Lake Macdonald Catchment Care Group

Newsletter Issue No7 Autumn 2006

Noosa Festival of Water

On Sunday 4th June the Lake Macdonald Catchment Care Group will host the Noosa Festival of Water at the Lake Macdonald Amphitheatre and the Noosa Botanic Gardens to celebrate World Environment Day in Noosa Shire. This year's Festival will begin at 10.00am and finish at 4.00pm.

The Noosa Festival of Water aims to highlight issues relating to our most precious natural resource – Water, particularly conserving and protecting water supplies for current and future generations.

Following on from last year's successful event, the Festival will again showcase some of Noosa's greatest attractions together with a variety of activities. Festival organisers are planning musical entertainment at the amphitheatre including live music from The

Barleyshakes, the Noosa Pipe Band and the Noosa District Concert Orchestra plus other local entertainers. The Noosa Yacht & Rowing Club will hold a rowing regatta with competitors from both local and Gold and Sunshine Coast Clubs. There will also be the opportunity for young people to learn how to fish sustainably with the "Take a Kid Fishing" program, under the expert guidance of David Whelan, Bush 'n' Beach Fishing Magazine's journalist.

The Festival will also offer free boat tours to the Gerry Cook Fish Hatchery, home of the endangered Mary River Cod, and tours of the Noosa Water Treatment Plant.

There will be a range of displays from organisations featuring alternative water treatment/storage solutions including, Tradelink Environmental Services, Noosa Council's Plumbing Section and Action Tanks.

Valda McLean from Noosa Parks Association and Cecily Fearnley will host the popular hourly birdwatching tours and Noosa Landcare will be giving out two free trees to every Noosa ratepayer who produces a current rate notice. Locals will be able to have their dam, bore and/or creek water samples tested at the Mary River Catchment Coordinating Committee's display, where free water testing will be available from 10am until 2 pm. Other displays include the Burnett Mary Regional Group, the Camphor Laurel Group, Queensland Parks and Wildlife Service, Noosa Integrated Catchment Association and Healthy Waterways.

The Noosa Regional Gallery will host its very popular family day in the Botanic Gardens, providing an opportunity for budding artists young and old to produce their own works of art.

At the Lecture Tent, a program of presenters will provide information on a range of wildlife and sustainability issues, including the Richmond Birdwing Butterfly, Frogs and Sustainable Living. Ron West from the historic Majestic Theatre will also present a glimpse of the world of silent movies.

A range of refreshments will be available. Admission to the Noosa Festival of Water is free. For more information, please contact the Mary Catchment Resource Centre on 54 82 4766

The Lake Macdonald Catchment Care Group gratefully acknowledges the support of the following sponsors:

CHAIRMANS REPORT

Welcome to the Lake Macdonald Catchment Care Group Newsletter. As Chairperson of the Lake Macdonald Group I invite all property owners in the catchment to attend the Noosa Festival of Water on Sunday 4th June 2006. I am sure you will find the day informative and entertaining.

The Lake Macdonald Catchment Care Group has been in existence for the last 7 years and was formed out of a joint approach between Council and the Mary River Catchment Coordinating Committee. Over that time the group has undertaken numerous tasks and its achievements include: -

- Implementation of an action plan to address the Cabomba weed infestation within the lake. This has led to the Commonwealth Government commissioning CSIRO to undertake an investigation of biological control of Cabomba;
- Assistance to property owners to plant trees on their land in conjunction with Noosa & District Landcare;
- Assistance to landowners to undertake fencing and develop off-stream watering places for stock;
- Identifying the best areas to apply environmental rehabilitation efforts;
- Water quality testing in the tributaries of Lake Macdonald;
- Support to educational programs by Noosa Landcare and local schools;
- Support to the Gerry Cook Fish Hatchery which breeds the endangered Mary River Cod.

