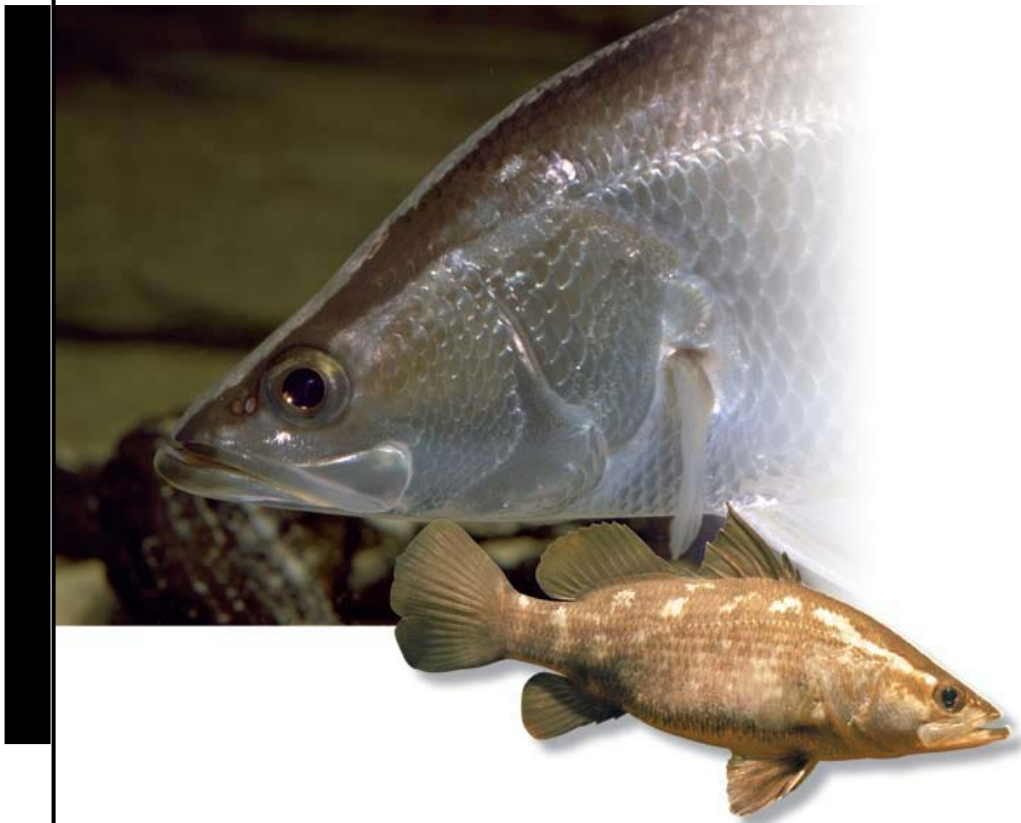


Performance Measurement System

East Coast Inshore Fin Fish Fishery (ECIFFF)



Version 1
June 2009

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Introduction

The East Coast Inshore Fin Fish Fishery (ECIFFF) is a multi-species fishery utilising various netting methods and hook and line gears in inshore and estuarine waters adjacent to Queensland's east coast. Target species vary between tropical and subtropical regions. The species targeted commercially include mullet, shark, whiting, bream, tailor, small mackerel, threadfins and barramundi, with other tropical and temperate species, such as garfish, queenfish, flathead, trevally and dart harvested as by-product. Mullet roe, shark and small mackerel products are exported. In 2007, there were 337 net boats and 331 line boats working in the fishery. Many operators in the fishery hold endorsements to operate also in other fisheries.

The ECIFFF includes many species of recreational significance. For several species the estimated annual recreational catch is greater than the commercial catch. Recreational fishers target whiting, bream, trevally, flathead, tailor, barramundi and small mackerels, typically with hook and line gear. Indigenous fishers utilise traditional subsistence methods to catch a range of species for customary purposes to supply product for community use. There are a range of input and output controls in place to manage the harvest of ECIFFF species by commercial and recreational fishers.

