

Australian Maritime College

Principal: Capt. D. M. Waters, M.Sc., Extra Master Mariner



Telephone: (003) 26 0711
Telex: AMC 58827
Facsimile: (003) 26 0717

Reference:

Enquiries:

2 April, 1990

The Secretary,
Fishing Industry Research and Development Council,
Department of Primary Industry,
Edmund Barton Building,
BARTON ACT. 2600

Dear Sir/Madam,

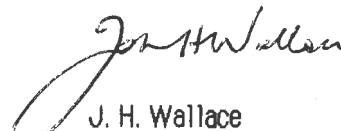
Final Report: FIRDC 88/44
"Fisheries Project for Post Graduate Students"

A list of suggested projects was presented to Graduate students enrolled in the Graduate Diploma of Applied Science (Fisheries Technology) course early in 1988. The list included locally-based projects and several remote ones compiled with the co-operation of institutions such as State and Federal Fisheries Agencies and the C.S.I.R.O. Three students received assistance under this grant. Supervisor travel in support of student projects was also paid, the total being \$3013. Details of expenditure is given in Attachment A.

All three students submitted projects which were passed by the course examination committee. Summaries of the FIRDC supported projects are included in Attachment B. Copies of the complete reports can be made available on request.

The FIRDC Postgraduate student project grant undoubtedly fulfills a valuable function in permitting students to select projects considered worthy of investigation by fisheries agencies remote from this College. FIRDC financial support is gratefully acknowledged.

Yours faithfully,



J. H. Wallace
Head: School of Fisheries

Attachment A) Expenditure Details
B) Summaries of projects

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ATTACHMENT A: EXPENDITURE UNDER FIRDC GRANT NO. 88/44

Student	Costs	Research Project Title	Co-operating Institution
Heise G.	105-70	A study of Whitebait in the Northern Rivers in Tasmania with Particular Reference to the Great Forrester River.	Inland Fisheries Commission
Lewis M.	612-53	Evaluation of a New Method for Monitoring the Impact of Salmonid Farming on Benthic Macrofauna.	University of Tasmania
Milne D.	689-00	The effect of temperature and time on Yellowfin Tuna (<u>Thunnus albacares</u>) in transit from Australia to Japan.	Queensland Dept. of Primary Industry
McIlgorm A.	1137-50)	
Mahoney D.	468-00)	Supervisor travel in support of student projects
	<u>\$ 3012-73</u>		

"A study of Whitebait in the Northern Rivers in Tasmania
with Particular Reference to the Great Forrester River."

ABSTRACT

This report presents the results of a two month survey of the species composition and relative abundance of whitebait (Suborder Galaxioidei) at two sites in the Great Forrester River, North-East Tasmania, for 1988. Galaxias maculatus dominated the catch at 77% of total catch. G. truttaceus was the second most abundant species at 19% of total catch. The Tasmanian whitebait, Lovettia seali, constituted less than 1% of total catch. The whitebait run peaked in November. Prototroctes maraena was recorded from this river for the first time. Significant numbers of juvenile Pseudaphritis urvilla (congolli) were caught. There is presently little information on the reproductive biology of this fish (Merrick et al 1984). Catch and its relation to river flow, lunar cycle, and tide height is examined for the Mersey, Rubicon, and Great Forester Rivers.

G. Heise

"Evaluation of a New Method for Monitoring the
Impact of Salmonid Farming on Benthic Macrofauna."

SUMMARY

Samples of benthic macrofauna were collected from the Safcol salmonid farm, Nubeena, Tasmania. This macrofauna was used to evaluate the ABC (Abundance Biomass Comparison) method for detecting pollution induced disturbance in marine sediments. This method was proposed by Warwick (1986) and involves plotting cumulative percentage graphs of the weight and numbers of each species present in a sample. The relative position and shape of the graphs indicates the environmental situation. The method is easy to use, shows the results clearly and each species needs only to be separated and not identified. It has been shown that samples from one location can give an indication of environmental conditions without prior information regarding the pollution status.

Major changes in the benthic macrofauna were restricted to sites directly under the cages. The fauna was depleted under the centre of the cage but was not significantly affected at a site 5 metres outside the cage shadow. The ABC method proved to be sensitive to the rapid recovery observed in the macrofauna after a temporary cessation in the addition of organic material.

M. Lewis

"The effect of temperature and time on Yellow fin Tuna
(Thunnus albacares) in transit from Australia to Japan."

ABSTRACT

The aim of this study was to monitor temperatures of Yellowfin Tuna (*Thunnus albacares*) from time of capture to customs clearance in Japan and to assess the effects of heat and storage time on fish myoglobin oxygenation, hence colour. The study involved the monitoring of fish and ice slurry temperatures on board a tuna longlining vessel from time of capture to unloading.

To evaluate intransit temperatures, disposable temperature monitors were placed in packed cartons of chilled tuna during transit by air to Japan. A model, simulating the effects of ambient temperatures (25°C) on cartons placed at various locations within consignments was developed. Fish core, air, surface and carton side, end temperatures were monitored, using various insulation placements.

Colour analysis of fish packed in gas permeable and gas impermeable bags were performed using the Hunter Lab Scan colour analyser after fish were exposed to air for 60-90 minutes. Results indicate fish are caught and chilled efficiently to 0-2°C prior to packing. Fish temperatures increased intransit with fish reaching estimated core temperatures of 7°C. It was found during the study that temperatures of 7°C did inhibit the oxygenation of myoglobin but losses during the time frame intransit (24-36 hours) were not sufficient to cause concern.

In summary fish cooling was performed efficiently, consignments maintained reasonable temperature integrity and flesh colour at auctions in Japan should only exhibit slightly reduced colour.

The ability or quantity of myoglobin available for oxygenation were found to vary with fish size. Small fish (15 kg) showed variable colour during trials, while 35 kg fish (the largest tested) produced the highest colour readings of the range of fish evaluated. This result confirmed initial assumptions concerning fish colour, oxygenation, made in the introduction. The possibility exists of using gas permeable and gas impermeable bags for packing butchered fish blocks for the Japanese chilled sashimi market.