Tide Regulator, contact: Greg Breckell, Rabbit Plastics tel 6562 1440, *alx@midcoast.com.au*

Smart Gate

Following the recent construction of a self-regulating tilting weir, the Acid Sulfate Soils research team led by Prof. Buddhima Indraratna at the University of Wollongong recently unveiled its newest development- an automated 'Smart Gate'. The new gate is designed to allow a controlled amount of brackish river water into an acid sulfate soil affected drain in order to improve water quality.

The gate was developed following two-years of research by PhD candidate William Glamore who examined the impact of saline water ingress on improving water quality. In the first year, baseline data was collected and showed that the area was severely impacted by acid discharges. Following 12 months of research, winch-driven lifting gates were installed on two floodgates in the Broughton Creek floodplain. These gates improved water quality by permitting a controlled amount of tidal exchange between the creek and drain, while still maintaining the advantages of top-hinged floodgates.

Based on these encouraging results, the University of Wollongong with assistance from the Shoalhaven City Council extended this project to develop, construct and install a new automated gate. Although effective in areas with high levee banks, the winch-driven lifting gates could not be used in extreme low-lying areas were overtopping can occur.

The PhD research of William Glamore is focused on state-of the art infrastructure development and the 'Smart Gate' is a total environmental control system that opens and closes the floodgate aperture based on water quality indicators. The system works by having dataloggers installed upstream and downstream of the floodgate. These dataloggers scan every five minutes the environmental conditions (eg, water elevation, pH, salinity, dissolved oxygen, temperature) in the drain and creek and turn on and off a motor that can raise or lower a control flap. The control flap covers an aperture in the gate 1000mm x 150mm and creates an effective seal when closed.

With assistance from Greenspan Technology, the 'Smart Gate' also contains many cutting-edge technologies. For instance, as well as on-site communication with a laptop computer, the 'Smart Gate' can be controlled by off-site computer dial-up technology. This enables the user to call up the floodgate and find out the site conditions and if necessary change any of the parameters, or download the dataloggers. Importantly, if a problem occurs within the control system, the floodgate is capable of sending a text message to a mobile phone. The whole system is run on two 12V gel cell batteries that are recharged by a solar panel. Finally, for safety and security the electronic parts are housed in a stainless steel locked box that is cemented into the ground and all cables are run underground through conduit.

Although still in preliminary trails, this new 'smart' floodgate may be instrumental in combating acid sulfate soils runoff in low-lying areas. Prof. Indraratna states, "While the 'Smart Gate' is a big step forward in comparison to buoyant lifting automated gates, it still remains cost-effective with basic models beginning around $5900 plus labour, to more elaborate models such as this one costing about $12000 plus labour."

Anyone interested should either contact Buddhima Indraratna at 02 4221 3046 or William Glamore at 02 4221 4816

Email: *wcg01@uow.edu.au*).

Smart gate installation.

Reminder! registrations still open!

5th World Acid Sulfate Soils Conference
Sustainable management of acid sulfate soils
When: 25th-30th of August 2002
Where: Twin Towns Services Club and Resort, Tweed Heads NSW Australia
Website: http://www.out.at/acidsoil

Macropores and acid export

Recent research by NSW Agriculture scientists at Shark Creek, an acid sulfate soil hotspot in the Clarence catchment, has demonstrated the critical importance of subsoil macropores in controlling lateral flow of acid groundwater to drains.

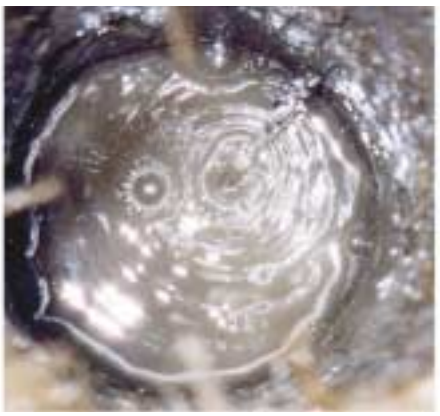
An extensive network of macropores exists at this site and available evidence suggests a high degree of connectivity associated with both their density and orientation. The dominant orientation is typically vertical, but large horizontal pores (>20mm diameter) also exist. Observations suggest that these often iron coated pores are most likely biopores associated with previous vegetation communities created during sequential deposition and the network extends well down into the sulfuric/sulfidic boundary. Ripening of the soil structure after drainage may have increased the connectivity of these biopores.

