



Australian Government

Australian Fisheries Management Authority



# Harvest Strategy

FOR THE BASS STRAIT CENTRAL ZONE SCALLOP FISHERY

2012

## Harvest Strategy for the Bass Strait Central Zone Scallop Fishery (BSCZSF)

### Introduction

In 2007, the Harvest Strategy for the Bass Strait Central Zone Scallop Fishery (BSCZSF) was developed within the framework of the *Commonwealth Fisheries Harvest Strategy Policy 2007* (CHSP).

This revision of the 2007 Harvest Strategy for the 2012 season (Harvest Strategy) is prepared in response to the review provisions in the 2007 Harvest Strategy,<sup>1</sup> and the CHSP.<sup>2</sup> This revision clarifies the operation of the 2007 Harvest Strategy and incorporates AFMA's and industry members' experiences operating in the BSCZSF since it reopened in 2009. A more comprehensive review, incorporating research work is scheduled to be undertaken during late 2012 with a view to adopt changes for the 2013 season.

The main target species of the BSCZSF is the Commercial Scallop, *Pecten fumatus*. As was the case at the time of implementation of the 2007 Harvest Strategy, the BSCZSF remains subject to the high variability in abundance, growth, mortality, meat yield and condition of the resource.<sup>3</sup> Concession holders are also able to target Doughboy Scallop *Chlamys (Mimachlamys) asperrimus*, a species common throughout the Bass Strait however it is rarely retained.

This variability means that management of Commercial Scallops has to be adaptable to sometimes rapidly changing circumstances. The stock recruitment relationship is sporadic and intermittent, and remains largely unknown.<sup>4</sup> Growth rates are variable within the fishery, with scallops growing at different rates in different areas. Most Commercial Scallops living in wild populations probably live for between five and nine years,<sup>5</sup> but have been observed to die-off rapidly after only three to five years.<sup>6</sup>

### Objectives of this Harvest Strategy

In general, the BSCZSF challenges some of the key assumptions underlying the CHSP. The resource's naturally sporadic and fluctuating availability and intermittent recruitment make the concept of unfished biomass ( $B_0$ ) problematic. Commercial Scallops aggregate in sub-populations (beds) which have a commercially viable catch rate some years and not others. The aim of maintaining the fishery at a nominated target reference point is difficult to attain given the nature of the species.

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<sup>1</sup> 2007 Harvest Strategy pages 20 and 21.

<sup>2</sup> CHSP page 7 provides for review of the harvest strategies for most stocks every three-five years, or where there is new information that substantially changes the understanding of the status of a fishery, and leads to improved estimates of reference points.

<sup>3</sup> [awaiting publication]

<sup>4</sup> [awaiting publication]

<sup>5</sup> Haddon et al *Juvenile Scallop Discard Rates and Bed Dynamics: Testing the Management Rules for Scallops in Bass Strait* (2006) at page 9.

<sup>6</sup> Haddon (2006) at page 88 and see for example the die off of the White Rock bed in Tasmanian waters in 2010-11.

Where the CHSP does not conform to the circumstances of a fishery and where neither stock size required to produce maximum sustainable yield ( $B_{MSY}$ ) nor  $B_0$  can be estimated, the CHSP provides '*harvest strategies should be developed that best meet the requirements of the [CHSP] and AFMA's legislated objectives*'.<sup>7</sup>

Accordingly, the primary objectives of this Harvest Strategy are to:

1. keep stocks within the BSCZSF at ecologically sustainable levels and, within that context, maximise the economic returns to the Australian community;<sup>8</sup> and
2. pursue efficient and cost-effective management in attaining (1) above.<sup>9</sup>

Having a fishery each year in the BSCZSF is not an objective of this Harvest Strategy, however, consideration of whether provision should be made for a fishery in a year will be considered in the context of objective 1 above.

As one means of pursuing coordinated management across the South East Australian Scallop resource, where possible, the Control Rules in this Harvest Strategy are aligned with the arrangements adopted by Tasmania and Victoria to manage their respective areas.