The Lake Macdonald Catchment Care Group meets on the 3rd Tuesday of each month at the Council Chambers starting at 3pm and finishing at 5pm. Community members would be welcome to attend any of those meetings and add their voice to the ways in which we can improve management within the catchment.
I look forward to seeing many of you at the celebrations on 4 June 2006.
Kind Regards, Cr. Ray Kelly

NOOSA SHIRE HOSTS A MARY BASIN WATER SUMMIT

The issue of water supply is now more prominent than ever, following the State Government's announcement of the proposed mega dam at Traveston. On 24 April (before this announcement was made), Noosa Mayor, Bob Abbot, hosted a summit to address the broad issues of planning for water supplies in the Mary Basin, including the institutional arrangements for the supply and distribution of water in South East Queensland. The summit included:

- an overview of the SEQ
- acknowledgement of efforts of Toowoomba City Council in addressing recycling of treated waters as a potential potable source
- summary of the challenges facing the Mary River in the long-term
  - its capability to supply water
  - the available information
  - the need for a consistent understanding of the variety and needs of users.

SEQ is currently undergoing a major revision of the way in which water supply is planned, distributed and treated. The vision for the Mary should be a sustainable water supply in conjunction with a sustainable environmental outcome. Everyone involved with the Mary is in the same situation and we need to work together.
Those presenting, included representatives of the Department of Natural Resources and Mines, a technical officer involved in the review of water arrangements in South East Queensland, an urban local government representative, a rural local government representative, an irrigator, a rural landowner and the Mary River Catchment Coordinating Committee
Key issues were the capacity of the Mary River to supply water, recycling of water, whether SEQ water will be taking water from the Mary Basin, boundary issues and sectoral interests, dams proposed, population growth, ensuring adequate environmental flows within the system, promotion of appropriately sized rainwater tanks and fostering a common local government approach to water restrictions.
The following strategies were endorsed: -

1. Establish a Council of Mayors within the Mary Basin as a strong political vehicle to pursue the best interests of the Mary;
2. Establish a stakeholder group with 2 representatives from each of the stakeholder sectors;
3. Apply resources to ensure these groups are properly networked, supplied with the correct information and coordinated;
4. Apply the combined efforts to address the longer-term water strategies including the preparation of the Resource Operations Plan to follow the Water Resource Plan.

INTEREST IN AQUATIC WEEDS HIGH

The Alan Fletcher Research Station in Brisbane was the venue for two Aquatic weed workshops in March. Day one [Friday] was a full day workshop on "Recognizing Weeds in our Waters", and participants could choose to be assessed for accredited training. [Vocational Education and Training [VET] Competency unit *Recognize Plants*] This workshop attracted Council Weed Officers and Regional Group Representatives from as far a field as Maryborough through to the Gold Coast.

Day two [Saturday], was a half-day workshop, on the same topic, but tailored to Community Groups. These workshops are the result of a great deal of planning and preparation by Andrew Petroeschevsky [Coordinator of the National Aquatic Weeds Management Group] and Jodie Bartlett-Taylor [NSW Department of Primary Industries], and North Coast Weeds Advisory Group. They were funded through the Federal Government's Natural Heritage Trust. Andrew and Jodie have produced a great package, however the real stars of the show were the weeds.

State Legislation restricts the keeping and/or transporting of Class 1 & 2 Pest Plants. With assistance from the Queensland Department of Natural Resources, Mines and Water, Gabrielle Vivian-Smith [Senior Scientist at Alan Fletcher], and Michele Rogers [also Alan Fletcher], we were able to gather a group of these villains in one secure area. Participants were able to really get to know the enemy…. No matter how good a brochure or fact sheet is nothing compares to being able to touch the real thing.

Participants at both workshops were keen, knowledgeable, and a pleasure to teach. At one stage, my mind strayed to ponder the collective knowledge of both groups….

Since the loss of probably the Aquatic weed man, Tom Anderson, his enormous shoes have been filled by Michele Rogers. Michele collected, stored and presented an infamous 'rogues gallery'.

She also did all the things necessary for workshops to run smoothly, and her efforts were greatly appreciated by attendees [not to mention me!]

Thanks also to Andrew for getting these workshops up and running; from inception to presentation. Andrew had to drive up from Grafton to attend and help out. Thanks mate.

With further cooperation from NRM&W, it is hoped that these workshops can be taken to Regional Centres in S.E. Qld. Interest is indeed high. These two workshops could have been sold three times over, and unfortunately many people missed out.

Phillip Moran, Lake Macdonald Catchment Care Group, Noosa and District Landcare – catch Phil at the Noosa Landcare Free Tree to Ratepayers stall at the Noosa Festival of Water.

