



**I&I NSW (Fisheries) Animal Care & Ethics Committee**

**Annual Report 2010**

**Submitted to Greg Stevens, Director, Research Business**

**1 Introduction**

I&I NSW (Fisheries) is an Accredited Research Establishment. I&I NSW (Fisheries) researchers must apply to the I&I NSW (Fisheries) Animal Care & Ethics Committee for approval prior to commencing research.

The I&I NSW (Fisheries) ACEC is an accredited Animal Care and Ethics Committee under the NSW Animal Research Act 1985. It approves research with fish conducted by Primary Industries (Fisheries) or by Sydney Water, the Sydney Catchment Authority and the Department of Environment, Climate Change and Water (DECCW). The ACEC's role is to advise, monitor, discipline and control animal research. The Committee ensures that all research conducted complies with the legislation and Code of Practice. The Committee is responsible for monitoring research within the department, including inspections of animals and facilities.

The Committee must consider and evaluate requests to conduct research, on the basis of the researchers' responses to a comprehensive set of questions, including the justification for the research; its likely impact on the animals; and procedures for preventing or alleviating pain or distress. The ACEC has the power to stop inappropriate research and to discipline researchers by withdrawing research approval. The ACEC can require that adequate care, including emergency care, is provided. It also provides guidance and support to researchers on matters relevant to animal welfare, through preparation of guidelines and dissemination of relevant scientific literature.

**2 ACEC membership**

In 2010 the Committee comprised:

Dr Geoff Allan, I&I NSW, Chairperson; Animal Researcher  
Mr Tony Gregory; Animal Welfare  
Dr John Kennedy; Veterinarian  
Ms Sherry Mead; Community representative  
Mr Joe Pera; Animal Researcher  
Mr Vinod Reddy; Community representative  
Dr Peter Scanes; Animal Researcher  
Dr Malcolm Smeal; Veterinarian  
Ms Eliza Walker; Animal Welfare  
Ms Jo Pickles, I&I NSW; Executive Officer

Membership terms due for John Kennedy, Sherry Mead, Vinod Reddy and Eliza Walker were due to expire in December 2010. Each member confirmed they were happy to re-nominate and the process was started (following the Terms of Appointment) calling for nominations. The Veterinarian notice was placed in the AVA NSW Newsletter. The Animal Welfare position was advertised via the RSPCA and the Community positions were advertised in the St George

Sutherland Shire Leader. The positions were advertised in late July with the closing date of 31 August 2010. In total seven applications were received including the re-nomination of the four members noted above. A memo was sent to the Animal Welfare Unit (with a copy to the Animal Research Review Panel) seeking the re-appointment of John Kennedy, Sherry Mead, Vinod Reddy and Eliza Walker to our ACEC. This was approved in September 2010.

The Committee continues to have representation by two members from each category to ensure a quorum for each meeting.

### **3 ACEC meetings**

Four meetings were held during the year:

- 17 March 2010 at West Pennant Hills
- 22 June 2010 at DECCW, Lidcombe
- 13 October 2010 at Kangaroo Valley
- 14 December 2010 Tele-Conference

The agenda and agreed minutes for each meeting are kept at PSFI and are available on request.

The Committee travelled to Kangaroo Valley on the afternoon of the 12<sup>th</sup> of October specifically to visit the nearby Tallowa Dam while also conducting a regular quarterly meeting. The Committee visited the Tallowa Dam High Fishway on the 13<sup>th</sup>, before commencing the ACEC meeting at the nearby Kangaroo Valley Golf and Country Resort. The visit was accompanied by I&I NSW's Chris Walsh; a Freshwater Fish Ecologist located at the Batemans Bay office. Chris showed ACEC members around the site and provided valuable insight and information relating to the Dam and in particular the Fish Lift. Unfortunately, the lift was not working and the Committee was advised the lift has not worked properly for much of the time since it was commissioned.

Joe Pera and Alec Davie from the Sydney Catchment Authority will advise on the contact officer within SCA responsible for the maintenance of the fish lift and when repairs needed to see the fish lift working to its full capacity are likely to be completed.

Geoff Allan suggested the Committee revisit the site in around two years time. At this time, more data should be available on fish migration, habitats etc and the effectiveness of the fish lift. The Committee returned home on the afternoon of the 13<sup>th</sup>.

### **4 Number and types of projects assessed and approved or rejected**

Nine new projects were approved during 2010 and 44 were reviewed and re-approved for ongoing research. A particular phase of one new project was rejected, however, this is currently being revised by the Principal Investigator who will re-submit the application at the next meeting or out-of-session. Twelve projects were completed and final reports accepted by the Committee.

