Submission No 134

INQUIRY INTO A SUSTAINABLE WATER SUPPLY FOR SYDNEY

Organisation: Shoalhaven River Alliance

Name: Mr Terry Barratt

Position: Chair

Telephone:

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Summary

Shoalhaven River Alliance

SUBMISSION BY THE

SHOALHAVEN RIVER ALLIANCE

TO THE

GENERAL PURPOSE STANDING COMMITTEE NO. 5

INQUIRY INTO

A SUSTAINABLE WATER SUPPLY FOR SYDNEY

February 2006

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SUMMARY

The Shoalhaven River Alliance (the Alliance) was established following the State Government's 2004 release of its Metropolitan Water Plan.

Its objectives are to communicate community opposition to the new Shoalhaven River Transfer Scheme enunciated in the Plan, to achieve environmental flows necessary to retain a healthy Shoalhaven River and to achieve eventual cessation of transfers from the Shoalhaven River as Sydney progresses towards a sustainable water future.

The Alliance played an initiating role in the establishment of this particular parliamentary inquiry into a sustainable water future for Sydney in the interests of the general principle of better water management, as well as the only way unsustainable extractions from river systems can be avoided and, in particular, extractions from the Shoalhaven River.

It is contended that the terms of reference of this inquiry are limited and do not adequately reflect those put forward by the NSW Nature Conservation Council (NCC) following its October Annual Conference decision to pursue such an enquiry. However, it is the Alliance's view, supported by NCC (and others) that it is appropriate to present to the inquiry, arguments regarding the impact of Sydney's unsustainable water consumption on the Shoalhaven River.

Sydney's ecological footprint on a whole range of resources from beyond its immediate boundaries is significant. Its growing and unsustainable water extractions from the Shoalhaven River are one instructive example of its debilitating footprint upon a neighboring region.

The current drought related system of extraction has had a very serious impact on the healthy functioning of the river and, as a consequence, resulted in adverse impacts on its biological and economic productivity as well as the opportunities for enjoyment of this popular recreational resource.

The Government has taken a temporary step back from its plans to raise the height of Tallowa Dam and build a tunnel to massively increase transfers from the Shoalhaven to

Sydney, but it still intends to continue its present drought extractions and increase these by a huge 30 billion litres per year utilising the existing transfer system. So the serious implications for the river are even greater than is currently occurring.

This determination to increase Sydney's dependence on water from the Shoalhaven without first assessing environmental flows for the river is putting the cart before the horse! The river needs environmental flows in quantity, quality and variability to replicate what it would have experienced prior to Sydney's heavy extractions. The present release of a maximum volume of 90 Ml/d is a poor excuse for an environmental flow.

Achieving a sustainable water supply through reuse of reclaimed water and stormwater harvesting is the only future for Sydney, and the only way to eventually wean it off its desperate attempts to supplement supply from distant sources such as the Shoalhaven.

The attempt of the Government to allay criticism of its past neglect of sustainable options of water supply by announcing a program to increase reuse to 70 billion litres per annum is just playing around with the issue. There needs to be a commitment to cease the current dumping of 400 billion litres per annum of reclaimed water in the ocean and allowing urban stormwater to run to waste. It must be taken up and put to beneficial purposes. Treating this essential water resource as a waste is a reprehensible act and must not be allowed to continue.

Sydney nor any urban community can consider itself as water sustainable until it seriously addresses the issue of potable reuse of reclaimed water. The technology is available and in use throughout the world to enable reclaimed water to be treated to potable standards. The Government needs to educate itself and the community on the capacity of the water industry to produce safe drinking water from reclaimed water sources as a prelude to investing in potable reuse, the only answer to a sustainable water future.

Failure of water utilities to provide a positive direction for such a future points to the need for a new agency charged specifically with the responsibility of driving a total water cycle policy and sustainable water consumption practices throughout the urban, industrial and rural communities of NSW

1. INTRODUCTION

Shoalhaven River Alliance

The Alliance was established in February 2005 to:

- achieve environmental flows in quantity, quality and variation to significantly improve the health of the Shoalhaven River;
- oppose raising of Tallowa Dam and construction of tunnel systems to transfer massive quantities of water to Sydney;
- achieve installation of a fishway and multi-level off-take for Tallowa Dam;
- eventually achieve cessation of any transfer of water from the Shoalhaven River through the progressive move towards a sustainable water future for Sydney.

2005 Motion of the Nature Conservation Council of NSW

At the October 2005 Annual Conference of the NCC, the Australian Conservation Foundation, Shoalhaven Branch, successfully moved the following motion:

THAT *the Nature Conservation Council of NSW calls for the establishment of a Parliamentary committee of inquiry into a sustainable water future for Sydney, noting that:*

(a) the committee should inquire into Sydney's need to adopt an integrated water management approach that incorporates a 'closed loop water cycle system'.

(b) the terms of reference for the inquiry must be to propose sustainable outcomes that significantly reduce water consumption, the treatment and re-use of waste water and harvesting of stormwater, as this is the only sustainable future for the people of Sydney, the Blue Mountains and the Illawarra;

(c) a lead agency with the specific responsibility for driving total water cycle policy is the best option to ensure the implementation of sustainable water consumption practices throughout NSW; and

(d) only transparent planning processes and community engagement in decision-making, infrastructure solutions and behavioural changes will lead to sustainable water outcomes.

This motion was initiated by the Shoalhaven River Alliance and ACF Shoalhaven (which is affiliated with the NCC) following a suggestion by Arthur Chesterfield Evans MLC during an on-site inspection of Kangaroo Valley on 6/9/05.

Prior to the NCC Annual Conference and in anticipation of the motion going through, the

Alliance, ACF and NCC commenced moves to get the current inquiry adopted by the Legislative Council Cross-bench. Subsequent to the passing of the motion, all three community organisations through the NCC, continued to negotiate the establishment of the inquiry and formulate terms of reference (TOR).

The chair of the inquiry, Ian Cohen, announced the proposed TOR on Monday 28/11/05 (Attachment 1) which had been agreed to by the three initiating organisations as a satisfactory broad-ranging as well as specific-issue approach to the imperative of a sustainable water future for Sydney. In particular, it adequately reflected the NCC Annual Conference motion. Unfortunately, the following Friday (2/12/05) the final TOR emerged in its current form (Attachment 2) which was a more restricted response to our wishes and specifically excluded any reference to the Shoalhaven River and the total water cycle lead agency issues. As such it does not satisfactorily reflect the NCC motion. Item g of the TOR, ie, *Any other relevant matter*, is a very poor way of ensuring the essential need to encompass a wide range of issues. Concern is held that this may lead to many submissions giving inadequate attention to the non-specified issues. Many people are already referring to it as the Desalination Inquiry as does the media release of Attachment 1.

In furtherance of its objectives, the Alliance provides the following submission to the above inquiry with particular reference to the need for a sustainable water future for Sydney and cessation of the highly damaging and unsustainable extraction of water from the Shoalhaven River for the unrestrained growth of Sydney's water consumption. In terms of Item g of the TOR, these are relevant matters for the Inquiry to address.

The ecological foot-print of Sydney is a major issue with regard to its impact on many natural, social and financial resources throughout NSW and further afield. Its impact on the Shoalhaven River is just one example of this phenomenon, which is being fuelled by the unsustainable population growth of this megalopolis!

To deal with its own long-term needs as well as minimizing its ecological foot-print on nearby and distant natural resources, Sydney must abandon its *once-through* use of water and urgently move to a sustainable future based on potable standards of recycled water

and stormwater harvesting.

The following discussion of the Shoalhaven River issue provides a compelling reason for Sydney to adopt a sustainable water future.

2. BACKGROUND TO THE GOVERNMENT'S PLANS FOR THE SHOALHAVEN RIVER WATER TRANSFER SCHEME

Ever since the construction of the Tallowa Dam in the early 1970s, at the confluence of the Shoalhaven River and its tributary the Kangaroo River, the debate has gone on about the upstream and downstream impacts of impounding and regulating the flow of these rivers.

Tallowa Dam, a number of other holding dams, plus a series of tunnels, cuttings and pump stations were constructed as an initial part of a much grander scheme for transferring water from the Shoalhaven to Sydney. The next stage of the scheme was to be the construction of the Welcome Reef Dam in the upper Shoalhaven catchment. This did not occur and the Government has decided that it will not proceed due to the cost and environmental impacts, but more importantly to the realization that it would not meet Sydney's long-term water needs.

The Tallowa Dam supply has only been called upon (on three occasions) as a drought relief measure for Sydney, the Blue Mountains and the Illawarra. We are currently in the throes of the third drought relief occasion.

The debate over the implications for the operation of the scheme was given a particularly sharp focus in October 2004 by the State Government's announcement of its intention to massively increase the extraction of water from the Shoalhaven given the ongoing drought conditions (Metropolitan Water Plan, 2004).