High School Students take a tour of Lake Mac

Year 12 biology students from Noosa District State High School spent an entertaining and informative day on a field trip to Lake MacDonald on Wed 29th March. Phil Moran from Noosa Landcare presented a workshop of environmental weed species, including identifying and handling the most well known aquatic weeds of Lake MacDonald – *Hygrophila costata* and *Cabomba caroliniana*, with Ross "the terminator" Paulger from Noosa Council later showing the students a demonstration of the *cabomba* harvester in action. Students were given a tour of the fish hatchery with Vince Collis, followed by a BBQ lunch thanks to Noosa Council Environmental Services staff. For the last presentation of the day, students were able to handle water quality monitoring equipment and learn about how to measure the water quality of Lake MacDonald, with Mandy Maggs from Noosa Waterwatch Program as presenter. Thankyou to Amy Gosley, also from Noosa Landcare, for helping out on the day**.** Mandy Maggs – Noosa Landcare

Deeeeep End 5

During my daily travels to meet my 3pm appointment with the school gate, I have the pleasure of listening to Radio National's 'Deep End 5'. This brief item has one listening to the favourite 'things' of people from all over this little island of ours. The subject is usually a bit left field; one's five favourite Greek Gods, printing fonts or Kylie Minogue's outfits etc. So as my mind wanders, as well as concentrating on the next psychotic driver heading my way at 120km just a mere echidna's quill away, I get to thinking – I wonder if they'd accept my five favourite frogs on the program?! Rather than risk rejection, I thought I'd go the safe option of writing down my thoughts and seeing which publications are either sharing the same obsession or have a policy of accepting all incoming articles without question!

Over the summer months, in my role as Catchment Officer with the Mary River Catchment Coordinating Committee, I follow my ears and eyes up the tributaries of the Mary River to find and record our precious amphibious gems. Our catchment is unfortunately home to some of Australia's disappearing frogs. Many other species remain although some are present in reduced numbers and some are declining still. The frog diversity of this catchment is fantastic with over 50 species. 10 of these are listed as Vulnerable, Endangered or Presumed extinct possibly due to habitat destruction, disease, pest species, changes to flow of waterways and pollution. However, as I am privileged to study the preferred habitats of our endangered and vulnerable frogs, I am usually able to turn up a good set of records on a night (weather and energy levels dependant of course). So here are my five favourite frogs, at this point in time.

Giant barred frog – Eva Ford MRCCC

No. 1. Giant barred frog (*Mixophyes iteratus*) – What a gem! What a monarch of the frog kingdom! To find one of these is the icing on the cake. The largest frog in our region, the Giant barred frog is stunning in its appearance and behaviour. Even though very well camouflaged to hide amongst the leaf-litter, it is hard to miss its large, gold eyes in the torch beam. Its call too is a dead giveaway that one is stoically parked along the creek bank awaiting the woman of his dreams. An Adam's apple is essential to mimic the deep, Rottweiler-like call, sounding much further away than it really is. Once in hand these frogs are docile and extremely cooperative to close inspection, unlike their restless, can't-have-me cousin the Great barred frog (*Mixophyes fasciolatus*). Although the habitat requirements of these two species overlap I rarely, if ever, encounter them together. One of the other reasons why I like the Giant barred frogs so much though is because I can see if it has a nuptial pad without the assistance of a hand-lens (the over-40's will empathise)!

No. 2. Clicking froglet (*Crinia signifera*) – Despite its name I don't come across this species very often but on those rare occasions I just delight in its call (about the only way of knowing that they are around). It is reminiscent of a game of ping-pong (the double bounce version) and is much more relaxing to listen to than it is spending hours trying to find a small, brown frog amongst a tangle of grass. It has a very big voice for such a small body and it does seem that the most penetrating frog calls come from the tiniest species, a bit like humans I suppose! One great aspect of *C. signifera* is that they remind me that 'frogs rule' even during winter as the cold temperatures seem to stimulate them to get their bats and balls out and get to the ping-pong table.

No. 3. Southern orange-eyed treefrog (*Litoria chloris*). These would have to be one of the more stunning of the treefrogs and for this reason is often pictured on cards and posters. Head out after heavy rain and you may be rewarded with a group calling and a visual feast. The immaculate emerald green skin, contrasting fire-red iris and their willingness to perch around human height amongst the vegetation, gives the budding photographer a proverbial banquet. Thank goodness for digital cameras with their inexhaustible picture cards and of course the delete function! Timing is all when seeking this species as they like to get down to business during and after heavy Spring and Summer rains. Be prepared to get wet for the privilege.

