

SCALLOP FISHERY

STATUS REPORT 2008

Scallop fishery summary

The scallop fishery contributes approximately 5% of Victoria's commercial fishery value of production. In 2006/07, scallop production was 603 tonnes with a wholesale value of \$0.9m. Over the last five years production has been variable, between 266 and 738 tonnes with wholesale values ranging from \$0.4m to \$1.1m (see Figure 1).

Commercial fishing is mostly conducted by the fishing fleets based at Lakes Entrance and Port Welshpool. Over the past 14 years, the scallop catch from Lakes Entrance has varied between 8269 tonnes in 1993 to negligible or zero catches in 1995, 1998, and 1999. All vessels are fitted with a Vessel Monitoring System (VMS) that is used to monitor the position of vessels on the water. The number of commercial scallop (ocean) fishery access licences is capped at 91 licences, but only 12 to 20 vessels are currently active in the fishery.

Scallops abundance is known to be variable from year to year, and the management arrangements have been developed with appropriate flexibility. The fishery operates under a quota management system, and annual management decisions are made in consultation with industry to determine when the fishery should open, and the Total Allowable Commercial Catch (TACC). The TACC has been capped at 1504 tonnes (shell weight) for a number of years. Only 42.8% of the TACC (643 tonnes) was taken in the 2006-07 quota year. The underutilisation of the TACC is attributed to economic factors, and not due to lack of available scallops.

Scallop populations are unpredictable due to a range of environmental factors. Traditional stock assessments are therefore difficult to apply in scallop fisheries, and no formal stock assessment exists. Consequently, the fishery is conservatively managed using precautionary ESD principles to accommodate the natural variability in stock abundance.

The fishery is not opened unless the abundance of scallops in specific locations meets the agreed criteria for the average number of scallop meats per kilogram. If more than 20% of scallops in the catch are below the minimum size limit, the scallop beds are closed to protect the stocks of juveniles until they grow to a suitable harvesting size.

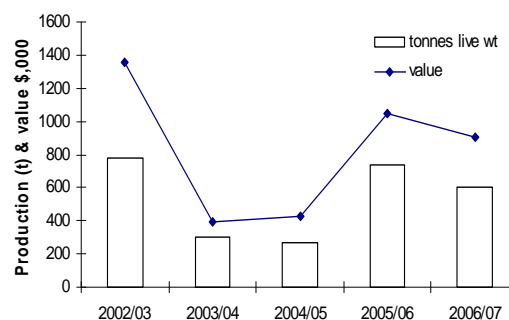


Figure 1 Scallop production (live weight) and market value (\$,000) since 2002/03

Scallop Fishery Objectives

The objectives for the fishery are:

- to ensure that the exploitation of the scallop resource fishery is conducted in a manner consistent with the principals of ecologically sustainable development
- to ensure scallop fishing activities on non-target species and the long term sustainability of the marine environment are considered by managers
- to facilitate access to scallop fishery resources for commercial, recreational, traditional and non-consumptive users
- to promote the commercial scallop fishing industry and to facilitate the rationalisation and restructuring of the industry
- to encourage the participation of resource users and the community in scallop fisheries management.

1. Description of the fishery

Target species

Target catch consists of scallops (*Pecten fumatus*).

Prohibited species

Additional information on 'protected aquatic biota' in Victoria is provided in Attachment 1.

Relevant no take species include 'syngnathids' (pipe fish, sea dragons and sea horses). In addition the commercial take of abalone, giant crab, jelly fish, rock lobster, sea urchin are prohibited whilst fishing under a commercial scallop fishing licence.

Fishing area(s)

The current scallop fishery boundaries were settled in the Offshore Constitutional Settlement (OCS) arrangements between the Commonwealth and Victoria in June 1986.

The Victorian fishery runs 20 nautical miles out from the Victorian coast line. Large portions of Victorian waters are not suitable for commercial scallop fishing, and the majority of commercial fishing is conducted on scallop aggregation (referred to as 'beds') in Eastern Victoria. These are accessed from the ports of Lakes Entrance and Port Welshpool.

Commercial scallop fishing is not permitted in Victorian bays or inlets.

Fishing methods

Commercial

Commercial fishing for scallops is by dredging where vessels tow a single dredge which is dragged along the seabed. Dredges are deployed from the rear of the vessel, and are up to 4.5 metres wide. A tooth-bar or 'scraper' bar on the bottom of the mouth of the dredge deflects scallops from the seafloor where they are retained in the dredge baskets.

The dredge basket contents are retrieved and tipped onto a sorting table on board the vessel. The catch is then sorted immediately and undersized scallops are returned to the water as quickly as possible.

Recreational

The ocean scallop fishery is unsuitable for recreational fishing but there is a small recreational scallop fishery in Port Phillip Bay. Recreational fishers use dive gear (hookah systems and scuba diving equipment) in waters between 10 to 15

metres to harvest scallops from the sea floor.