This shock announcement followed the release of a detailed report titled Water and Sydney's Future prepared by the Hawkesbury/Nepean River Management Forum (2004) which had been set up by the Government in 2001. Interestingly, the original brief for the forum was almost exclusively related to environmental flows and included a requirement to review inter-basin transfers (the Shoalhaven River was mentioned in this context). As

the work of the forum progressed so did the drought conditions which were beginning to seriously impact on Sydney's water supplies. The forums terms of reference were progressively revised to allow for consideration of the need to plan for Sydney's water consumption needs. Between the start of the forum's work in 2001 and May 2003 the Shoalhaven community was blissfully unaware of their work. In addition to this lack of consultation with the local community, it was discovered that there had been no proper studies of the Shoalhaven River. Regardless of this serious oversight, the forum was proposing to recommend to the Government an increase in transfers from the Shoalhaven! To their credit, following concerns expressed from members of the Shoalhaven community subsequent to May 2003, they identified this oversight in their report and advised (page 76) that "*Further detailed scientific investigation of the environmental, social and economic consequences of long-term water extractions from the Shoalhaven is needed to provide the information for any future decisions*" and that "*These studies will also be needed to inform the community consultation process…*".

Not unexpectedly, the Shoalhaven community reacted strongly to the Government's decision to ignore these recommendations when it announced, in October 2004, plans to build a system of tunnels to massively increase water transfers to Sydney, and in May 2005 to increase the height of Tallowa Dam. The only local body supporting the government's plans was the Shoalhaven City Council with support by all councillors bar one! The reason for Council's obsequious behaviour is indeed puzzling as the community is strongly opposed to the Government's plans.

The impact on oyster farmers and professional and amateur fishers caused by water transfers from the Shoalhaven had been put to the State Government and its agencies over the past thirty years by those relying on the resources of the lower Shoalhaven. The impact on the economics and the environment of Kangaroo Valley as a consequence of excessive water extractions from the river had been the subject of numerous representations to the Sydney Catchment Authority by the Kangaroo Valley community for more than two years. The outcome has been denial of these impacts, ignoring of local concerns and, until the Tallowa Dam turn-around on 8th February 2006, planning for raising the dam wall and facilitation of increased water transfers to Sydney was going

full-steam ahead.

The October 2004 announcement also led to the formation of a new community action group – the Shoalhaven River Alliance. The Alliance is principally concerned with the health of the river in relationship to the issue of environmental flows. It is this special need for the river and its people that the Alliance is dedicated to address. The Alliance is committed to improving community understanding of the importance of environmental flows for river health – flows that must imitate the natural regime of quantity, quality and variability. The impact on environmental flows by extraction from Lake Yarrunga is a downstream feature and therefore the reaches of the river below the dam receive our main attention. The Alliance recognises that there are many other interrelated factors associated with river health and that the water transfer issue has serious social, economic and environmental implications upstream of Tallowa Dam, and will speak out on these issues when appropriate. Thus we are working closely with other community groups in the battle to get a better deal for the Shoalhaven River as a whole.

3. SYDNEY'S ECOLOGICAL FOOT-PRINT!

The Government's Shoalhaven River Transfer Scheme entailed a 3-stage process:

Stage 1 – raising the height of Tallowa Dam by 7 metres with a 21 radial gate structure and installing a fish lift and multilevel off-take;

Stage 2 – constructing a tunnel from the Fitzroy Falls Reservoir to Lake Avon (Avon Dam);

Stage 3 – constructing a tunnel from a point downstream of Avon Dam to either Prospect Reservoir or Lake Burragorang (Warragamba Dam).

This project was being designed to deliver 180 gigalitres (billion litres) per year from the Shoalhaven River to Sydney for its domestic water supply and to enhance environmental flows in the Hawkesbury/Nepean River system.

At the time of the initial announcements the estimated capital cost was $800 million. Subsequent revelations of additional work indicated that costs would more likely approach $1 billion.

Annual operating costs would have almost certainly exceeded $7 million, given that the cost of pumping from Kangaroo Valley alone amounted to $6.3 million in 2003/04.

Although the Government appeared to announce the abandonment of these projects on 8/2/06, it is far from clear that this is correct and that the huge capital outlay involved in the undertaking has been assigned to the rubbish heap.

What is certain is that the operational costs and the impact of unsustainable extractions on both upstream and downstream sections of the river are still on.

The significant threat to the Shoalhaven River system is justified by the Government on the grounds of Sydney's (unsustainable) growth. Beside the fact that these major infrastructure works have been decided on in the absence of technical and environmental studies, and community consultation, the decisions have been reached with no consideration of the limits to growth. To continue expanding its population, Sydney needs not only land to occupy, it needs a commensurate extraction of resources from near and far to sustain this growth.

It is our contention that Sydney's ecological foot-print must not be allowed to extend and intensify beyond its urban boundaries to the detriment of its surrounding catchments and more distant river systems such as the Shoalhaven.

It is acknowledged that due to the much longer period of excessive and unsustainable extractions from the Hawkesbury/Nepean River system than that of the Shoalhaven, the impacts on the former's health have been more intensive. This does not mean, however, that this is any excuse for visiting the same unsustainable practices on the Shoalhaven or for complementing the environmental flows of the Hawkesbury/Nepean to the detriment of the Shoalhaven.

The Shoalhaven system is suffering from the current transfer system and will certainly suffer to a far greater extent with the government's plans for increasing extractions.

4. IMPACT OF THE CURRENT TRANSFER SYSTEM

The current Shoalhaven transfer system is a drought related extraction from Lake Yarrunga (water body impounded by Tallowa Dam) for transfer by pumps, pipes and canals to Sydney which is triggered by the dam levels of the Sydney supply system dropping below 60% capacity. This drought related transfer response has occurred on three separate occasions. The current drought related transfer is the longest of these occasions (about 2.5 years).

Since mid-2003, more than 20% of Sydney's annual water supplies have come from the Shoalhaven River. This use of the Shoalhaven to try to meet the demands of Sydney during the current drought gives no regard to the fact that the same drought is being experienced by the Shoalhaven. The drought measures imposed by the SCA have created an unprecedented situation whereby, for the two year period from mid-2003 to mid-2005 there were absolutely no flows over the Tallowa Dam spillway. This in turn led to very high salinity levels for much of the estuarine reaches of the river for these two years – a situation that has not prevailed since detailed salinity levels have been monitored and one that is unlikely to have occurred at any time in the past. It is the intervention of the extreme pumping regime over those two years that have been responsible for the lack of overtopping, not the drought. Figure 1 shows that, had the pumping not been in effect, there would have been six flows over the dam during the 6 months period between October 2004 and April 2005.

During that 2-year period, the only downstream flows have been via the low-level release in the dam, which has delivered polluted, cold water to the river system and in a way that fails to imitate environmental flows. It is interesting to note that since strong representations from the Alliance to the Dept of Environment and Conservation about SCA's pollution of the river, the Government has modified the state pollution laws to render cold water releases no longer a polluting event – the first time in the history of State's pollution laws that the definition of pollution has been downgraded!

For the past 2½ years the inadequate flow regime of polluted water released from Tallowa

Dam has had serious impacts on the downstream environment of the river, both the freshwater and the estuarine sections.

The 25km Stretch of Freshwater Below the Dam

This once popular stretch of the Shoalhaven Gorge for canoeing, bushwalking, fishing and cliff-top scenic viewing for visitors to Morton National Park is no longer a place to visit! The cold-water, low-oxygen waters, also polluted by heavy metals (aluminium and iron) and obnoxious rotten-egg gas odours (hydrogen sulphide), have lead to the absence of many native fish species (in particular the Australian Bass) for many kilometres downstream of the dam. Green algae infestations in the water and weed infestations on the banks have become a feature of the river as flow levels have dropped and flushing effects almost eliminated by the heavy extractions from Lake Yarrunga. The algae, weeds, odours and low water levels have all contributed to the unpleasant conditions of this once popular canoeing and bushwalking feature.

The 50km of Estuarine Reaches from Burrier to Shoalhaven Heads

Oyster Farming

The lower reaches of the estuary between Shoalhaven Heads, Greenwell Point and Culburra support a small, yet productive oyster farming industry. In addition to suitable water quality and other environmental conditions, the health and growth of the Shoalhaven River oysters depend on winter freshwater flushes. If these flushes do not occur the mature oysters are vulnerable to a disease called *winter mortality* which can destroy a full season's production (refer Attachment 3 for full details).

Fishing – professional and amateur

Shoalhaven's professional river fishers have had it tough ever since the Tallowa Dam was constructed about 30 years ago, but they've been really suffering since the Sydney Catchment Authority commenced its latest round of drought extractions from the river 2½ years ago. Prawn fishing really went off during the first 2 years during which time no flushes went over the dam spillway. Earnings were down 40% during 2004/05 for one prawn fisher. The fishers claim that the polluted low level dam releases are another element in causing the prawn catch to go off. Absence of spillway flushes prevents mature eels from migrating downstream, which has led to a total loss of this important export

item from the catch over the 2-year period from mid 2003 to mid 2005. But for the professional fishers it's the jellyfish infestations in the river that have had the greatest impact on earning a living from the estuarine fish resources. Net fishing was an unproductive activity over the above 2-year period, given the huge concentrations of jellyfish resulting from consistently high salinity levels for the whole length of the estuary. During last summer some fishers were very close to going on unemployment benefits. Algae build-ups due to lack of freshwater flushes are another problem for the fishers fouling their nets and requiring time-consuming cleaning involving drying them out over periods of up to 2 weeks at a time (refer Attachment 4 for personal accounts of the problems faced).

