



Management of Freshwater Fisheries



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Auditor-General

Management of Freshwater Fisheries

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VAGO

Victorian Auditor-General's Office
Auditing in the Public Interest

The Hon. Bruce Atkinson MLC
President
Legislative Council
Parliament House
Melbourne

The Hon. Ken Smith MP
Speaker
Legislative Assembly
Parliament House
Melbourne

Dear Presiding Officers

Under the provisions of section 16AB of the *Audit Act 1994*, I transmit my report on the audit *Management of Freshwater Fisheries*.

Yours faithfully

A handwritten signature in black ink, appearing to be 'Peter Frost', with a long horizontal stroke extending to the right.

Dr Peter Frost
Acting Auditor-General

20 March 2013

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Audit summary

Recreational fishing is not only a popular hobby, but is also important to Victoria's economy. Victoria's recreational fishing industry has around 720 000 fishers and contributes an estimated \$825 million to the total gross state product. Around 40 per cent of this relates to recreational freshwater fisheries.

Historically, the management of recreational freshwater fisheries sought to boost the numbers of recreational fish by stocking waterways with hatchery reared fish. However, natural fishery conditions and fish numbers continued to decline. To address this decline, the *Fisheries Act 1995* (the Act) was amended to require the ecologically sustainable development, management and use of fisheries in Victoria. This was intended to allow recreational fishing needs to be met, while protecting and conserving fishery habitats, ecological processes and their supporting ecosystems for future generations.

This audit examined whether the Department of Primary Industries (DPI) is managing recreational freshwater fisheries in an ecologically sustainable manner so that fishery habitats and supporting ecosystems are protected and conserved for future generations.

Conclusions

DPI is not effectively discharging its legislative responsibilities to deliver balanced and sustainable outcomes for recreational freshwater fisheries. While it is demonstrably delivering improved recreational freshwater fishing outcomes, it is not paying sufficient attention to the protection and conservation of ecological processes, habitats and supporting ecosystems in these fisheries.

The long-term sustainable management of recreational freshwater fisheries continues to be a high-risk issue. DPI has increasingly relied on artificial stocking programs without adequately assessing the impact of this activity.

Reforms proposed following a comprehensive internal review of DPI's approach to fisheries management in 2010 do not sufficiently address the full range of its legislative responsibilities.

DPI's reporting of performance in managing recreational freshwater fisheries is output focused and not comprehensive. It offers little insight into the impact of its activities in managing risks and achieving balanced sustainable outcomes. Consequently, recreational freshwater fisheries will continue to not be managed in the most efficient and effective way to protect fishery resources and habitats for future generations.

Findings

Planning and management for the long-term sustainability of recreational freshwater fisheries

Planning

DPI's planning and management framework for sustainable recreational freshwater fisheries is focused predominately on meeting current recreational fishing demands. It does not adequately consider the impacts of fishing activity, and DPI's management activities, on fishery habitats, ecological processes and non-targeted fish. A functioning balanced ecosystem, and well protected and conserved fishery habitats are vital elements for the long-term sustainability of recreational freshwater fisheries.

There is currently no integrated strategic plan that effectively translates the Act's broad objectives into clear organisational priorities for recreational freshwater fishery management. No policy or guiding principles address the Act's objectives of ecological sustainability and habitat protection and conservation.

Effective and efficient management of sustainable fisheries requires reliable, robust and targeted data and information to facilitate informed and balanced planning and management decisions. The information base upon which DPI makes many of its planning and management decisions is neither comprehensive nor robust. There are significant gaps in critical areas, such as the impacts of fishing activities on certain components of freshwater ecosystems. This includes the impact on non-targeted species, the ecological impacts of DPI's stocking activities and the long-term outcomes and benefits of its stocking program.

There is a strong reliance on data about fish catches recorded by anglers, which is limited to specific areas and a few fish species. This is not supported by data collection programs that are systematic and quality assured or ecologically focused.

