Submission regarding Macquarie River to Orange pipeline project

OBJECTION

Ref No: 10_0235

Attention Belinda Scott

The proposed pipeline from the Macquarie River should be abandoned for a number of reasons, There are other alternatives for OCC to obtain the water security they require for the future growth of the area that will be more environmentally & ecologically responsible.

OCC should be commended on the stormwater harvesting system they constructed ,with an average annual rainfall in excess of 800 mm it makes sense to use this available water supply. What doesn't make much sense is that in part B of the EA section 5.4.2 it states that this scheme designated to harvest stormwater, a major factor in any water supply. It is close to the city cannot be utilised unless Suma Park Dam , (Oranges main water supply storage) is less than 50% of capacity and the creek is flowing at greater than 1000 litres per second. THIS FLOW EQUATES TO 86.4 MEGALITRES PER DAY (1000 litres multiplied by 60 seconds = 60,000 litres per minute; 60,000 multiplied by 60 minutes = 3,600,000 litres per hour; 3,600,000 multiplied by 24 hours =86,400,000 litres per day) .Instead of constructing a pipeline with its construction costs & operation expenses which according to OCC will be approximately $750,000.00 per year or $14,430.00 per week it makes more sense to use the available resource they have already constructed by utilising it to its full capacity & intended use.

1000 LITRES of water = ONE CUBIC METRE. If this was spread over a 10 metre wide area representing the river bed and 1 metre in length the resulting depth of water is 10 centimetres (4 inches) about the measurement from the heel of your foot to the bone of your ankle, hardly what ANYONE would describe as a lot of water to be flowing down a RIVER. That is precisely what an 86.4 megalitre per day flow is. To remove water resulting in a 26 megalitre / day flow would leave 3 centimetres of water depth (30mm or just over an inch). Just enough to submerge your big toe.

A question I would like answered is why is it environmentally responsible to not pump or divert water from a designated & designed stormwater harvesting supply which contains no THREATENED, ENDANGERED OR VULNERABLE AQUATIC SPECIES will not harm any ENDANGERED,THREATENED OR VULNERABLE FLORA OR FAUNA but the proponents see fit to extract water from the Macquarie River at levels as low as 38 megalitres per day of flow (439 litres per second) leaving a 26 megalitre flow in the river(300 litres per second) WHICH DOES CONTAIN ENDANGERED , THREATENED AND VULNERABLE AQUATIC SPECIES & was seen as a suitable environment to stock Trout Cod as part of the National Trout Cod Recovery Plan? 3 years into a 5 year program anglers have been recording captures of juvenile Trout cod with photos prior to release with one recorded at the Gardiners Hole on the Macquarie River where the proposed water extraction to Orange starts. Recovery plans also exist for Murray Cod and Silver Perch in the Macquarie River including the geographic region of the project.

Oranges major water supply of Suma Park was constructed in the 1960's & current & past councils have declined to increase the size of the water supply regardless of the growth of the area. Approval to increase the wall height 1.8 metres some years back was deemed unnecessary. In 2001 Spring Creek Reservoir was partially out of service due to safety concerns for the wall structure &had been only utilised to 50% of capacity. It again was not seen as a major concern for water security as the wall wasn't upgraded untill2006 & brought back into full service until February 2007 missing the significant rainfall in 2005 which overflowed the Suma Park Dam so as you can see it was possible that had those in charge of the council placed the importance on water security and acted with responsibility to their position the situation Orange was in during what was described as the worst drought in a century would have been entirely different.

OCC is also contracted to supply the Cadia Mining Operation with up to 10 megalitres (116 litres per second) per day& in recent times OCC state they have been currently supplying approx.; 8.2 megalitres per day to the mine. Prior to this the treated effluent was discharged into The Macquarie River via Summer hill & Ophir Creeks effectively reducing the amount of water in both waterways & the river below its confluence with Ophir Creek. How much water flows down these creeks if it is deemed environmentally responsible to remove at least 8.2 megalitres per day from the system.

