Guidelines for Implementing the Queensland Harvest Strategy Policy

Version: 1

Contents

1 Introduction

These guidelines have been developed to assist with the implementation of the *Queensland Harvest Strategy Policy* and outline the key steps and considerations when developing a harvest strategy.

It is acknowledged that the process for developing harvest strategies in Queensland will evolve over time, particularly as they have not been used previously in Queensland. As a result, these guidelines will be reviewed once the first initial priority harvest strategies have been developed to identify any improvements that can be made.

2 Process for harvest strategy development and engaging stakeholders

The process to develop, consult on, and implement a harvest strategy should be undertaken through the following steps:

Step 1 – Working Group development and public consultation

Through the fishery working groups, Fisheries Queensland will develop a harvest strategy for each relevant fishery.

Step 2 – Expert Panel consideration

The harvest strategy will be provided to the Sustainable Fisheries Expert Panel for review and feedback. The Panel may suggest additional work aimed at ensuring the harvest strategy is consistent with these guidelines, the National Guidelines and/or the commitments made through the *Sustainable Fisheries Strategy*.

If further work is required, the harvest strategy will be referred back to the relevant fishery working group.

Step 3 – Public Consultation

A draft of the harvest strategy will be made available for broad public consultation for at least 28 days. Following this consultation period, changes to the harvest strategy may be made by Fisheries Queensland taking into account formal public feedback.

Step 4 – Endorsement of Expert Panel

The Panel will review a final draft harvest strategy and recommend whether or not the responsible Minister endorses the harvest strategy and the Chief Executive approves it.

Step 5 – Ministerial endorsement and Chief Executive Approval

Prior to the harvest strategy being approved by the Chief Executive, Fisheries Queensland will inform the responsible Minister for fisheries that a harvest strategy for a fishery has been developed in accordance with the *Queensland Harvest Strategy Policy* and *Guidelines for Implementing the Queensland Harvest Strategy Policy*.

The Chief Executive will ultimately be responsible for the approval of a harvest strategy for Queensland fisheries in accordance with the statutory functions outlined in Part 3 of the *Fisheries Act 1994*.

Step 6 – Implementation

When a harvest strategy has been approved, relevant fisheries stakeholders will be notified. The harvest strategy will also be published on the Fisheries Queensland website www.daf.qld.gov.au/fisheries.

Once implemented, a fishery's performance will be monitored and assessed against the established reference points according to the schedule outlined in the harvest strategy. Any necessary management action will also be implemented in accordance with this schedule.

3 Key elements of a harvest strategy

3.1 Fishery overview

The overview should provide a brief description of its location, gear and fishing methods, target and byproduct species, main management method, and harvesting sectors

3.2 Stock structure, biology, stock status, and environment and socio-economic drivers

The information provided on the life history characteristics of target species, stock status and environment and socio-economic drivers should, where available, be derived from relevant information on these species in the *Status of Australian Fish Stock* (SAFS) Report. Where a species is not reported under SAFS, the information provided should be consistent with types of information used in SAFS reporting.

3.3 Management units

Defining the fishery to which a harvest strategy will apply is a critical step in determining the scope of a harvest strategy. A management unit may be the target or byproduct species, biological stock boundaries or some other geographical boundary related to the fishery or gear or a combination of all of these.

The *Sustainable Fisheries Strategy* advocates for the management of Queensland's fisheries at a stock level. As such, harvest strategies developed for Queensland's fisheries should apply at a stock level wherever possible. Where justified, consideration may also be given to defining management units on grouping similar species, grouping stocks by region where it is a mixed species fishery, or using indicator species as proxies for a group of species (e.g. more sensitive species).

3.4 Existing resource allocation arrangements

The harvest strategy should set out the best available estimate of the current harvest for the sectors accessing the fishery (e.g. commercial, recreational and traditional fishing sectors), which will be the *de facto* sectoral allocation. The most recent available and reliable data should be used to determine the catch of each sector at the time of drafting the harvest strategy. Where any formal allocation or reallocation between sectors has been made, this will be presented here. The harvest strategy should aim to maintain current (or agreed) sectoral allocations, particularly when decision rules are applied. If there is a shift in allocation for any reason over time, efforts should be made to readjust back to the agreed allocations, except where there is a formal reallocation.