Measuring the performance of a fishery's management arrangements is integral to ensuring its long term viability and sustainability. The development of a Performance Measurement System (PMS) is also a requirement of the Wildlife Trade Operation (WTO) approvals granted under the *Environment Protection and Biodiversity Conservation Act 1999*, and is therefore helping to maintain export approvals. This PMS covers the Queensland East Coast Inshore Fin Fish Fishery and gives effect to the management regime in force under the *Queensland Fisheries Act 1994* and the *Queensland Fisheries Regulation 2008*.

A PMS will be a key component of any enhanced management arrangements for the ECIFFF Fishery, as it provides a set of transparent and verifiable measures against which Queensland Primary Industries and Fisheries (QPIF) can assess and report on the performance of the fishery and demonstrate its sustainability.

This PMS was developed in collaboration with the East Coast Inshore Fisheries Management Advisory Committee (Inshore MAC) (it is anticipated that this committee will be replaced by a Technical Advisory Group (TAG) by October 2009). Views of representatives from the commercial & recreational fishing sectors, fishery stakeholders, fishery managers, researchers and assessment and monitoring staff were sought to ensure that the PMS was reliable, defensible and precautionary, taking into account data limitations but incorporating the most appropriate information available.

Performance measures developed for the ECIFFF relate to:

- Retained (target and by-product species);
- Bycatch;
- Endangered, threatened and protected species; and

- The ecosystem

The PMS explicitly states broad whole of fishery objectives for commercial effort, recreational harvesting and shark harvesting, and outlines the methods by which fishery performance will be measured. Impacts on threatened, endangered and protected species and the ecosystem are also dealt with on a whole of fishery basis.

Objectives that are more specific to species targeted by the range of fishing practices employed in the ECIFFF have been divided into relevant sub-fishery categories:

- The bait collection sub-fishery
- The barramundi sub-fishery
- The inshore estuarine sub-fishery
- The ocean beach sub-fishery
- The small mackerel and shark sub-fishery; and
- The spotted mackerel sub fishery

While indicators used to measure the rate of change in catch of most species are assessed at the sub-fishery level, the main exception is shark. As shark is retained in several ECIFFF sub-fisheries, a whole of fishery performance measure has been developed to monitor commercial shark harvest against a precautionary Total Allowable Catch, currently set at 600 tonnes annually.