Cadia is described by Orange City Council as their biggest customer yet Cadia do not pay for the water they receive from OCC. The mining industry does supply economic benefits to the area with those employed in mining receiving good wages and spending their money on housing & motor vehicles ,food etc in the local community, a point Mayor John Davis made when asked why Cadia don't pay for the water. With the massive profits this mining operation generates it is not unreasonable to be expected to pay for a resource that enables it to generate those profits.

Information from Cadia states the Cadia east project will increase production water demand by around 6 megalitres per day and increase regional business output by $1025,000,000 annually.

The original application was to extract a maximum of 640 megalitres per year as an emergency drought relief measure for town water. It has now grown to a maximum of 3876 megalitres per year and to be considered as part of the 'NORMAL' water supply & to be available for industrial use (like transfer to assist in mining operations). Where will this end up if this project is approved?? Based on what has already transpired & the assurances given at several meetings by the proponents including the mayor of OCC & the General manager of OCC that it was for emergency drinking water & a maximum extraction of 640 meg/year, pumping would not occur during seasonal migration and/or important breeding cycles of endangered fish. The situation as it now exists is, from the proponents view is, if we require 3876 meg of water per year we will take it. We will not operate the pumps during peak electricity demand times and as it is not viable to have the pumps stopped during spawning & recruitment events, the eggs & larvae that get stuck to the screens to prevent them being mashed up by the impellers will get blasted off twice a day when the pumps stop for peak power interruption issues. This will reduce the amount of interruption of spawning aquatic species to just 19 hours on any given day. Aquatic studies indicate operation of the pump will have no impact on the aquatic ecological ecosystem. Although some minor disruption may occur its impacts will be minimal.

The environmental assessment on display exhibits an astounding lack of knowledge of the local conditions and aquatic ecology by the consultants and this lack of knowledge by those consultants is

only exceeded by the proponents of this proposed pipeline who have shown blatant disregard for the environment & the importance of the aquatic ecosystem of the Macquarie River.

Department of Sustainability, Environment, Water, Population & Communities publish survey guidelines for Australia's threatened fishes.
Six steps to conduct a study include : Identify taxa (species) that may occur, Determine the optimal timing for surveys of the targeted taxa, Determine the optimal location of surveys, Establish sampling design and survey effort, Select appropriate personnel to conduct surveys, Document survey methods and results.

The EA clearly states that the THREATENED ,ENDANGERED & VULNERABLE SPECIES THAT INDEED ARE PRESENT IN GOOD POPULATIONS IN THE RIVER were not targeted.

The photographs and documentation of the EA show that the survey on the Macquarie River was undertaken at a time of higher than normal flows when the natural bank of the river was inundated & therefore limiting effectiveness of the survey.

Systematic sampling will generally be superior because it produces good coverage, is easy to implement and is less subject to site selection errors. Survey timing and location highlight important strategies to help optimise the chance of detection of the targeted species. Replicated sampling will often be required to either reveal species or satisfy the argument that the species is absent or occur in low abundance within the study area. In general , Murray cod are more active at night and periods of low light such as dawn or dusk as are Trout cod using angling methods. While electrofishing is considered most effective during daylight backpack electrofishers are limited to depths of 1 metre and since Murray cod & Trout cod tend to hide during daylight hours in deeper habitat backpack style electrofish devices are ineffective on the target species.To optimise the chance of detecting Murray cod & Trout cod sampling should have focused on suitable areas of the river where they are most likely to be. Silver perch tend to favour faster flowing sections with the best detection methods being angling with bait or netting if licensed to do so.

The failure to survey appropriately for threatened species that may be present at the site should result in the department applying the precautionary principal with regard to significant impact determinations. As no supporting evidence such as survey results have been presented to support the claims of the absence of the species , the department should assume that the species are in fact present.

From the EA "Intensive targeted sampling of species was not undertaken" Freshwater eel tailed catfish of which are listed as an endangered population in the MDB (murray-darling basin) were electrofished at the proposed pump site ,Photographed & Catalogued by both groups of consultants yet in summary they state "None of the threatened aquatic communities occur in the river"

When asked at a public presentation at the Orange Ex-Services Club why they stated in their EA that no threatened species occurred in the river when the PHOTOS indeed show that they are there, one of the principal consultants Mr Jeremy Pepper . from GHD answered "they did encounter catfish at Gardiners Hole but they weren't part of a population".