DPI can improve the information base from which its planning and management decisions are made by working with, and sharing relevant information with, other entities that have complementary responsibilities and interests—for example, the Department of Sustainability and Environment, water authorities and catchment management authorities.

The information required to implement an effective ecologically sustainable approach to fisheries management has been well referenced in the Commonwealth's 2003 *Guidelines for the ecologically sustainable management reporting framework for fisheries*. As early as 2007 DPI identified gaps in the information it collects, as well as the need for wider collection of angler catch and effort data (the latter is used as an indirect measure of the abundance of a targeted species). These critical gaps still remain and, except for improved catch and effort data, there is no commitment in annual business planning documents to address them. Without sufficiently detailed information, it is difficult to see how DPI's decision-making will improve enough for it to deliver all its legislated fisheries management responsibilities.

DPI has not consistently identified, assessed and prioritised risks to fishery sustainability across all Victorian recreational freshwater fisheries. Rather, risk assessments are fragmented, targeting particular fishing areas or fish species. Risk assessments are not based on the Commonwealth's better practice risk assessment guidelines for ecologically sustainably managed fisheries and are poorly documented.

Management plans, which are based on risk assessments, are required to be reviewed every five years. DPI currently has nine management plans in place. The first management plan for freshwater recreational fisheries was developed in 2002, the most recent was finalised in 2012. Only two of these plans have been reviewed since their creation. Therefore, DPI has only a limited ability to determine the performance of its current risk management activities and to identify and respond in a timely manner to new and emerging risks.

Current consultative arrangements provide limited engagement with natural resource managers at both a strategic and operational level. However, DPI has a structured, timely and transparent approach targeted at obtaining input from key recreational fishing interest groups at an operational level.

There are examples where there has been limited or no engagement with natural resource managers or peak conservation groups when developing management plans and there has been poor representation of these stakeholders on fishing forums designed to guide stocking priorities. This biases consultation and decision-making processes towards recreational fishing interests.

A more structured and planned approach to consultation with all key stakeholders would facilitate a more effective exchange of information and improve processes so that more balanced outcomes for recreational freshwater fisheries could be achieved.

Management

Deficiencies in DPI's planning framework compromise the effectiveness of two of its recreational freshwater fisheries management tools—fishery management plans and the annual stocking program.

Existing freshwater fishery management plans are inadequate. The nine management plans currently in place for recreational freshwater fisheries do not provide a framework that outlines all the key processes and management steps required to sustainably manage Victoria's fisheries. Five popular recreational fishing basins, with high environmental and conservation values, are not covered by management plans and seven out of 32 basins are managed by plans that are well overdue for review.

Performance indicators in management plans are not well linked to objectives and are activity rather than outcome focused. They do not provide a measure of the efficiency, quality and effectiveness of management actions in meeting the plans objectives or managing risks to the sustainability of fisheries. DPI, therefore, cannot be confident that risks to the sustainability of recreational freshwater fisheries are adequately managed.

DPI's annual fish stocking decisions are not informed by reliable information on the health status of fishery ecosystems and habitats, or on the likely survival of stocked species or the best mix of species for stocking in different regions and water body types. Instead, they are driven mainly by recreational fishing interests without sufficient regard to the long-term sustainability of freshwater fisheries.

DPI's framework for managing risks associated with its stocking activities, to fishery habitats, ecological processes and non-targeted fish species, is sound. However, there are gaps in its implementation and in monitoring and assessing the effectiveness of its actions in managing and mitigating identified risks.

Greater effort and resources are needed to improve the monitoring and assessment of stocking activities to understand their impacts, to generate sound evidence of stocking success and to evaluate the economic and social returns to the community.

Reforms

DPI's internal reviews have identified an extensive range of reforms to improve the planning and management of recreational freshwater fisheries. During 2011, the implementation of the proposed reforms was placed on hold indefinitely due to a lack of support from key fishing interests. This is a missed opportunity as the rationale behind the proposed reforms was sound and their implementation would have addressed a range of issues identified in this audit, such as the lack of a harvest policy and an integrated strategy to drive fishery planning and management.