Fishery management

The abundance of scallops in the fishery varies from year to year, and the management arrangements are adaptable to accommodate the variability. The management arrangements are outlined in the Statement of Management Arrangements for the Victorian Commercial Scallop Fishery (DPI, unpublished).

Commercial fishery

A Scallop (Ocean) Fishery access licence is required to participate in the commercial fishery. The number of commercial access licences is capped at 91 licences.

Fishing is limited to locations that are thought to contain sufficient quantities of quality scallops.

When open, the fishery is managed using a quota management system (QMS). Consultation is undertaken between representatives and fishery experts in deciding if the fishery should be opened, and what the TACC should be. Information from previous on board observer trips and commercial surveys is also considered.

Once a fishing season is determined, each license holder is given an equal share of the TACC. Transfer of quota between licence holders occurs during the season, and this is recorded on a DPI database.

Additional input controls have also been put in place to enhance sustainability. A minimum shell width of 80mm has been established to ensure scallops achieve two spawning events per year prior to being fished.

To protect juveniles, fishing areas may also be closed if more than 20% of scallops in the catch are below the minimum size limit.

To ensure quality of product and to enhance commercial returns, the fishery may be closed if the average number of scallop meats per kilogram is above 100 meats. In such situations, the fishery is closed until the quality of scallops improves. This is achieved through an industry Code of Practice.

All commercial scallop vessels are fitted with a Vessel Monitoring System (VMS) to

allow for spatial monitoring and to assist in compliance.

Commercial processing

To enhance compliance under the quota management system, a Fish Receiver's (Scallop) Licence is required to process commercial quantities of scallops. All scallops taken in the Victorian scallop fishery are processed in Victoria.

In 2008 some commercial scallop fishers were issued with general permits to process and sell scallops to the public once their catch has been weighed off.

Recreational fishery

A recreational fishing licence is required to recreationally fish for scallops and a daily bag limit of 100 scallops applies to recreational fishers.

Fishery accreditation

The management arrangements for the scallop fishery are accredited under the Commonwealth *EPBC Act 1999* and the fishery has been granted World Trade Operation (WTO) approval for a period of 3 years from January 2006. A progress report on the assessment recommendations is attached below.

2. Catch data

Total catch of target species

No estimate of the recreational catch is available, the total catch is unknown.

Commercial catch of target species

The TACC has been capped at 1504 tonnes (135 tonnes meat weight*) for a number of years. For the 2006-07 quota year (April 2006 to March 2007) the catch was 643 tonnes. (58 tonnes meat weight*), which represented 42.8% of the TACC.

DPI has determined that the TACC was not fully exploited primarily due to unfavourable economic conditions in the fishery. Some licence holders chose not to fish or lease out their allocated quota. Low harvest rates are not an indication of low stock abundance.

A summary of commercial catch over the last five financial years is provided in Table 1.

Incidental commercial catch

Due to the specialised fishing methods required to harvest commercial quantities of scallops, the take of scallops in other

commercial Victorian fisheries is considered negligible.

Recreational catch

Unknown. No estimate is available.

Table 1. Victorian scallop catch from Lakes Entrance region

Year	Meat weight* (tonnes)	Shell weight (tonnes)
2002/03	70	777
2003/04	27	305
2004/05	24	266
2005/06	66	738
2006/07	54	603

*meat weight is an approximation based on a conversion calculation of 9% of shell weight.

Catch trend

Variable

The fishery suffers from high natural variability in the availability. Historical catch figures have seen Victorian scallop production range from almost no annual production to as high as 10,900 tonnes (1419 tonnes meat weight) in 1993, where there was no QMS in place. These figures exclude commercial production from Port Phillip Bay, but may have included some scallop production from Commonwealth waters (Coleman *et al* 1997). Table 1 demonstrates the ongoing variability in commercial catch in recent times..

Effort trend

Variable

Effort is dependant on market values, the quality of scallops in the fishery and weather conditions. Despite over 90 commercial licences being issued, only 12 to 20 vessels are active in the fishery. Many Victorian fishers hold licences in other fishing jurisdictions. Fishing effort can be affected if fishers concentrate their effort in the Tasmanian or the Commonwealth Bass Strait scallop fishing zones. Processors often influence where scallop fishing occurs due to demand for quality scallops.

Catch rates

Variable

Like effort trends, catch rates also vary. DPI uses data collected from logbook and Catch Disposal Record (CDR) books to gain relevant information, including area fished, number of hauls per hour, dredging hours, bottom type and water depth. Time spent fishing, searching and meat and shell weight contributes to determine catch per unit effort.

Total catch of non-target byproduct and bycatch species

A total of 44 bycatch/byproduct species were recorded during a survey in 2002 (Coleman et al 2002).

The main catch of non-targeted species includes:

- rays
- doughboy scallops
- hermit crabs
- spider crabs
- star fish
- sponges.

Fishers must report retained byproduct in daily catch logs. The catch rates of byproduct reported in log books have been lower than those recorded by onboard observers.