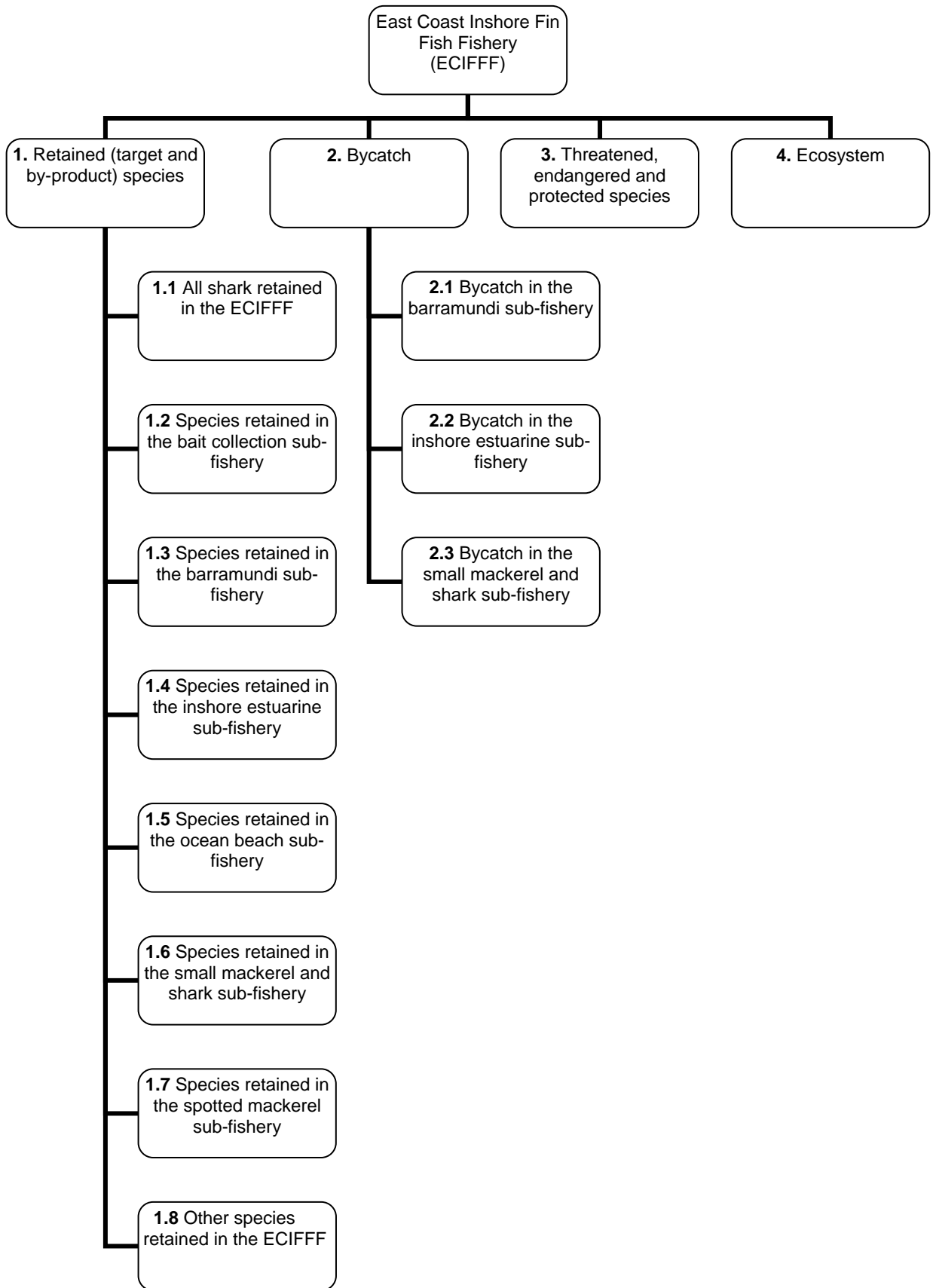
Incidental effects of fishing on bycatch species are recognised in the barramundi mesh net and line, the inshore estuarine net and the small mackerel and shark net and line sub-fisheries. Due to highly specific targeted fishing practices for migratory schooling fishes, the capture of bycatch species is considered negligible in other ECIFFF sub-fisheries, particularly for line fisheries.

This PMS will be reviewed after the first year of reporting to ensure that it remains:

- congruent with precautionary management;
- responsive to changing management priorities; and
- consistent with the objectives of the fishery.

Throughout this PMS, performance is measured against a reference limit, expressed either as discrete value (e.g. the TAC for shark) or as an acceptable rate of change (e.g. a specified reduction in harvest weight over a specified period) beyond which a management response could be expected.

When finalised, the Performance Measurement System will be approved by the Chief Executive as a formal instrument for measuring the performance of the ECIFFF.



