



# 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 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

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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

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.