Most of the bycatch is returned to the water alive. Catch of other fish species in scallop dredges is limited under regulations to 10 kilograms per fishing trip. Bony fish are often retained as commercial byproduct or for personal use.

Spatial issues

A large percentage of the Victorian fishing zone is not suitable for fishing due to low scallops abundance or unsuitable ground (rocky reef, etc). It is estimated that less than 5% of the available Victorian sea bed is actually fished.

Spatial management practises have been adopted in the commercial fishery to protect juvenile scallop aggregations and to maximise commercial returns.

The use of VMS allows DPI to monitor spatial management arrangements and assists with compliance activities.

Under a COP developed between DPI and commercial fishers, when juvenile beds of scallops are identified, GPS co-ordinates

are used to establish spatial zones that are not fished.

In addition to this, a number of marine parks and sanctuaries are closed to scallop fishing.

3. Fisheries Management

Recent management changes

The only recent change to the scallop fishery is the introduction of a permit to allow commercial fishers to process scallops once catches have been weighed off, and sale to members of the public at the wharf. To date six permits have been issued.

Consultation process

The commercial management arrangements for the fishery are reviewed annually in consultation with industry representatives and other fishery experts.

The DPI are currently reviewing the consultative process and hope to introduce an annual Management Workshop where licence holders and other stakeholders will be able to meet with DPI to discuss operational and other issues relating to management of the fishery.

Performance of the fishery

Performance indicators and measures, for the scallop fishery include compliance with the QMS, minimum length requirements, and ensuring fishing practices are consistent with the established policies on trashing/discard rates and meats per kilogram. Fisheries management decisions and fishery performance is currently monitored using commercial logbooks returns, but DPI has some concerns regarding the reliability of commercial log book data because there is currently no observer program in place and on-board monitoring has proven to be problematic.

There are difficulties associated with implementing performance indicators and measures in this fishery because of the naturally high catch variability.

Little is known about stocks in the west of the state because no commercial fishing activity has occurred there in the last 12 years.

In recognition of these issues, DPI is currently reviewing the current

performance monitoring system to investigate potential enhancements.

Fisheries compliance

Medium to high compliance risks identified for the quota management system include:

- Fishers not recording commercial catch in catch and disposal records
- Fishers deliberately under-reporting the true catch
- Fishers could deliberately record incorrect (smaller) weights of catch in their disposal records
- Possible collusion with fish receivers and processors to dispose of unreported catch.

Commercial scallop fishers and receivers are required to submit logbook returns on a monthly basis. Daily catch and disposal records are inspected and audited by DPI staff to ensure compliance under the QMS.

Daily catch and disposal records are inspected and audited by DPI staff to ensure compliance. In addition to this, additional fishing operations are observed from land, sea and air. Operations are conducted to ensure that fishing activity observed corresponds with fishing activity recorded in Daily Catch Logs and Catch Disposal Records.

Routine Inspections

Fisheries Officers inspect around 30,000 recreational anglers each year in Victoria, (some of these contacts include inspections of recreational divers involved in fishing for scallops). Routine contacts provide valuable intelligence, which supplements other intelligence gathering activities. This can lead to tactical patrols and targeted operations against persons believed to be involved in ongoing illegal activity.

Inspections of commercial fishers are also undertaken randomly by compliance staff at the point of landing or processing to check catch and disposal records, and to verify catch weights under the QMS. Checks are also conducted to ensure that landings are not occurring outside specified commercial ports.

Targeted Operations

There was one targeted operation conducted in 2006/07. Operation Jamboree was undertaken targeting the Victorian

scallop industry, based on an audit of logbook and catch disposal records

A series of inspections were carried out at fish processing establishments in Melbourne and Port Welshpool and on vessels around Lakes Entrance. Documents associated with the take, transportation, processing and sale of scallops were reviewed.

2958 kg of scallops in the shell were seized at Port Welshpool, as well as a commercial scallop fishing vessel and associated commercial fishing equipment.

A Doncaster man was convicted and fined for engaging in a commercial scallop fishing enterprise without a valid licence, and was given a pecuniary penalty for profits derived from the illegal take of 5.5 tonnes of scallops.

An associated company that acted as a scallop processing plant at Port Welshpool was also fined for not having an appropriate licence to commercially buy and sell scallops.

In total, twelve scallop fishers were charged under Operation Jamboree and there were eight prosecutions.

Cross-jurisdictional management arrangements

The Bass Strait scallop fishery entails a series of cross jurisdictional arrangements between the Commonwealth, Victorian and Tasmanian governments. Under the current arrangements DPI is responsible for managing the fishery in the Victorian fishing zone, but regularly engages fisheries managers in Tasmania and the Commonwealth to ensure that management arrangements across jurisdictions are broadly understood. DPI is a permanent observer on the Commonwealth Scallop Management Advisory Committee (Scallop MAC).

Management review processes

The scallop fishery management arrangements are reviewed by DPI annually. The review and preparation of new management arrangements are conducted in consultation with all major stakeholder groups.