No.4 Stony-creek frog (*Litoria wilcoxii*) Yes, its scientific name has changed! In the areas that I frequent, when all is quiet and frustration starts to set in, old faithful can usually be relied upon to appear. The Stony-creek frog, not often detected by its quiet call (although I have heard some pretty loud individuals), reveals itself by a rustle of the litter or a flash of movement in your torch beam. If you are lucky you might find a stunning male showing off its radiant yellow costume. More often though they are a fawn or chocolate colour,

Above: Stony Creek Frog

blending in with the sand and gravel bars that they favour. I like to keep a special eye on this species as, even though they are very common along our waterways, they are declining in other parts of their range.

No. 5. Striped rocketfrog (*Litoria nasuta*). What an athlete! These are the ones you need a whole tribe of kids to catch and then a firm grip in order to keep hold of this slippery subject (that's why using a freezer bags as a glove is so good). I rarely get to size or sex these fellas as a quick glimpse is usually all they allow before being shot from an invisible bow to become at one with their surroundings. The challenge with this species is that besides being a difficult to find and catch, its call is frustratingly similar to the Broad-palmed rocketfrog (*L. latopalmata*). As their habitats overlap as well I am always reluctant to record one or the other without seeing it. But those back legs of *L. nasuta* just impress me no end and I will continue my daily walk/jog in a quest to emulate them!

So there's just a few of the many frogs that I enjoy finding during my night-time escapades. But what of the frog's favourite five? Here's my guess:

No. 1. **Water** - of course, unpolluted and abundant (for most species) for living and breeding

No. 2. **Food** - that means lots of invertebrates - the essential element for most food chains

No. 3. **Shelter** - moist microhabitats, vegetation, leaf litter, logs, household debris for some

No. 4. **Mates** - opposite sex of the same species preferred

No. 5. **Peace** - not to be eaten, captured, tortured, diseased, out-competed, poisoned

Can we accommodate the frogs' requirements into our own lifestyles?

Please contact the Mary River Catchment Coordinating Committee for catchment related enquiries on 07 5482 4766 or mrccc@ozwide.net.au Eva Ford (Catchment Officer) - Eva will present a slide show on Endangered Species in the Lecture Tent at the Noosa Festival of Water.

Hello from MRCCC's latest CJP'er

My name is Ruth Hutchison and compiling this edition of the Lake Mac Newsletter is just one of the duties I have scored as MRCCC's latest CJP employee. The Community Jobs Plan is for 19 weeks, a project that involves the Noosa Council, the State Government and the Noosa Community Training Centre. I am working with a great bunch of people here at the Mary River Catchment Coordinating Committee. My main task is to assist with the coordination of this year's Noosa Festival of Water, hosted by the Lake Macdonald Catchment Care Group. This has been a steep learning curve for me. Approaching potential sponsors, getting together a program for the day and generally hassling people to come and be part of it is what I do. I hope all goes to plan on the day, if not – I'll be hiding in the Hugo the Healthy Waterways Turtle suit.

Take a Kid Fishing in the Mary Catchment

The Mary River Catchment Coordinating Committee has developed a program aimed at improving school students knowledge of sustainable recreational fishing practices in freshwater creeks and impoundments in the Mary River Catchment. The Program focuses on a range of factors which have the potential to affect waterways and biodiversity through fishing practices including:

- Use of environmentally friendly fishing tackle eg barbless hooks
- Principles and correct techniques for catch and release
- Identification of aquatic species
- Size and catch limits
- Appropriate disposal of refuse associated with recreational fishing eg bait bags etc
- Endangered aquatic species including the Mary River Cod
- Catchment health, water quality and aquatic biodiversity including identification of aquatic weeds and pest species

Kids from 8 years old, can take part in "Take a Kid Fishing" at the Noosa Festival of Water on the shores of Lake Macdonald at the Botanical Gardens, Cooroy on Sunday 4 June from 10am to 4pm where Instructors will teach children the importance of sustainable fishing. It is anticipated that two, 2 hour sessions will be held on the day with a maximum of 40 children per session.

