by skiing interests centre around Thredbo Village and the Ski-Tube link and their associated infrastructure. Further down the valley the predominant landuse on the southern side of the river is grazing on private land. The river's historic confluence with the Snowy River is now the site of Lake Jindabyne, part of the Snowy River Hydro-electric Scheme. The dam wall is assumed to be an impenetrable barrier to platypus movement. The plan was developed on the basis of:

* Characterising some aspects of platypus population biology in a 2-year study;

* comparing these data with limited baseline data;

* observing and interpreting the impacts of a major flood event on population dynamics coinciding with the 'melt' phenomenon;

* identifying likely impacts on the platypus population particularly in relation to water quality and siltation-sanding and determining the probable trends of these impacts.

It was then possible to suggest actions to ameliorate impacts on the platypus.

THE EFFECT OF ENVIRONMENTAL VARIABLES ON CAPTURE SUCCESS OF THE PLATYPUS USING GILL AND FYKE NETS

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Capture success of platypuses using gill and fyke nets over the period 1986-1993 has been assessed against a range of environmental variables using the Spearman's Rank Correlation Coefficient and in some cases simple linear regression models. Approximately 90% of all animals captured during this study have been netted between 1730 hours and 0100 hours regardless of age or sex. The peak capture period during which approximately 60% of animals were captured is between 1730 and 2230 hours. Variables examined included; number of platypuses captured, gill and fyke net hours, number of nets used, time nets set up and taken down, maximum and minimum day temperatures, time of sunrise and sunset, moon phase, time of moon rise and set, cloud cover, wind and rain conditions during trapping, 24 hour rainfall history prior to netting and some flow data. The number of nets, netting time, rainfall within 24 hours and temperature conditions all effect the chance of platypus capture in fyke nets ($p<0.05$). The number of gill nets and the time they are utilised are both positively correlated with platypus captures ($p<0.05$). However there are differences between sexes and age groups. Using gill nets, platypuses are more likely to be captured during clear nights and less likely to be captured during summer months. The probability of trapping males, females, adults and juveniles varies with the seasons.

A DECADE OF MARK-RECAPTURE OF PLATYPUSES ON THE DUCKMALOI RIVER: ANY NEW INSIGHTS INTO POPULATION DYNAMICS?

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A long-term mark-recapture program has been carried out on the Duckmaloi Weir (near Oberon, New south Wales) and associated river over the period 1986 to the present. The pipehead weir creates a long shallow 'pool' about 2.5 ha in area, ideal for gill-netting platypuses. One hundred and eighty two (182) individual animals have been captured in excess of 500 times. The majority of animals have been captured in the weir pool. A very dynamic situation exists with new adults and juveniles being captured on a regular basis and conversely captured animals "disappearing" on a regular basis from the system. Some individuals exhibit both transience and site attachment characteristics. However, relatively few animals remain site attached for long

periods of time. Sixty nine percent of individuals are captured two or fewer times. Band loss cannot account for this phenomenon. Of the captured animals, 11.3% have been caught more than 5 times. The sex ratio of the population favours females in first capture adults (1:1.72) but males in first capture juveniles (1:0.73). Females are more likely to be recaptured than males. The sex ratio of juveniles varies significantly from year to year. The period between recaptures varies greatly and can be up to 6 years. Four animals have been captured over nine years (3 females/1 male) but no animal has been captured every year of the study. Recruitment has occurred at levels able to maintain the current population numbers. Thirty percent of available adults have been found lactating, including second year females. Seventy one percent of first year capture juveniles and 89.9% of first capture adults "disappear" within two years of first capture. Forty two percent of juvenile animals reach adult status before "disappearing".

THE DISTRIBUTION AND ABUNDANCE OF PLATYPUSES IN THE THREDBO RIVER-LAKE JINDABYNE SYSTEM

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The Thredbo River is an upland alpine stream, with a steep gradient over its 50 km length contained within a 251 km^2 catchment in the Australian Alps. The altitude gradient from its source to Lake Jindabyne is 850 metres. The distribution and abundance of platypuses were determined over a two year period using volunteer sightings, disciplined transect walking and pool observation, gill-netting in selected pools and fyke-netting in riffle areas. Under low flow conditions, 93 pools were identified downstream of Dead Horse Gap, 85% of which were judged to be in the medium to small category. Under snow melt conditions, as river flow increases and smaller pool 'disappear' in the torrent, the carrying capacity of the river is significantly reduced. Some base-line data were available from the 1980s. Platypuses were uncommon or absent in the upland and common, but not abundant, in the mid and lowland segments of the river. Small numbers of platypuses were located in two larger tributaries, but none in the remainder, which had very steep gradients and narrow channels. Low recruitment rates, an overall decline in numbers, as judged by catch effort compared to base-line data, a probable increase in transience suggesting a non-stable population, are all signs that the population is under considerable stress. Episodic flood events, habitat degradation and the dam wall barrier preventing reinvasion from downstream segments of the population after flood-induced population losses, when considered together with population data, suggest that the platypus population is vulnerable.

AN ASSESSMENT OF STREAM FLOW MODELLING COMBINED WITH THE MONTANA METHOD AS A BASIS FOR DEVELOPING OPTIMAL ENVIRONMENTAL FLOWS BELOW A PROPOSED DAM

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Little research has been carried out in Australia to determine the riparian and environmental flows needed to maintain riverine ecosystem integrity. Given the range of organisms present in the Australian freshwater biota, each with its own optimal requirements, it is probable that management flow conditions arrived at from species-specific studies, may not necessarily benefit all organisms. We also have inadequate understanding of how freshwater organisms interact with dynamic changes that occur in river systems (drought and flood), and the generally degraded nature of these streams. Hence formulating management outcomes in regard to flow conditions must be viewed as a particularly complex issue. In this paper a case history study is described for a tableland stream in the central west of New South Wales, where a major dam is being built on a first order