Amateur fishers face similar experiences of low catch because, even though they don't use nets, the jellyfish infestations discourage the late summer, early autumn movement in the river of mullet, blackfish, bream, whiting, flathead, jew fish etc. Australian Bass fishers have been particularly outspoken about the future of their favorite angling species in the Shoalhaven. They point out that the excessive pumping during the drought years is having a serious impact on the breeding of this important Australian recreational fish species. The polluted releases from the bottom of Tallowa Dam (the so-called environmental flow) do not meet the breeding conditions for downstream Bass populations. The impact on prawn populations deprives the fish of an important food source and the cold water of the bottom releases impacts on the growth rate of juvenile Bass (refer to Attachments 5 and 6 for more details).

There is qualitative evidence available to indicate that some species of salt sensitive aquatic plants that grow in the shallow margins of the river are in decline (Expert Panel, 2003). The two species in question are Ribbon Grass and Common Reed which provide high quality sheltering habitat for fish and invertebrates. Photographic evidence is available to demonstrate that during the 2 year period of nil flows over the Tallowa Dam spillway, a significant death of the fringing Common Reed has occurred upstream of the Nowra bridges. During this 2-year period (from mid-2003 to mid-2005) salinity levels in the Shoalhaven estuary have been consistently high (Figure 2) – the longest period over the past 11 years (the time during which daily salinity records have been kept). The

2-year period from 2003 to 2005 is the same period during which the SCA extractions have been most intense. The decline of aquatic plants, growth of jelly fish populations to plague proportions and many other signs of poor river health coincide so persuasively with the high salinity levels and the heavy water extractions that it is reasonable to connect all in an assumption of causality.

The implications for the health of the river are serious if the current pattern of extraction is to continue. It draws attention to the need for an urgent review of the SCA Drought Management Plan regardless of the outcome of the Government's plans for further extractions.

Tourism and recreation

During the summer of 2005, the high biomass of jelly fish in the Shoalhaven estuary extending 34 km upstream prevented body contact sports and other recreational activities such as swimming, water skiing and wind surfing. Those unknowingly venturing into the river suffered pain, discomfort and, in some cases, severe reactions requiring medical treatment. The inconvenience to visitors could have a serious impact on tourism if this situation is allowed to persist.

Attachment 7 illustrates another problem associated with the high salinity levels in the estuary during 2005. Estuary fishing is not usually associated with the risk of blue-ringed octopus bites, but this was becoming a real matter of concern as the impacts of the up-river extractions continued to take effect during 2005.

5. IMPACT ON RIVER OF GOVERNMENT'S PLANS

Raising of dam and construction of tunnel

On 8th February 2006, Premier Iemma announced that the Government would not proceed with the proposal to raise the Tallowa Dam wall and that the SCA would examine the potential for increases in transferring water from the Shoalhaven through changed pumping rules and minor modifications to the existing network. This was taken to mean that the proposed tunnel between Fitzroy Falls Dam also would not proceed.

This apparent amazing turn-around on both infrastructure projects was welcome news

indeed, and was seen as a sign that the Government may even be open to reconsidering its plans to increase extractions utilising the current system of transfers.

However, reference to the *Progress Report on the Sydney Metropolitan Water Plan* (2006) on the NSW Government's *Water for Life* web page reveals the following statement (page 10): "*…it has been decided not to proceed with any immediate and significant modification to the Shoalhaven Transfers Scheme*." The word *immediate* sends alarm bells ringing! Does this mean a possibility that the Premier's announced scrapping of the dam wall raising is really only a postponement of the project?

The following statement on page 11 sends the same alarm bells ringing: "*The new regime would be interim until the Government's long term objectives of minimising the use of rivers as conduits can be achieved.*"

In other words, the Government plans to proceed with the tunnel construction some time in the future!

Thus not only will the rate of extractions increase in the short term, an even greater rate of extraction can be anticipated when the tunnel is finally constructed and the Shoalhaven River becomes more than a drought relief resource.

The Premier's press release would appear to be misleading and suggests a devious tactic to deflect immediate community concerns during the lead up to the State elections (refer Attachment 8).

Impact of Increasing Water Transfers to Sydney

Changes to the pumping rules to enable more water to be extracted from the Shoalhaven means, in effect, that transfers will commence when Sydney's dam levels are higher than the current pumping trigger of 60%.

In this context it is important to be aware that the Hawkesbury/Nepean River Management Forum (2004) recommended that pumping from the Shoalhaven be permitted when total storage in the Sydney dams is 95% or less rather than the current arrangement. Clearly, if the SCA is allowed a greater flexibility to extract water from the Shoalhaven it can be expected that they will, given their current record, exercise this

opportunity in order to maximise the storages in the Sydney dams regardless of the consequences for the health of the Shoalhaven River.
Furthermore, there would be a reluctance to transfer water (which is not a cheap process) during wet seasons where much of the pumped water may well flow over the dam spillways if heavy rainfall follows the pumping. Logically, in order to constrain operating costs, the pumping regime will still be concentrated toward the lower flow range, but because of the more generous rules, it will start much earlier than previously. It will be the lower end of the medium size river flows that will receive more attention. Medium size flushes are most critical in maintaining the health and productivity of the river, and with the new rules in place, it can be expected that any flows over the spillway at these times will be significantly reduced in volume and length of time.

Government claims that water will be taken only during high flow periods cannot be relied on. Various Government Ministers have refused to guarantee that they or future governments will not take water during drought conditions. And this particular Government has already demonstrated that it is prepared to interfere with environmental flow regimes by reducing the allowances released from Warragamba Dam by 50%.

Thus, all of the impacts described as a consequence of the current pumping regime will continue, as there will be little flexibility for improving environmental flows for the river.

Consideration must also be given to the greenhouse gas consequences. The increased power requirements for the operation of the system (the costs of which will have to be recouped from the people of Sydney) have been estimated to generate 105,000 tonnes of damaging greenhouse emissions per year.

6. NEEDS OF A HEALTHY RIVER

It is beginning to be recognised that without a healthy catchment we can't have a healthy river. Governments and the community are beginning to invest significant resources in a variety of catchment management undertakings.

But better catchment management is not the only prescription for a healthy river. Maintenance of natural flows within rivers is just as important (Loneragan & Bunn, 1999) – flows that are nowadays commonly termed *environmental flows*.

Unfortunately, little commitment is being made towards maintaining environmental flows in rivers, particularly when there are competing demands for other uses of this precious water resource.

The Shoalhaven River is a good example of where the pre-existing and future demands for water for Sydney's current and future needs can seriously compromise the health of increasingly distant water resources.

Without good river health we will find our water supplies and health standards compromised and, as a critical component of this water management issue, we need to ensure that environmental flows in our river systems reflect the natural regime.

What does the Shoalhaven River need to maintain its health? It needs an environmental flow in quantity, quality and variability to replicate what it would have experienced prior to Sydney's heavy extractions over the past 2½ years. At present the SCA releases 90 Ml/d from its low-level outlet which Shoalhaven Council must let flow past its take-off at Burrier.

Although the actual volume needed to effect improvements to the river is debatable until such time as the necessary environmental studies are carried out, there is clear evidence that the current releases are too constant and too small to provide the variable flushes the river needs. They are also too polluted!

Whatever the volumes to be released, they need to be different at Tallowa and Burrier. For example, if a minimum of 500 Ml/d is released at Tallowa, and Shoalhaven City Council is permitted to extract up to its water supply limit (currently 90 Ml/d), an environmental flow of 410 Ml/d flow would enter the river's estuary. This would be an improvement on the present flow scenario.
This is not to say that a 500 Ml/d release would be adequate. At this stage we simply don't know. We do know, however, that the release should not be a constant one and that even higher releases will have to be allowed for to ensure adequate salinity flushing of the estuary. These are referred to as contingent flows.

Also, releases from Tallowa Dam must be from the upper levels of the stored water and

they must be of sufficient duration to provide useful flushing effects downstream.

The environmental flow requirements of any river can best be determined by long-term historical records of a range of relevant parameters and, in the case of estuaries, two critical ones are estuarine salinity and the biological responses to the variability of salinity regimes.

Although there is an abundance of reported effects of salinity on the biodiversity of the Shoalhaven River (as set out in Section 4), there appears to be little available in the literature. An excellent salinity data set is, however, available of daily samples taken at Greenwell Point for the past 11 years (Thorne, 2005). This unique historical record will prove invaluable in relating rainfall to salinity fluctuations in the river and provide an invaluable cross reference for studies of impacts on aquatic life.

Water Sharing Plan

A Metropolitan Water Sharing Plan is proposed for release during 2006 although it had been earlier promised for release in 2005. The Shoalhaven River will be included in this plan.

Advice has been received from the Dept of Natural Resources that as far as the Shoalhaven River is concerned it will only restate the current environmental flow arrangements and the current extraction rules. That is, the arrangements for a constant flow from the low level dam outlet at the maximum rate of 90 Ml/d will continue and also that pumping to Sydney at the maximum allowed rate will continue until the 60% storage levels in the Sydney dams are exceeded.

Provision will be made in the Plan for these arrangements to be varied when studies into environmental flows for the river are completed. These studies are not expected to be completed before late this year.

In the meantime, the SCA will continue to work on plans to increase the current extraction rate (an average of 80 Gl/a) by 30 Gl/a. As indicated earlier in this submission, longer term plans to raise the dam wall cannot be ruled out, and plans to build a tunnel to facilitate even larger volumes of water transfers to take place are certainly planned for some undefined time in the future.

