



Australian Government  
Australian Fisheries Management Authority



## Call for research proposals for the Western Tuna and Billfish Fishery

The Western Tuna and Billfish Fishery Management Advisory Committee is the principal advisory body to the Australian Fisheries Management Authority (AFMA) on issues affecting the Western Tuna and Billfish Fishery (WTBF). In this role, the MAC supports research that will provide greater certainty in fishery assessment and management.

The MAC is currently calling for individuals or research institutions to submit research proposals for possible funding in 2009/10. The list of current research priorities for the WTBF is attached. All research proposals received should address one or more of the priorities.

Research proposals may qualify for funding from the WTBF MAC-Initiated Research Fund, the AFMA Research Fund, the Fisheries Research and Development Corporation (FRDC) or the Seafood Industry Fund (SIF). Proposals seeking FRDC funding for 2009/10 must have MAC endorsement if the proposal, or part thereof, is attributed to the WTBF.

Proposals will then be presented to the MAC's Research Sub-Committee (RSC) for consideration. The RSC will then rank all proposals with regard to the WTBF research priorities and seek MAC endorsement. The MAC's advice along with the pre-proposals will then be submitted to AFMA by 18 June 2008 in accordance with AFMA's 2008 [timetable](#) for consideration by the AFMA Research Committee and Commonwealth Fisheries Research Advisory Board. Researchers will then be notified of the outcomes of this process (late July) and successful applicants will be asked to develop full proposals.

Please contact the Research Sub-Committee Chair, Mr Kevin McLoughlin on 02 6272 4015 or email [Kevin.McLoughlin@brs.gov.au](mailto:Kevin.McLoughlin@brs.gov.au) or MAC Executive Officer Anthony de Fries, on 07 5499 6822, mobile 0412 918 641 or by email [adefries@bigpond.net.au](mailto:adefries@bigpond.net.au) to discuss possible projects.

This year pre-proposals will be accepted in the first instance and must be in [FRDC format](#). All research pre-proposals must be saved into FishNet and a copy emailed to Anthony de Fries at [adefries@bigpond.net.au](mailto:adefries@bigpond.net.au) or mailed to 27 Saltair Street Kings Beach QLD 4551 by **Thursday 12 June 2008**.

Yours sincerely

Mr Kevin McLoughlin

Chair WTBF MAC Research Sub-Committee

15 May 2008

### Attachments

1. WTBF research priorities 2009/10
2. Research relevant to the WTBF



## WESTERN TUNA AND BILLFISH FISHERY RESEARCH PRIORITIES 2009/10

The 2009/10 research priorities for the WTBF are listed under four ranked categories:

1. Improving industry efficiency.
2. Refinement of Area of Relevance (AoR) harvest strategies in the context work undertaken by the Harvest Strategy Working Group.
3. Improve our understanding of fishery impacts on high risk species identified in the WTBF Ecological Risk Assessment (and residual risk process) or the investigation of potential mitigation strategies.
4. Fish tagging in the WTBF.

These priorities are intended for researchers targeting the Fisheries Research and Development Corporation (FRDC), AFMA Research Fund (ARF), MAC Initiated Research Funds (MIRF) and the Seafood Industry Fund (SIDF). Researchers and stakeholders should be aware that some projects can provide benefits to a range of fisheries and not just the WTBF. Alignment with other fisheries, in particular the Eastern Tuna and Billfish Fishery should be considered as appropriate.

Researchers considering development of proposals that address the fishery's priorities are advised to contact the Executive Officer in the first instance. A list of recent and current research projects relevant to the WTBF is attached. Priorities are listed in order of importance within each category. More information is available at <http://www.afma.gov.au/fisheries/tuna/wtbf/default.htm>

### **Improving industry efficiency**

Activity in the fishery has declined in recent years primarily due to unfavourable economic circumstances (strong Australian dollar, high fuel costs and a softening in the Japanese sashimi market). Industry has identified, as a high priority, the need for new approaches to improve both returns on product and to reduce the cost of fishing, such as:

1. Developing methods to increase fishing efficiency possibly by way of a desktop study of how these species are caught by other fleets (e.g. Fish Attracting Devices (FADs), purse seining, different baits, different gear configurations, cooperative fishing strategies etc).
2. Investigation of options for internationalising the WTBF including collaborative fishing (sustainable harvest) and processing arrangements with foreign fleets.
3. Investigation of options for value adding to improve profitability, to strengthen access to existing markets and to assist in the development of new markets.
4. Approaches to reduce management costs – electronic monitoring for compliance and scientific purposes, future harmonisation of management arrangements with the ETBF.
5. Improved access to markets through eco-labelling.