Table1: Example of documenting existing sectoral allocation in harvest strategies

	Commercial fishing	**Recreational fishing (including charter)**	**Traditional fishing**
Example: XXX Stock			
Existing harvest	**890 tonnes**	**100 tonnes** **(varies between 100-200 tonnes)**	**10 tonnes**
Proportion of total harvest	**approx. 89 %**	**approx. 10 %**	**approx.. 1%**

3.5 Setting objectives

Robust and effective harvest strategies rely on a set of tiered objectives that help determine what the harvest strategy is trying to achieve. Policy objectives set out the strategic direction across fisheries and provide consistency. Fishery objectives, set in consultation with stakeholders, identify direction and aspirations for the fishery. Operational objectives, also set in consultation with stakeholders, translate the broader objectives into tangible and specific outcomes to be achieved that can link to reference points. A summary of the tiered objectives is provided in Figure 1.

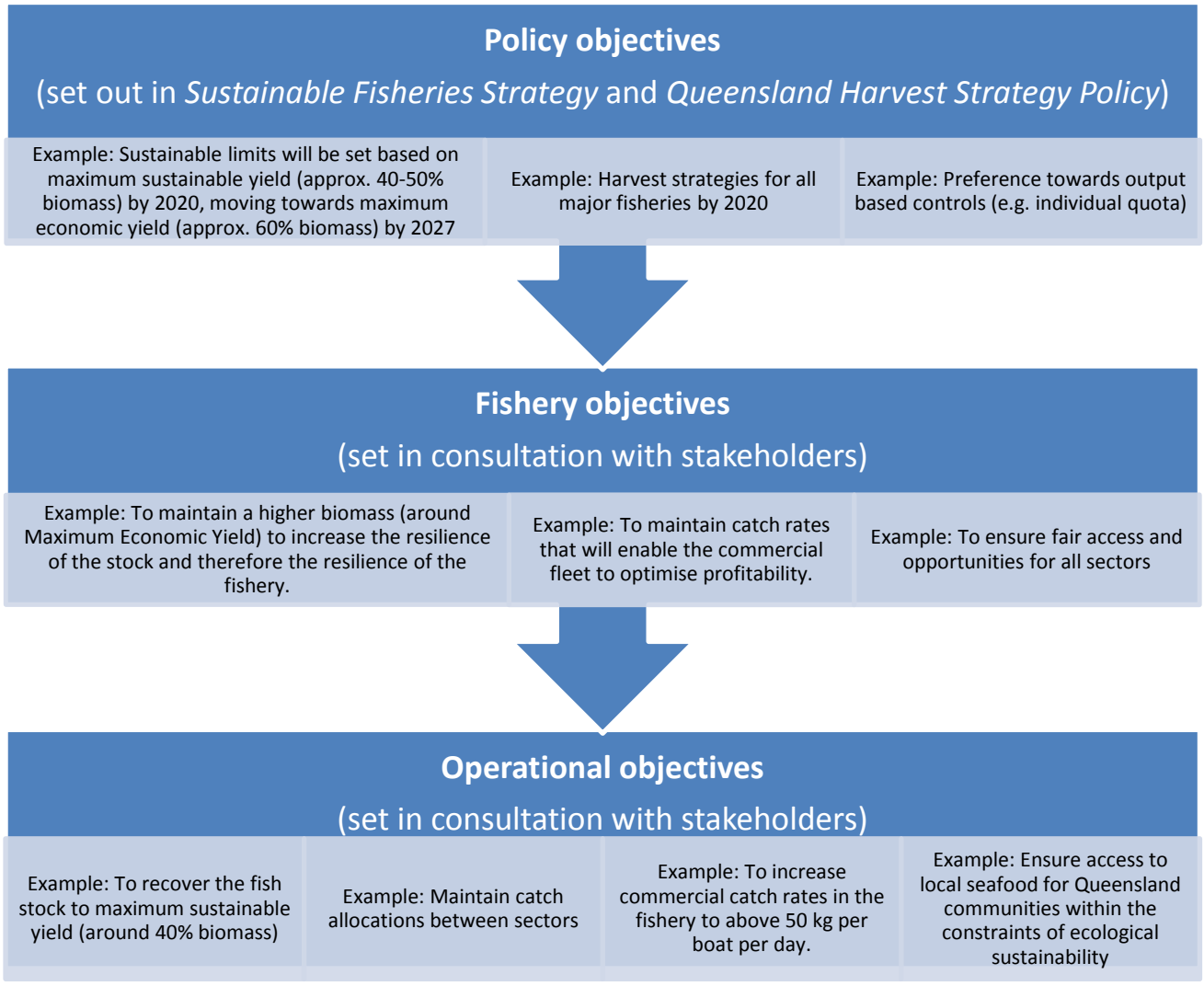

Figure 1: Tiered approach to objective setting

3.5.1 Policy objectives

The *Sustainable Fisheries Strategy* and *Queensland Harvest Strategy Policy* provide guidance on the broader policy objectives. This includes policies for example, to have harvest strategies in place for all major fisheries by 2020, to set sustainable catch limits based on Maximum Economic Yield by 2027, to manage to the stock level, to utilise output based controls wherever possible (e.g. individual quota) and others. These provide the overarching policy objectives to inform harvest strategies.

3.5.2 Fishery objectives

Fishery objectives should set out the direction and aspirations for the fishery. These should include ecological, social and economic objectives (often referred to as triple bottom line objectives). This is consistent with the statutory obligations of the *Fisheries Act 1994* and *Fisheries Regulation 2008* which refer to Ecological Sustainable Development and the precautionary principle. It is acknowledged that setting triple bottom line objectives is a challenge, particularly when balancing or weighting different objectives. To incorporate a triple bottom line approach into harvest strategies a staged approach will likely be required, which moves towards the incorporation of all fishery objectives as each harvest strategy progresses over time.

Fishery objectives should be developed and agreed to with key stakeholders before the set of operational objectives are developed and defined (Dowling *et al.,* 2011).

3.5.3 Operational objectives

