



Australian Government

Australian Fisheries Management Authority

**ComFRAB Research Opportunities – November 2009
Projects starting in the 2010-11 financial year**

The Commonwealth Fisheries Research Advisory Body (ComFRAB) assesses applications for funding of research for Commonwealth fisheries. In the 2009 research funding round, ComFRAB is making a second call for research relating to Commonwealth fisheries. Researchers are invited to develop full proposals against the project scopes outlined below.

Applicants should use the project scopes as a guide when developing their proposals to meet ComFRAB's identified need for the project. To assist in the quality control and to promote relevance of proposals, applicants are invited to discuss their applications with Dr Dave Alden, ComFRAB Secretariat, on 02 6225 5317 or Dave.Alden@afma.gov.au prior to submitting a full proposal.

Applications must be submitted via the FRDC Fishnet online application system at <http://www.frdc.com.au/research/fishnet-for-applicants>. Applicants will need to complete the full proposal form contained at that website.

Full proposals must be submitted online on Fishnet and must also be emailed to the ComFRAB Secretary (Research.Secretary@afma.gov.au) by 27 November 2009.

For those applications considered worthy, ComFRAB makes funding recommendations to funding bodies including: the Australian Fisheries Management Authority (AFMA); Fisheries Research and Development Corporation (FRDC); Department of the Environment, Water, Heritage and the Arts (DEWHA); and Department of Agriculture Fisheries and Forestry's Fisheries Research and Resources Fund (FRRF).

Where appropriate, ComFRAB will seek advice on submitted applications from relevant Management Advisory Committees.

ComFRAB November 2009 call for research proposals: Project scopes

	Project title	Project description
1	Evaluating the impact of fishing on marine turtles relative to other impacts.	<p>There are currently six species of marine turtle recognised in Australia, all of which are on the lists of threatened species under the <i>Environment Protection and Biodiversity Conservation Act 1999</i> (EPBC Act). The green, hawksbill and flatback turtles are currently listed as vulnerable and the loggerhead, leatherback and olive ridley turtles are listed as endangered.</p> <p>The main threats to marine turtles include marine pollution and habitat change. Other threats are accidental drowning in fishing gear, strikes by boat propellers, over-harvesting of turtles and eggs (allowed in some countries outside Australia, and under Aboriginal or Islander custom within Australia) and predation of eggs and hatchlings by introduced predators.</p> <p>There is a need to investigate the stock status of turtles, the causes of turtle mortality around Australia and to evaluate alternative management options in Commonwealth fisheries based on the estimated mortality of turtles due to fishing.</p> <p><u>Objectives</u></p> <ol style="list-style-type: none"> 1. Review the literature regarding existing research on spatial distribution and causes of mortality of turtles in the Eastern Tuna and Billfish Fishery (ETBF), Western Tuna and Billfish Fishery (WTBF), Northern Prawn Fishery (NPF) and East Coast Trawl. 2. Review the literature regarding management and mitigation measures currently in place. 3. Analyse turtle distribution and movement patterns and overlap with fishing distribution. Estimate the mortality resulting from interactions. 4. Review the relevant turtle stock assessments to include the estimated mortality on turtles. 5. Assess alternative management options to respond to the estimated level of turtle mortality. 6. Identify research gaps needed to inform fisheries management options to mitigate turtle interactions in these fisheries.
2	Incorporating economics into harvest strategies without bioeconomic models	<p>The Commonwealth Fisheries Harvest Strategy Policy requires that harvest strategies seek to maintain fish stocks at a target biomass point equal to the stock size required to produce maximum economic yield (MEY). There are some stocks for which some biological information is available such as yield per recruit, catch curves, length frequency time series and CPUE time series. While target reference points have been derived using this biological information, no frameworks have been developed that enable the incorporation of economics with this biological information in order to determine target reference points and control rules consistent with MEY.</p> <p>Therefore there is the need for cost effective methods to be developed that incorporate economics into the target reference points and control rules used for such harvest strategies. It is important to note that the purpose of this research is not to develop a list of economic performance indicators for such stocks, but rather methods to incorporate economics into target reference points and control rules for harvest strategies.</p>