## Areas

In this Harvest Strategy:

- Eastern Zone means that part of the BSCZSF east of longitude 146°
- Western Zone means that part of the BSCZSF west of longitude 146°
- Viable Area means an area where scallop density is high enough to enable commercial harvesting of the area and:
  - at least 80 per cent of scallops have a shell length of at least 90 mm; or
  - by the start of the relevant season, the Bass Strait Central Zone Scallop Fishery Resource Assessment Group (ScallopRAG) considers that there is reasonable evidence based on scallop growth rates that 80 per cent of scallops will have a shell length of at least 90 mm; or
  - by the start of the relevant season, at least 80 per cent of scallops will be at least three years of age as confirmed by surveys
- Prospective Viable Area means an area for which the criteria for a Viable Area are likely to be met during the relevant season.

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<sup>7</sup> CHSP page 23 and 36.

<sup>8</sup> CHSP page 4 and *Fisheries Management Act 1991* section 3A.

<sup>9</sup> *Fisheries Management Act 1991* section 3A and CHSP page 26.

Scallop beds in the BSCZSF will be named using the following protocols:

*Area number / spatial location / first year surveyed*

For example = Area 1 / 148°00-39°10 / 2005

Where:

- area number (i.e. Area 1) is used as a quick reference to the annual BSCZSF map (showing all fishing areas and no-navigational areas)
- spatial location is the longitude and latitude top left hand corner of a 10x10 nm grid system throughout the fishery, with the majority of the bed/area contained within this particular grid
- first year surveyed is the year the bed was first surveyed and data analysed.

Given that bed descriptions and status change over time, for example, where a larger area is split into two management areas, a reference table containing scallop bed details will be updated following the release of the annual survey report and any new information.

### **Co-Management Committee**

The *BSCZSF Industry Management Committee* (Co-Management Committee) will comprise of the members as determined by the Bass Strait Central Zone Scallop Management Advisory Committee (ScallopMAC), ordinarily consisting of:

- a chairperson
- two industry representatives from Tasmania
- two industry representatives from Victoria.

The Co-Management Committee may agree upon fishing start and end dates within season dates, the order and timing of harvesting within open areas and the protection of local spawning biomass within open beds as appropriate (which may include having regard to stock status within Tasmanian and Victorian waters).

The Co-Management Committee must provide AFMA with:

- notification of agreed fishing start and end dates at least 24 hours before the commencement of fishing
- details of rotational harvesting arrangements<sup>10</sup>
- prompt information regarding Co-Management Committee agreed actions, implementation and outcomes, to allow consideration of actions by ScallopRAG and ScallopMAC before ScallopRAG and ScallopMAC make recommendations to AFMA for the following season.

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<sup>10</sup> AFMA, *Draft Options Paper: Review of the Harvest Strategy Options for the Bass Strait Central Zone Scallop Fishery* (December 2010) page 11.

## **Control Rules**

### **1. Season**

The default fishing season is 1 April to 31 December however AFMA may determine different season dates in any year.

Fishing start and end dates within the fishing season may be agreed by the Co-Management Committee based on factors such as scallop condition and available research on spawning and settlement times.

### **2. Opening areas**

Only Viable Areas may be opened to fishing. To open a Viable Area, the Biomass Rule and the Proportion Rule must be satisfied (see below).

Prospective Viable Areas must not be opened to fishing but are taken into account in determining whether the Biomass Rule and Proportion Rule are satisfied in respect of a Viable Area.

#### *The Biomass Rule*

At all times, the total biomass estimated by Surveys in closed Viable Areas and Prospective Viable Areas must be 500 tonnes or more.

The Biomass Rule applies separately for the Eastern Zone and Western Zone.

#### *Proportion Rule*<sup>11</sup>

At a minimum, an area of 40 per cent of the combined pool of Viable Areas and Prospective Viable Areas must be closed to fishing.

The Proportion Rule applies separately for the Eastern Zone and Western Zone.

### **3. Total allowable catch**

The total allowable catch (TAC) for a season applies to the fishery as a whole (both the Eastern Zone and Western Zone) and equals the maximum biological harvest of intended fishing area which is less than or equal to an estimate of the harvestable biomass of the areas intended to be fished. The TAC represents an estimate of the biomass of 'at size' scallops and incorporates an estimate of viable harvest rates (that is, catch rates per hour for fishing operations to be viable).

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<sup>11</sup> In this case the proportion rule specifically the rule that 40 per cent of viable areas must be closed is used as a proxy for the biomass limit reference ( $B_{LIM}$ ) in combination with the biomass rule due to no other information or methods available to determine  $B_{LIM}$  for the stock. The decisions that the percentage of viable areas remaining closed to fishing must be greater than or equal to 40 per cent at all times, was intended to be indirectly consistent with the maximum sustainable yield target reference point as defined in the original BSCZSF Harvest Strategy.