Of the 65 projects noted above, three had a high negative impact on welfare of animals (that is Category 7: Major Physiological Challenge and Category 8: Death as an End Point). Two of these projects were completed during 2010 with only one project remaining with a high negative impact on welfare of animals. Details of these three projects are as follows:

- a ACEC Proposal 07/12 – Diagnostic radio-ichthyology: using CT scans to explore the effects of barotraumas on fish (final report accepted 2010).

This project was to determine effects of barotraumas on important species by using X-ray computerised tomography (CT scans) to look at physical abnormalities caused by the rapid reduction in pressure as fish are brought to the surface from depth.

- b ACEC Proposal 08/02 – Replacement flows project ‘toxicity testing’ (final report accepted 2010)

This project was to establish at what level of decreasing conductivity the water becomes toxic to test organisms. The replacement flows project was designed to save drinking water and maintain health by discharging highly treated recycled water into the Nepean River, via Boundary Creek at Penrith.

- c ACEC Proposal 08/05 – Recreational fishing surveys in the greater Sydney region (project current)

Recreational fishing surveys provide estimates of the tonnage of fishes taken by recreational fishers. These estimates are used for several reasons and it is necessary to convert fish length information collected into weights. This is done by using length/weight conversion equations, but there are many data gaps in the length/weight data available.

A list of all current ACEC projects is available on request. All applications, correspondence between applicants and the ACEC and copies of approvals are kept at PSFI and are available for inspection on request.

## **5 Physical facilities for the care and use of animals by the establishment**

I&I NSW (Fisheries) animal holding facilities at the Port Stephens Fisheries Institute (PSFI), Grafton Aquaculture Centre (GAC), National Marine Science Centre at Coffs Harbour (NMSC), Cronulla Fisheries Centre (CFC), the Narrandera Fisheries Centre (NFC), the Inland Saline Aquaculture Research Centre at Wakool (ISARC) are subject to regular inspection by the Committee. Animal holding facilities of Sydney Water and the Department of Environment, Climate Change and Water (DECCW) are also inspected by the I&I NSW (Fisheries) ACEC.

In 2007, the Committee introduced self-audit reports to be conducted by OICs of that particular centre to augment on-site physical inspections by ACEC members. The ACEC usually inspect centres like GAC, NMSC, NFC and Wakool annually and over the past decade inspections have confirmed the Centres are well run, fish are well cared for and acceptable practices for research used. In recognition of previous ‘performance’ and to optimise the time available for inspections a decision was made to conduct physical inspections at GAC, NMSC, NFC and Wakool every 2-3 years with self-audit reports to be completed by the OIC in the intervening years. OIC’s were consulted in the development of this form to ensure it was user friendly and informative as a self-audit report. Additional focus has been given on inspection of procedures, particularly those in the field.

### Port Stephens Fisheries Institute

The Committee usually meet at the PSFI for the 3<sup>rd</sup> quarterly meeting of the year which includes an inspection, however, due to the Tallowa Dam visit a self-audit was deemed acceptable for this year. Mr Luke Cheviot (Fisheries Technician) conducted a self-audit on 30 November 2010. Mr Cheviot inspected the outdoor ponds (large shallow ponds); only two (out of ten) in use containing Mulloway and Bass and the Broodstock Building containing Kingfish, Mulloway and Snapper with a recirculating water system in place. The Marine Fish Hatchery (including the 10,000 L concrete tanks under cover beside hatchery – Tomaree tanks) was in use for the culture of bass. All fish were in good condition with good daily systems in place and health records kept. The Greenhouse and Digestibility Laboratory have no fish in those areas at present, but the areas were tidy and well maintained. No animals were presently being cultured in the Aquatic Ecosystem Laboratory but the area is well maintained which houses the new artificial uterus (womb), purpose built equipment, specialised for shark research.

### Grafton Aquaculture Centre

Dr Stuart Rowland (OIC) conducted a self-audit on 13 November 2010. GAC is a model freshwater fish farm and the facility consists of earthen ponds, reservoirs and an effluent-settlement dam, cages, tanks and hatchery with the main water supply coming from the Clarence River. In the past, GAC has carried out research mainly on silver perch, but as of November 2010 aquaculture research will be phased out with all ponds drained and dried and all aquaculture equipment moth-balled. Aquatic ecosystems research will continue at GAC. It is a well designed and fully equipped facility that is operated by very experienced staff. There is appropriate water quality and health monitoring, and a very high standard of fish husbandry.