While the soil matrix texture at the site is silty clay and would normally have a low saturated hydraulic conductivity (K-sat), the macropore network means the soil has relatively high K-sat values (~15m day-1). Pores can be readily observed by shaving drain bank sides and have been captured on video, with single pores discharging >40ml sec-1 under approximately 100mm head difference. "While this may not sound like a lot, when you start looking at the high density of these pores it is clear they are capable of transporting large amounts of ground water to the drainage system very efficiently", said NSW Agriculture researcher Scott Johnston.

Good hydraulic connection between the drain and the adjacent ASS backswamp landscape has been demonstrated at this site with the ground water responding rapidly to drain water level changes >100m from the drain. "This is in sharp contrast to many other studied sites and an important qualifier to the generally well accepted concept that evapotranspiration is the primary controller of ground water levels beyond a few meters from the drain. It is, but in high K-sat sites drain water levels can have a major influence on local ground water levels well beyond a few meters" Scott said.

The two primary mechanisms whereby sulfide oxidation products enter drainage systems from the soil are either via surface transport or directly as ground water. Of the two, direct ground water is generally the most significant both in terms of the concentration of acidic products (principally iron and aluminium) and the more chronic nature of the discharge. Given the link between macropores and lateral ground water movement, this finding has important management implications for some ASS areas and will influence the kind of strategies likely to be effective at reducing acid export.

An obvious question is "How common are ASS sites with sub-soil hydraulic properties like these?". This question is being examined and preliminary investigations suggest that



Macropore discharging into side of auger hole, Partridge Creek.

some of the well known 'hotter' acid export sites in NSW may be at least partly associated with macropore influenced ground water transport. Further research is ongoing.

For further information contact Scott Johnston at *scott.johnston@agric.nsw.gov.au* tel (02) 6562 6244.

Water Quality and invertebrate response to acidification following intensified summer droughts in a Western Australia wetland

The effects of climate change can be exacerbated by land use changes within catchments. Surface water regulation, groundwater extraction, and extensive water use can lower regional water tables, particularly during droughts. When acid sulfate soils are also present, shallow water bodies can be susceptible to drought-induced acidification.

This acidification can seriously affect the biological productivity of aquatic ecosystems, and can start as early as pH ~6.5. Large scale kills of fish, crustaceans and other aquatic life have occurred where sulfuric acid from oxidized acid sulfate soils has washed into waterways. Acidified waters also tend to have lower invertebrate richness and disrupted trophic structures (food webs). The biota of acidified waters typically suffer from metal toxicity and calcium limitation.

A decline in pH from ~6-8 to ~4-5 was measured during four years of monitoring of Lake Jandabup (22km north of Perth) from 1996 - 2000. Groundwater levels have declined steadily since 1977, probably from below-average rainfall (summer droughts have increased from 4 to 20 weeks duration), surrounding land-use practices and groundwater extraction. This was accompanied by measurable changes in water quality parameters, as well as shifts in invertebrate community structure. Invertebrate monitoring followed Chessman's 'rapid assessment' technique, and was done twice annually in spring and in summer/autumn. Water quality attributes measured included pH, EC, DO, temperature, nutrients, iron and colour, as well as hydrographic data.

Water Quality

As well as a generally increasing trend towards lower pH levels in the second half of the 1990's, an extreme acidification event took place after the long dry summer of 1997/1998, three days after an unseasonal rainfall event. The low pH coincided with very high sulfate, iron and ammonium concentrations. The very low groundwater levels may have permitted the oxidation of an acid sulfate layer in the sediments, causing the decline in pH. Both the extent and duration of drying are considered important in determining the severity of a water quality impact.

The enormous increase in ammonium-N following the drought of 1997/98 could have resulted from the drying of the sediments, but since both spring and summer concentrations were significantly inversely correlated with pH it is more likely that cation exchange reactions were responsible. Nitrification was an unlikely source of acidity because nitrate levels were low The low pH probably affected the nitrifying bacteria.

Lake Jandabup has extensive littoral vegetation and organic sediments, which can help it and similar lakes recover from low pH events. Despite the lake being is so shallow, it stratifies daily because the water is coloured. Low oxygen concentrations and anoxic sediments, particularly in conjunction with large amounts of organic matter in the sediments, favour sulfate reduction and precipitation of iron sulfide,

which consumes H+ and produces alkalinity. Sulfate reduction has been recognised as the major alkalinity producing process in waterbodies affected by acid mine drainage, acid sulfate soils and acid rain.