Economic inputs and factors will also be considered consistent with the *Fisheries Management Act 1991* objective of maximising economic returns to the Australian community.

A default TAC of 100 tonnes will apply to Doughboy Scallops however AFMA may determine a different TAC for this species in any year.

#### **4. Mid-season area changes**

AFMA may open new Viable Areas during a season. However, the role of the Co-Management Committee in agreeing on harvesting within open areas means that AFMA opening new Viable Areas during a fishing season would only occur in exceptional circumstances. Before AFMA will consider opening a new Viable Area during a season:

- opening a new area must be consistent with the objectives of this Harvest Strategy
- the expected returns of opening a new area mid-season and the estimated costs of opening must be assessed in the context of the objective of maximising the economic returns to the Australian community
- as necessary, a Biomass and Discard Rate Survey may be undertaken to determine whether the new area is a Viable Area or Prospective Viable Area (in which case the Prospective Viable Area can be added to the pool to potentially allow another Viable Area to be opened)
- the Biomass Rule is met
- the Proportion Rule is met.

#### **Surveys**

Three types of survey may be permitted under Scientific Permit for the purposes of this Harvest Strategy:

- Exploratory Surveys: to identify new scallop beds outside of known areas of scallops.
- Biomass and Discard Rate Surveys: to determine whether beds are Viable Areas or Prospective Viable Areas and to establish the maximum biological harvest to determine the TAC.
- Pre-Season Surveys: if deemed necessary by AFMA to:
  - support and update the findings of Biomass and Discard Rate Surveys
  - identify whether a new juvenile cohort has settled in the area planned to be opened
  - determine scallop condition in terms of meat weight and roe size for use in rotational harvesting of open areas as coordinated by the Co-Management Committee.

Operators who wish to undertake a survey may apply for a Scientific Permit for a maximum of six months. To take part in Exploratory Surveys, Scientific Permit holders will be provided with relevant logbooks and may then call AFMA within business hours to give notice of their intention to opportunistically survey, including details of the area they intend to survey. AFMA may then, within a target turnaround time of 24 hours:

- approve or refuse the proposal having regard to the objectives of the Exploratory Survey
- allocate research catch allowance if appropriate
- notify the operator in writing of any particular reporting and research requirements such as carrying measuring boards and observers.

The Co-Management Committee, AFMA and the research provider will determine the timing and standard requirements prior to the commencement of any Surveys. This includes defining survey conditions and design such as the area to be surveyed, information to be recorded, carriage of an onboard observer and reporting requirements.

### **Harvest Strategy review**

The operation of the BSCZSF under the Harvest Strategy is to be reviewed annually by ScallopRAG and ScallopMAC and, if necessary, AFMA. Any change to the Harvest Strategy must be agreed by the AFMA Commission.

## **Annexure: why the Control Rules have been adopted**

### **General:**

This Harvest Strategy uses spatial management to close the BSCZSF to fishing unless the Control Rules in an area are met.

### **Co-Management Committee:**

The Co-Management Committee will meet before the start of each fishing season and at such other times as determined by the Chair. When considering whether to open a successive rotational zone within the open area of the BSCZSF, the Committee will where possible contact at least three operators and two processors to obtain reports on current conditions in the fishery. The Co-Management Committee may request one or more operators to survey and report on the status of the scallop stock in the proposed new rotational zone within the open area.

In determining whether to open a new rotational zone in the open area, the Co-Management Committee may have regard to criteria including, but not limited to:

- catch rates in the area being fished and whether catch rates are economically viable
- scallop condition
- whether the area being fished has been fully exploited
- the potential benefits of allowing fishing in a new area given the likely catch in that area and the remaining TAC for the season.

### **Areas:**

The definition of Viable Area allows beds which will be Viable Areas by the start of the season to be included as areas for potential fishing. This is because Biomass and Discard Surveys are ordinarily undertaken in October and November for the following season and approximately five to six months of growth can be taken into account in opening new areas. Pre-Season Surveys can be used to support and update the findings of Biomass and Discard Rate Surveys.