Hand-out material will be provided to every participant, including information on sustainable fishing. Fishing gear will be provided so byo gear is not essential.

To register your child for a morning or afternoon session, or for more information, Ring Ruth on 5482 4766 at the MRCCC.

Landholders Helping Birds

Private landholders play an important part in the survival of Australia's woodland birds. A quote from Birds Australia's *The State of Australia's Birds 2005* says, ' Because of the vast area of land managed privately, small gains in bird conservation on individual landholdings can significantly improve the state of woodland birds.'

When asked what would encourage them to plant or fence part of their properties for the threatened sub-species of the Red-tailed Black-Cockatoo, landholders surveyed in southern states listed ..

better financial support for planting/fencing, free trees/shrubs, and assistance to apply for grants, as the 3 top incentives. Birds Australia is attempting to address the issue.

During 2005, Birds Australia also produced *Birds of the Darling Downs: A Land Manager's Guide*. The guide suggests practical user-friendly ways of creating bird-friendly landscapes.

Management options include

- Maintain, protect, re-establish or enlarge patches of native vegetation of 10 hectares or more.
- Provide well-connected corridors of native vegetation.
- Maintain habitat values in all vegetation types on the property.
- Protect and maintain a range of old hollow-bearing trees, including dead ones and consider providing artificial hollows if few are available.
- Manage grazing and fire to minimise impacts on native woodlands.
- Control introduced predators to reduce their predation on birds.

Tree Hollows

Many of Australia's birds must have tree hollows for nesting. Other birds and animals use them as shelter and roosting sites. Recent studies (Gibbons & Lindenmayer 2002) show 114 species of birds, 83 mammals, 79 reptiles and 27 amphibians, a total of 303 vertebrate species, or 15% of all terrestrial vertebrates, (plus 10 introduced species) using tree hollows. Many of these are now rare or endangered because of habitat destruction. Hollows are lost to declining species through direct competition with other aggressive species. An example in our area would be the Little Corella and Rainbow Lorikeet taking most hollows, affecting our precious Glossy Black-Cockatoo – for one. Hollows, which take 100 to 200 years to form, may be lost as a result of tree fall, clearing, firewood collection, storm or fire damage etc., but one of the fast growing problems I see here on the Sunshine Coast is the feral European Honeybee. Once they find a hollow or nest box they waste no time in filling it with their sticky honeycomb, as was recently demonstrated at Wallace Park. These European bees, introduced into Australia in the 1820's, not only steal the homes of our native fauna, but they also raid the food plants that keep our animals alive. They compete with our tiny stingless native bees, butterflies, honeyeaters, sugar, feather-tailed and squirrel gliders, honey possums and blossom bats, for food.

In Western Australia where the bees are threatening the rare forest Red-tailed Black-Cockatoo, a group is trialling the use of cattle ear tags in artificial nest boxes. On Kangaroo Island, South Australia, a bee-keeper has had some success using a pheromone bee attractant near Glossy Black-Cockatoo nest sites to remove a percentage of the spring swarms and reduce invasion of hollows. Alan and Stacy Franks of Hollow Log Homes state, 'The European honey bee is a brilliant pollinator of European plants, the fact is many of our native plants have either an opening so small that only our much smaller native bees are effective pollinators or they only produce the sex hormones at night therefore being pollinated by nocturnal animals such as bats, moths and gliders. Honey bees could well be one of the biggest threats to biodiversity facing our precious National Parks.' Australia is the only country to set aside areas of native vegetation as beekeeping reserves - 525,000 managed hives plus any number of feral hives (Buchmann and Nabhan, 1996). Alan and Stacy are trying to lobby councils to have a policy on feral bees in bushland and open space parks- Brisbane City Council is 'listening' – **Valda McLean – Bird Observers** Valda will be conducting guided bird tours at the Noosa Festival of Water.

CAUSEWAYS ……

"Why did the fish cross the road?" Because it was literally easier than getting through the causeway…

Just imagine being a small fish in the Mary River. Much of the riparian vegetation for cover has been washed away, not as many snags exist underwater any more to hide in, the water temperature is warmer during the day and colder at night and introduced species such as Mosquito Fish compete for your food or eat you. And there are just not as many fish anymore which mean less fish to play with. Then humans put barriers in the water which prevents migration throughout the catchment. It's enough to make you pack up and go somewhere else.