In its place DPI developed a package of reforms in 2012. The centre piece of this package is a draft Fisheries Statement with supporting high-level objectives and principles for the improved planning and management of fisheries. This statement is sound and addresses the key principles for ecologically sustainably managed fisheries. The package also contains proposed key steps to manage fisheries and an action plan that identifies where these steps will be applied as a priority. However, they do not adequately address the conservation and protection of fishery habitats, ecosystems or ecological processes. Actions are focused on select commercial and high-risk fisheries only. The only priority area relating to recreational fishing is the improvement of catch and effort data.

Performance reporting

DPI cannot provide assurance to either Parliament or the community that it is effectively and efficiently managing recreational freshwater fisheries to achieve long-term sustainability. Its performance reporting framework is hindered by the lack of specific outcomes that relate to the ecologically sustainable management of recreational freshwater fisheries.

Performance outcomes for fisheries management are not clearly articulated or comprehensive. Performance indicators are narrow, output focused and provide no measure of the quality, effectiveness or efficiency of DPI's activities. There are no indicators that measure the impact of management activities on fishery habitats and freshwater ecological processes, or deal with the sustainability of non-targeted fish species. The protection of these species is important for the long-term sustainability of fisheries as they help keep the system in balance.

Even within DPI's current narrow performance reporting focus, reported performance data is selective in some areas and unreliable in others. For example, there is a heavy reliance on catch and effort data recorded by anglers. While this is an important source of data, it needs to be validated and verified by other quality assured data.

There is a lack of transparency in DPI's reporting to Parliament about the extent to which the actions under fisheries management plans are achieved. Each year DPI has reported that it achieves its targeted 90 per cent delivery of actions in fishery management plans, within required time frames. It reports on only what it considers to be its relevant actions, not the full range of actions that are within management plans. It does not transparently seek to qualify that the reported data relates only to some actions under these plans and not all.

DPI's existing performance reporting therefore offers little insight into the impact of its activities in managing risks and achieving balanced sustainable outcomes for recreational freshwater fisheries.

Recommendations

Number	Recommendation	Page
	The Department of Primary Industries should:	
1.	finalise its 2012 draft Fisheries Statement and apply its objectives and principles to the planning and management of recreational freshwater fisheries	22
2.	finalise the policy for its draft 2011 Harvest Strategy and implement the principles and guidelines uniformly across all recreational freshwater fisheries	22
3.	finalise its draft 2011 Stakeholder Engagement Strategy and implement the principles and guidelines across recreational freshwater fishing consultative processes	22
4.	develop a management plan for all recreational freshwater fisheries which includes: <ul style="list-style-type: none"> • clear performance outcomes, operational objectives and a suite of robust, balanced and measurable outcome-focused performance indicators, that are clearly linked to the legislative objectives for the management of fisheries • management actions and targets to mitigate high priority risks identified through a risk assessment process that at least adopts the principles identified in the 2003 <i>Guidelines for the ecologically sustainable management reporting framework for fisheries</i> • a harvest strategy which sets catch and take limits and targets • identification of gaps in information and data, and prioritises research, information collection and monitoring activities to address high-risk gaps • a set of regularly monitored predetermined reference points or triggers for high-risk fishery issues, supported by predetermined decision rules if the triggers are reached • the identification and allocation of resources and time frames to implement management plan actions • a detailed performance monitoring and reporting framework to track the progress and effectiveness of the plan against its objectives 	22
5.	review its <i>Fisheries Statement Action Plan</i> to reflect the above actions, to address the poor planning and management of freshwater recreational fisheries	23
6.	collate previous and current existing stocking records and research data into a clear evidence-based tool to guide current decision-making for fish stocking.	23