While policy objectives and fishery objectives provide direction for achieving the broader outcomes, these need to be translated into more specific and measurable operational objectives. Operational objectives are relevant to the target and byproduct species in the fishery, and to the broader ecological risks related to fishing activities.

Operational objectives should have a direct linkage back to the fishery objective and be expressed in terms that are more precise and measurable and linked to performance indicators and reference points. This ensures the performance of the fishery, in terms of the harvest strategy, can be monitored and measured against the operational objectives.

The specific operational objectives outlined in a harvest strategy are likely to vary. Objectives may describe desirable stock levels, catch rates, ecological and economic circumstances or any other relevant situation in the fishery. For example, operational objectives may aim to:

- Constrain catch or effort within specified sustainable limits for target and byproduct species
- Rebuild fish stocks to a certain desirable level of biomass, catch or catch rate
- Improve profitability of the commercial sector or the value of recreational and traditional fishing
- Ensure catch allocations are established and maintained between sectors; and
- Minimise unacceptable or high ecological risks arising from fishing activities.

3.5.4 Timeframes

An important consideration in setting the operational objectives for a fishery is the timeframe in which these objectives are to be achieved. A range of options in terms of timeframes may be considered, depending on the urgency for stock sustainability and the impacts on each sector.

3.5.5 Objectives for multispecies fisheries

The *Sustainable Fisheries Strategy* aims to set sustainability catch limits based on Maximum Economic Yield (MEY) targets by 2027. In general, MEY applies to a fishery as a whole and is optimised across the species in a fishery. As individual fish stock in a multispecies fishery are likely to be different in their biological and economic characteristics, the biomass and effort levels that support MEY will vary according to species. This may require optimising biomass targets for some target species to achieve maximum economic return across the fishery and for other byproduct species, biomass targets closer to Maximum Sustainable Yield (MSY) may be more appropriate to ensure their Total Allowable Catches do not

unnecessarily impede maximum economic returns at the fishery level (DAFF, 2013). Consequently, the trade-offs in profits for different species should be considered as well as the need to forego profits from one species in order to generate higher profits from another. In this situation, the risks of falling below limit reference points for affected species will also need to be considered.