Fish move widely in waterways, and it is usually associated with reproduction, feeding, escaping predators or dispersing to new habitats. Many fish species found in the Mary catchment move between marine and freshwater habitats like Barramundi (lets hope there is still Barra in the Mary!), while some fish like the Mary River Cod are solely restricted to freshwater, but move widely when they can.

Barriers, the most common being causeways, can severely restrict fish movement particularly those that need to spawn in marine environments. Fish barriers don't need to be physical barriers such as a dam or causeway, but can also be a hydraulic or behavioural barrier. A hydraulic barrier is created by high water flows or turbulence (e.g. fast flows through a narrow pipe causeway). Turbulence such as "white-water" or water filled with bubbles is difficult for fish to swim through also, particularly juvenile fish, as white water is mostly air. Behavioural barriers occur when fish may avoid moving through dark tunnels such as a long pipe under a road crossing. Research on native species found in the Mary catchment such as gudgeons and spangled perch has shown they will not enter darkened passages.

"Worst causeway in the world award goes to: Pages River, Hunter River catchment". Two small culverts are used to pass water from a river 50 metres wide. Note the 'waterfall' on the downstream side, darkened tunnel, white water and increased water velocity. The riparian area is denuded of cover from riparian vegetation also.

"So when is fish passage impeded or prevented by a waterway crossing?" When:

- The water velocity is too high
- The water turbulence is too great
- The culvert is too dark
- The culvert is too long
- The culvert is narrow
- The water in or over the crossing is too shallow
- There is a drop on the downstream side of the crossing
- The crossing has been placed at too great a slope
- The crossing has not been maintained and is full of debris

"OK, but wont the fish wait until a flood and swim upstream when the crossing is flooded out?"

Fish don't tend to move during floods, they wait until after the flood to move. Water velocity of 0.3 metres / second or less is preferable of many fish, if water velocity reaches 1 metre / second it is unlikely that fish will migrate upstream. Fish generally get washed downstream during a flood, rather than move upstream.

"Won't they jump over the barrier?"

Most native fish cannot jump barriers, most don't jump at all, as they are relatively weak swimmers. Fish ladders built before 1985 in Queensland were based on North American designs for fish that jump, such as salmon and trout. These designs are ineffective for native fish species as they are either too steep or too turbulent.

"So what is an ideal crossing?"

An ideal crossing is one which spans the width of the waterway and doesn't alter the flow of the waterway. Bridges or open-bottom culverts are the preferred options. Piped causeways are the least preferable option because the pipes used are generally narrow (40cm pipes) and the pipes don't generally span the width of the waterway. Generally two or three pipes are used and the approaches are concreted to the bank. This in effect creates a 'funnel-effect' of high water velocity on the downstream side. In time a scour pool is created on the downstream side that can undermine the causeway structure which in turn leads to greater fish passage problems as a small waterfall is created where the water runs off the causeway. Small pipes also get clogged during flood events creating more erosion and scour problems. Another problem is fish tend to swim upstream along the edge of a creek, in the slowest flowing water, however pipes for causeways are generally placed in the middle of the creek. A causeway is a nightmare to a fish.

Bridges and open bottom culverts that retain natural features such as waterway width, streambed material and cross-sectional area are preferred. Culverts that are countersunk below the streambed with natural stream bed materials on the base of the culvert to increase roughness are a good option. Bridges can also provide access during flooding, when causeways are unsafe to use.

Brad Wedlock – MRCCC – Brad will be conducting free water testing at the Festival of Water.

MORE HOMES FOR OUR COD

It is not breaking news that our endangered Mary River Cod depends on submerged snags in our creeks and rivers for its survival. The Mary River Cod relies on large woody debris (LWD or snags) to spawn their adhesive eggs on and for protection and cover. Radio tagging of the Mary River Cod found that of 344 encounters, 325 (95%) of them were within 2 metres of large woody debris.

Large woody debris also plays a critical role in terms of habitat not only for the Mary River Cod, but many other native fish species. LWD is an important element in the development and maintenance of riffle and pool sequences in our streams, crucial for healthy functioning streams. LWD in our streams creates variations in flow, producing small local scour and deposition areas around the LWD, providing a variation in water depths. This, in turn creates habitat for many fish species, including the cod. As an example think of a scoured pool created by water flowing over log fallen across the stream.