Viable Areas include areas where 80 per cent of scallops will be at least three years of age as confirmed by surveys. This incorporates adaptive management approaches in the CHSP for dealing with highly variable species<sup>12</sup> and is used as an alternative to the 90 mm shell length (which represents a proxy for ensuring scallops are approximately three years of age and have had the opportunity to complete two major spawning events).<sup>13</sup>

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<sup>12</sup> CHSP pages 41 and 42.

<sup>13</sup> ScallopRAG 17, 4 May 2010.



## **1. Season**

Seasonal closures protect beds during peak settlement periods and follows ScallopRAG and ScallopMAC recommendations for closures from January to March.<sup>14</sup> AFMA may vary the season dates, for example, where further research on spat settlement dynamics or scallop condition becomes available. AFMA may determine a later season start date to allow Pre-Season Surveys to be conducted.

The opportunity for the Co-Management Committee to delay the fishing start date to later than the season opening date provides the opportunity for optimising scallop condition (the seasonal closure coincides with a loss of condition over summer).

## **2. Opening areas**

The BSCZSF is closed to fishing unless the Biomass Rule and the Proportion Rule for an area are met.

The Biomass Rule and the Proportion Rule apply separately to the Western Zone and Eastern Zone. This follows the 2007 Harvest Strategy approach given the historical paucity of scallops in the Western Zone.

### *Biomass Rule*

The Biomass Rule represents a limit requiring that at all times Viable Areas and Prospective Viable Areas with at least a total biomass of 500 tonnes are closed to fishing. This rule is applied separately to the Eastern Zone and Western Zone.

For highly variable species such as scallops, where stocks fall below limits in the absence of fishing, they are still subject to recovery measures stipulated in the CHSP.<sup>15</sup>

### *Proportion Rule*

The concept of  $B_0$  (unfished biomass) is problematic in the BSCZSF, due to the patchy distribution of the stock and the fact that recruitment events are episodic and irregular. Accordingly, the Proportion Rule of having at least 40 per cent of Viable Areas and Prospective Viable Areas closed to fishing does not equate to a target biomass.

The Proportion Rule will be reviewed once further data on the effectiveness of the Harvest Strategy becomes available.

## **3. Total Allowable Catch**

The TAC represents an estimate of harvestable biomass within the areas intended to be fished, less an adjustment for an economic factor (if applicable).

Provided the Biomass Rule, Proportion Rule and the objectives of this Harvest Strategy are met, Viable Areas in addition to the areas intended to be fished may be opened at the

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<sup>14</sup> ScallopRAG on 27 February 2009 and ScallopMAC on 18-19 March 2009.

<sup>15</sup> CHSP page 23

same time as back up areas to be fished if the TAC is not taken in the intended fishing area.

The Co-Management Committee may agree to support fishing in a back up area having regard to criteria outlined above under the heading 'Co-Management Committee'.

This Harvest Strategy uses spatial management to meet the objective of keeping stocks within the BSCZSF at ecologically sustainable level; the TAC acts primarily to allocate catches between concession holders and to pursue economic efficiency.

Statutory Fishing Rights (SFRs) are issued for Doughboy Scallops however these are generally not fished. The 100 ton default TAC for Doughboy Scallops, provided for under the 2007 Harvest Strategy, has been adopted for this Harvest Strategy and catches will continue to be monitored.

### **Surveys**

The CHSP provides that Harvest Strategies must contain a process for monitoring and conducting assessments of the biological and economic conditions of the fishery.

While this Harvest Strategy outlines the broad categories of Survey, to ensure the most appropriate response to individual circumstances, the:

- timing of surveys and the process if insufficient industry members nominate to undertake surveys will be determined by AFMA in consultation with the research provider
- required number of vessels and hours of towing, data collection and analysis will be determined by the research provider.<sup>16</sup>

### **Review**

One of the key aims of the CHSP is to provide increased certainty in the operating environment surrounding Commonwealth-managed fisheries. Accordingly, the CHSP provides that amendments to harvest strategies should occur infrequently (every three – five years for most stocks) unless it is necessary to amend the strategy more regularly.<sup>17</sup> This may be because:

- there is new information leading to improved estimates of reference points;
- of external drivers increasing risks to the fish stocks; or
- the harvest strategy is not working effectively and the intent of the CHSP is not being met.

Accordingly, the operation of the BSCZSF under the Harvest Strategy is to be reviewed annually by ScallopRAG and ScallopMAC and, if necessary, AFMA.

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<sup>16</sup> ScallopRAG 17, 4 May 2010.

<sup>17</sup> CHSP page 50.