3.5.6 Reconciling conflicting objectives

Conflicting objectives may arise (e.g. between the triple bottom line objectives or between sectors) because ecological objectives are set at the resource level whereas economic and social objectives are set at the sector or fishery level (Fletcher *et al*., 2010). To remove doubt, sustainability objectives should always have priority. If competing economic or social objectives in terms of their hierarchy or priority cannot be resolved by the working group, these issues should be referred to Fisheries Queensland for further advice, with a statement explaining the reasons why the working group could not resolve the competing objectives.

3.6 Performance indicators

Under a harvest strategy, an indicator is a quantitative source of information (statistical value) that can be used to measure the performance of a fishery. The following sources of information are considered appropriate lines of evidence for use as harvest strategy indicators:

- Estimates from quantitative stock assessments (e.g. biomass, fishing mortality)
- Fishery information (catch, effort etc.) collected through commercial fishing logbooks, quota and vessel monitoring systems, recreational fishing surveys and other programs administered by Fisheries Queensland or other relevant parties
- Information collected through socio-economic monitoring programs
- Risk rating (e.g. low, medium, high, extreme) for target, byproduct and bycatch species and habitats identified through an ecological risk assessment
- Other information collected as part of fisheries monitoring programs; and
- Any other line of evidence endorsed by the Sustainable Fisheries Expert Panel as being appropriate for use as a harvest strategy indicator.

Indicators on their own provide little context of a fisheries performance at any given point in time. It is for this reason harvest strategies must also clearly state reference points for each indicator being used.

3.7 Reference points

Reference points are benchmarks for a fisheries performance that can be measured using a specific indicator. An example of biomass-based reference points is provided in Figure 2.

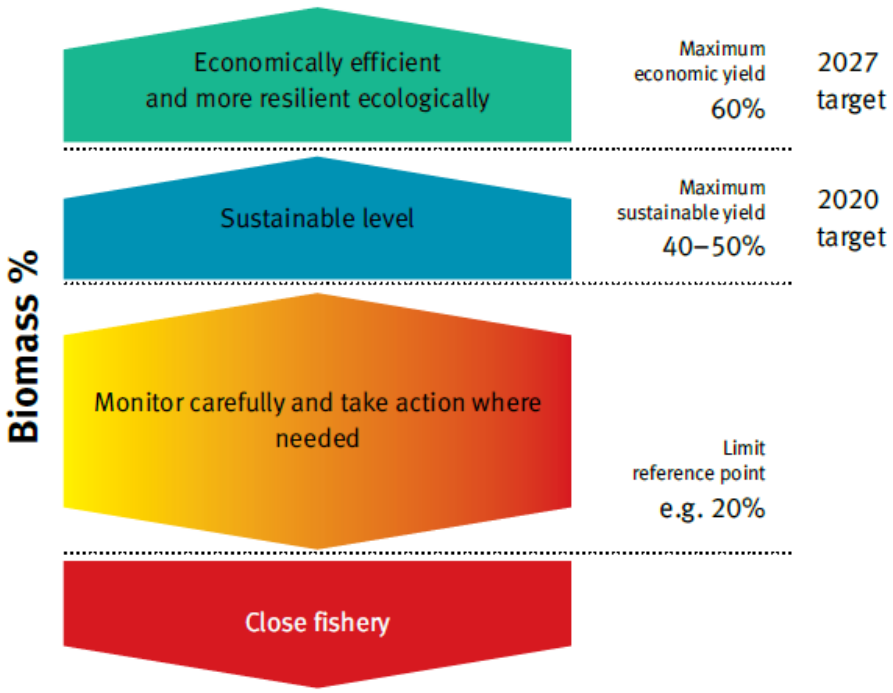

Figure 2: Example of reference points.