	<p>It is important that any methods developed are relatively inexpensive — both to develop and implement for a given fishery. Also, case studies used in the research should be chosen strategically to ensure the results have a potentially wide range of use across other Australian fisheries.</p> <p><u>Objectives</u></p> <ol style="list-style-type: none"> 1. To identify cost-effective methods of incorporating economic indicators in the target reference points and control rules for stocks with some biological indicators. 2. To assess the case studies to demonstrate how these methods could be implemented in other Australian fisheries. <p>It is expected that objective one will comprise the majority of this research with particular emphasis on implementation within AFMA's harvest strategies. The proposal needs to refer to the BRS funded "RUSS" (Reducing Uncertain Species Status) project scope and outcomes and how this project will interface with the RUSS project.</p>
<p>3</p>	<p>Quantitatively defining proxies for limit and target reference points in data poor fisheries</p> <p>Currently, the majority of Commonwealth fish stocks don't have sufficient quantitative data to use the target reference point of B_{MEY} or B_{48} or the Limit reference point of B_{20} under the Commonwealth Harvest Strategy Policy. In lieu of a specific target reference point, harvest strategies for "data poor" fisheries generally aim to keep fishing catch and/or effort at a certain levels in relation to historic levels on the assumption that they are low and don't pose a threat of overfishing to the stock.</p> <p>Work is already occurring to test these harvest strategies and develop and use alternative reference points (using proxies such as $CPUE_{LIM}$) through both AFMA commissioned research and the BRS funded "RUSS" (Reducing Uncertain Species Status) project. Through the completion of existing work, including management strategy evaluations (MSE)s and other testing of harvest strategies in the RUSS project, it is anticipated that appropriate proxies for both limit and target reference points will be developed and tested for many species.</p> <p>However, these projects will not be able to cover all species in "data poor" fisheries that are under a harvest strategy. Further work is needed to develop suitable quantitative reference point proxies in line with the Commonwealth Harvest Strategy Policy using existing data collection methods (i.e. where there are no funds available to do any biological surveys). This may include species that have only catch and effort data, with no useful catch rate standardisation or life history information available. It is highly likely that this work would be very useful for fisheries not subject to the Commonwealth Policy as it will involve developing indicators and limit and target reference points for data poor fisheries, and this issue is relevant to all jurisdictions.</p> <p>This project relates to the project proposal "Incorporating economics into harvest strategies without bioeconomic models" and there may be a lot of opportunities for collaboration towards a target reference point that has both biological and economic indicators.</p> <p><u>Objectives</u></p> <ul style="list-style-type: none"> • Build on current work for species in data poor fisheries under harvest strategies that: <ul style="list-style-type: none"> ○ identifies biological indicators and