These commitments to increased extractions, even before the studies have been carried out on the environmental flow needs of the river, goes against all professional planning. The needs of the river must first be assessed as a basis for reviewing current commitments for all users of the river's water resources (with priority given to the environment).

On this latter point of priority for environmental flows, the November 2005 amendments to the Water Management Act, which effectively water down the commitment to give the environment priority, are reprehensible. It allows for other uses to be catered for (such as increased transfers to Sydney in the Shoalhaven case) prior to setting the environmental allowance. In some respects, these amendments make a mockery of water sharing plans.

In the context of the Shoalhaven River section of the Metropolitan Water Sharing Plan, it is imperative that the studies into the environmental needs of the river be speeded up and that plans for increasing extraction rates be put on hold until these studies are completed. This way there may be some hope that priority is given to environmental flows and that other uses are considered after the rivers needs have been allowed for.

Priority for other uses should be given to the needs of the Shoalhaven urban and rural communities who depend entirely on this source of water. Other uses, such as for Sydney consumption, should be considered as a lesser priority and only as a short-term measure to allow time for implementation of a sustainable water regime for that city.

Use of water from the Shoalhaven River to supplement environmental flows in the Hawkesbury/Nepean system should not be allowed under any circumstances. Interbasin transfers for these purposes are a most irresponsible way of managing our water resources, particularly when the deficient flows in the Hawkesbury/Nepean system are the result of excessive extractions necessary to feed the wasteful and unsustainable once-through water use regime of Sydney.

7. ACHIEVING A SUSTAINABLE WATER SUPPLY FOR SYDNEY

The need to end Sydney's *once-through* use of water

Sydney's unsustainable use of water is a recipe for disaster, and the Government's various proposals to find additional sources of supply rather than curtailing water consumption and pursuing recycling strategies is a short-term, lazy-fix approach.

The NSW Government's urban water policy *Changing the Way We Think About Water* released in March 2003 requires Sydney Water to continue to invest in demand management and provide opportunities to recycle treated wastewater. However, the *Metropolitan Water Plan* released in October 2004 gave greatest emphasis to gaining access to additional water (deep storage levels in dams, increased transfers from the Shoalhaven River and desalination) and less to re-use strategies. Its proposed measures to conserve water are small and merely a matter of tinkering on the edges of the problem. Plus, its extension of BASIX to new land release areas is a wholly inadequate re-use strategy. At best it will only reduce the rate at which Sydney's water consumption will grow. None of its proposals come anywhere near eliminating the more than 400 gigalitres per annum of dry weather effluent flows to the ocean as required by legislation (s27 Sydney Water Act 1994), and it provides no answer to the need to place Sydney on a sustainable water footing. The Government's strategy places greatest reliance on accessing more water, at significant cost, to enable it to continue to use water as a one-off resource to be then dumped in the ocean. At best, this achieves a short-term delay in the inevitable move towards sustainability.

The alternative to these costly attempts to perpetuate one-off use of water is to change the whole paradigm of urban water use to one of recycling on a perpetual basis. Government adoption of the recommendations of *Sydney's Water ~ Going to Waste?* (PENGOs, 2004) would go a long way to establishing this new paradigm. The PENGOs report reviewed Sydney Water's performance in water, wastewater and stormwater systems management since its formation as a corporation in 1995. The report advised that: "*Sydney Water's progress toward sustainability is too slow, with weak demand management and recycling strategies and implementation*." It pointed out the unacceptably poor progress against critical water conservation and recycling targets in its operating license. These include: abandonment of 1999 effluent recycling targets; failure to meet demand management targets; and a recycling rate of sewage effluent of only 2.5%. Sydney Water needs to start meeting its legislative obligations and acting "*…as an effective advocate for sustainable water use*."

The report supports collecting rainfall which otherwise goes to waste down the city's

network of stormwater drains. Harvesting rainwater *…is one of a suite of water conservation and recycling measures, which Sydney can build into a virtual dam to dramatically extend the water supply*.

It opposes desalination and increased water transfers from the Shoalhaven River on the basis that hard engineering solutions to augment supply come at high environmental cost.

The report makes 64 recommendations which *… must be embraced urgently if Sydney is to escape its growing environmental and water resource crisis*.

Direct potable re-use

In the long-term, direct potable reuse is the only economic and effective way of ensuring a sustainable water future for Sydney.

The NSW Parliamentary Library Research Service Briefing Paper No.10/05 *Desalination, Waste water, and the Sydney Metropolitan Water Plant* (Smith, 2005) presents a comparative analysis of desalination and waste water reuse. It arrives at the conclusion that "*…the cost of reclaiming water from a sewage treatment plant is less than half that of desalinating seawater…*"

"*Until recently, the constraint to greater recycling was cost. This is falling rapidly. New technology is producing superior filters and membranes, and this is significantly reducing the cost of microfiltration and reverse osmosis. It has become economically attractive to recycle used water on a large scale*" (NEWater, Singapore web page).

Furthermore, the Parliamentary briefing paper shows that, using state-of-the-art treatment processes (microfiltration, reverse osmosis and UV disinfection), "*…the risk of infection from drinking recycled water is significantly lower than the acceptable risk of drinking normal potable water.*"

In coming to these conclusions on cost and health risk, the briefing paper draws on the many papers presented at the Australian Water Association's conference on membranes and desalination in Adelaide, February 2005. Examples of potable use of reclaimed water detailed in these papers include Windhoek Namibia, Virginia USA, California USA and Singapore.

Indirect Potable Reuse (IPU)

The use of reclaimed water for potable uses has traditionally taken the form of IPU, which involves blending into surface water reservoirs. This method has been practiced for over 20 years in several cities in the United States. For example, in Southern California high quality reclaimed water has been injected into groundwater since 1976 and, in North Virginia, high quality reclaimed water has been discharged since 1978 into Occuquan Reservoir which is a source of water for more than a million people living in the vicinity of Washington DC. This is a growing trend in the US where several additional water reclamation projects are planned or under construction (NEWater, Singapore web page).

Traditionally, in countries with long riverine systems, upstream communities use the water and discharge the used water after treatment back into the river. Successive downstream communities then reuse the water several times, before the river finally flows into the sea (London is a good example, where visitors are proudly advised that the water they will drink during their stay has already passed through 6 kidneys!). Other examples include the River Rhine, Mississippi River, Yangtze River and Mekong River.

What makes Sydney so different from these overseas examples? Given the money that will be thrown at increasing water supplies if all of the desalination, dam raising etc projects finally go ahead (approaching $3 billion), it is not the cost! And how can it be argued that we are at more risk than overseas urban communities when many such communities in Australia extract water from rivers receiving wastewater from communities upstream? Even Richmond and Windsor drink water from the Hawkesbury River downstream of sewage treatment plant outfalls (see Attachment 9)!

The standards of treatment achieved overseas demonstrate that we should have no fears from reclaimed potable standard water when mixed with water in Warragamba Dam, particularly given that the raw dam water is highly likely to be of a lower standard than the reclaimed water. In addition to complementing Sydney's water supply, the reclaimed water would complement downstream environmental flows. As for the cost of transferring the reclaimed water to Warragamba Dam, reallocation of the estimated cost of $1 billion for the Shoalhaven River water transfer scheme would go a long way to meeting this need.

Given that reclaimed water can achieve standards exceeding drinking water quality standards, there seems to be no real reason why this water cannot be fed into Sydney's water supply system directly via reservoirs within the system. Using the existing water reticulation system would be more economic than establishing a dual system (which is only necessary if the recycled water is not treated to potable standards and is earmarked only for non-potable uses). Alternatively, reclaimed water could be pumped to Prospect Reservoir where the existing treatment plant would provide additional risk assurance prior to distribution for potable consumption.

The task of convincing people to consume reclaimed water (the Yuck factor!) presents some problems, but that is no excuse for us not going ahead with something that is inevitable and is standard practice in many large urban areas throughout the world.

The negative portrayal of recycling by the Government must cease, and a positive educational campaign be urgently implemented to prepare us all for acceptance of a sustainable and responsible approach to water resource management. The Government needs to commit to this sustainable water future with initial allocation of funds for an education campaign to ensure community acceptance.

For this and any necessary infrastructure needs to implement a closed water cycle system, the community must be brought into the decision-making process. What a refreshing and welcome change it would be for the Government to adopt Recommendation 64 of the PENGOs report (2004): "*Develop and implement consultation protocols that engage the community in shared decision-making regarding the selections of options for projects, rather than considering information supply and public exhibition as the only forms of consultation.*"

8. THE NEED FOR A LEAD WATER MANAGEMENT AGENCY

The system for water management in NSW is diverse and uncoordinated. Current agency arrangements create difficulties for introduction of new approaches to meet our present and future water supply needs for both the environment and human populations.

We need to create a new body along similar lines to past Government initiatives such as

the establishment of the National Parks and Wildlife Service in 1967 as Australia's first nature conservation agency, and the more recent (2004) establishment of regional Catchment Management Authorities to coordinate natural resource management across NSW.

A new agency charged specifically with the responsibilities for driving total water cycle policy and sustainable water consumption practices throughout urban, industrial and rural communities would be yet another Government initiative to meet a pressing need.

One of the first tasks of this body would be to implement an educational campaign about the availability of technology to produce a safe water supply for direct human consumption.

