

Australian Maritime College

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



P.O. Box 986
Launceston
Tasmania
Australia 7250

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

Reference: 274 116 1A

Enquires:

18 November, 1988

The Secretary
Fishing Industry Research Committee,
Department of Primary Industry,
Edmund Barton Building,
BARTON ACT 2600

Dear Sir/Madam,

FINAL REPORT: FIRTA GRANT NO. 88/47
"FISHERIES PROJECTS FOR POST GRADUATE STUDENTS"

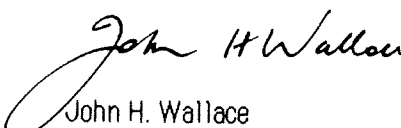
A list of suggested projects was presented to graduate students enrolled in the Graduate Diploma of Applied Science (Fisheries Technology) course early in 1987. The list included locally-based projects and several remote ones compiled with the co-operation of institutions such as State and Federal Fisheries agencies and the CSIRO. Six students received assistance totalling \$4640 under this FIRTA grant. Details of expenditure are given in Attachment A.

All six students submitted projects which were passed by the course examination committee. Mr. M. Connell was subsequently awarded the Tasman Boat Brokers Prize for his project and course results. Summaries of the FIRTA supported projects are included in Attachment B. Copies of the complete reports can be made available on request.

The fact that the full amount of this 1987 FIRTA grant was not utilised arises because only six students selected remote projects. Experience shows that for budgetting purposes it is prudent to assume a higher proportion of interstate projects and higher average costs per project.

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

Yours faithfully,


John H. Wallace
Head of School of Fisheries

Attachment: a) expenditure details
b) summaries of projects

ATTACHMENT A: Expenditure under FIRTA grant No. 87/97

STUDENT	PROJECT	COSTS (\$)	CO-OPERATING INSTITUTION
J. Lynas	Some aspects of the rainbow trout (<u>Salmo gairdneri</u>) population in Great Lake, Tasmania.	279-00	Inland Fisheries Commission, Tasmania
D. Logan	The economic feasibility of intertidal Pacific Oyster (<u>Crassostrea gigas</u>) culture.	484-70	S.A. Department of Fisheries
C. Terry	The development and future of the east coast tuna long line fishery.	217-80	Australian Fisheries Service Canberra
K. Filak	Modified atmosphere packaging, <u>Lactobacillus</u> and histamine poisoning.	1463-78	CSIRO Seafood Laboratories, Hobart
T. Battaglione	An economic evaluation of squid jigging in south-eastern Australian waters.	1173-00	Australian Fisheries Service, Canberra
M. Connell	An investigation into the suitability of barramundi, <u>Lates calcarifer</u> (Bloch), otoliths as an ageing tool.	1022-00	Northern Fisheries Research Centre, Cairns
<u>TOTAL</u>		<u>\$4640-28</u>	

Attachment B. Summaries of projects: FIRTA grant 87/97

THE ECONOMIC FEASIBILITY OF INTERTIDAL PACIFIC OYSTER
(CRASSOSTREA GIGAS) CULTURE.

DARYN LOGAN

This report presents information pertinent to the development of an intertidal pacific oyster (Crassostrea gigas) lease. A 50% return on capital was obtained with a price of \$2-40 per dozen, survival rate of 70% and a stocking rate of 1000 spat per 6mm basket. The profitability of the project varies with the price, survival rate and stocking density realised. The price depends on a range of market forces, including promotion, available markets, competition from other products and standard supply and demand relationships.

SOME ASPECTS OF THE RANBOW TROUT SALMO GAIRDNERI POPULATION
IN GREAT LAKE, TASMANIA

JOHN LYNAS (BSC.)

Section 1

The results of a tag study of the rainbow trout population in Great Lake were analysed. Tag returns were obtained from the spawning run and anglers. Tag loss, tagging mortality, annual mortality, fishing mortality and abundance were estimated. The non-return of tags by anglers was significant in the second year.

Section 2

A questionnaire, used by the Inland Fisheries Commission, Tasmania to obtain angling data such as catch and effort, was validated.