Macroinvertebrates

Macroinvertebrate community structure changed in four distinct ways over the sampling period:

1. Extinctions of highly sensitive taxa

Some species (Ceinid amphipods, mayflies and Oligochaete worms) have not been found in the samples since 1997, and have failed to reappear, despite a slight recovery in the pH in 1999/2000. There is some indication that these taxa are sensitive to low pH and associated metal toxicity.

2. Decrease in sensitive taxa

Ostracods decreased dramatically in numbers after spring 1997. These seem to require more or less neutral pH and a ready source of calcium carbonate. Isopods also decreased

3. Increase in acid-tolerant taxa.

Sandfly larvae (Diptera) and Macrothricidae (Cladocera) have become more abundant, similar to communities in a nearby lake (Lake Gnangara) which has a pH of 3-4 (presumed to have resulted from the mining of mineral sands and diatomaceous earth).

4. Change in of relative abundances of macroinvertebrate families

More families became rarer over the monitoring period, with over 90% of taxa collected either rare or scarce in 1999.

The disappearance of sensitive taxa from samples and the very large proportion of rare taxa indicate an unstable community and severe ecosystem stress.

Implications for management

The increasing extent and incidence of the summer drawdowns during 1997, 1998 and 1999, and associated decline in pH severely affected water quality, the invertebrate fauna, and probably also the microbial community. These changes are of concern to managers because they jeopardize the nature conserva-

tion values associated with the wetland. While pumping groundwater in order to maintain minimum water levels may alter the ecological integrity of the seasonal wetland. However, if more favourable climatic conditions do not eventuate, and/or groundwater extraction continues, groundwater could be pumped strategically into the identified acid-generating areas. Ultimate recovery of the wetland would be indicated by the reappearance of sensitive invertebrate taxa such as amphipods.

Contact Bea Sommer or Pierre Horwitz, Edith Cowan University, WA
100 Joondalup Drive, Joondalup, WA 6027

Local Government Excellence in the Environment Award

Kempsey Shire Council, 'Macleay River Floodplain Project'

The Macleay River Floodplain Project (MRFP) has been developed by Kempsey Shire Council to improve water quality within and emanating from the Macleay floodplain. The Lower Macleay River Floodplain comprises 400km(squared) of which large areas of wetlands and agricultural land are underlain by acid sulfate soils. The floodplain has been extensively modified by flood mitigation and wetland drainage. Mitigation infrastructure includes; 210 floodgates, 116km of excavated drains and 180km of flood levees. Poor land productivity and water quality from on the Lower Macleay River Floodplain has now been recognised as a major environmental issue and is largely due to the over drainage of acid Sulfate Soils/Agricultural lands. Additional priorities of the MRFP are to develop an effective communication and acid sulfate soils awareness strategy and to disseminate water quality information (obtained via councils telemetry monitors) to the broader community. The project (MRFP) works very closely with landholders and in fact the successful outcomes to-date could not have achieved without their support.

Contact: Ron Kemsley, Floodplain Project Officer, 02 6562 6077

Or Email *ron.kemsley@kempsey.nsw.gov.au*

Acid Sulfate Soils Education & Training

NSW Agriculture and NSW Department of Land and Water Conservation have collaborated to develop and deliver competency-based training courses targeted at local government and utility providers. The course normally includes components on desk top assessment, testing procedures and interpretation, and management strategies. The second day deals with forward planning and the development control process, focusing on the ASS Local Environmental Plan amendments. The courses are designed for staff who will have the responsibility for working with Potential and Actual ASS or processing Development Applications, including Outdoor staff and Planning and Development Control staff. The course may be conducted over one or two days, and has been developed within the vocational education and training sector framework. The course is particularly recommended for councils who have or will amend their LEPs with provisions to deal with ASS. For general inquiries: **Scott Henderson,** NSW Agriculture, ph 65 62 6244, *scott.henderson@agric.nsw.gov.au* or **Mike Murphy,** DLWC, ph 49 29 9849, *mmurphy@dlwc.nsw.gov.au*.
For planning and ASS LEP matters: **Mitch Tulau,** DLWC, ph 65 63 1212, *mtulau@dlwc.nsw.gov.au*.

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