All harvest strategies should include three types of reference points (see Figure 3):

1. Target Reference Points – Target Reference Points (TRPs) reflect the objectives that have been established for a fishery. The *Sustainable Fisheries Strategy* notes that the target reference point for all fisheries should be based on achieving at least MSY (around 40-50% biomass where a more specific estimate is not available) by 2020, and moving towards achieving maximum economic yield (around 60% biomass where a more specific estimate is not available) by 2027.
2. Trigger Reference Points – Trigger Reference Points (TrRPs) are the agreed point at which corrective management action will be taken in a fishery to ensure it is moving towards its established objectives. Multiple TrRPs can be used to instigate varying degrees of management response based upon a fishery's performance. The use of multiple TrRP's allows a harvest strategy to be more responsive to changing conditions and helps mitigate potential risks. A trigger reference point may be a 'high' risk rating in an ERA that would trigger a management review of the causal mechanism resulting from fishing activities.
3. Limit Reference Points – Limit Reference Points (LRPs) are the point at which a fishery is no longer considered to be operating in an acceptable manner. Limit reference points are traditionally the point at which a more drastic management response may be required to ensure a fishery is moving towards its management objective(s). In some cases, the closure of a fishery may be warranted if the fishery's performance falls below an established LRP.

Alternative proxies of these reference points may be considered, but should be justified and follow the intent of the harvest strategy policy and guidelines. This may be the case for species that are highly dynamic and driven by environmental conditions.