An urgent initiative for this body would be to undertake an Integrated Water Cycle Management (IWCM) Strategy Study throughout the Sydney, Blue Mountains and Illawarra communities. An IWCM Strategy Study has just been commenced by the Shoalhaven City Council which, although it involves only a small number of community representatives at this stage, is a very forward initiative for a locality that is not as desperate as Sydney for its present water needs. It offers all interest groups in the community an opportunity to play a positive part in guiding us into a sustainable water future.

9. CONCLUSIONS

The SCA extractions from the Shoalhaven River are unsustainable if the long-term health of the river is to be assured.

Similarly, the water supply future for Sydney is unsustainable if the current method of using water on a one-off basis is to continue.

From October 2004, with the release of the Metropolitan Water Plan, the Government's modus operandi has been to announce decisions based on poor data and nil community consultation.

It has tried to bully the community into accepting its decisions and has shown no willingness to consider a more logical approach to managing Sydney's water needs.

The latest review of the Metropolitan Water Plan (8/2/06), with its touting of ground water resources as the answer to the drought problem and its intention of continuing to transfer increasingly large volumes of water from the Shoalhaven regardless of the outcomes of its announcement about Tallowa Dam, is a further example of the Government's arrogance and ignorance regarding water resource issues.

When will they learn that the best approach is to conduct a transparent process involving all sections of the community in decisions about such a vital issue that affects all of us?

They can't please *everyone* even with such a modified approach, but they can be assured that they will please *no-one* with their current approach to communication and decision-making.

10. RECOMMENDATIONS

1. That the Committee accept the significance of the Shoalhaven Transfer Scheme in the debate on a sustainable water future for Sydney;

2. That the Committee conducts hearings and on-site inspections as a follow-up to the written submission stage;

3. That the Committee invite the Shoalhaven River Alliance to attend a hearing to enable it to clarify its position and answer any questions the Committee Members may have in relation to this submission;

4. That the Committee visit the Shoalhaven district to conduct hearings and to familiarise its members with the issues relevant to the Shoalhaven Transfer Scheme;

5. That the Committee in its final report accepts the Alliance's proposition that the Government's approach to the management of water resources for Sydney must be based on a sustainable approach rather than a short-term knee-jerk response and that Sydney's once-through use of water is a recipe for disaster and must be abandoned as a matter of urgency.

Terry Barratt BSc (Hons)
Chair, Shoalhaven River Alliance

Ph/Fax:
Mobile:
Email:

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ATTACHMENT 1

Media release
Australian Greens – Hon Ian Cohen, MLC, 28 November 2005

DESALINATION INQUIRY

Greens MLC Ian Cohen today released his proposed terms of reference for an Upper House inquiry into the Kurnell desalination project.

"I congratulate the Opposition for confirming on the weekend they will back an inquiry. Discussions with the Opposition and cross benchers give me confidence that we will succeed in getting an inquiry up by the end of the week", Mr Cohen said today.

"The inquiry will not only look into the full environmental and economic impacts of the Kurnell plant but will look at the alternatives to securing Sydney's water needs.

"With the Government refusing to properly address the water recycling and demand management options it will be left to the Upper House to do the Government's work ," Mr Cohen said.

Proposed Terms of reference:

Inquiry into the likely local and environmental impacts of proposed desalination plant at Kurnell, the proposed Shoalhaven River transfers and a sustainable water future for Sydney, in particular:

(a) the local and environmental effects around Kurnell of the desalination plant and the proposed Shoalhaven River transfers and a sustainable water future for Sydney.

(b) the greenhouse implications for NSW of the desalination plant

(c) further methods for significantly reducing domestic, industrial, commercial and agricultural water use;

(d) technologies available for treating waste water and stormwater;

(e) economic, social and environmental comparisons between production of potable reclaimed water and other levels of reclaimed water quality;

(f) economic, social and environmental comparisons between reclaimed water strategies and sourcing additional water supplies aimed at extending the existing system of once-through water use;

(g) need for a lead agency with the responsibility of driving total water cycle policy and sustainable water consumption practices.

Further Information: Ben Oquist 02 92303305 or 0419704095

ATTACHMENT 2

LEGISLATIVE COUNCIL

INQUIRY INTO A

GENERAL PURPOSE STANDING COMMIITTEE NO. 5

I

INQUIRY INTO A SUSTAINABLE WATER SUPPLY FOR SYDNEY

TERMS OF REFERENCE

That General Purpose Standing Committee No. 5 inquire into and report on a sustainable water supply for Sydney and, in particular:

a. The environmental impact of the proposed desalination plant at Kurnell

b. The environmental assessment process associated with the proposed desalination plant

c. Methods for reducing the use of potable water for domestic, industrial, commercial and agricultural purposes, including sustainable water consumption practices

d. The costs and benefits of desalination and alternative sources of water including recycled -wastewater, groundwater, rainwater tanks and stormwater harvesting e. Practices concerning the disposal of trade waste

f. The tender process and contractual arrangements, including public-private partnerships, in relation to the proposed desalination plant, and

g. Any other relevant matter.

COMMITTEE MEMBERS

Mr Ian Cohen MLC
(Chair) (T he Greens)

The Hon Peter Primrose MLC
(Australian Labor Party)

The Hon Rick Colless MLC
(Deputy Chair) The Nationals)

The Hon Penny Sharpe MLC
(Australian Labor Party)

Ms Sylvia Hale MLC
(The Greens)

The Hon Henry Tsang M LC [y]
(Australian Labor Party)

The Hon Don Harwin MLC
(Liberal Party)

ATTACHMENT 3

SHOALHAVEN'S OYSTER INDUSTRY UNDER THREAT!

An account of the threat to the Shoalhaven River oyster industry

Prepared by the *Shoalhaven River Alliance* (14/03/05) based on an interview with award winning Oyster Farmer Barry Allen – the first of a series of articles on the way in which the damming of the River and excessive water extractions are seriously affecting river health.

Since the 1860's the Shoalhaven River has supported a thriving oyster growing industry.

Currently 35 people are directly employed in oyster farming around the lower estuarine reaches of the Shoalhaven and Crookhaven Rivers. As 60% of the produce is sold locally, indirect employment would be expected to be significant.

Yet our Oyster Farming Industry is under threat!

The present pumping regime from Lake Yarrunga (the waters impounded by Tallowa Dam) involving the transfer of up to 800 million litres of water daily to stock up Sydney's water supply system, is taking its toll further downstream.

Fresh water flushes that maintain a salinity balance within the estuarine reaches of the River are critical for the health and growth of oysters. Without these flushes, oysters fail to grow and can become victim to a disease called *winter mortality virus*. High salinity in the River can trigger these virus outbreaks amongst the mature, three-year old oyster stocks which are conveniently ready for harvesting at Christmas time on this part of the coast. Salinity testing by growers over the past eight years on a monthly basis reveals a pattern of rising salinity.

The River's oyster farmers have experienced massive losses during late winter and early spring in the years 2000, 2003 and 2004 due to the virus, amounting to 80-90% of some producers' annual crop. These deaths have coincided with a combination of the drought conditions over the past few years and the large water transfers to Sydney during the same time span. Droughts do, of course, dramatically alter river flows, but even at these times fresh water flushes of benefit to the River still occur following rain. This is not happening, however, with the current pumping regime having prevented flows over the dam wall for the past 18 months!

Barry Allen, whose family has been in the business at Greenwell Point for 50 years and with brother Brian won a gold medal for the quality of their oysters at this year's Royal Easter Show, has described how the oyster farmers have tried to overcome the problems associated with high salinity. They are beginning to grow their stock on plastic beds which can then be towed up-stream to locations where the salinity is lower. This is,

however, not always successful as one oyster farmer, who towed his beds to Berry's Bay in 2003, still lost 90% of his stock.

From the oyster farmers' experience, it appears that the health of the River's oysters, and thus the survival of the oyster industry, requires freshwater penetration for the full length of the Shoalhaven River estuary and as far as the mouth of the Crookhaven River, in much greater quantities and more regularly than is occurring at the present time.

If a sufficiently large enough freshwater flush does not occur this June or July, the virus disease can be expected to cause yet again its deadly results and another failure of the annual oyster crop for one or more oyster farmers this coming spring!

A plan by the NSW Government to extract even more water from the River for Sydney's unsustainable thirst appears to be a move in the wrong direction, and is of very great concern to the oyster farmers.

The Government plans to build an extensive pipeline system on the Southern Highlands to enable significantly larger extraction rates during high flow periods which has the potential to deny the necessary flushing of the lower Shoalhaven. And the Government is not even prepared to guarantee that pumping will not occur in low flow periods if Sydney happens to want the water at those times!

Thus they plan to delay the final day of reckoning when the unsustainable growth of Sydney's population and their unsustainable water consumption will come home to roost. In the meantime the River will continue to suffer.

The oyster farmers certainly have good reason to be concerned – the Government's plans are a looming threat to the future of the oyster farming industry in the Shoalhaven!

The River Alliance is a citizens group formed to seek support and be a voice for the return of the Shoalhaven River to a healthy and productive condition. The Alliance seeks the support of any concerned citizens who agree with the objective of improving the quantity and quality of freshwater flows in the Shoalhaven River.

ATTACHMENT 4

SHOALHAVEN'S PROFESSIONAL FISHERS GOING OUT OF BUSINESS!

Prepared by the *Shoalhaven River Alliance* (24/03/05) based on interviews with retired fisher Charlie Weir and fishers Warren Ganderton, Eddie Lammerink and John Joyce – the 2nd of a series of articles on the way in which the damming of the River and excessive water extractions are seriously affecting river health.