Both SIV and DPI recently conducted three scallop strategic planning workshops during 2007/08. The workshops resulted in some management changes, including processing on board

their vessels at wharf once weighed off and addressing mislabelling of product.

DPI and SIV have highlighted further management issues relating to permanent transfer of quota, developing harvest strategies and tolerance limits for undersize scallops as priorities that need to be addressed. The need for a scallop receiver's licence will also be re-evaluated.

Threat abatement and recovery plans

No formal stock recovery plans exist, but the current management strategies aim to manage and protect juvenile beds of scallops to enhance sustainability.

Domestic and international agreements

The boundaries of the Bass Strait scallop fishery were settled through the OCS in June 1986.

4. Research and Monitoring

Research completed

Research has been conducted by trained observers on selected fishing vessels. This has been focused on scallop beds close to Lakes Entrance and Port Welshpool.

Monitoring of bycatch was undertaken during the 2006 fishing season in the Victorian Ocean Zone scallop fishery. Two cruises were undertaken, and 170 shots were monitored for catch, bycatch or length frequency. Seven different bycatch species/groups were observed, with dead shell and pumpkin sponge making up the greatest proportion of the catch. The only fish species observed was the sparsely spotted stingaree. Length frequencies were measured from 1941 scallops caught in 35 shots over the two cruises. Scallops less than 80mm were discarded which comprised 2.1% to 4.1% of the scallop catch.

Monitoring programs

The DPI has undertaken some monitoring of the fishery, including on-board monitoring of scallop size and discard rates. Current monitoring is limited to wharf and processing facility inspections of catch, as well as monitoring catch and effort data provided by commercial scallop licence holders through logbooks.

On-board monitoring and data collection has historically been difficult to schedule in this fishery because this work is easily affected by poor weather conditions, and

there are safety concerns for staff crossing the bar at Lakes Entrance.

Future collaborative research

Victoria will be contributing to a FRDC project with Tasmania and Commonwealth looking into enhancing spatial management options in the fishery. This has included discussions with researchers in the Tasmanian Aquaculture and Fisheries Institute to arrange for spatial surveys.

5. Status of target stock

Stock assessments

It is difficult to apply traditional stock assessment techniques in the management of scallop fisheries. Given limited investments, it has not yet been possible to conduct a stock assessment for the fishery.

Resource concerns

Scallop populations can vary in accordance with a range of environmental factors.

DPI does not currently carry out any regular assessment of scallop populations in the fishery. Attempts to do this have been made around Lakes Entrance, but were not considered successful (Coleman et al 1997).

Stock recovery strategies

No formal strategy is in place. The fishery is managed to accommodate natural variability in stock abundance.

6. Protected species

Interactions with protected species

An investigation was undertaken in 2002 to monitor bycatch and interactions with threatened, endangered and protected species in the fishery (Coleman 2004).

No interaction with protected species has been recorded in the Victorian fishery. A single case has been recorded in the Tasmanian jurisdiction of the Bass Strait Scallop Fishery where a Syngnathid was recorded commercial bycatch.

Interaction reduction strategies

It is a Commonwealth Government requirement that all interactions with protected species are reported in any fishery that has export accreditation under the *EPBC Act 1999*. DPI has developed a Protected Species Action Plan (November

2007) for monitoring and reporting interactions with protected species.

The Department of Sustainability and Environment (DSE) has agreed to an amnesty to allow scallop fishers who accidentally interact with protected wildlife to report the interaction without being prosecuted under the *Victorian Wildlife Act 1995* or the *Flora and Fauna Guarantee Act 1998*. This is similar to an agreement that holders of Commonwealth commercial fishing licences have with Department of Environment, Water, Heritage and the Arts (DEWHA).

Under the Action Plan, fishers are required to report any interactions with protected species on daily catch logs, and these reports are used by DPI to provide regular summaries to DEWHA.

Licence holders have been provided with a copy of the Action Plan and a Protected Species Identification Guide.

7. Ecosystem effects including the effects of fishing

Ecological risk assessments

A risk assessment of the scallop fishery was conducted in 2007 (DPI unpublished). Only a small number of risks were determined to be significant enough to require a management response. The following risks were identified:

- Removal and damage to benthic biota and substrate by use of dredge.
- Effect of fishery on scallop populations from harvesting for sale because of inadequate governance and management arrangements.
- Impact on Port Phillip Bay fishery from siltation associated with channel deepening project and coastal development, (sewerage, toxic algal blooms)

Fishery impacts on the ecosystem

Commercial scallop fishing is conducted using dredge equipment on coarse sandy bottoms. Scallop dredging is a non-selective fishing method, and can impact on the substrate and associated biota in fishing areas.

Ecological impact reduction strategies

No formal impact reduction strategies are in place. Whilst dredging can potentially occur over a large region, ecological

impacts are reduced because dredging is generally limited by commercial returns, to small regions where there are known to be high abundances of scallops. Catch is also sorted on board commercial fishing vessels and bycatch is returned to the water as soon as practicable.