Recommendations – *continued*

Number	Recommendation	Page
7.	<p>The Department of Primary Industries should:</p> <p>prioritise and implement the relevant high-priority recommendations, from its internal reviews of its stocking processes and programs, to improve its current decision-making framework in relation to:</p> <ul style="list-style-type: none"> the assessment and evaluation of the performance of annual stocking programs in improving fishery sustainability the assessment and information gathering of the potential impact of stocking activities on freshwater fishery ecology, non-target species and supporting fishery habitats 	23
8.	develop a performance reporting framework for fisheries that includes clear performance outcomes aligned with its core legislative objectives, which has balanced, measurable and outcome-focused performance indicators, underpinned by quality assured performance data	31
9.	develop and document performance reporting policies and standards, including those for the collection and verification of performance data.	31

Submissions and comments received

In addition to progressive engagement during the course of the audit, in accordance with section 16(3) of the *Audit Act 1994* a copy of this report was provided to the Department of Primary Industries with a request for submissions or comments.

Agency views have been considered in reaching our audit conclusions and are represented to the extent relevant and warranted in preparing this report. Their full section 16(3) submissions and comments are included in Appendix A.

1 Background

1.1 Sustainable recreational freshwater fisheries

Recreational fishing is not only a popular hobby, but is also important to Victoria's economy. Victoria's recreational fishing industry has around 720 000 fishers and contributes an estimated \$825 million to the total gross state product. Around 40 per cent of this relates to recreational freshwater fisheries.

Freshwater fish numbers and habitats have significantly declined over the past century. As a consequence there is a heavy and increasing reliance on the stocking of freshwater fisheries with hatchery bred fish to meet recreational fishing demands, as shown in Figure 1A. The Department of Primary Industries (DPI) spent approximately \$1 million in 2012 on stocking waterways with fish, but significantly more over the past three to five years to improve hatchery production facilities, processes and procedures.

Figure 1A
Fisheries Victoria stocking program between 2007 and 2011

	2007	2008	2009	2010	2011
Salmonoids					
Brown trout	62 421	184 617	152 575	246 370	372 913
Rainbow trout	135 807	183 233	210 788	459 912	306 714
Native fish					
Murray cod	119 895	57 250	276 200	434 140	806 570
Golden perch	544 090	575 700	936 500	1 163 000	1 129 600
Trout cod	0	300	2 300	7 000	6 000
Silver perch	5 000	10 000	10 000	31 000	36 000
Australian bass	0	0	0	52 000	102 270
Macquarie perch	0	0	0	3 500	3 000
Total fish stocked	867 213	1 011 100	1 588 363	2 396 922	2 763 067

Source: Victorian Auditor-General's Office.

1.1.1 Ecologically sustainably managed fisheries

The past management of fisheries resources was targeted towards boosting the numbers of recreational fish by stocking hatchery bred fish into waterways where naturally bred fish numbers were not meeting the demands of recreational fishers. As natural fishery conditions and fish numbers continued to decline, it was evident that a different approach to fisheries management was required.

Amendments to the *Fisheries Act 1995* require that fisheries be managed in an ecologically sustainable manner to protect and conserve fishery resources, habitats and their supporting ecosystems for the benefit of current and future generations.

Key principles that guide the ecologically sustainable management of fisheries include:

- decision-making processes that effectively integrate both long- and short-term economic, environmental, social and equity considerations
- the identification of serious or irreversible environmental threats and the development of measures to prevent environmental degradation
- the recognition and consideration of the full environmental impacts of actions and policies
- broad community involvement on issues and decisions which affect them.

Meeting the needs of future generations relies on protecting and conserving fisheries as the key management priority, combined with the stocking of waterways that cannot meet recreational fishing demands naturally.

1.2 Legislative and policy framework

The framework that drives the management of recreational freshwater fisheries is made up of a complex mixture of legislation, policies and strategies. The key documents are outlined below.

1.2.1 Acts

The legislative framework for managing recreational freshwater fisheries is set out in two key Acts.

The *Fisheries Act 1995* (the Act) is administered by DPI and specifies the requirements for fisheries management. These include to:

- manage, develop and use Victoria's fisheries and associated aquatic biological resources in an efficient, effective and ecologically sustainable way
- protect and conserve fisheries resources, habitats and ecosystems, including the maintenance of aquatic ecological processes and genetic diversity
- promote quality recreational fishing opportunities for the benefit of present and future generations, and facilitate access to fisheries resources
- encourage the participation of resource users and the community in managing fisheries.