Performance Measurement System Summary Table East Coast Inshore Fin Fish Fishery

Component	Operational Objectives	Indicators	Performance measures	Management response
Commercial net fishing effort	<p><i>i)</i> Constrain commercial net fishing effort to within historical levels.</p>	<p><i>i)</i> Number of days fished annually by commercial net fishers in the fishery.</p> <p><i>ii)</i> Annual effort in each subfishery [Future measure].</p>	<p><i>i)</i> The number of days fished in the net commercial fishery exceeds 28,150 days in any year.</p> <p><i>ii)</i> There are currently no performance measures specified for effort in ECIFFF sub-fisheries. [Future measure].</p>	<p>QPIF to review management arrangements for net effort in consultation with the TAG.</p> <p>A timetable for any management change will be identified within 3 months of becoming aware that the performance measure has been exceeded.</p>
Recreational harvest	<p><i>i)</i> Constrain recreational harvest to within historical levels.</p>	<p><i>i)</i> Estimate of the total annual recreational harvest weight.</p>	<p><i>i)</i> The total annual recreational harvest weight exceeds 4,000 tonnes in any year.</p>	<p>QPIF to review management arrangements for recreational harvest in consultation with the TAG.</p> <p>A timetable for any management change will be identified within 3 months of becoming aware that the performance measure has been exceeded.</p>

Component	Operational Objectives	Indicators	Performance measures	Management response
Logbooks	<i>i)</i> Achieve high compliance in maintaining logbook records during fishing.	<i>i)</i> Percentage of logbooks inspected that maintain valid records of current fishing operations.	<i>i)</i> The percentage of logbooks correctly completed is less than 95%.	<p>QPIF to review management arrangements for maintaining logbook records in consultation with the TAG.</p> <p>A timetable for any management change will be identified within 3 months of becoming aware that the performance measure has been exceeded.</p>
1.1 Retained (target and by-product) species – All shark	<i>i)</i> Maintain commercial harvest of shark at a precautionary level.	<p><i>i)</i> a & b) Estimates of annual commercial harvest and harvest rates by weight by species or species group, days fished (or other effort measure) and number of boats (logbook data); and</p> <p>c) Changes in composition of the commercial and recreational catch.</p>	<p><i>i)</i> a) The commercial annual harvest exceeds the legislated TAC: 480 t north of Baffle Creek or 120 t south of Baffle Creek; and</p> <p>b) There is a reduction in commercial harvest rate above 30% over 3 years.</p> <p>c) There is a significant change in species composition of the commercial and/or recreational catch.</p>	<p><i>i)</i> The Chief Executive has authority under the <i>Fisheries Regulation 2008</i> to apply an in-possession limit when monitoring indicates that the annual shark harvest has reached a trigger point, to avoid exceeding the legislated TAC.</p> <p><i>ii)</i> QPIF to review</p>

Component	Operational Objectives	Indicators	Performance measures	Management response
	<p>ii) Constrain recreational and charter harvest to within historical levels.</p> <p>iii) Maintain historical proportions of the harvest between “S” symbol holders and non-“S” symbol holders.</p> <p>iv) Reduce illegal finning at sea.</p>	<p>ii)</p> <p>a) Estimates of annual recreational harvest and release by weight by species or species groups (RFISH data); and</p> <p>b) Estimates of annual charter harvest and release by weight by species or species groups regionally (logbook data).</p> <p>iii) Ratio of total annual landings between “S” symbol fishers & non-“S” symbol fishers.</p> <p>iv) Percentage of vessels inspected with illegally finned sharks in possession.</p>	<p>ii)</p> <p>a) There is a change in recreational harvest or release above 50% between consecutive surveys; and</p> <p>b) There is a change in charter harvest rate above 30% over 3 years.</p> <p>iii) The ratio of non “S” – symbol to “S” symbol landings exceeds 0.1.</p> <p>iv) The percentage of vessels with illegally finned sharks in possession is more than 5%.</p>	<p>management arrangements. A timetable for any management change will be identified within 3 months of becoming aware that the performance measure has been exceeded.</p> <p>iii) A timetable for any management change will be identified within 3 months of becoming aware that the performance measure has been exceeded.</p> <p>iv) A timetable for any management change will be identified within 3 months of becoming aware that the performance measure has been exceeded.</p>