External (non fishing) impact on the ecosystem and critical fish habitats

Little is known about the correlations between environmental conditions and scallop growth, condition, reproduction and settlement. Scallops have a planktonic larval stage before settlement onto the substrate in adult form. Environmental conditions (such as wind, tide, currents, etc) may impact on recruitment in the fishery. It is known that scallops experience natural variances in abundance and mortality, and are naturally vulnerable to predation from a range of other marine species. The presence of the introduced Northern Pacific Sea star (*Asterias amurensi*) may also affect scallop populations in Port Phillip Bay due to predation. The introduction of other exotic filter feeding organisms may also impact populations through increased competition for food.

8. Social and economic values of fishing and fishery governance issues

Social benefits

Only limited data is available to assess the social impacts of the fishery.

Commercial

Ninety one commercial fishing licences are issued in the fishery, with approximately 10 to 20 boats operating when the fishery is open (some licence holders lease out their quota to other vessels and some vessels hold multiple licences). This provides direct employment of fishers and crew, and for associated vessel maintenance industries. The fishery also employs people in the scallop processing and transport sector. Most of the processors are predominantly located in Melbourne and Geelong and

Recreational

No estimate of the amount of recreational catch or the number of recreational divers that fish for scallops is available so the social benefits cannot be determined. It is known that scuba diving operators in Port Phillip Bay offer periodic scallop fishing

expeditions as part of their business operations.

Economic benefits

No formal economic monitoring has been conducted and only limited economic data is available for the fishery, but an economic assessment of the fishery is currently being undertaken by SIV.

Gross value of commercial production in 2006/07 was \$908,000. In addition to the value of commercial catch, activities carried out under these licences provide employment, household income and other economic impact benefits to local communities, but the levels and impacts have not been quantified.

FISHERY GOVERNANCE

Target catch/effort range

Fishery catch and effort in the commercial fishery is controlled under the quota management system and by limiting entry to the fishery.

Participation in the recreational fishing sector is not limited, other than by requirement for non-exempt persons to

have a valid Recreational Fishing Licence. Daily bag and possession limits apply to all recreational fishers.

New management initiatives

Management arrangements are being reviewed and are expected in the first half of 2009.

DPI is developing a formal harvest strategy for the fishery, which will be mindful of similar initiatives being conducted in the Commonwealth and Tasmanian Bass Strait scallop fishing zones. The harvest strategy will aim to provide a clear fishery assessment and management framework for the commercial fishery.

References

Coleman N. (2002) Fisheries Victoria Research Report Series-Bycatch monitoring for the Victorian Ocean Zone scallop fishery in 2002.

Coleman N., Walker T., Peters B. (1997). Fisheries Assessment Report Series – Scallop 1996. Report Number 10. Natural Resources and Environment, Melbourne.

Progress in implementing scallop fishery assessment recommendations

Recommendations	Progress
<p>1. DPI to inform DEH of any material change to the Victorian Scallop Fishery’s statement of management arrangements that could affect the criteria on which EPBC Act decisions are based, within three months of that change being made.</p>	<p>Complete</p> <p>There has been no major change to the management arrangements for the fishery.</p> <p>Licence conditions have been amended to improve the quota management and reporting arrangements, including:</p> <ul style="list-style-type: none"> • A prohibition on completing the Catch Disposal Record (CDR) book greater than 20 minutes after unloading; • A requirement that the CDR book is completed prior to the scallops leaving the place of landings; • A prohibition on an operator from using a CDR book issued to another licence holder; and • A prohibition on an operator from using a CDR book from leaving the vicinity of the vessel during the scallop season.
<p>2. By the end of June 2007, DPI to develop fishery specific objectives linked to performance indicators and performance measures for target, by-product and protected species and impacts on the ecosystem. DPI</p>	<p>In progress/Ongoing</p> <p>Specific performance indicators are being developed for the target species as a part of the development of the</p>