### National Marine Science Centre at Coffs Harbour

Dr Matt Broadhurst (OIC) conducted a self-audit on 9 November 2010. The NMSC is a highly versatile research facility with a modern aquaria system comprising up to twelve 3000 L tanks (housed in a covered outside area – termed the ‘tank farm’), and numerous smaller tanks located in laboratories. Seawater is pumped from Charlesworth Bay, providing a total supply to the system of 170 L per minute, with 20 L minimum per minute typically dedicated to those individual tanks housing fish. During the past 12 months, only the 3000 L tanks have been used, and only to house eastern rock lobster. This is an excellent facility run by highly competent researchers who continue to maintain a high standard of care.

### Cronulla Fisheries Centre

Mr David Barker (Fisheries Technician) conducted a self-audit on 4 November 2010. The CFC is a marine based facility consisting of the main pool (an open system with water pumped in from Port Hacking estuary), the aquarium housing 5,000 L and 1,000 L tanks (located outside but undercover), a 35,000 L tank (with both recirculating and flow through water systems) and the long room of aquaria (housing 120 L fibreglass tubs). The facility has recently dedicated specific tanks and cleaning equipment for quarantine purposes and written new quarantine procedures to mitigate introduced pathogens. All new animals being brought into the facility are held in quarantine tanks and prophylactic treatment procedures before they are used in any experiments. The record keeping is excellent as well as extensive OH&S documentation. The animals under care are in excellent condition, feeding vigorously and behaving normally. There was only one minor health issue occurring in one tank of fish (drummer); that being a viral infection known as *lymphocystis* which is not uncommon in captive fish during winter. The fish were isolated and treated with quarantine procedures to mitigate possible cross contamination.

### Narrandera Fisheries Centre

Mr Martin Asmus and Ms Frances Cory (Fisheries Technicians) conducted a self-audit of the NFC on 12 October 2010. The NFC is an inland freshwater facility which includes a tank room in the old hatchery (24 x 80 L tanks, 46 x 56 L tanks and 5 x 180 L tanks), broodstock shed (half of which is used as a hatchery; 6 x 5,000 L tanks and 2 x 3,000 L tanks and the other half a quarantine area; 8 x 2,000 L tanks), a new research shed (completed in May 2009 housing 20 x 2,000 L tanks) and outdoor ponds used for research (5) and the breeding program (40). There is a plentiful source of water available from bore and the Murrumbidgee River. Numerous species of freshwater fish were well maintained in the old hatchery, new research shed and ponds allocated to research. The broodstock shed at NFC is an accredited hatchery under I&I's Hatchery Quality Assurance Program which has detailed reporting requirements and is audited annually. During 2010 all fish produced at the hatchery were done so as routine production for stocking as fingerlings (breeding program) and not as part of any form of research taking place under an Animal Research Authority approved by the ACEC. The NFC is a centre fulfilling significant scientific research in conservation, breeding and aquaculture.

### Inland Saline Aquaculture Research Centre at Wakool

ISARC is a small research facility designed to evaluate the performance of various species in inland saline groundwater, it has aquaria tanks and outdoor ponds. This facility was not operating during 2010.

### Sydney Water's Liverpool Dam and Broughton Pass Weir

These facilities were inspected on 25 October 2010 by Mr John Kennedy and Mr Tony Gregory. Joe Pera guided the inspection and provided an overview of the entire process advising Committee members how the dams are managed and work together to supply Sydney's water. Joe's thorough knowledge of the systems in place ensured he was able to provide detailed responses to any questions from the Committee. The fish were in good health and no welfare issues were noted. There were some issues with the water probes that measure pH and conductivity and tank water heaters, however a technician has now repaired these problems.

### DECCW's Laboratory at Lidcombe

The Ecotoxicology and Water Science Laboratory was inspected by the Committee, after an ACEC meeting on 22 June 2010. This is a purpose-built facility, featuring an air conditioned aquarium room with energy efficient design. There is large capacity water filtration equipment with a servicing capacity of up to 1,000 fish (small species) in 220 L glass tanks (in stainless steel shelving) and 1,000 L fibreglass aquaria. There is back-up power available in case of mains failure. Eastern Rainbow fish and juvenile Australian bass are housed (separately). Facilities are kept in excellent condition with fish observed to be healthy and feeding vigorously. Tanks were numbered with research authorities attached and records current.