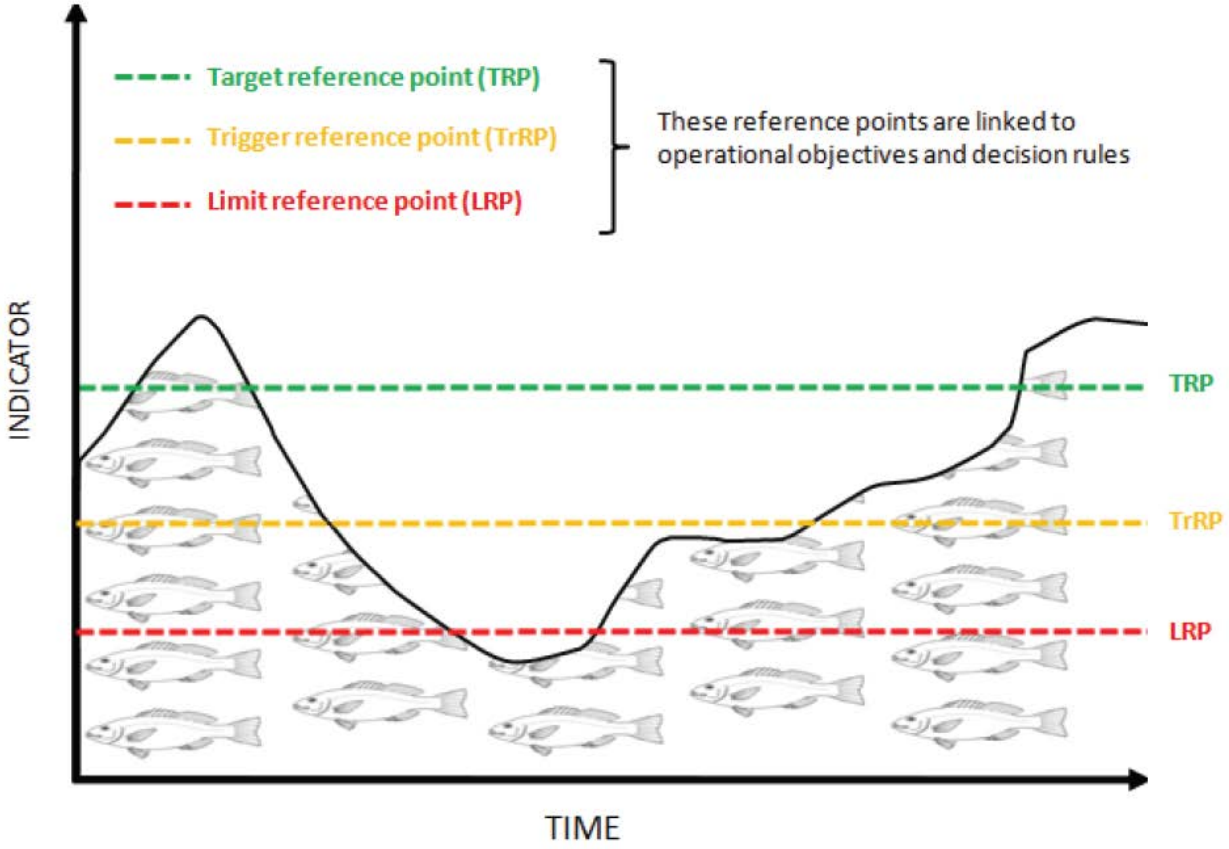

Figure 3: The relationship between a performance indicator (e.g. biomass shown as the solid line on the graph), the different types of reference points, operational objectives and decision rules (Sloan *et al*., 2014).

3.8 Decision rules

One of the main purposes of a harvest strategy is to provide up front the decision rules that specify the predetermined management action will be taken to adjust a fishery's performance in order to achieve the agreed operational objectives.

Harvest strategies will also have a link to Ecological Risk Assessments (ERAs), where high ecological risks may also trigger management actions under the harvest strategy or through other regulatory mechanisms (e.g. spatial closures).

Each harvest strategy must specify decision rules that identify what predetermined actions should be taken in response to a trigger point being reached (e.g. reduce quota by a certain amount) and what actions will be taken in cases where performance falls below an established limit reference point (e.g. close the fishery). These decision rules must be highly specific for target species (e.g. based on a formula that determines quota etc.). The actions in the decision rules must be sufficient to ensure the fishery is likely to meet its stated objectives within the established timeframes. For byproduct species the decision rules may be more general because the causes may be more complex.

3.9 Testing the robustness of the harvest strategy

Given incomplete information, uncertainties in the available data and complex relationships between management action and stock or fishery response, the harvest strategy should ideally be tested. Testing approaches include formal simulation models of the fishery to evaluate the impact of the harvest strategy options on future fishery performance (e.g. references within Sloan *et al*., 2014) or alternatively, qualitative

evaluations of 'what if' scenarios applied to historical fishery performance (e.g. Smith *et al*., 2004; Prince *et al*., 2011, Dichmont *et al.*, 2011, Dichmont *et al.,* 2013). The intention of testing is to ensure that the harvest strategy is likely to be robust given the imperfect information.

3.10 Schedule of performance assessment

To ensure consistency, a harvest strategy should clearly articulate at what point in any given season or year a fishery's performance will be assessed under the harvest strategy. At a minimum, Queensland's fisheries will be assessed against their established harvest strategies at least once every two years. There may be some circumstances (e.g. if there are multi-year TACs/TAEs) where indicators are only reviewed every few years on a specified schedule.

3.11 Current management measures

It is necessary to acknowledge that the management tools or 'levers' applicable to each sector may differ, including in the timeliness of their application. For example, where management action is required to regulate the catch or impact from recreational or traditional fishing the actions outlined in the harvest strategy should identify any necessary changes to existing access controls (i.e. size, in-possession limits, fishing apparatus or closures). Fisheries Queensland will establish a regular schedule (e.g. every two years) for the introduction of any necessary changes to recreational and traditional fishing rules across all fisheries. In cases where urgent management action is required to ensure that the recreational or traditional use of the State's fisheries remains within sustainable levels, the Government may introduce necessary measures outside of the regular schedule.