## Development and refinement of Area of Relevance (AoR) harvest strategies for key species

A key element of the Commonwealth Government's [Securing our Fishing Future](#) initiative for Commonwealth fisheries is the implementation of the Commonwealth Harvest Strategy Policy by 1 January 2009 (international fisheries).

Initial harvest strategies were developed by the Commonwealth Fisheries Harvest Strategy Working Group and fishery specific settings were reviewed by the WTBF Research Assessment Group in February 2008. A key task for WTBF MAC and RAG in 2009 and 2010 will be to review the initial harvest strategies.

An ongoing research need is to improve our understanding of the stock structure of swordfish, bigeye and yellowfin tuna in the eastern Indian Ocean Area of Relevance (AoR) which is expected to reduce the uncertainty associated with harvest strategies for the WTBF. Genetic studies to date have not provided conclusive information on stock structure of swordfish, bigeye or yellowfin tuna within the Indian Ocean; however, novel or refined approaches that could contribute to knowledge on stock structure will be considered. The IOTC Scientific Committee considers that swordfish may be subject to overfishing in the south-western Indian Ocean. On this basis WTBF RAG agreed that it was important to investigate if there were separate eastern and western stocks in the Indian Ocean. The RAG agreed that similar research on bigeye tuna and yellowfin tuna was also needed but ranked these behind swordfish respectively in priority.

Research needs identified are:

1. Reviewing and refining the initial Harvest Strategies in the WTBF's AoR.
2. Fishery interactions – improve our understanding of the possible impacts the significant Indonesian fishery operating to the north and north-west might have on the WTBF. Such a proposal could link in with collaborative work being undertaken by Indonesia and Australia to gain a better understanding of Indonesia's total Indian Ocean catch of tuna and billfish as well as some of the key parameters associated with that catch (CPUE, spatial characteristics and size distribution)<sup>1</sup>.
3. Stock structure of swordfish, bigeye tuna and yellowfin tuna in the eastern Indian Ocean, with particular emphasis on determining the relationship between fish caught within the WTBF and those caught throughout the region and the broader Indian Ocean.
4. Investigation of the spatial and temporal characteristics of the swordfish component of the WTBF (development of CPUE standardisation techniques).
5. Development of assessment approaches for oceanic shark species taken as bycatch in longline fishing operations to identify preliminary reference points, decision rules and management responses. *Researchers considering developing a proposal along these lines would need to consult with the MAC and AFMA in regard to how the prevailing jurisdictional arrangements apply to the management of shark bycatch in the WTBF.*

## Bycatch and discarding strategy

AFMA is currently preparing a bycatch and discards workplan for the Australian Tuna and Billfish Longline Fisheries (ATBLF). The species of priority are those identified at high risk (qualitative) in the respective Ecological Risk Assessments undertaken for the ETBF and WTBF. AFMA is currently finalising Residual Risk Assessments for both fisheries which

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<sup>1</sup> This work, which is being funded by the Australian Centre for International Agricultural Research (ACIAR), also aims to build capacity to enable Indonesia to administer and undertake its own data collection and stock assessments for tuna and billfish species

better categorise species at high risk from longline fishing operations which is the dominant catching method used in both fisheries at present.

1. Alternative and cost effective monitoring strategies to complement logbook reporting, observer coverage in order to improve our understanding of bycatch composition and discarding practices. These might include electronic monitoring or programs aimed at training, and credentialing, crew to collect reliable supplemental data.
2. Identifying potential 'incentives' for discarding of target species; and obstacles to better utilisation of bycatch including management and market solutions within sustainable parameters.
3. Identify mitigation techniques to reduce the quantity of bycatch taken by the longline sector and the purse seine sector (if observer data indicates issues exist in this sector).
4. In regard to certain species consider supporting specific research (most likely desktop analyses) with a view to integrating these into the assessment process to more accurately determine the risk profile for that species. WTBF RAG and MAC have both noted that the risk assessment processes undertaken thus far have been conservative and in the case of poorly understood species has a tendency to default to higher risk categorisations.

Researchers interested in submitting pre-proposals which address discarding and bycatch reduction strategies are advised to contact the Executive Officer and/or Mr Michael Tudman (Bycatch and Discards Program – Manager) on 02 6225 5409.

### **Fish tagging in the WTBF**

WTBF MAC, noting that the Ministerial Direction emphasises the importance of fishery independent surveys, supported AFMA's view that properly implemented tagging programs were likely to provide semi-fishery independent information that could support stock assessment and HSFs given that widely distributed highly migratory species are not amenable to the application of conventional fishery-independent survey methodologies.

In this context WTBF MAC encourages proposals seeking to improve our knowledge of tuna stocks (particularly the extent of mixing) through local tagging including linkages with the regional IOTC tuna tagging program.