According to Significant Impact Guidelines page 10
WHAT IS A POPULATION OF A SPECIES?

A 'population of a species' is defined under the EPBC Act as an occurrence of the species in a particular area. In relation to critically endangered, endangered or vulnerable threatened species, occurrences include but are not limited to:
a geographically distinct regional population, or collection of local populations, or a population, or collection of local populations, that occurs within a particular bioregion.

At the same meeting which attendees were permitted to ask 1 question, my question was why do the recreational anglers who fish in the Macquarie river at the pump site as well as up and downstream from it regularly catch & release & photograph the species that the consultants could not find , the answer from the other principal consultant from GHD Mr Greg Marshal was " we don't have the local knowledge of anglers or the ability to access the river at different times of the year."

This demonstrates that local knowledge of the area including seasonal variations & times of day and methods were considered relevant but not employed whilst sampling for the EA

Biological surveys are usually an essential component of significant impact assessment and should be conducted on the proposed site before referral to assist in the evaluation of impact on matters of national environmental significance by establishing the presence or the likelihood of the presence or absence of a species. In this case matters of national environmental significance refer to ; listed threatened species and ecological communities; migratory species protected under international agreements; Ramsar wetlands of international importance.

A significant impact is an impact which is important regarding its context or intensity & depends on the sensitivity and value of the environment which is impacted and the duration, magnitude and geographic extent of the impacts.

To be likely it is not necessary for a significant impact to have a greater than 50% chance of happening; it is sufficient if a significant impact has/is a real or not remote chance or possibility.

The EA clearly states 'the reduction in flows would lead to a reduction in the availability of habitat downstream of the pump' and 'the magnitude of extraction over consecutive days is difficult to assess because of the lack of information on aquatic habitat in this section of the river & the uncertainty of length of extraction and the magnitude of flows likely to prevail.

This means water extraction by the proposal would have a real chance of causing significant impact to threatened & endangered aquatic species listed under EBPC Act and habitat necessary for the survival of the species defined as ' CRITICAL HABITAT'.

CRITICAL HABITAT is defined as the whole or any part of or any part of the habitat of an endangered species, population or ecological community that is critical to the survival of the species population or ecological community.

HABITAT PROTECTION enables the habitat that a species or population relies on for its survival to be formally protected into the future. The listing of species populations & ecological communities under the FISHERIES MANAGEMENT ACT (FM Act) establishes offences for damaging habitat & increases the level of protection for Trout Cod, Murray Cod, Silver Perch, Freshwater eel-tailed catfish.

As water is the most important ingredient for aquatic habitat, extraction will have a significant impact on the critical habitat of the endangered & threatened species including many other aquatic species in the study area and downstream to Burrendong Dam resulting in a real chance that it will ; REDUCE the area of occupancy, ADVERSELY AFFECT habitat critical to the survival of the species, DISRUPT the breeding cycle, MODIFY, REMOVE or DECREASE the AVAILABILITY or QUALITY of habitat to the extent that the species is likely to decline, RESULT in INVASIVE SPECIES becoming established in the endangered species' habitat, INTRODUCE DISEASE that may cause the species to decline and INTEFERE WITH THE RECOVERY OF THE SPECIES.

It is well documented that Invasive Pest species like European carp and redfin perch have a negative impact on native fish and aquatic ecological communities. Redfin perch are carriers of EHN VIRUS which impact on Macquarie Perch populations & several other species, are a voracious predator & studies indicate their eggs are unpalatable to other fish species. European carp are filter feeders , sucking up benthic material and expelling silt & sand causing water to become muddied during low flow periods impacting on important aquatic biota.

It is well documented and widely accepted that reduced flows are responsible for creating more suitable environment for the Invasive Pest Species. These species harm listed threatened species and ecological communities through direct competition, modification of habitat & preditation.

The only way to get a true & unbiased EA would be for an independent consultant with the appropriate equipment and time frame to conduct an in-depth seasonal study to determine the migratory & breeding cycles of the aquatic ecology of the Macquarie river. The current EA is uncreditable as no sites downstream of the Boat Hole to the backed up waters of Burrendong Dam were sampled for threatened , endangered or vulnerable species even though the EA states that the reduction of flows downstream would result in the reduction of the availability of habitat for threatened fish species.