Component	Operational Objectives	Indicators	Performance measures	Management response
1.2 Retained (target and by-product) species – Bait sub-fishery	<p><i>i)</i> Maintain commercial harvest of garfish and other bait species at current levels.</p> <p><i>ii)</i> Constrain effort in the commercial bait fishery at precautionary levels.</p>	<p><i>i)</i> Estimates of annual commercial harvest and harvest rates by weight by species or species group.</p> <p><i>ii)</i> Estimates of annual commercial effort in the bait fishery (days fished and number of boats - logbook data).</p>	<p><i>i)</i> A change in commercial harvest or harvest rate of garfish or other specified bait species/species groups above 30% over 3 years.</p> <p><i>ii)</i> Annual effort increases by more than 10% over 2 consecutive years for individual bait species, or the bait fishery as a whole.</p>	<p><i>i)</i> A timetable for any management change will be identified within 3 months of becoming aware that the performance measure has been exceeded.</p> <p><i>ii)</i> A timetable for any management change will be identified within 3 months of becoming aware that the performance measure has been exceeded.</p>
1.3 Retained (target and by-product) species – Barramundi sub-fishery	<p><i>i)</i> Maintain commercial harvest of barramundi, threadfin and grunter at current levels</p> <p><i>ii)</i> Maintain recreational catch of barramundi and king threadfin at sustainable levels.</p>	<p><i>i)</i> Estimates of annual commercial harvest and harvest rates by weight for each species or species group, and effort days fished and number of boats for barramundi, threadfin and grunter (logbook data).</p> <p><i>ii)</i> Estimates of annual recreational harvest and release by weight for each species or species group for barramundi, threadfin and grunter (RFISH data).</p>	<p><i>i)</i> A change in commercial harvest or harvest rate of barramundi, grunter, king threadfin or blue threadfin above 30% over 3 years.</p> <p><i>ii)</i> A change (increase or reduction) in recreational harvest OR release of barramundi, grunter, king threadfin or blue threadfin above 30% over two estimate years.</p>	<p><i>i)</i> A timetable for any management change will be identified within 3 months of becoming aware that the performance measure has been exceeded.</p> <p><i>ii)</i> A timetable for any management change will be identified within 3 months of becoming aware that the performance measure has been exceeded.</p>

Component	Operational Objectives	Indicators	Performance measures	Management response
	<p><i>iii)</i> The most recent biomass and MSY estimates for the east coast barramundi stocks are of very low precision and unreliable. Additional collection of biological data & verification of catch & effort data is underway to more confidently reassess stock status (Campbell <i>et al.</i> 2008).</p>	<p><i>iii)</i> Outputs (e.g. recommended TAC and biomass estimate) from stock assessments for barramundi and king threadfin [Future measure].</p>	<p><i>iii)</i> Alternate performance measures for barramundi and king threadfin will be developed when reliable stock status information is available. [Future measure].</p>	
<p>1.4 Retained (target and by-product) species – Inshore Estuarine sub-fishery</p>	<p><i>i)</i> Maintain commercial harvest of whiting, bream and flathead at current levels.</p> <p><i>ii)</i> Maintain recreational catch of whiting, bream, flathead and mangrove jack at sustainable levels.</p>	<p><i>i)</i> Estimates of annual commercial harvest and harvest rates by weight for each species or species group, and effort days fished and number of boats for whiting, bream and flathead (logbook data).</p> <p><i>ii)</i> Estimates of annual recreational harvest and release by weight for whiting, bream, flathead, and mangrove jack (RFISH data).</p>	<p><i>i)</i> A change in commercial harvest or harvest rate of whiting, bream or flathead above 30% over 3 years.</p> <p><i>ii)</i> A change (increase or reduction) above 30% in recreational harvest OR release of whiting, bream, flathead, or mangrove jack over consecutive surveys.</p>	<p><i>i)</i> QPIF to review management arrangements. A timetable for any management change will be identified within 3 months of becoming aware that the performance measure has been exceeded.</p> <p><i>ii)</i> A timetable for any management change will be identified within 3 months of becoming aware that the performance measure has been exceeded.</p>