The MAC also recognised that the most cost effective way to tag swordfish and marlins was to use industry or recreational anglers rather than scientists on specialised charters as, unlike tuna, juveniles of these species do not aggregate to any great extent. In this context the MAC recognised the value of recreational tagging as supported by the GameFish Tagging Program administered by the NSW Department of Primary Industries and the industry tagging of swordfish as supervised by CSIRO. The MAC believes that the utility of such tagging by both the recreational and industry sectors could be significantly boosted by specialist training workshops aimed at reducing tag shedding and improving the information at point of release. This may need to be complemented by a longer term cost effective publicity program that targets the recreational sector, domestic industry and high seas fleets to improve tag reporting rates. The MAC would welcome proposals addressing the tagging of billfish and other species of significance in the WTBF.

1. Improving our understanding of yellowfin and bigeye tuna ecology through tagging initiatives in the Australian Area of Relevance.
2. What species should the recreational and industry sectors be tagging to maximise prospects of getting useful information for science and management – and can support programs run in conjunction with agencies like NSW GameFish Tagging Program and CSIRO add significant value to such endeavours.

## Attachment 2. Research relevant to the WTBF as of April 2008

Reference	Year	Research priority	Project title	Status	Agency
FRDC 1995/102	1995	Industry efficiency	The development of selective longline system for the capture of Ray's Bream.	completed	AMC
F96/0213	1996	Harvest strategies and stock structure	SWTBF fishery desktop study	completed	BRS
F97/0191	1997	Harvest strategies and stock structure	Preliminary stock assessment of the tuna and billfish resources within the western AFZ	completed	CSIRO
F97/0217	1997	Harvest strategies and stock structure	Synopsis on the billfish stocks within the western AFZ	completed	CSIRO
F97/0607	1997	Industry efficiency	Determine operations regimes and efficiency of Western Australia longlining operations with the intention of further developing a bigeye tuna and broadbill sword fishery off WA	completed	CSIRO
F97/1466	1997	Discarding and bycatch reduction	Albatross longline interaction - Seabird interactions with longline fishing in the AFZ: 1996 seabird mortality estimates and 1988 - 1996 trends	completed	Tasmanian Parks and Wildlife Service
F97/1481	1997	Ecosystem health	The effects of longlining on seabird populations	completed	DPIWE (Tasmania)
FRDC 1998/107	1997	Discarding and bycatch reduction	A review of Australia's pelagic shark resources	completed	CSIRO
FRDC 1998/113	1998	Harvest strategies and stock structure	Developing techniques to estimate the age of bigeye tuna and broadbill swordfish off eastern Austral	completed	CSIRO
F99/0415	1999	Harvest strategies and stock structure	Assessment of the tuna and billfish resources in the WTBF and support for development of an operating model for tuna and billfish fisheries within AFZ	completed	CSIRO
F99/1541	1999	Harvest strategies and stock structure	Determining the nature and extent of swordfish movement and migration in the eastern and western AFZ through an industry-based tagging program	completed	CSIRO
R99/0159	1999	Harvest strategies and stock structure	Population structure of Australian swordfish, <i>Xiphias gladius</i>	completed	CSIRO
FRDC 1999/109	1999	Harvest strategies and stock structure	Migration and habitat preferences of bigeye tuna Non-Technical Summary	completed	CSIRO
R99/0171	1999	Harvest strategies and stock structure	Archival Hard Part Collection - A basis for routine aging of tuna and billfish	completed	CSIRO
R99/1497	1999	Harvest strategies and stock structure	Archival Hard Part Collection - A basis for routine aging of tuna and billfish	completed	CSIRO
R99/1540	1999	Harvest strategies and stock structure	Assessment of the tuna and billfish resources within the Western AFZ and support for the development of an operating model for the tuna and billfish fisheries within the AFZ	completed	CSIRO
FRDC 1999/339	1999	Industry efficiency	Use of Property Rights in Fisheries Management ("FishRights99") Conference	completed	WA Dept. Fisheries