	<ul style="list-style-type: none"> ○ tests harvest strategies and quantitatively defines limit and / or target reference points in line with the settings of the Commonwealth Harvest Strategy Policy
4 Development of a User friendly desktop tool based on Atlantis existing runs.	
	<p>Fisheries Managers often need to rapidly explore possible impacts in the fishery and fishing industry of a range of changes in the fishery (for example, changes in fuel and fish prices, biophysical, environmental and economic drivers of the fishery, and alternative fisheries management regulations). Fisheries Managers and other stakeholders, including the fishing industry, would gain significant insights into the fishery from the ability to explore such changes without the need to undertake specific research projects.</p> <p><u>Objectives</u></p> <ol style="list-style-type: none"> 1. Develop a desktop software application to allow fishery managers and other stakeholders, including fishers, to analyse <ul style="list-style-type: none"> • The biophysical, environmental and economic impacts on fisheries resulting from changes in specific components of the biophysical, environmental and economic system • Changes in the biophysical, environmental and economic components of the fishery resulting from alternative fisheries management arrangements.
5 Development of seabird mitigation devices for the Commonwealth Trawl Sector	
	<p>Seabirds have been identified as threatened, endangered or protected (TEP) species under the <i>Environment Protection and Biodiversity Conservation Act 1999</i> (EPBC Act). In the Commonwealth Trawl Sector of the Southern and Eastern Scalefish and Shark Fishery (SESSF), seabirds are at risk due to interactions with trawl vessel warp lines. The AFMA bycatch and discard team have been working with industry, identifying the level of interaction and developing individual vessel management plans with a focus on seabird interaction mitigation. As vessels vary in shape and size it has been recognised that a one size fits all approach is unreasonable and that equipping the vessels with a range of mitigation device options that could be deployed at the skipper's discretion is more practical. The proposal needs to build on the considerable research undertaken by the Australian Antarctic Division (AAD) and in New Zealand.</p> <p><u>Objectives:</u></p> <ol style="list-style-type: none"> 1. Assess the range of seabird mitigation devices currently available to trawl fisheries. 2. Identify and develop a range of seabird mitigation devices that are cost effective and easily deployed in the Commonwealth Trawl Sector environment. 3. Conduct field trials of the seabird mitigation devices to determine the effectiveness for both mitigation and ease of deployment in varying conditions in the Commonwealth Trawl Sector. 4. Analyse the cost and benefits of the options trialled and make recommendations regarding implementation in the Commonwealth Trawl Sector and applicability to other Australian trawl fisheries.

6	<p>Empowering industry through improved understanding of stock assessments and harvest strategies</p> <p>Commonwealth fishers collect data that is used in stock assessments that influence fisheries management decisions. Fishers also participate in AFMA's resource assessment groups that review stock assessment models and model outputs; and management advisory committees that recommend management decisions that pursue the fishery's harvest strategy. To allow a broad range of fishers to actively participate in these processes, direct and indirect approaches to fishers' capacity building are required.</p> <p><u>Objectives</u></p> <ol style="list-style-type: none"> 1. Identify a possible suite of capacity building approaches that would suit commercial fishers and assist them to actively participate in resource assessment groups through improved understanding of stock assessments and harvest strategies. These approaches may include workshops, written materials, DVDs, interactive games, etc. 2. Determine the most suitable suite of capacity building approaches for commercial fishers through testing with selected fishers. 3. Use the results of objective 2 to deliver capacity building to a broad group of fishers in 3 case-study Commonwealth fisheries. 4. Review the efficacy of the capacity building undertaken in the 3 case studies.
7	<p>Spatial stock assessment and MSE for setting TACs in the Eastern Tuna and Billfish Fishery (ETBF)</p> <p>In November 2009 the Eastern Tuna and Billfish Fishery (ETBF) will move to an interim input management arrangement under the Management Plan for the fishery. This interim arrangement uses a combination of a Total Allowable Effort (TAE) (in the form of total number of hooks to be set in the fishery), which is distributed among fishers according to their allocation of Statutory Fishing Rights in the form of Individual Transferable Effort units (hooks). The TAE for the interim period will be set based on Recommended Biological Catches for each of the five primary target species using the agreed Harvest Strategy (HS) for the fishery.</p> <p>The HS for the ETBF target species has been evaluated as part of an FRDC funded management strategy evaluation (MSE) project, which will be completed in December 2009. One of the issues identified from this project was that while the regional stock assessments done for the Western and Central Pacific Fisheries Commission (WCPFC) are appropriate for the whole stock for the tuna and billfish species in the western and central Pacific Ocean (WCPO), there are a number of important technical issues which arise when using the outputs from these assessments to "condition" operating models for harvest strategy evaluation for the ETBF and immediately adjoining areas. These include specification of appropriate selectivities, spatial structures for the model, movement and mixing rates and forms and parameters for the stock-recruitment relationship.</p> <p>These issues were most important in the case of the tuna species (Bigeye, Yellowfin and Albacore) which are effectively "Pacific wide" assessments. In addition, the majority of the total catches for the fishery are taken by non-longline methods outside the ETBF. In the case of swordfish and striped marlin, there is a current ETBF focused assessment for the former. For the latter, the appropriate spatial structure is similar to swordfish (i.e. SW Pacific focus), however the available assessment is very preliminary and out of date.</p> <p>In light of these issues, a recommendation from the FRDC Project is that ETBF assessments be conducted for the primary target species to provide a more ETBF/SW Pacific specific basis for "conditioning" operating models for future harvest strategy</p>