3.12 Management reforms needed

As outlined in the *Queensland Harvest Strategy Policy*, some fisheries may not have the fundamental management structures in place to allow for a harvest strategy that responds to changes in stock abundance or other circumstances (e.g. to be split into management units, quota allocated etc). In these cases, the harvest strategy will be drafted along with proposed reforms, which will likely need to be implemented through the *Fisheries Regulation 2008*. These reforms will be developed in consultation with the relevant fishery working group and more broadly with fishery stakeholders and will be explicitly outlined in the harvest strategy. Any reforms will go through a standard regulatory consultation process.

3.13 Fishery Information Needs

While a range of available data, monitoring and assessment methods are available for consideration for most fisheries in Queensland, the appropriate options to use should be considered on a case by case basis to suit the fishery needs, pragmatism and adhere to the principles outlined in the *Queensland Harvest Strategy Policy*.

Achieving the objectives established for a fishery may require the collection or analysis of certain data and information or additional monitoring and research into certain aspects of the fishery. These future information, monitoring and research needs should be clearly articulated in a Fishery Information Needs section of the harvest strategy, and should be updated periodically based upon the recommendations of the fishery's working group. The working group will help identify and prioritise information needs, taking into consideration the costs and benefits of monitoring. These will be incorporated into the Monitoring and Research Plan as it is updated over time.

3.14 Review of harvest strategy

While harvest strategies provide certainty and transparency in terms of management decisions in response to fishery information, there has to be flexibility to allow new information or changing circumstances to be considered. The harvest strategy should outline when it will be reviewed. Periodic review of a harvest strategy will be undertaken:

- Where a harvest strategy has been in place for five years and not reviewed
- Where a peer reviewed stock assessment of a key target species in a fishery has been completed
- Where new relevant sources of information become available that could be used as performance indicators
- The harvest strategy advocates that a review be undertaken once a predetermined level of performance is reached by the fishery; or
- The Sustainable Fisheries Expert Panel recommends that the Chief Executive review a particular harvest strategy.

3.15 Exceptional Circumstances

Harvest strategies must avoid being ambiguous, particularly when it comes to the development of operational objectives and decision rules. However, a balance must be struck between the harvest strategy being too rigid and providing for a level of flexibility necessary to allow for adaptation to issues that are not anticipated and for new information to be considered. Each harvest strategy should contain an “exceptional circumstances” clause describing how such circumstances may trigger a review, or a departure from, or even suspension of the harvest strategy. Exceptional circumstances could include a major mortality event through a disease outbreak. The national guidelines (Sloan *et al*., 2014) provide examples that warrant the use of exceptional circumstance triggers.

Acronyms and abbreviations

DAF	Queensland Government Department of Agriculture and Fisheries
DAFF	Australian Government Department of Agriculture, Fisheries and Forestry
ERA	Ecological Risk Assessment
ESD	Ecologically Sustainable Development
ITQ	Individually Transferable Quota
MEY	Maximum Economic Yield
MSY	Maximum Sustainable Yield
TAC	Total Allowable Catch
TEPS	Threatened, Endangered and Protected Species

Glossary

Biomass: Total weight of the stock or component of the stock (e.g. spawning stock biomass would refer to the total weight of sexually mature fish).

Byproduct species: Any part of the catch which is kept or sold by the fisher but which is not the target species

Discards: Species unintentionally caught in the course of a commercial fishing operation that are not retained.

Management unit: A defined fish stock, functional grouping of species or geographic area to which a harvest strategy applies.

Maximum Economic Yield: Sustainable level of catch for a commercial fishery that allows net economic returns to be maximised.

Maximum Sustainable Yield: The maximum average annual catch that can be removed from a stock over an indefinite period under prevailing environmental conditions.

National Guidelines: Refers to the Fisheries Research and Development Corporation's National Guidelines to Develop Fishery Harvest Strategies.

Non-target species: Species unintentionally caught in the course of a commercial fishing operation.

Target species: Species sought by recreational, traditional or commercial fishers when fishing.

Total Allowable Catch: The catch limit set as an output control on fishing. Total Allowable Commercial Catch or TACC refers to the catch limit set for the commercial sector.

Triple bottom line objectives: Ecological, Economic and Social objectives.

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