Component	Operational Objectives	Indicators	Performance measures	Management response
	<p><i>iii)</i> In order to reassess the stock status of bream, whiting and flathead, collection of biological data and reliable catch & effort data will be undertaken.</p>	<p><i>iii)</i> Outputs (e.g. recommended TAC and biomass estimate) from stock assessments for bream, whiting and flathead [Future measure].</p>	<p><i>iii)</i> Further performance indicators linked to outputs of regional (South East Qld) stock assessment for bream, whiting and flathead. [Future measure].</p>	
<p>1.5 Retained (target and by-product) species – Ocean beach sub-fishery</p>	<p><i>i)</i> Maintain commercial harvest of mullet, tailor and dart at current levels.</p>	<p><i>i)</i></p> <p>a) Outputs (e.g. recommended TAC and biomass estimate) from stock assessments for sea mullet and tailor; and</p> <p>b) Estimates of annual commercial harvest and harvest rates by weight for each species or species group, and effort days fished and number of boats for mullet, tailor and dart (logbook data).</p>	<p><i>i)</i></p> <p>a) Annual commercial landings of sea mullet (from Qld and NSW) exceed the recommended TAC of 3620 t (Bell <i>et al.</i> 2005); and</p> <p>b) Annual commercial tailor landings exceed the legislated 120 t TAC; and</p> <p>c) Annual commercial tailor landings are not greater than 50% of the legislated TAC; and</p> <p>d) A reduction in commercial harvest or harvest rate of mullet, tailor and dart above 30% over 3 years.</p>	<p><i>i)</i></p> <p>a & c & d) QPIF to review management arrangements. A timetable for any management change will be identified within 3 months of becoming aware that the performance measure has been exceeded.</p> <p>b) Under the <i>Fisheries Regulation 2008</i> the Chief Executive has authority to apply an in-possession limit when monitoring indicates that the annual tailor harvest has reached the legislated TAC</p>

Component	Operational Objectives	Indicators	Performance measures	Management response
	<p>ii) Constrain recreational harvest to within historical levels.</p>	<p>ii) Estimates of annual recreational harvest and release by weight for each species or species group, and effort for tailor and dart (RFISH data).</p>	<p>ii) A change (increase or reduction) above 30% in recreational harvest OR release of tailor and dart over two consecutive surveys.</p>	<p>ii) A timetable for any management change will be identified within 3 months of becoming aware that the performance measure has been exceeded.</p>
<p>1.6 Retained (target and by-product) species – Small mackerel and shark¹ sub-fishery</p>	<p>i) Maintain harvest of net caught grey mackerel and school mackerel at current levels.</p> <p>ii) Maintain harvest of net caught school mackerel at sustainable levels.</p>	<p>i) Estimates of annual commercial harvest and harvest rates by weight for each species or species group, and effort days fished and number of boats for net caught grey and school mackerel.</p> <p>ii) Outputs (e.g. recommended TAC and biomass estimate) from stock assessments for school mackerel [Future measure].</p>	<p>i)</p> <p>a) Annual commercial grey mackerel landings exceed the legislated 250 t TAC; and</p> <p>b) Annual commercial grey mackerel landings are not greater than 50% of the legislated TAC; and</p> <p>c) A reduction in commercial harvest or harvest rate of net caught grey mackerel or school mackerel above 30% over 3 years.</p> <p>ii) Further performance indicators linked to outputs of regional (South East Qld) stock assessment for spotted mackerel [Future measure].</p>	<p>i) Under the <i>Fisheries Regulation 2008</i> the Chief Executive has authority to apply an in-possession limit when monitoring indicates that the annual grey mackerel harvest has reached the legislated TAC.</p> <p>ii) A timetable for any management change will be identified within 3 months of becoming aware that the performance measure has been exceeded.</p>

¹ Shark component dealt with in *1.1 Retained (target and by-product) – all shark* section on page 7.