LWD can also be important for erosion. When LWD is located near a stream bank it can create a roughness to the flow, reducing the power of the stream and thus its ability to erode the bank. Alternatively LWD can settle into the bed of streams and form hard or control structures, which also reduce bed scour and erosion. The list of benefits goes on, as LWD also provide habitat for algae, micro- organisms and water-bugs (important food for the cod and other aquatic life). LWD also provides structures for a range of animals to enter and exit the water.

So what's the problem? The problem is that many of our streams now contain very little LWD. In the 1950s the practice of de-snagging was undertaken throughout Australia. This involved the physical removal of LWD from our streams. The belief was that the snags were increasing flood levels and 'clogging' up our waterways. We now know that LWD is crucial to healthy instream habitat and stream stability, and recent studies have shown that the effect of LWD on flood levels is insignificant. A lack of riparian vegetation along our waterways also means much reduced input of LWD, as the trees and logs do not fall into the streams.

The Mary River Catchment Coordinating Committee & DPIF, with funding assistance from the Maroochy Shire Council, Cooloola Shire Council and Department of Natural Resources and Mines, has recently completed two LWD reintroduction projects on the lower Obi Obi Creek and on Amamoor Creek. At both sites the aims are to provide habitat for the Cod and other aquatic species with instream LWD, and to counter bank erosion occurring at the sites with flow diversions from engineered log jams.

At the lower Obi Obi site a major log jam was constructed to divert the streams flow away from an eroding bank. Five large hollow logs were placed in holes (less than 2 metres deep) at the site. These logs were attached to large boulders using steel cable to prevent them from floating away in floods. These hollows will create excellent habitat for the aquatic life at the site and hopefully even a breeding site for the Mary River Cod. Similarly, at the Amamoor site two log jams were constructed to protect the bank from further bank erosion and two hollow habitat logs were also placed in holes less than 2 metres deep.

Both sites will be revegetated with native riparian plant species. Significant support has also come from QDPI Fisheries. They have monitored the sites for fish species present before any works commence and will continue to monitor now that the LWD has been reintroduced.

Logs for the projects were sourced from a local road widening, the Cooloola Shire Dump and a house block clearing. A detailed site plan of where to place the LWD was developed for each site, with Griffith University assisting with the many calculations performed to ensure the logs would not move during floods. Many considerations must be taken into account to ensure the projects are stable and provide the desired habitat. Information from baseline monitoring of: general stream health (ISC), riparian vegetation (COG), macroinvertebrates (SIGNAL), site history (landholder interviews), existing LWD loadings (full census), channel geomorphology (surveying and geomorphic assessor) and fish abundance and diversity (DPI electro-fishing) is all used in developing the site plans.

LWD reintroduction gurus Dr Andrew Brooks and Dr Nick Marsh from Griffith University have also had much input into the design of the projects. Landholder involvement in the projects has been very enthusiastic, and the projects could not have been such a success without their ongoing support!

Dale Watson - MRCCC – Dale will also be conducting free water testing at the Festival.

PROGRESS TOWARD BIOLOGICAL CONTROL OF CABOMBA

Surveys for potential biological control agents continue in the native range of *Cabomba caroliniana*. We have identified the most promising collection sites and have re-sampled these throughout the year to ensure that we do not miss insects with differing life cycles. Through this process we have found a third potential agent. We are currently studying insect life-cycles, identifying methods to rear insects under laboratory conditions, and conducting preliminary host specificity tests at a USDA-ARS lab in Buenos Aires, Argentina. Surveys in Argentina are reaching fruition and we expect to finish the surveys and begin importing insects into quarantine in Australia next year.