## Attachment 2

Reference	Year	Research priority	Project title	Status	Agency
R99/1542	1999	Harvest strategies and stock structure	WTBF size monitoring program for 1999/2000	completed	WW Fisheries
FRDC 2000/100	2000	Harvest strategies and stock structure	Age and growth of bigeye tuna ( <i>Thunnus obesus</i> ) from the eastern and western AFZ.	completed	CSIRO
R00/0327	2000	Harvest strategies and stock structure	SWTBF SAG 2000/2001	completed	BRS
R00/1154	2000	Harvest strategies and stock structure	Striped marlin: Biology and Fisheries	completed	BRS and Pepperell Research
R00/1158	2000	Harvest strategies and stock structure	A basis for routine aging of tuna and billfish	completed	R00/1157
R01/014	2001	Harvest strategies and stock structure	Age and growth of broadbill swordfish from Australian waters	completed	Jock Young CSIRO
R01/0254	2001	Ecosystem health	A scientific appraisal of the suitability of underwater setting chute technology as a seabird mitigation measure for Australian tuna longline fisheries	completed	Nigel Brothers
R01/0934	2001	Ecosystem health	Ecological risk assessment for Commonwealth fisheries, Final Report Stage One - Hazard identification and preliminary risk assessment	completed	CSIRO, BRS, MAFRI
R01/0376	2001	Harvest strategies and stock structure	SWTBF SAG 2001/2002	completed	BRS
R01/1294	2001	Harvest strategies and stock structure	Review and analysis of information required for the determination of TACs and decision rules relevant to the SWTBF	completed	Robert Campbell, CSIRO
R01/1295	2001	Harvest strategies and stock structure	WTBF size monitoring for 2002/03	completed	WW Fisheries
R2001/1158	2001	Harvest strategies and stock structure	Archival hard part collection - a basis for routine ageing of tuna and billfish	completed	CSIRO
2002 FRFF	2002	Discarding and bycatch reduction	Bycatch of sea turtles in pelagic longline fisheries	completed	BRS
FRDC 2002/235	2002	Industry efficiency	Onboard chilled storage of broadbill swordfish: Assessing and improving post harvest quality	TBA	Queensland DPI
R01/1293	2002	Harvest strategies and stock structure	Pilot scientific monitoring program for the WTBF	completed	Peter Ward: BRS
R02/0068	2002	Harvest strategies and stock structure	SWTBF SAG 2002/2003	completed	BRS
R02/0923	2002	Industry efficiency	Acoustic tracking system for marine mammals around fishing gear and preliminary trials of predation mitigation prototypes for line based fisheries	completed	Geoff McPherson, QDPI

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Reference	Year	Research priority	Project title	Status	Agency
R02/1071	2002	Discarding and bycatch reduction	A review of byproduct interactions and economics in Australia's longline fisheries	completed	James Findlay, BRS
R02/1097	2002	Harvest strategies and stock structure	Archival hard parts - A basis for routine ageing of tuna and billfish	completed	CSIRO
ACIAR-633	2002	Harvest strategies and stock structure	A review of Indonesia's Indian Ocean tuna fisheries and extension of catch monitoring at the key off-loading ports	completed	ACIAR
FRDC 2003/016	2003	Industry efficiency	Reduction of toothed whale interactions with fishing gear: development and assessment of predation mitigation devices around longlines	Completed	Geoff McPherson, QDPI
FRDC 2003/042	2003	Harvest strategies and stock structure	Development of a robust suite of stock status indicators for the Southern and Western, and Eastern Tuna and Billfish Fisheries	<a href="#">Under FRDC Review</a>	M. Basson, N. Dowling CSIRO
R02/1108	2003	Harvest strategies and stock structure	WTBF size monitoring program for 2003/04	completed	WW Fisheries
Report	2003	Discarding and bycatch reduction	Seabird interactions with longline fisheries in the Australian fishing zone: assessment report for the National Plan of Action for Reducing the Incidental Catch of Seabirds in Longline Fisheries	completed	DAFF
R03/1398	2003	Discarding and bycatch reduction	New deep setting longline technique for bycatch mitigation	completed	SPC/SeaNet
FRDC 2003/013	2003	Discarding and bycatch reduction	Sea turtle mitigation for Australian pelagic longline fisheries	completed	Beldi Consultants
R03/1431	2003	Stock assessment and structure	Archival Hard Part Collection - A basis for routine aging of tuna and billfish	completed	CSIRO
R04/0535	2004	Discarding and bycatch reduction	Potential interactions between Commonwealth managed fisheries	completed	BRS/AFMA
R04/1055	2004	Stock assessment and structure	Archival hard parts - A basis for routine ageing of tuna and billfish	completed	CSIRO
R06/	2006	Stock assessment and structure	Development and preliminary Testing of the Harvest Strategy Framework for the Eastern and Western Tuna and Billfish Fisheries	completed	CSIRO/BRS
R06/	2006	Discarding and bycatch reduction	Effects of fishing on high risk bycatch species	<a href="#">Final Draft</a>	BRS
R07	2008	Stock assessment and structure	Broadbill swordfish Movement Patterns in the Eastern Indian Ocean: Stock structure, Mixing and Australia's Area of Relevance	<i>Should commence in 2008/09</i>	CSIRO/AFMA/MIRF
FRDC	2008	Discarding and bycatch reduction	Testing and Development of Smart Hook System for mitigating Seabird and Turtle bycatch in longline fisheries	<i>Should commence in 2008/09</i>	B. Baker , H. Jusseit