Component	Operational Objectives	Indicators	Performance measures	Management response
<p>1.7 Retained (target and by-product) species – Spotted mackerel sub-fishery</p>	<p><i>i)</i> Maintain commercial harvest of spotted mackerel, school mackerel, shark mackerel and trevally at current levels.</p> <p><i>ii)</i> Maintain recreational harvest of spotted mackerel and school mackerel at sustainable levels</p>	<p><i>i)</i> Outputs (e.g. recommended TAC and biomass estimate) for spotted mackerel (Begg <i>et al.</i> 2005) and subsequent stock assessments every 3 to 5 years for spotted mackerel and school mackerel.</p> <p><i>ii)</i> Estimates of annual commercial harvest and harvest rates by weight for each species or species group, and effort days fished and number of boats for spotted mackerel, school mackerel, shark mackerel and trevally.</p>	<p><i>i)</i></p> <p>a) Annual commercial spotted mackerel landings exceed the legislated 140 t TAC; and</p> <p>b) Annual commercial spotted mackerel landings are not greater than 50% of the legislated TAC</p> <p><i>ii)</i></p> <p>a) The combined catch of spotted mackerel from all sectors exceeds the recommended catch limit of 296 t (age based production model versus historical proxy method (Begg <i>et al.</i> 2005)); and</p> <p>b) The biomass of the east coast spotted mackerel stock is estimated to be less than 40% of virgin biomass (Begg <i>et al.</i> 2005 reported a range between 33-63%) in subsequent stock assessments; and</p> <p>c) The combined catch of spotted mackerel from all sectors exceeds the legislated TAC, and</p> <p>d) A change in</p>	<p>Under the <i>Fisheries Regulation 2008</i> the Chief Executive has authority to apply an in-possession limit when monitoring indicates that the annual spotted mackerel harvest has reached the legislated TAC.</p> <p>Upon exceeding the performance measure, management arrangements for the affected species will be reviewed by DPI&F in consultation with the TAG.</p> <p>A timetable for any management change will be identified within 3 months of becoming aware that the performance measure has been exceeded.</p>

Component	Operational Objectives	Indicators	Performance measures	Management response
		<p><i>iii)</i> Estimates of annual recreational harvest and release by weight for each species or species group, and effort for spotted mackerel, school mackerel, shark mackerel and trevally.</p>	<p>commercial harvest or harvest rate of school mackerel, shark mackerel or trevally above 30% over 3 years.</p> <p><i>iii)</i> A change in recreational harvest OR release above 30% over 2 estimate years for spotted mackerel, school mackerel, shark mackerel or trevally.</p>	
<p>1.8 Retained (target and by-product) species – Other species</p> <p>This category may be included to include those species that are not dealt with in any of the above defined sub-fisheries but for which the total annual catch from all sectors exceeds 10t.</p>	<p><i>i)</i> Maintain harvest of other species at current levels</p>	<p><i>i)</i> Combined catch from all sectors by weight and species or species groups (for years where estimates from all sectors are available).</p>	<p><i>i)</i> There is an increase or decrease in the combined harvest from all sectors above 30% over two estimate years (for which estimates from all sectors are available).</p>	<p>Upon exceeding the performance measure, management arrangements for the affected species will be reviewed by DPI&F in consultation with the TAG.</p> <p>A timetable for any management change will be identified within 3 months of becoming aware that the performance measure has been exceeded.</p>