The current EA INDICATES THAT SURVEYS WERE LIMITED IN FREQUENCY,SPATIAL EXTENT, DURATION AND INTENSITY. The condition of the Macquarie river at the time of sampling was running high after a significant minor flood and sampling was undertaken using a backpack electrofishing unit and only in shallow margins as permitted by the use of this type of equipment (SEE PHOTO IN EA).Electrofishing at its best is only a form of sampling , It is not highly effective & the way it was undertaken with the device that was used in a waterhole the size of Gardiners would only guarantee that none of the species like Murray cod, Trout cod, silver perch & golden perch which are definitely residents in that hole would be encountered.

When the river is flowing at low levels the larger fish fall back into refuge holes such as Gardiners which is the largest waterhole in the Macquarie River upstream of Burrendong Dam & become trapped until fresh flows of significant size in the right season to trigger migration or breeding occur. It is a deficient concept to believe that fish or aquatic life can migrate or disperse along their geographic range when conditions do not suit this action.

The flows in the Macquarie river during the 2001-2010 period of drought shown in the EA are not a true indication as all the photographs of the river show minor flood levels that occurred during the study in December 2011.

The median daily flow for 2001 was 186.3 meg / day & the lowest daily flow was11.01 meg/day with the median daily flow for 2002 was 84.7 meg/day & the lowest daily flow just 4.79 meg / day then the median daily flow for 2003 was 98.7 meg / day & the lowest daily flow was 2.42 meg / day then the median daily flow for 2004 was 58.16 meg / day & the lowest daily flow was 1.97 meg / day next the median daily flow for 2005 was 145.9 meg / day & the lowest daily flow was 3.36 meg / day with the median daily flow for 2006 was 49.4 meg / day & the lowest daily flow was 0. 87 meg / day then the median daily flow for 2007 was 118 meg / day & the lowest daily flow was 2.49 meg / day then the median daily flow for 2008 was 98.6 meg / day & the lowest daily flow was 8.90 meg / day next the median daily flow for 2009 was 71.3 meg / day & the lowest daily flow was 4.54 meg / day and the median daily flow for 2010 was 275.3 meg / day & the lowest daily flow was 6.75 meg / day

For an example of how fast the water dissipates in drought conditions post a localised rain event upstream of the Bruinbun gauge January21st 2009 daily flow 9.2 meg , on the 22nd 437 meg was the daily flow and on the 25th the daily flow was back to 20.3 meg/ day.

All historical river flow data comes from DPI water site @ Bruinbun gauge , the same site used by the consultants in the EA, another example January 17th 2010 daily flow 11.48 meg; 20th daily flow 210 meg ; 27th 12.7 meg . AS you can see in the EA water quality in the river has to be acceptable for extraction ie; should not have a high sediment load so in the above examples of the river being at levels below 38 meg/ day no pumping could occur and during the rise in flows the sediment load would also not permit pumping to occur leaving long periods between pumping events which is also not good because of the risk of contamination & the need for purging dead water from the line.

The EA states the proposed pump would operate from data received from a gauging point at Dixons Long Point. As the above examples demonstrate localised rain events resulting in short duration flow increases containing faecal matter from stock & high sediment load during dry conditions that may enter the river from smaller tributaries like Ophir or Tambaroora creeks could potentially trigger pumps to commence operation resulting in unsuitable water to be extracted creating the need to purge this water from the pipeline and /or holding tanks along the pipeline. Whilst these events are not ideal for aquatic species in the fact that the water may contain high phosphate levels they are natural events in which the durations of the flows will be severely affected.

Water demand is usually highest during times of high temperature & low rainfall & this is likely the time when the higher amounts of water extraction would occur, not when the Macquarie river is constantly flowing at levels above 1000 megalitres per day. The significant rainfall event in 2005 which filled Suma Park Dam & caused it to overflow in November that year peaked the Bruinbun water gauge at 21109 megalitres per day on the 8th of November and 9 DAYS later was registering 882meg/ day.