## **6 Activities that have supported the educational needs of AEC members, and of personnel involved in the care and use of animals**

The Committee visited the Tallowa Dam High Fishway on 13 October 2010, before commencing the ACEC meeting at the nearby Kangaroo Valley Golf and Country Resort. The visit was accompanied by I&I's Chris Walsh; a Freshwater Fish Ecologist located at the Batemans Bay office. Chris showed ACEC members around the site and provided valuable insight and information relating to the Dam and in particular the new environmental flow infrastructure and a mechanical fishlift. These works improve the health of the river system by allowing for new environmental releases from the dam that better mimic natural river flows, and enabling native fish to migrate up and downstream of the dam. Freshwater fish need to travel up and downstream to breed, feed, disperse, and form new territories and to avoid predators. In 2009, the Sydney Catchment Authority built a fishway to allow fish to move up and down the Shoalhaven River past Tallowa Dam. It is the first time fish have been able to move upstream since the dam was built in the 1970s. The mechanical fishlift and the changes to the dam wall help fish move along the full length of the river. This visit provided Committee members with valuable first hand knowledge of the workings of fishways and fishlifts and will greatly assist with current and future ACEC decisions on these applications.

In the past, the Committee has taken part in demonstrations such as blood sampling, electrofishing and the use of various nets such as seine, fyke and gill nets and advised why different nets are used for different purposes. The ACEC believe it is important that Committee members better understand field practices and key procedures to assist them in making informed decisions on applications and renewals. During site inspections, some members have also been shown fish tagging, removal of otoliths and a spawning demonstration.

The Committee undertook a major review of the Guide to Acceptable Procedures and Practices for Aquaculture and Fisheries Research during 2008/09. The revised draft was sent to key I&I NSW staff for review and comment and the 3<sup>rd</sup> edition published in November 2009. This 3<sup>rd</sup> edition is a web-based version and includes further information on anaesthetics and euthanasia, using chemicals in research to treat fish, disease and health management, tagging protocol, blood collection, noxious and pest fish issues, improving the survival of platypus and non-target vertebrate when netting, pain in fish and updated versions of the application, renewal and inspection forms.

The Guide is available at

<http://www.dpi.nsw.gov.au/fisheries/aquaculture/publications/general/animal-care-and-ethics#Further-Information>.

## **7 Administrative or other difficulties being experienced**

The Chair (appointed 1996) has substantial assistance from a Fisheries Management Officer (who has been the Executive Officer of this ACEC since 1996) and this assistance is essential to the continuing smooth operation of this Committee which allows the Chair to focus on achieving the Committee's scientific and research outcomes.

## **8 Any matters that may affect the establishment's ability to maintain compliance with the Code and if necessary the provision of suitable recommendations**

All staff of I&I NSW (Fisheries) are always given early advice via email of the next ACEC meeting and why they need to have ACEC approval prior to commencing research. Staff are also given generous timetables (and reminders) to submit their applications, amendments and renewals to avoid last minute submissions or lack of. Staff are encouraged to contact the Executive Officer if they require any information or assistance.

## **9 The 3 Rs: Replacement, reduction, refinement**

The Committee regularly advises researchers to ensure minimum numbers of fish for valid statistical analyses are used. In 2010, researchers were asked to revise procedures to ensure more fish caught during sampling using nets in estuarine areas were returned alive. This has been achieved with shorter trawls, faster sorting and early release of susceptible fish.

### **I&I NSW (Fisheries) ACEC budget from July 2010**

Total expenditure for 2009/10 financial year was: **\$6,313.41**

#### Expenditure from 1 July 2010 is as follows:

June 2010 sitting fees and meeting expenses carried over (emailed to HO on 24-6-10 but not processed before end financial year)	\$1,045.82
Meeting sitting fees and meeting expenses for Oct (full day)	2,787.56
Meeting sitting fees (tele-conference) for Dec (half day)	741.32
Advertising Category A and D memberships	1,619.58
Facility hire and accommodation at Kangaroo Valley for Oct	2,150.00

Expenditure as at 17 February 2011 is: **\$8,344.28**

#### Estimated costs for March meeting at Lane Cove

Meeting sitting fees (6 x \$104)	\$624.00
Meeting expenses (mileage for members)	400.00
Room hire, catering, postage	500.00

#### Estimated costs for June meeting at Lidcombe

Meeting sitting fees (6 x \$104)	\$624.00
Meeting expenses (mileage for members)	400.00
Postage	50.00

Estimated Total expenditure for 2010/11 **\$10,942.28**