Component	Operational Objectives	Indicators	Performance measures	Management response
<p>2. Bycatch PMS have been developed for sub-fisheries where incidental effects of fishing on bycatch species are recognised, i.e.;</p> <ul style="list-style-type: none"> • the barramundi, mesh net and line; • inshore estuarine net; and • Small mackerel/shark net and line sub-fisheries <p>The capture of bycatch species is negligible in other ECIFFF sub-fisheries. Consequently, PMS development for the following sub-fisheries is considered a low priority and will not be considered at this time.</p> <ul style="list-style-type: none"> • the ocean beach seine ; • the spotted mackerel line; and • The baitfish net sub-fisheries 	<p>i) Minimise the percentage of commercial catch that is bycatch.</p> <p>ii) Minimise the recreational and charter bycatch of species that have high release mortalities</p>	<p>i) Percentage weight and/or number of the total commercial catch that made up of teleost and elasmobranch bycatch.</p> <p>ii) Release estimates of recreational and charter species that have high release mortality</p>	<p>i) a) The percentage weight and/or number of teleost and elasmobranch bycatch species in the total commercial catch exceeds levels in Halliday <i>et al.</i> (2001) by 20%; and</p> <p>b) The percentage of bycatch increases in each consecutive year over three years.</p> <p>ii) Any increase in the release rate (number released as a proportion of the total caught) of species with high release mortalities over two consecutive annual estimates in the recreational or charter sector.</p>	<p>Upon exceeding the reference point, a timetable for any management change will be identified within 3 months of becoming aware of the performance measure not being met.</p> <p>QPIF will review the PMS annually, in a timely manner following the availability of all relevant data. The outcomes of the review will be included in the Annual Status Report for the fishery. Within three months of becoming aware that a review event has been triggered, the QPIF to finalise a clear timetable for implementation of appropriate management responses. This would involve consultation with the TAG.</p>

Component	Operational Objectives	Indicators	Performance measures	Management response
3. Protected Species	<p><i>i)</i> Minimise interactions between protected species and net and line gears in the ECIFFF.</p> <p><i>ii)</i> Enhance survival of released protected species in the net and line gears in the ECIFFF.</p> <p><i>iii)</i> Maintain high compliance with proposed net attendance rules and recognised Bycatch Reduction Devices (BRDs).</p> <p><i>iv)</i> Monitor the conservation status of protected species.</p>	<p><i>i)</i> Total number of interactions with each category of protected species, whether released alive or dead from net and line gears (SOI Logbooks).</p> <p><i>ii)</i> Observer information [for a three year collection period] showing the total number of each category of protected species released alive or dead from net and line gears.</p> <p><i>iii)</i> a) Percentage compliance with net attendance rules; and b) Percentage uptake / compliance with recognised BRDs.</p> <p><i>iv)</i> Conservation status of protected species under EPBC or NCA.</p>	<p><i>i)</i> Total number of interactions within each category of protected species exceeds the maximum annual number of interactions recorded in 2005 and 2006.</p> <p><i>ii)</i> Percentage of each category of protected species released alive does not exceed 90%.</p> <p><i>iii)</i> a) Percentage of compliance with net attendance rules does not exceed 95%; and b) Percentage uptake/ compliance with recognised BRDs does not exceed 80%.</p> <p><i>iv)</i> The conservation status of protected species in Australian waters is raised to a higher level within the frameworks of EPBC or NCA.</p>	<p><i>i)–iii)</i> Upon exceeding the performance measure, as soon as practically possible, QPIF will establish a Mitigation Working Group to review the management arrangements for the affected species, identify measures that can be implemented in the fishery to achieve a reduction in the number of interactions by species and develop a timetable for any management changes required.</p> <p><i>iv)</i> Ensure QPIF involvement in the development and/or review of relevant recovery strategies.</p>

Component	Operational Objectives	Indicators	Performance measures	Management response
4. Ecosystem Impacts	<i>i)</i> Maintain ecosystem structure.	<i>i)</i> Species diversity (species composition and relative abundance) in the catch and bycatch by sub-fishery.	<i>i)</i> The Shannon-Weiner index relating to species composition (by sub-fishery) decreases at least 10% each in each consecutive year over three years OR decreases by 20% from the preceding year (fisher logbook data).	<p>Upon exceeding the performance measure, management arrangements for the affected species will be reviewed by DPI&F in consultation with the TAG.</p> <p>A timetable for any management change will be identified within 3 months of becoming aware that the performance measure has been exceeded.</p>