How much water would have been able to be pumped from this flow? Answer NIL

In December 2010 the high peak at Bruinbun was 39997meg/ day again this water would not be pumped because of high sediment load and Suma Park filling from local catchment inflow.

These examples demonstrate flaws in the proponents figures effectively showing that pumping would mostly occur at lower flow rates when rain events were below average thus placing extra stress on the aquatic ecological communities in the Macquarie river.

When fish become stressed they become more likely to be affected by disease. The most common cause of stress is poor water conditions. This results in low oxygen levels and /or extreme temperature variation outside their natural range. Pumping or extracting water in this case, taking water from the river could result in cooler water in summer being removed from Gardiners hole increasing the overall pool temperature & result in increased water temperature in the down-stream environment due to decreased flow, this would be reversed in colder seasons when surface water temperatures are lower than the water deeper in the pool.

In 1982 a chilodonella outbreak decimated populations of Murray cod and Freshwater catfish in the Macquarie River. This event coincided in low water due to drought conditions combined with temperature extremes resulting in poor water conditions that became favourable for the chilodonella parasites. The Turon and Crudine Rivers were also seriously affected. The Crudine river joins the Turon River which then joins the Macquarie upstream of the pump site.

CHILODONELLA CYPRINI is described as "may very well be the most dangerous skin parasite there is". The parasites are not visible to the naked eye, swim freely, spread easily from fish to fish and reproduce by asexual division. CHILODONELLA can and will lie dormant until conditions become favourable, ie; fish become stressed with poor water conditions then the chilodonella parasite becomes a serious adversary and mover. POOR WATER CONDITIONS ACCELERATE THIS DISEASE.

While the outbreak was a natural event water extraction by this project has the potential to accelerate the conditions required to trigger an outbreak which would have a significant affect on the populations of threatened species and other aquatic ecological populations and communities in the Macquarie river.

NSW I & I has statutory responsibility for the management of areas that affect and/or are influenced by either directly or indirectly, water quantity & quality. From a fisheries ecosystems perspective these functions include aquatic habitat protection and rehabilitation, threatened species conservation, management of commercial and recreational fisheries resources, including threatened species in order to maintain or improve aquatic ecosystem health.

The Murray Cod is described as AN ICON SPECIES and has significant economic , cultural, recreational & environmental value for Australians, it has been described as the 'flagship freshwater fish for all of Australia (Kearney and Kildea 2001) . The species has totemic significance to the Aboriginal community (Phil Duncan, MDBC, pers. Comm.)

The Murray cod has high public recognition and is seen as a focal species that can be used to represent the management needs of other fish species such as golden perch, Silver perch, freshwater catfish and Trout cod that may be susceptible to similar threatening processes. The threatened species recovery plans should be regarded as an investment in the sustainable future.

Mitigation measures defined in the EA are deficient of demonstrated application as they imply a high degree of uncertainty about the avoidance of significant impacts to critical habitat or the extent to which the impacts to critical habitat or significant habitat will be reduced. Beneficial impacts cannot be offset against adverse impacts.

The project does not meet the requirements of either improving or maintaining critical or significant habitat of threatened or endangered species in the study area or geographical range extending from Burrendong Dam to the proposed extraction site at Gardiners Hole on the Macquarie River.

The requirements of the Recovery plans for Trout Cod, Murray cod and Silver perch have not been met by the proponent. This is of significant relevance to the proposed project and has not been adequately addressed. Eg. " Ensure that councils, government agencies and other relevant organisations are aware of the location of important areas for Silver perch, for example providing maps of known and potential habitat and the location of significant populations." And "Encourage community groups , relevant natural resource management agencies, local councils and landholders to protect and rehabilitate riparian vegetation and instream habitats along key river stretches where remnant silver perch populations are known to occur." The responsibility of these actions is NSW DPI, DNR, CMA's, local councils.

The project demonstrates the inadequate water storage capabilities of Suma Park Dam which was commissioned approximately 5 decades ago. This could be fixed by construction of a new wall capable of future extension to cater for future growth. There are other alternatives available the Macquarie River pipeline is not the right solution for OCC's water supply.