Section 3

Rainbow trout redd positions were examined in two artificial spawning channels. Mean flow velocity in one channel was significantly higher than the other. It was concluded that, in both channels redds were built in the regions of highest flow velocity associated with a suitable substrate. These favoured positions occurred close to rock barriers.

MODIFIED ATMOSPHERE PACKAGING, LACTOBACILLUS AND HISTAMINE
POISONING
AN UNEXPLORED POTENTIAL RELATIONSHIP

KENNETH FILAK

In recent fisheries literature and research the subjects of Modified Atmosphere Packaging (MAP) and histamine poisoning are two subjects of increasing interest. Surprisingly, in light of the selective advantage that MAP appears to give to *Lactobacillus* and the proven ability that *Lactobacillus* has to decarboxylize histidine and produce histamine, the potentially hazardous link between these two subjects has not been previously noted. This paper reviews the available scientific literature to assess the hazard and discusses the use of MAP for warm water species, particularly those already associated with histamine poisoning. It also reports on the results of some preliminary experiments. This has particular relevance to certain of the island nations of the Pacific which may wish to use MAP on such high valued fish like Mahi-Mahi (*Coryphaena hippurus*) which are in abundance and have been associated with histamine poisoning.

THE DEVELOPMENT AND FUTURE OF THE EAST COAST TUNA LONG LINE
FISHERY - WITH SPECIAL REFERENCE TO ECONOMIC FACTORS PROMOTING THE
FISHERY

CALVIN TERRY

The habitat and distribution of the main species caught is examined. A literature review traces the development of the fishery to 1987 and the major influences on the future of the fishery are discussed.

AN INVESTIGATION INTO THE SUITABILITY OF BARRAMUNDI, *LATES*
CALCARIFER(BLOCH), OTOLITHS AS AN AGEING TOOL

MARK CONNEL (B.Sc.)

Otoliths and scales from specimens of a sexually precocious population of barramundi, *Lates calcarifer*(Bloch), were examined. The concave side of a whole otolith, when immersed in aniseed oil and viewed with reflected light, gave the clearest definition of alternating opaque and hyaline rings. A comparison of opaque ring counts and scale check counts for each fish (n=119) revealed an agreement of 81.5% (correlation coefficient, $r=0.964$). Total fish length (TL cm) was related to otolith radius (R mm, focus to posterior tip) in a linear form $TL=R \times 9.02-3.42$. No significant differences were found between back-calculated lengths from corresponding otolith rings and scale checks.

The usefulness of barramundi otoliths as an ageing tool and the possibility of false ring formation on the otoliths of sexually precocious barramundi are discussed.

AN ECONOMIC EVALUATION AND REVIEW OF SQUID JIGGING FROM SMALL
VESSEL IN SOUTH-EASTERN AUSTRALIAN WATERS

A. N. BATTAGLENE

In recent years, interest has developed in establishing a jig fishery for squid in south-eastern Australian waters. This project reviews the available literature on the squid resource of south-eastern Australia; the processing and marketing aspects of squid, and the jig method of fishing. Commercial squid fishermen were interviewed to determine average capital and operational costs associated with squid jig fishing. Breakeven points were determined for various catch rates and ex-vessel prices. Catch rates during different phases of the moon were investigated. The potential for the establishment of a jig fishery is discussed.

It was concluded that the establishment of a squid jig fishery is economically viable if demand for the product remains strong. Catch rates at full moon were found to be lower than at other moon phases which supported the findings of previous studies.

Australian Maritime College

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



P.O. Box 986
Launceston
Tasmania
Australia 7250

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

Reference:

Enquiries:

18th November, 1988

The Secretary,
Fishing Industry Research Committee,
Australian Fisheries Service,
Department of Primary Industry,
CANBERRA A.C.T. 2600

Dear Sir/Madam,


FINAL REPORTS: 1987/88 FIRTA GRANTS

I have pleasure in enclosing the following reports:

- | | |
|------------------|---|
| Grant No. 87/98: | Scholarships for Trainee Fishermen |
| Grant No. 87/97: | Fisheries Projects for Post Graduate Students |
| Grant No. 87/96: | Scholarships to Attend Flume Tank Courses |

If further detail is required please do not hesitate to contact me.

Yours faithfully,


John H. Wallace
Head: School of Fisheries