Charlie Weir, who has fished the Shoalhaven River professionally for more than 40 years, often reminds us about the serious impact that damming rivers can have upon professional and amateur fishing.

But when you add to this the excessive water being pumped to Sydney, Charlie knows things are really serious as freshwater flushes needed to bring down the nutrients and mix with the salt water to make sure the prawns, eel and fin fish can grow and follow their natural lifecycles wont be happening.

He goes on to say, "The salt-sensitive aquatic plants that grow in the shallow margins of the River are dying out – plants that provide high quality habitat for fish and invertebrates!"

Terry Barratt, Chair of the Shoalhaven River Alliance, a community voice for the return of the River to health and productivity says, "From the very beginning of its formation, the Alliance has been involved in discussing the problems the professional fishers are having, and it's obvious that they and the River are really suffering."

Warren Ganderton, whose been fishing the River professionally for the past 10 years, talks about what has been happening to the prawn fishing in the river.

"During last winter, Nowra Creek was so full of juvenile prawns that if they had grown to full size in the creek there wouldn't have been any room for the water! It looked like we were in for a great summer prawning on the river. But where have they all gone? They aren't in the river and they certainly haven't made it into our nets. The prawn catch this summer has been very poor. It looks like I'll be down 40% this financial year compared with last year."

"And why is this so? No freshwater flushes, no prawns!"

Charlie Weir adds another element to this sad story by remarking that when the black water is released from the low take-off in Tallowa Dam, the prawn catch goes off,

"That water's not fit for prawn or fish!"

Eddie Lammerink, fin fish and eel fisher says, "If we don't get a fresh flush soon, I'll be on the dole. I'm hardly getting anything from the river – except jellyfish!"

ATTACHMENT 4

"With all the jellyfish in the river, when we pull in the catch, there's so many of them in the nets that we have to wear safety glasses to keep the stingers out of our eyes."

"And often, they kill the fish and render them unmarketable."

"Over the past two years there's been so many of them that they discourage the late summer, early autumn movement in the river of mullet, blackfish, bream, whiting, flathead, jew fish – you name it! So we've lost access to what used to be a good time for making a living from the river."

"It's the salinity that's the major cause of this infestation. And, its three years since we've had a freshwater flush down the river. If we don't get flushes big enough to push the tide back, the fishers and oyster farmers will go on suffering."

"And without flows over the dam wall, we're not getting the mature eels which need to migrate downstream to lay their eggs," Mr Lammerink said.

Warren Ganderton adds, "Without the flush, slime builds up at the bottom of the river during winter and fouls our nets every time. We then have to leave them out to dry for a couple of weeks before we can use them again."

John Joyce, who has fished the River all his life, got out about four years ago to set up a fish farm, and came back to river fishing about 18 months ago. "I wouldn't have come back to the game if I'd known how bad it would be," he said.

And Terry Barratt asks, "Just how healthy is our river after all of these huge extractions over the past few years?"

"Not very healthy if we go by the poor productivity of its fish and prawns."

"It's clear that the environmental flow allowance of 90 million litres per day is no help and with the current heavy pumping regime stopping any chance of a relieving flush coming over the dam wall, what's going to save Eddie's livelihood or bring any joy to the other fishers on the river?"

"Perhaps we'll have to find some way of making money out of jellyfish!"

"With the Government planning to pipe even more water to Sydney, the Alliance seeks the community's support in its fight to get good quality flows in our River."

The Shoalhaven River Alliance seeks the support of any concerned citizens who agree with the objective of improving the quantity and quality of freshwater flows in the Shoalhaven River. If you wish to show your support and get on the contact list call Terry Barratt on 4422 1211 or write to PO Box 263, Nowra 2541.

ATTACHMENT 5

WHAT'S THE FUTURE FOR BASS ON THE SHOALHAVEN RIVER?

Prepared by the *Shoalhaven River Alliance* (11/04/05) based on an interview with Roger Apperley, a member of the Southern Bass Fishing Club – 3rd in a series of articles on the way in which the damming of the River and excessive water extractions are seriously affecting river health.

Roger Apperley is very worried about the future of Bass fishing on the Shoalhaven River below Tallowa Dam.

Roger has been fishing the Shoalhaven River for more than seven years for his favourite angling species, the highly sought after Australian Bass.

He points out that, "Sydney Catchment Authority's pumping regime at Lake Yarrunga (Tallowa Dam) during the current severe water shortages in Sydney is having a serious impact on the breeding of this important Australian recreational fish species and the percent of adult to juveniles appears to be falling off. This impact can certainly be expected to get worse if the Government's plans to increase the rate of extractions from the river go ahead."

In unregulated rivers (ie, rivers without dams or weirs), Bass migrate considerable distances throughout the freshwater sections over the summer months and return to the estuary for breeding with high river flows during the cooler months from May to August, "This is referred to as the "spawning migration," Roger explained.

"The building of Tallowa Dam 30 years ago denied the Bass access to much of their former habitat and, what with the absence of any high flows during the current excessive water transfers to Sydney, is it any wonder that there is a reduced rate of Bass population recruitment?" Roger asked.

"Without fresh and salt water at a favourable ratio (about □-½ salt water) to ensure good supplies of the minute water life they depend on, the juvenile Bass will not be able to develop."

"Clearly, the low-level releases at the dam wall are too constant and not sufficient to create the breeding conditions for the Bass in the estuarine reaches of the river," Roger said.

The reduction of prawns in the river due to high salinity and the cold polluted water released from the bottom of the dam are not helping either, as prawns make up part of the diet of junior Bass prior to their upstream summer migration to the fresh water.

ATTACHMENT 5

"In addition, the cold water releases from the bottom of the dam prevents the Bass from going anywhere near the dam wall during these releases," Roger commented.

"The very thought of the impact the proposed increased water transfers will have on the migration and spawning of the Bass makes one wonder if the SCA and their masters in Macquarie Street have any idea of what they are proposing," Roger said.

"You would think they would get some advice from their fisheries specialists and consult with those who know and love the Bass fishery on this river before they make such ill-informed decisions."

The Shoalhaven River Alliance seeks the support of any concerned citizens who agree with the objective of improving the quantity and quality of freshwater flows in the Shoalhaven River. If you wish to show your support and get on the contact list call Terry Barratt, on 4422 1211 or write to PO Box 263, Nowra 2541.

ATTACHMENT 6

SYDNEY CATCHMENT AUTHORITY POLLUTING SHOALHAVEN RIVER!

Prepared by the *Shoalhaven River Alliance* (4/05/05) based on a presentation given by Peter Harding of the Southern Bass Fishing Club – 4th in a series of articles on the way in which the damming of the River and excessive water extractions are seriously affecting river health.

The Shoalhaven River Alliance is calling on the Sydney Catchment Authority to stop polluting the Shoalhaven River as a result of releasing water from the low-level outlet in Tallowa Dam.

This call was made following a presentation given at a recent meeting of the Alliance by Peter Harding of the Southern Bass Fishing Club.

Mr Harding became aware of this pollution problem during the many years he has been negotiating with the SCA for installation of a fishway and multi-level take off on Tallowa Dam.

"The pollution takes four forms," Mr Harding said, "First it is very cold water, second it is very low in oxygen, then it is high in heavy metals and last but not least it stinks from the high levels of sulphides in it."

"The cold water is 16 degrees colder than the surface water in the dam and persistent cold conditions can still be detected 30 km downstream. Juvenile fish die at this temperature and their food source is also reduced."

"Low oxygen will not support many aquatic species, particularly large fish."

"Heavy metals such as iron, aluminium and possibly manganese which come into solution in the oxygen depleted waters colour the water almost black and stain the rocks red to reddish brown. Depending on concentrations and species these contaminants can have varying effects on aquatic organisms"

"The stench of sulphur, as well as being repulsive, indicates the presence of sulphides which have a serious impact on aquatic life."

"Given that no water has flowed over the dam wall for more than 20 months due to excessive pumping to Sydney, the only flow getting past the dam are these polluted low-level releases," Mr Harding said.

Mr Barratt, who was an environmental scientist with Sydney Water for 10 years, pointed out that the water described by Mr Harding is classified as polluted in terms of the Protection of the Environment (Operations) Act which is the statute designed to protect NSW waters from pollution.

ATTACHMENT 6

"The Dept of Environment and Conservation has the responsibility to put a stop to this environmental degradation of the river," Mr Barratt said. "Although prosecution of the SCA is an option and should be exercised if necessary, an alternative and more effective solution to the problem would be the installation of a fishway and multi-level take off which releases water from the top of the dam."

"The Government has already approved and allocated funds for this to be built, but because of a change in priorities, the project is currently on hold," Mr Harding said.

"It has to be wondered if this is because of the need to fund the extra cost of pumping water to Sydney during the current drought or because of the need to find many hundreds of millions of dollars for a pipeline to pump even more water from the river," Mr Barratt commented.

"It would be better for Sydney to reduce its water demand, use the rain that falls on the city and re-use waste water than spend the huge sums needed to pump from the Shoalhaven which is, at best, a short-term band-aid solution."

"And expenditure of a much smaller sum on a fishway and multi-level take off would certainly be a much better deal for the Shoalhaven River," Mr Barratt said.