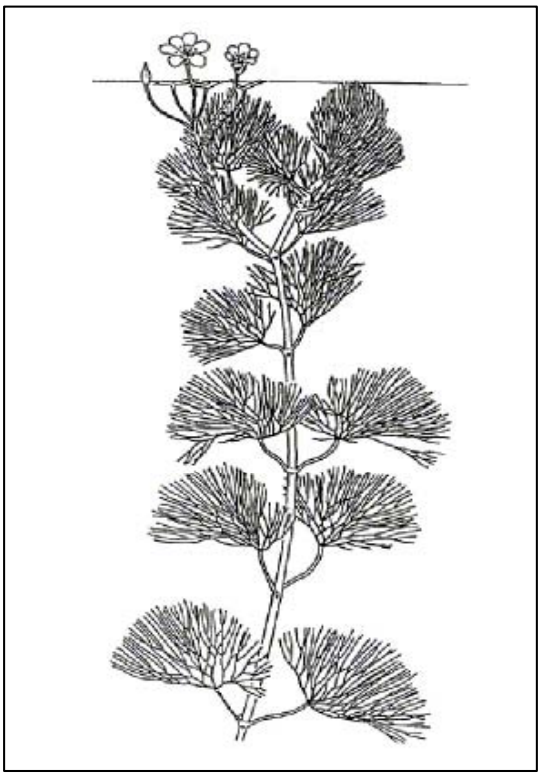
We have also begun surveying populations of four closely related Cabomba species for biological control agents. Since there are no native or agricultural species of Cabomba in Australia we may find good agents that are host specific to the Cabomba genus and thus constitute low risk of off target effects. In 2005, we located three species of Cabomba in Venezuela and identified a number of herbivorous insects including two weevils and one moth. Specimens are currently housed at the CSIRO Mexican Field Station and are in the process of being identified. Additional surveys are planned for Costa Rica, Mexico, and Puerto Rico. We expect these surveys will continue for an additional two years.

A number of ecological projects are in progress in Australia. Projects include (1) ongoing surveys of Cabomba populations at four ponds and dams in SE Queensland, (2) experiments to determine the impact of Cabomba on native plant communities, (3) experiments to determine how light intensity affects Cabomba growth, (4) experiments to examine whether native herbivores prefer native plants over Cabomba, (5) surveys to study effect of substrate on Cabomba growth, and (6) experiments to examine the effect of desiccation on fragment survival. We have found that Cabomba maintains high biomass throughout the year, which is conducive to establishment and impact of biological control agents. Light intensity and substrate seem to be major factors that influence Cabomba abundance, information which may help control Cabomba and reduce spread. In addition, we continue to identify and map new Cabomba infestations for potential use as biological control release sites and collect baseline data to assess the future impact of agents when released. Recently updated maps of Cabomba infestations indicate that the distribution of Cabomba is increasing, particularly in Queensland, Victoria and New South Wales. Noosa Shire Council and CSIRO have been notified of numerous new infestations in farm dams. There have been several cases where Cabomba was probably accidentally introduced on eel traps. Please notify the council immediately if you find a new infestation**.**

Shon Schooler - CSIRO Entomology, 120 Meiers Road, Indooroopilly QLD 4068, Phone: 3214-2853, Email: shon.schooler@csiro.au

Tradelink Environmental Solutions recognises the importance of the environment and the need to reduce, reuse and recycle. Tradelink also understands the role plumbers, consultants and engineers have to play in water and energy sustainability.

To enquire about smart solutions for all aspects of water and energy sustainability, visit the Tradelink Portable display at the Noosa Festival of Water.



Above: Line drawing of *Cabomba Caroliniana*, which has infested Lake Macdonald and has been reported escaping into some farm dams. For enquiries about Cabomba or other weed species, contact Geoff Black at Noosa Council's Pomona Depot on 5485 1833.

Lake Macdonald Catchment Care Group Contacts

If you would like further information on Catchment Care, please contact one of the Lake Macdonald Catchment Care Working Group members below:

Adrian Warner	5442 5121
Dennis Riggs	5447 6359
Raul Weychardt (NSC)	5449 5266
Dave Burrows (NSC)	5449 5202
Ben McMullen (NSC)	5449 5290
Cr Ray Kelly	5447 6308
Vince Collis	5485 2334
Valda McLean – Bird Observers	5476 2123
Phil Moran - Landcare	5485 2468
Brad Wedlock – MRCCC	5482 4766
Ross Paulger	5485 1833
Shon Schooler (CSIRO)	3214 2853
Steve Alfredson (NSC)	5449 5200
Terry Stokes	0422587791
Brian Moore	5471 3929
Ted Cheetham	5442 6506
Anne Warmbrunn (NSC)	5449 5200
Conor Neville (NSC)	5449 5338
Geoff Black (NSC)	5485 1833
Greg Dinsey	5447 6908
Noosa Landcare	5485 2468
Mary Catchment Resource Centre	5482 4766