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Recommendations	Progress
<p><i>to monitor the status of the fishery in relation to the performance measures once developed. Within 3 months of becoming aware of a performance measure not being met, DPI to finalise a clear timetable for the implementation of appropriate management responses.</i></p>	<p>harvest strategy. No such indicators currently exist with respect to scallop fishing impacts on the ecosystem.</p> <p>Under the Protected Species Action Plan, commercial fishers must report interactions with protected species. A form was included in commercial log books at the start of the 2007 scallop season to facilitate this. The Action Plan outlines management actions to be undertaken should there be any unacceptable fisheries impacts on protected species.</p> <p>Summary information on scallop fishery interactions with protected species will be provided to DEWHA on a quarterly basis, as proposed under the draft MOU between DEWHA and DPI.</p> <p>Performance indicators and measures, include compliance with the TACC, minimum size limits, and trashing/discard rates and meats per kilogram policies.</p> <p>Management of illegal, unreported and unregulated catch is also addressed based on intelligence received and regional priorities.</p> <p>Very little by-product is taken in the scallop fishery. Doughboy scallops are able to be taken in the Victorian zone; however, no substantial take has been recorded to date. (In 1999 10kg and in 2000 26 kg of doughboy scallops was reported).</p>
<p>3. <i>DPI to complete a compliance risk assessment for the Victorian Scallop Fishery for the end of June 2006 and implement a risk-based compliance strategy by September 2007 taking into account risks associated with non-compliance with:</i></p> <ul style="list-style-type: none"> • <i>Minimum size limits;</i> • <i>Quota limits; and</i> • <i>Area and fishery closures</i> 	<p>Complete</p> <p>The DPI has completed a risk assessment for the fishery, which included an assessment of compliance risks. Areas considered high risk continue to be addressed through appropriate mitigation strategies, including a mix of enforcement and education activities.</p> <p>The DPI in conjunction with industry are currently involved in a strategic planning process to address issues including minimum size, fishery closures and quota limits.</p>
<p>4. <i>From 2006, DPI to report publicly on the status of the fishery on an annual basis, including explicit reporting against each performance measure once developed.</i></p>	<p>Complete</p> <p>Status reports for all Victorian commercial fisheries are provided in the FCC annual report. This status report is the first in a series of planned annual status reports that use a more detailed reporting style.</p>
<p>5. <i>DPI to work with the relevant jurisdictions to actively pursue consistent and/or complementary management arrangements for the commercial scallop stock off south-east Australia, where appropriate.</i></p>	<p>In progress/Ongoing</p> <p>The DPI is continuing to pursue complementary management arrangements with other jurisdictions, through regular communication with Commonwealth and Tasmanian Officers. DPI is exploring complimentary research and management arrangements for the Bass Strait fishery.</p> <p>Victorian fisheries managers have met with the other jurisdictions in relation to sharing research, compliance strategies and fisheries management, including harvest strategies. The result was that the Commonwealth and</p>

Recommendations	Progress
<p>6. <i>Within two years, DPI to review the current logbook recording requirements and ensure that a robust and reliable mechanism for recording byproduct species and discarded target species is included.</i></p>	<p>Victoria agreed to work together to assist in achieving mutual management arrangements.</p> <p>Complete</p> <p>DPI conducted a review in 2007 that highlighted limitations with reporting of discarded target species. Reporting arrangements for byproduct species were also considered and licence holders are required to accurately report all byproduct species under the <i>Fisheries Regulations</i>. Education programs are also implemented by DPI staff and include port visits to inform fishers of key requirements prior to the start (and during) the quota year.</p> <p>Limited independent observer surveys have been carried out in the fishery to also verify reporting records. Surveys have been problematic in recent times due to affects of poor weather conditions, safety concerns, and limitations on available scientists and technicians to undertake the work. DPI will continue to review reporting arrangements in the fishery with a view to ensuring cost effective systems are in place for target byproduct and bycatch species. Furthermore, DPI will continue to work to reduce problems associated with the use of observer programs, and future inclusion of observers in accordance with the annual fishery risk assessment process.</p>
<p>7. <i>DPI to develop a research strategy for the fishery that identifies research information needs and priorities to meet the management information, stock assessment and performance measurement needs of the fishery. In the interim, DPI to use the results of relevant research in adjacent scallop fisheries to assess the appropriateness of current management arrangements.</i></p>	<p>In progress</p> <p>No targeted research strategy has been established with the exception of aiming to developing a harvest strategy for the fishery in 2009. DPI is participating in a FRDC funded project with Tasmania and the Commonwealth, looking into enhancing spatial management options in the fishery. DPI has also entered into discussions with researchers in the Tasmanian Aquaculture and Fisheries Institute to conduct surveys in the Victorian zone.</p> <p>Funds have been set aside to conduct surveys to locate juvenile beds of scallops since 2002. Surveys are dependent on conditions i.e. weather, availability of vessels and research technicians. Surveys are not conducted in years where there is no fishing conducted.</p>
<p>8. <i>DPI to use current and relevant information to perform an assessment of scallop stocks in Victoria for the purpose of determining the TACC for each fishery season.</i></p>	<p>In progress</p> <p>Due to the difficulties in obtaining accurate biomass estimates, DPI sets a conservative TACC based on historical catch information.</p> <p>DPI uses data collected from logbook and CDRs to gain relevant information, including area fished, number of hauls per hour, dredging hours, bottom type, and water depth.</p> <p>As noted above, traditional stock assessment methods used to estimate biomass for the purposes of setting TACC can not be applied to scallop in cost effective manner, Alternate TACC setting methodologies are required to ensure stock protection and sustainable management. The new harvest strategy being developed</p>