	<p>evaluation for the fishery. As the advice on the TAE for immediate implementation of the management plan has been provided and agreed, the focus of this work would be on the development of region specific assessments for the primary target species as a basis for advice for setting quota levels for the implementation of the output management system in 2011. This work should be closely coordinated with the further work planned on harvest strategy evaluation under the “RUSS” project. The relative priority of individual target species should be determined in consultation with AFMA and Tropical Tuna MAC and RAG.</p> <p>The proposal needs to be developed in consultation with the BRS RUSS (Reducing Uncertain Species Status) team.</p> <p><u>Objectives</u></p> <ol style="list-style-type: none"> 1. In consultation with Secretariat of the Pacific Community (SPC), develop “SW Pacific” stock assessments for the primary target species of the ETBF. 2. In consultation with the RUSS project team, provide required inputs to condition operating models for SW Pacific stock dynamics and spatial structure, including current estimates of stock status and important uncertainties. 3. In collaboration with the SPC, develop a “demonstration” harvest strategy evaluation which includes the wider WCPFC fisheries for a priority target species, such as big eye tuna.
<p>8 Investigating handling practices to reduce chondrichthyan mortalities</p>	
	<p>AFMA and CSIRO have now completed risk assessments, residual risk assessments and rapid quantitative risk assessments for most Commonwealth fisheries. Chondrichthyan species form the most significant group of animals at risk from fishing in and across Commonwealth fisheries and are among the most vulnerable animals encountered due to their low productivities and susceptibility to capture.</p> <p>The formation of an expert-based Chondrichthyan Technical Working Group (CTWG) and subsequent meeting provided a forum for the discussion of effective strategies to manage the impacts of fishing on Chondrichthyans. The recommendations, published in the Chondrichthyan guide for fisheries managers included the potential for handling practices, trip limits and gear modifications. With the continuing pressure on shark populations throughout Australia the further investigation into the potential for some of these mitigation options is required.</p> <p><u>Objectives</u></p> <ol style="list-style-type: none"> 1. Review current literature on handling practices 2. Investigate shark stress and post-release survival 3. Develop best practice standards for individual fisheries 4. Identify adoption strategies for individual fisheries
<p>9 Assessing and auditing bycatch mitigation; a case study Northern Prawn Fishery</p>	
	<p>The Northern Prawn Fishery (NPF) has been at the forefront of Australian fisheries in the development and implementation of various bycatch mitigation devices. It is for this reason that the NPF can serve as a case example for assessing the status of current mitigation practices.</p>

	<p>Identifying reference values, in the form of standards, limits or targets, can be useful in mapping the success of bycatch mitigation measures. This is specifically important in relation to evaluating success against the objectives being pursued. This can help to develop a benchmark for fisheries bycatch reduction and lead to an increase in the efficiency of a fishery over time.</p>
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Objectives

1. Review and document the previous and current Bycatch Reduction Devices (BRD)s in the NPF
2. Review the current standards for approving current and new BRDs
3. Assess the effectiveness of current mitigation devices
4. Recommend appropriate targets for minimum bycatch reduction for BRDs in pursuing the NPF's ecological objectives.

NOTE: Proponents must specify in their proposals the projected costs and expected funding source, as well as alternatives.