The Shoalhaven River Alliance seeks the support of any concerned citizens who agree with the objective of improving the quantity and quality of freshwater flows in the Shoalhaven River. If you wish to show your support and get on the contact list call Terry Barratt on 4422 1211 or write to PO Box 263, Nowra 2541.

ATTACHMENT 7

BLUE-RINGED OCTOPUS IN THE RIVER!

Prepared by the *Shoalhaven River Alliance* (22/05/05) based on numerous reports from amateur fishers in the lower estuarine reaches of the Shoalhaven River – 5th in a series of articles on the way in which the damming of the River and excessive water extractions are seriously affecting river health.

As yet more evidence of the increasing salinity of the Shoalhaven River, Blue-ringed Octopi are turning up in various spots around Greenwell Point!

Terry Barratt, Chair of the Shoalhaven River Alliance has been receiving reports of this worrying development over the past few weeks and has now received a photograph of one picked up near the Comerong Island Ferry.

"Geoff McGilvray and his 12 year old daughter Michelle were collecting bait just south of the ferry in Berry's Canal during the April school holidays when he saw the octopus in the water just a few centimetres from his foot," Mr Barratt said.

"Mr McGilvray has expressed concern at finding it here as this dangerous species has been known to cause fatalities with its bite," Mr Barratt said, "It is normally found in rock pools on ocean foreshores, not in the sandy sediments of river estuaries!"

"Another Blue-ringed Octopus had been reported a week earlier from the West Street ramp at Greenwell Point, just a few centimetres from someone standing barefooted in shallow water!"

"Other reports of them turning up within the locality have also been coming in over the past few months."

"So, it's not just the jellyfish that we have to look out for!"

The high salinity in the river is a result of the unprecedented absence of fresh-water flushes in the river for nearly 2 years now.

"And, even the persistent rains of last week failed to achieve any flow over the top of Tallowa Dam," Mr Barratt said, "leaving the flow downstream to remain dependent on the polluted releases from the low-level off-take."

Not only would a flow over the top have helped move salt-loving species such as Blue-ringed Octopi back to where they belong, it would have improved the stressed condition of the freshwater sections of the river below the dam," Mr Barratt added.

"Although Shoalhaven Water is required to allow 90 megalitres per day to flow past its Burrier water supply off-take as a minimal freshwater allowance for the river, it is

unacceptable that the Sydney Catchment Authority (SCA) does not provide any environmental flow for the river from the massive volumes it transfers to Sydney."

"The fact that the SCA Drought Management Plan allows them to ignore the needs of the Shoalhaven River when the level in Sydney's dams falls to 60% is no excuse for not exercising a responsible approach to river management."

The SCA's complete disregard of the stressed condition of the Shoalhaven River must be addressed in the upcoming water sharing plan scheduled for public comment later this year (probably September or October)," Mr Barratt concluded.

The Shoalhaven River Alliance seeks the support of any concerned citizens who agree with the objective of improving the quantity and quality of freshwater flows in the Shoalhaven River. If you wish to show your support and get on the contact list call Terry Barratt on 4422 1211 or write to PO Box 263, Nowra 2541.

Shoalhaven River Alliance

Media Release – 14th February 2006

A DEVIOUS ACT MR IEMMA!

The Premier and a number of his Ministers announced last week that raising the Tallowa Dam wall will not proceed. The announcement also appeared to put paid to the plan to build a tunnel from Fitzroy Falls Dam to Avon Dam for transferring a massive extra 100 billion litres per annum of water from the Shoalhaven River to Sydney.

"But it is now apparent that this is not the true picture," said Terry Barratt, Chair of the Shoalhaven River Alliance.

A careful reading of the report upon which the Premier's media release was based (*Progress Report on the Sydney Metropolitan Water Plan*), on the Government's web page *Water for Life*, reveals that these two projects will not proceed *immediately*!

It goes on to make it clear that the decision to not proceed with the tunnel project is an *interim* one.

Why is the Government's announcement at such variance to the contents of the report? It is, after all, the report that is being quoted by the Sydney Catchment Authority, rather than the Premier's press release, as the basis for future work they have to undertake," advised Mr Barratt.

"So, regardless of the fact that we still face increasing water extractions of an additional 30 billion litres per annum from the river using the present transfer system, we will almost certainly be facing the tunnel construction and even higher levels of extraction some time in the future," Mr. Barratt said.

This is quite a shock given that Matt Brown, the Member for Kiama, is claiming the Premier's announcement as a victory for him as well as the community.

"Who's kidding who Mr Brown?" Mr Barratt angrily stated, "How long is *immediate* and how long is *interim*? Will he or others from the Government answer this? Can we only count on being able to forget about these projects for the next 13 months (the time to the next election!)?

"Well, we won't be forgetting about them," Mr Barratt announced, "The Alliance will be mobilising the community to continue the fight right up to the election, and beyond, if necessary to get the Government to do the planning and consultation we have been asking for ever since we learnt of the plans to massively increase transfers to Sydney."

In the first place, the community will be asking questions about the safety of Tallowa Dam. The safety issue has been revealed by papers reluctantly produced by the Sydney Catchment Authority last week. We urgently need answers on this concern whether or not the dam raising issue is still on.

ATTACHMENT 8

Was Mr Debus misinformed when he stated last November that there is no problem with the safety of the dam? He should have known, as the Sydney Catchment Authority did, that the dam couldn't have been raised without costly infrastructure works to strengthen it!

Then, the proposed Metropolitan Water Sharing Plan (which will also include the Shoalhaven River and is due out sometime this year) must contain real measures for improving the health of the river.

The plan must ensure healthy, variable environmental flows are returned to the river, which can only be done by reducing extractions, not increasing them. Like the so-called new aquifers, the Shoalhaven can only ever be a short-term source of water to meet Sydney's growing consumption.

"Only a major program of water recycling and stormwater harvesting in Sydney can meet its long-term needs," Mr Barratt concluded.

Contact the Alliance on (02) 4422 1211 or terrybar@optusnet.com.au if you want to get involved in the fight to save our river.

ATTACHMENT 9

THE WEATHER CHANNEL

running on empty

MEDIA RELEASE - MEDIA RELEASE - MEDIA RELEASE - MEDIA RELEASE

Embargo: Tuesday October 25, 2005

YOU'RE DRINKING RECYCLED SEWAGE - YOU JUST DON'T KNOW IT.

When asked why recycling is not higher on the agenda than desalination as an alternative to our water supplies, many politicians answer that Australians simply won't drink water that's been flushed down the toilet by someone else.

Professor Charles Essery, a leading independent water consultant says actually we do – we just don't know it.

"Everyone thinks Warragamba Dam is what we'd class as virgin water - it's never been used before," says Essery.

"What people don't know is that sewage and stormwater from Goulburn and Lithgow go into the various rivers that feed Warragamba Dam so that everyone in Sydney drinks water that has either passed through someone else's body or gone through the streets of those places," Essery added.

Heading The Weather Channel's investigation into the water crisis, Ian Leslie says it's also a surprise to many that when someone has a shower or flushes the toilet in Katoomba in the Blue Mountains, they're contributing to the drinking water of Richmond and Windsor on the outskirts of Sydney.

"The release of this treated sewage water is licensed by the Environment Protection Authority and is approved by NSW Health," Leslie said.

The recycling story doesn't stop at Richmond and Windsor. At Parliament House in Canberra, every flush of the toilet ends up on a long journey that sees some of it reach the drinking water for Wagga Wagga, Griffith, Hay, Balranald, Murray Bridge and Adelaide.

Professor Essery says that when people in Adelaide drink a glass of water, some of that water has passed through Canberra residents and at least six other people whose treated sewage is discharged into the Murrumbidgee River system.

"The thing is, it's a safe, viable alternative to the 'easy' solutions we've looked to in the past like collecting water – and the expensive alternatives like desalination that we're mistakenly looking to in the future," Essery says.

So recycle our sewage and storm water before turning to desalination?

"Absolutely. Let's stop sucking it in once, using it and spitting it out," he said, as we do in most of Australia's capital cities.

The Weather Channel will be conducting a recycled water taste test at Martin Place from 7.30am – 11am on Tuesday October 25.

Running On Empty **Segment 3 premieres Tuesday October 25 at 7.15am on The Weather Channel then quarter past the hour every hour, seven days a week.**

For further information or to arrange an interview with Ian Leslie please contact Simone Bird on 0411 968 326 or via simone@eckfactor.com

ATTACHMENT 9

Background & Context

Richmond Water

When someone has a shower or flushes the toilet in Katoomba that person is contributing to the drinking water of Richmond and Windsor on the outskirts of Sydney.

Sydney Water's Winmalee sewage treatment plant handles most of the sewage from the 75,000 residents of the Blue Mountains. Gravity brings the sewage down to Winmalee via a large tunnel cut through the rock for that purpose.

At the Winmalee sewage plant, the water is cleaned up – the solids are taken out, the water is treated, filtered and disinfected. Then it's released into a creek that flows into the Nepean River.

The release of this treated sewage water is licensed by the Environment Protection Authority that checked with NSW Health that the process was safe. It is this very same water, combined with the storm water from the streets of Penrith region and river water, that is pumped from the river by Sydney Water's Richmond water treatment plant, that supplies the water consumers of Richmond, Windsor and the surrounding villages with drinking water.