Recommendations	Progress
<p><i>9. DPI to review the harvesting strategy employed in the Victorian Scallop Fishery to ensure that it is adequately precautionary in terms of spatial management. DPI should consider the available scientific information regarding maintaining spatially distributed scallop beds and the impacts of fishing on the southeast Australian scallop stock. DPI to also take into account the cumulative impacts of fishing on the entire scallop stock targeted in southeast Australia as relevant information becomes available.</i></p>	<p>will provide a more transparent mechanism for setting TACC's. It is anticipated that the outcomes will allow future spatial closures to be based on stock abundance indicators.</p> <p>Ongoing</p> <p>Information regarding maintaining spatially managed beds in southeast Australia is reviewed by Fisheries Victoria on a regular basis through commercial logbooks and the industry CoP. Fisheries Victoria strongly supports the exchange of information between all jurisdictions.</p> <p>Fisheries Victoria is currently involved in strategic workshops with industry to address a number of issues, including a transparent harvest strategy.</p> <p>The Victorian Government has proclaimed a number of marine parks which are closed to commercial and recreational fishing. These measures are likely to compliment spatial management in the fishery.</p> <p>Please also refer to the response to recommendation seven (above) on the collaborative FRDC research proposal.</p>
<p><i>10. Within two years, DPI to develop a means of identifying and protecting areas of juvenile scallop beds to ensure that sufficient spawning biomass is retained.</i></p>	<p>Complete</p> <p>Industry implemented a COP for the 2007 scallop fishing season aimed at protecting juvenile scallop beds. Under the Industry COP, once juvenile beds are discovered, industry provides the location/co-ordinates to a leadership committee who authorises to survey the same site with an independent observer (scientist, technician or a different skipper) to confirm the location and size of the juvenile beds. Once the committee receives confirmation, it relays the information to DPI. DPI then informs all licence holders of the GPS co-ordinates and these areas are subject to voluntary closures. A VMS can be used to monitor the effectiveness of the COP.</p>
<p><i>11. DPI to develop a system for the collection and monitoring of information on bycatch in the Victorian Scallop Fishery sufficient to enable identification of long-term trends in bycatch.</i></p>	<p>In Progress/Ongoing</p> <p>In 2006/2007 surveys were conducted by on-board observers to monitor and plot juvenile beds of scallops and bycatch and wildlife interactions. Due to poor weather conditions and availability of vessels only one trip was undertaken. Shots were monitored for catch, by-catch and length frequency. Different species/groups were identified from dredges sampled. All by-catch species identified have a wide distribution along the southern and eastern coasts of Australia and it is unlikely that these species will be threatened as a result of scallop fishing in the Victorian zone. No protected or threatened species were caught on the trip.</p> <p>A comprehensive by-catch report was conducted in 2003 (Bycatch monitoring for the Victorian Ocean Zone scallop fishery in 2002, Noel Coleman).</p>
<p><i>12. Within 12 months, DPI to develop and implement an education program for fishers to</i></p>	<p>Complete</p> <p>An education program has been implemented as part of</p>

Recommendations	Progress
<p><i>promote the importance of protected species protection and accurate incident reporting.</i></p> <p>13. <i>Should new information determine that the fishery is having significant interactions with any endangered, threatened or protected species, DPI to appropriate measures to mitigate those interactions. Measures should be implemented within 12 months of the information becoming available.</i></p> <p>14. <i>DPI to review the current management regime within the Victorian Scallop Fishery to ensure that it takes account of ecosystem impacts, in particular:</i></p> <ul style="list-style-type: none"> <i>• High risk impacts of fishing identified through ecological risk assessments relevant to the fishery;</i> <i>• Important juvenile/ spawning/ refuge grounds identified by byproduct and protected species; and</i> <i>• The impacts of fishing on benthic habitats.</i> <p><i>During the review DPI is to liaise with the Tasmanian Department of Primary Industries, Water and the Environment and the Australian Fisheries Management Authority and consider information relating to the risk assessment of their respective fisheries.</i></p>	<p>the Protected Species Action Plan (established November 2007) to report interaction with protected species in logbooks. This included documented information supplied to licence holders, associations and peak bodies. Documentation provided to licence holders included a frequently asked questions summary paper.</p> <p>Ongoing</p> <p>No new information has become available since the WTO was issued.</p> <p>Ongoing</p> <p>The DPI has identified a number of risks which have been assessed and rated accordingly. Moderate to high rated risks are being addressed as priorities and DPI is applying appropriate mitigation measures.</p> <p>The DPI also liaises regularly with the Tasmanian and AFMA scallop fisheries managers.</p> <p>Management measures to minimise the fishery's impacts on the ecosystem include:</p> <ul style="list-style-type: none"> • closing fishing in areas where juvenile beds of scallops are detected through an Industry COP, • monitoring commercial fishing compliance with fishery closures through a vessel monitoring system. <p>The DPI will continue to monitor ecological risks and will consider management arrangement changes in order to address any environmental or ecosystem issues should they arise.</p>

Attachment 1 – Protected aquatic biota

Victorian and federal legislation protects threatened and endangered species. The details of the legislation are documented in the *Flora and Fauna Guarantee Act 1988* and *Environment Protection & Biodiversity Conservation Act 1999*.