The EA does not mention stockings of Murray cod by members of Bundi fishing club who have stocked the downstream locations of Cockatoo, Pumpkin, Bundi, Clevelands, Dick Burkes, Boulder and Boat holes and still continue to do so annually. All these locations will be impacted by water extraction from Gardiners hole and no sampling of these geographic locations has been included in the study .

This submission of OBJECTION of the proposed Macquarie River to Orange pipeline was written by Colin Gordon .

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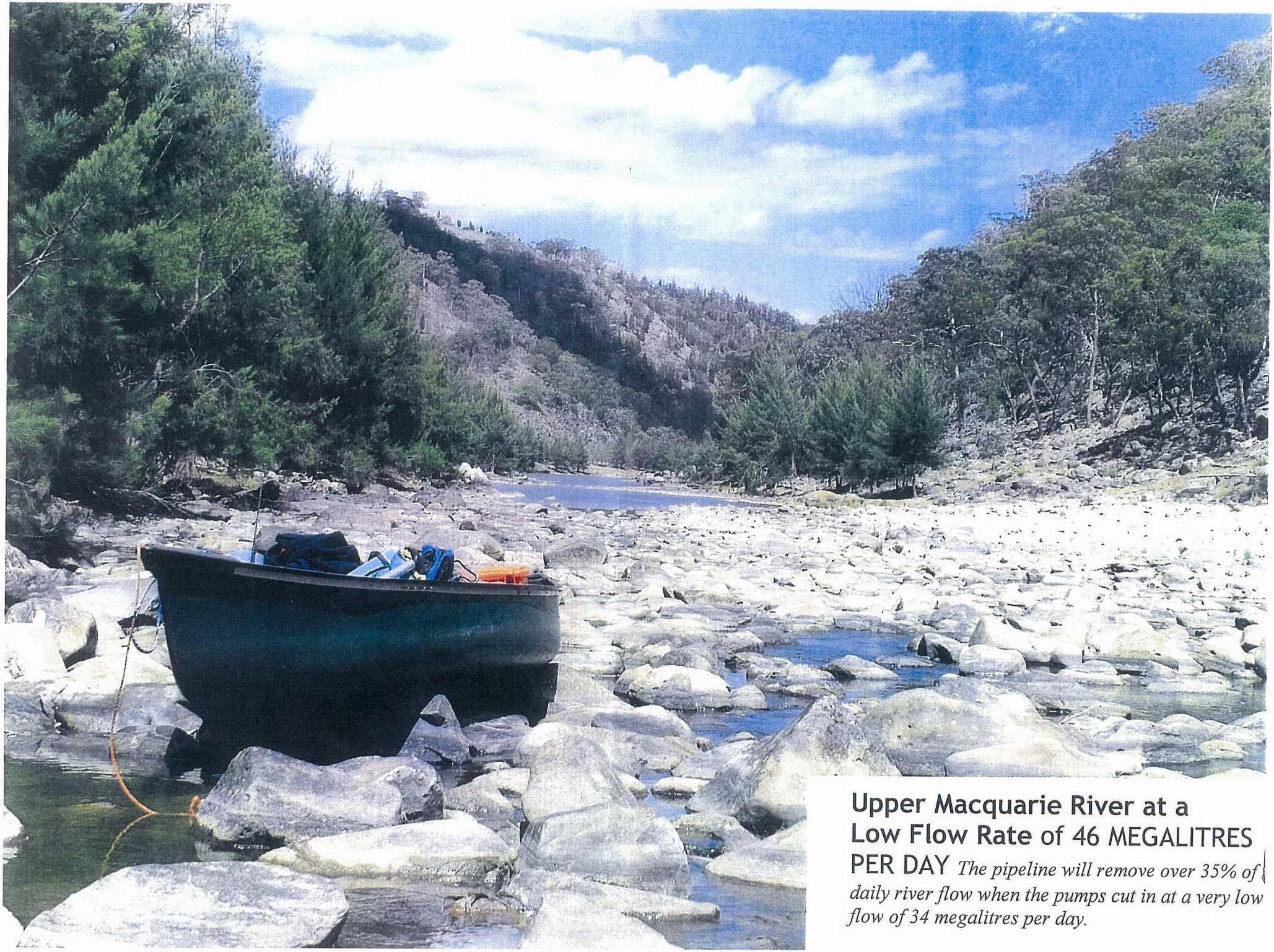
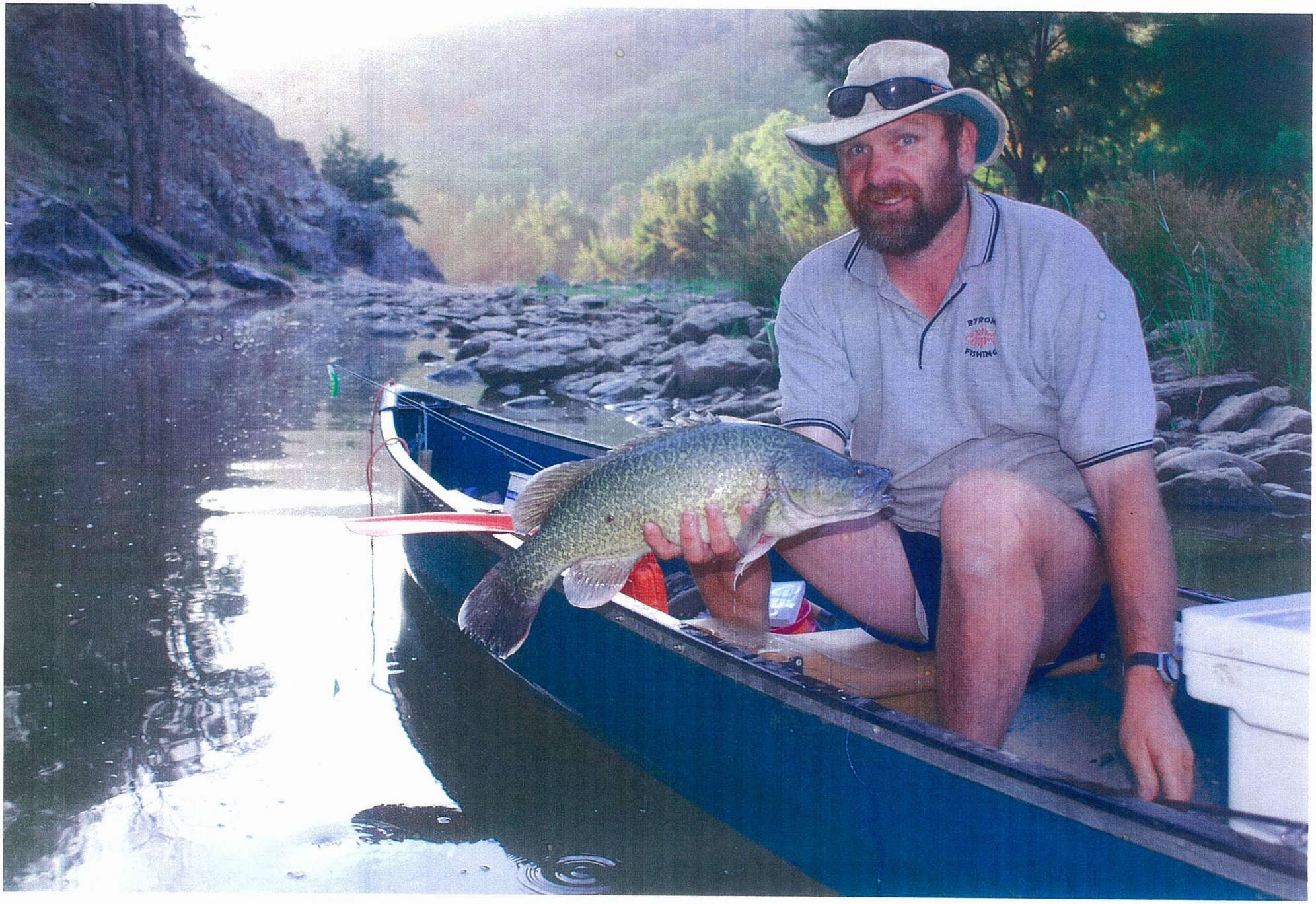


Upper Macquarie River at a Low Flow Rate of 46 MEGALITRES PER DAY *The pipeline will remove over 35% of daily river flow when the pumps cut in at a very low flow of 34 megalitres per day.*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