Canberra Water

When politicians flush the toilet at Parliament House the sewage goes from Parliament House on a long journey that could see some of it reach Adelaide as drinking water.

South of Canberra the sewage is processed by a sewage treatment plant and then safely discharged into the river that flows to Burrinjuck Dam at the head the Murrumbidgee River region.

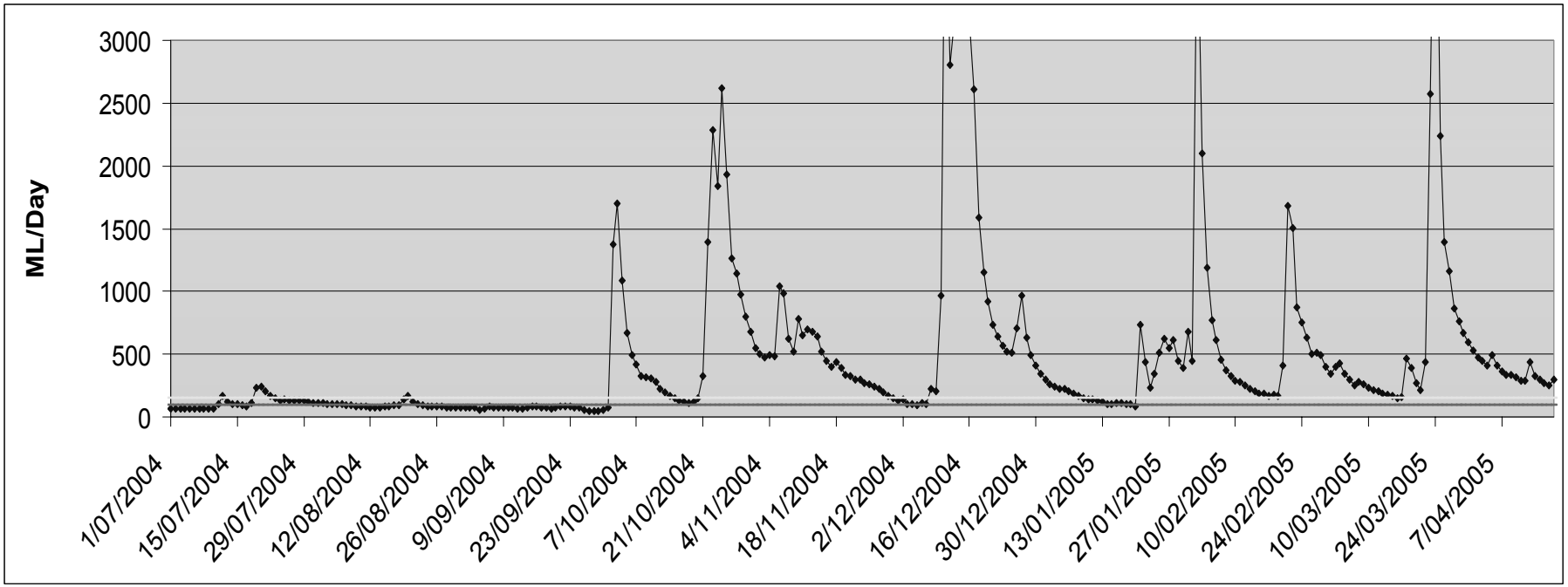
Once into the river system, the water is available for irrigating farms and for the drinking water intakes of a whole string of towns including - Wagga, Narrandera, Griffith, Hay, Balranald and Murray Bridge.

When these towns put their own treated sewage back into the river, on it all flows – eventually to become available for Adelaide's water supply.

Note:

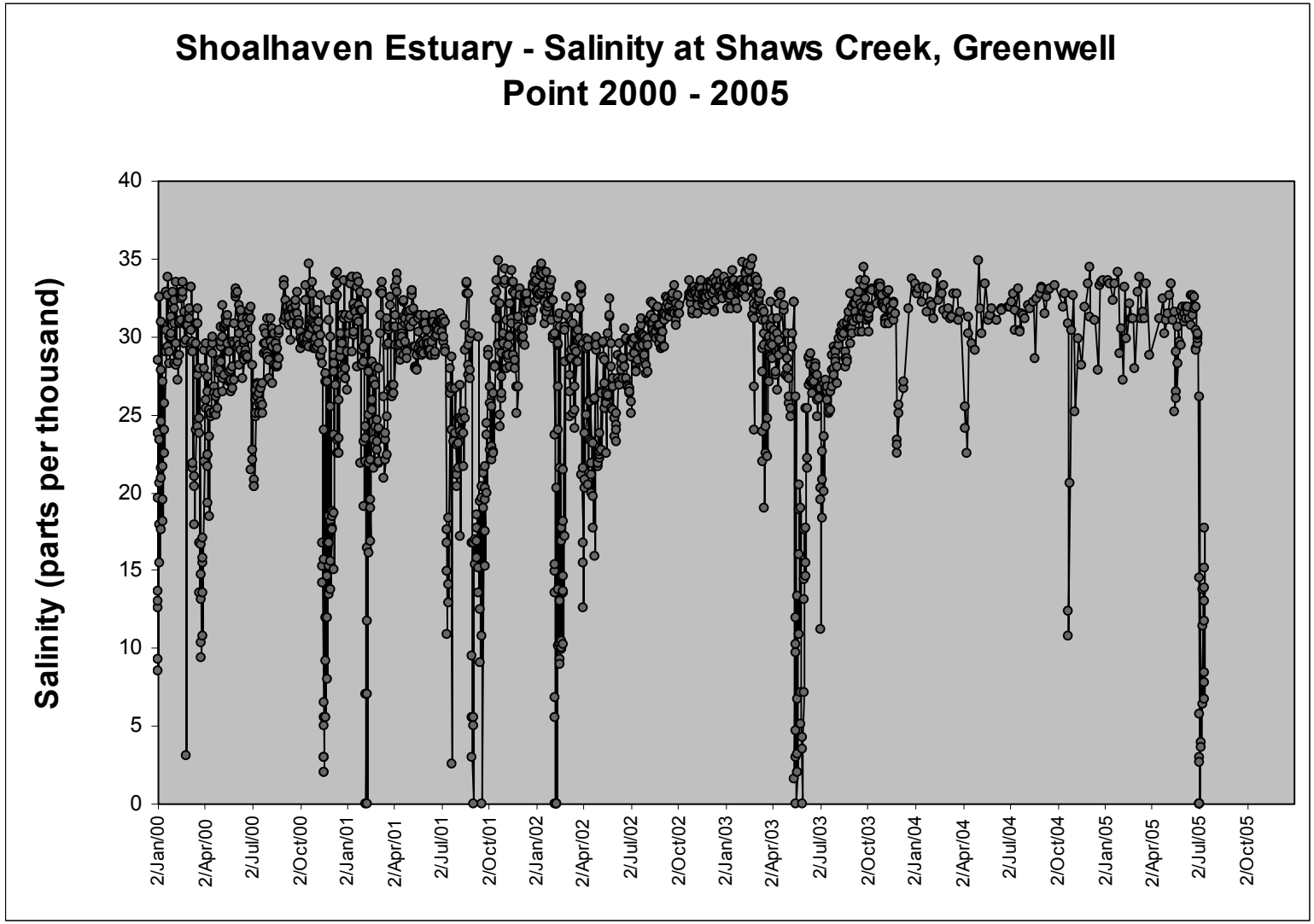
Both of these examples illustrate "drinking water supply cycles" that are reliable, safe and approved as consumer water supplies that are provided by public water utilities and regulated by all the relevant government agencies.

FIGURE 1



Shoalhaven River flows for the period 1/7/04 to 7/4/05 showing 6 peaks that failed to provide flushes downstream of Tallowa Dam due to diversion to Sydney

FIGURE 2



Fluctuations between zero and ocean salinity levels occur regularly up until the 2-year period between July 03/July 05 where the salinity levels rise rapidly in the earlier stages of this period and then stay constantly high without returning to zero for the whole 2-year period. This is the period during which the SCA were transferring huge volumes of water to Sydney from the river

BIOGRAPHY

TERRY BARRATT BSc (Hons)

Terry has had 25 years service as a manager and planner with the NSW National Parks and Wildlife Service and 10 years as an environmental scientist with Sydney Water.

Following migration from England at the age of six, he lived in Sydney for 31 years and has since then lived, for the past 26 years, in the Shoalhaven district on the NSW coast. During this latter period he was the NP&WS Manager responsible for the South Coast Region for 10 years and the Sydney Water Illawarra Region's Environmental Scientist for a further 10 years. He has been in semi-retirement since late 1999.

Throughout his professional career he has been an environmental activist in his own time and has pursued this activism full-time during his retirement years.

Terry's professional and private interests have included land and water management, research and resource analysis, environmental assessment, policy development, community consultation, environmental advocacy on behalf of community groups, political activism and a strong commitment to the Landcare movement.

His knowledge of the south coast between Wollongong and Batemans Bay and the adjacent southern tablelands is extensive – a region which takes in the catchment area of the Shoalhaven River.

This detailed regional background and broad range of experiences provide him with a special perspective on the natural resource and water management issues associated with the Shoalhaven River. His familiarity with wastewater recycling issues (in both urban and rural settings) is an added bonus.

Terry is currently Chair of the Shoalhaven River Alliance, Chair of the Shoalhaven Landcare Association and Chair of the Australian Conservation Foundation (Shoalhaven Branch).

2006