Under S 69 of the *Fisheries Act 1995*, any species of fish or aquatic invertebrate listed under the *Flora and Fauna Guarantee Act 1988* is deemed to be protected aquatic biota (see table below). In addition to the species listed under the *Flora and Fauna Guarantee Act 1988*, “syngnathids” (species

in the taxonomic Family Syngnathidae - including all species of seahorses, seadragons and pipefish) were also declared protected aquatic biota on 6 August 1998.

The legislation, S 71 of the *Fisheries Act 1995*, requires that people do not take, injure, damage, destroy, possess, keep, display for reward, release into Victorian waters or sell any protected aquatic biota without permit or unless otherwise authorised.

Table. Fish Species listed in December 2007 under the Flora and Fauna Guarantee Act 1988 and the Environment Protection & Biodiversity Conservation Act 1999

Common Name	Scientific name	Legislation
Marine species		
Grey Nurse Shark [#]	<i>Carcharias taurus</i> [#]	FFG, EPBC [#]
Great White Shark [*]	<i>Carcharodon carcharias</i> ^{**}	FFG, EPBC ^{**}
Southern Bluefin Tuna	<i>Thunnus maccoyii</i>	FFG
Freshwater species		
Australian Grayling ^{**}	<i>Prototroctes maraena</i> ^{**}	FFG, EPBC ^{**}
Australian Mudfish	<i>Neochanna cleaveri</i>	FFG
Australian/Tasmanian Whitebait	<i>Lovettia sealii</i>	FFG
Barred Galaxias [†]	<i>Galaxias fuscus</i>	FFG, EPBC [*]
(previously Brown Galaxias)	(previously <i>Galaxias olidus</i> var <i>fuscus</i>)	
Cox's Gudgeon	<i>Gobiomorphus coxii</i>	FFG,
Dwarf Galaxias ^{**}	<i>Galaxiella pusilla</i> ^{**}	FFG EPBC ^{**}
Empire Gudgeon	<i>Hypseleotris compressa</i>	FFG
Freshwater Catfish	<i>Tandanus tandanus</i>	FFG
Freshwater Herring	<i>Potamalosa richmondia</i>	FFG
Macquarie Perch [*]	<i>Macquaria australasica</i> [*]	FFG, EPBC [*]
Murray Cod ^{**}	<i>Maccullochella peelii</i> ^{**}	FFG, EPBC ^{**}
Murray-Darling Rainbowfish	<i>Melanotaenia fluviatilis</i>	FFG
(previously Murray Rainbowfish)		
Murray Hardyhead ^{**}	<i>Craterocephalus fluviatilis</i> ^{**}	FFG, EPBC ^{**}
Pale Mangrove Goby	<i>Mugilogobius paludis</i>	FFG
Also known as	Also known as	
Flatback Mangrove goby	<i>Mugilogobius platynotus</i>	
Silver Perch	<i>Bidyanus bidyanus</i>	FFG
Southern Purple-spotted Gudgeon	<i>Mogurnda adspersa</i>	FFG
Trout Cod [†]	<i>Maccullochella macquariensis</i> [*]	FFG, EPBC [*]
Unspecked Hardyhead	<i>Craterocephalus stercusmuscarum fulvus</i>	FFG
Variogated Pygmy Perch ^{**}	<i>Nannoperca variegata</i> ^{**}	FFG, EPBC ^{**}
(previously Ewens Pigmy Perch)		
Yarra Pygmy Perch ^{**}	<i>Edelia obscura</i> ^{**}	FFG, EPBC ^{**}

Species listed as [#] 'critically endangered', ^{*} 'endangered' and ^{**} 'vulnerable' under the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999*.

Other aquatic fauna that are protected under Victorian and Federal legislation includes some species of: mammals, birds, molluscs and crustaceans.

Key threatening processes and threat abatement plans are described under the *EPBC Act 1999*, and address such things as the incidental catch (or bycatch) of seabirds during longline fishing operations and the injury and fatality to vertebrate marine life caused by ingestion of, or entanglement in man-made debris.

Actions to conserve and prevent injury or destruction of these protected species have been incorporated into fishery management plans, emergency response plans and codes of conduct. For example, the issue of whale entanglements in commercial rock lobster fishing gear has been addressed through an industry code of conduct.

The amendments to the *Wildlife (Whale) Regulations 1998*, set a number of standards for distance, speed and human behaviour near whales and dolphins that are applicable to both commercial and recreational fishers. These are based on the biological needs of these animals and to meet community expectations for their protection.

Many commercial fishers keep voluntary records of their observations of marine wildlife and participate in research to assist in the conservation and management of protected species. For example, some fishers have assisted with the Great White shark tagging project and others have recorded sightings of whales and seabirds.

Codes of conduct have also been adopted by the commercial and recreational sectors which encourage fishers to avoid littering in order to reduce wildlife entanglements with discarded fishing gear.