The *Flora and Fauna Guarantee Act 1988*, administered by the Department of Sustainability and Environment (DSE), specifies requirements for the protection, conservation and sustainable management of threatened fauna, including native fish species.

1.2.2 Policies and strategies

DPI has developed a series of policies and strategies to drive the management of freshwater fisheries.

Policies

Policies for the management of freshwater fisheries include:

- *Responding to the impacts of drought and its consequences on inland recreational fisheries*, 2006
- *Fisheries Victoria ecosystems-based fisheries management*, 2007–2010
- *Fish stocking for recreational purposes*, 2007
- Interim policy for the *Development of new wild catch fisheries in Victorian waters*, 2012.

Strategies

Strategies for the management of freshwater fisheries are numerous and produced by a number of entities. The key strategies are:

- *Victorian River Health Strategy*, 2002
- *Murray-Darling Basin Native Fish Strategy*, 2009.

The 2002 *Victorian River Health Strategy* administered by DSE is the key document for the managing, improving and guiding investment in waterway health. It is expected to be replaced by the *Victorian Waterway Management Strategy*, once finalised, in 2013.

Draft strategies being developed by DPI include:

- *Future Fisheries Strategy*, 2011
- *Aboriginal Fishing Strategy*, 2011.

The draft *Future Fisheries Strategy* 2011 sets out a vision for managing fisheries in Victoria for the next 15 years and the key steps and processes to achieve this.

Protocols and guidelines

DPI has produced a range of protocols and guidelines that apply to the stocking of fish into waterways to maintain and improve recreational fishing opportunities. The two key documents are:

- *Protocol for the Translocation of Fish in Victorian Inland Public Waters*
- *Guidelines for Assessing Translocations of Live Aquatic Organisms in Victoria*.

Stocking proposals are assessed in accordance with these guidelines to ensure they include control measures to manage the risks associated with recreational fishing stocking activities. Proposals that fall outside these guidelines require a case-by-case risk assessment prior to approval by an independent panel that advises DPI.

1.3 Planning and management framework

1.3.1 Roles and responsibilities

There are two key departments and 10 catchment management authorities (CMA) responsible for managing Victoria's recreational freshwater fisheries. DPI is responsible for policy and program development, and implementation for recreational fisheries, while DSE and CMAs are responsible for managing waterway health and the surrounding catchment impacts through their waterway policy and management roles respectively.

Department of Primary Industries

DPI's role is to manage recreational freshwater fisheries to optimise their economic and social value while maintaining the long-term sustainability of these resources. It does this by developing and implementing fishery regulations, policies, strategies, management plans, stocking programs and research projects, and delivering a wide range of supporting services, including compliance activities.

DPI's Fisheries, Game and Forestry division carries out these functions and is responsible for the ecologically sustainable development of Victoria's fisheries.

Department of Sustainability and Environment

DSE is the lead agency for waterway management. It is responsible for developing waterway policy, coordinating regional CMAs to help them deliver policy outcomes, and prioritising government investment into waterway health. This occurs through actions described in the 2002 *Victorian River Health Strategy*.

The Arthur Rylah Research Institute—part of DSE—carries out research into the sustainability of native and threatened fish species and their environment.

Catchment management authorities

Victoria's inland waters are managed under an integrated catchment management system established under the *Catchment and Land Protection Act 1994*. Under this system, inland waters have been divided into 10 catchment regions with a CMA established for each. CMAs are responsible for the sustainable development of Victoria's water catchments.

1.3.2 Fisheries planning

Better practice fisheries planning aims to improve recreational fishing opportunities, while protecting and conserving fishery habitats and the health of supporting ecosystems which underpin healthy, self-sustaining fish populations. Fishery stocking activities should be used where naturally bred fish numbers do not meet recreational fishing demands, and where irreversibly degraded environments exist that don't support the natural breeding of fish.

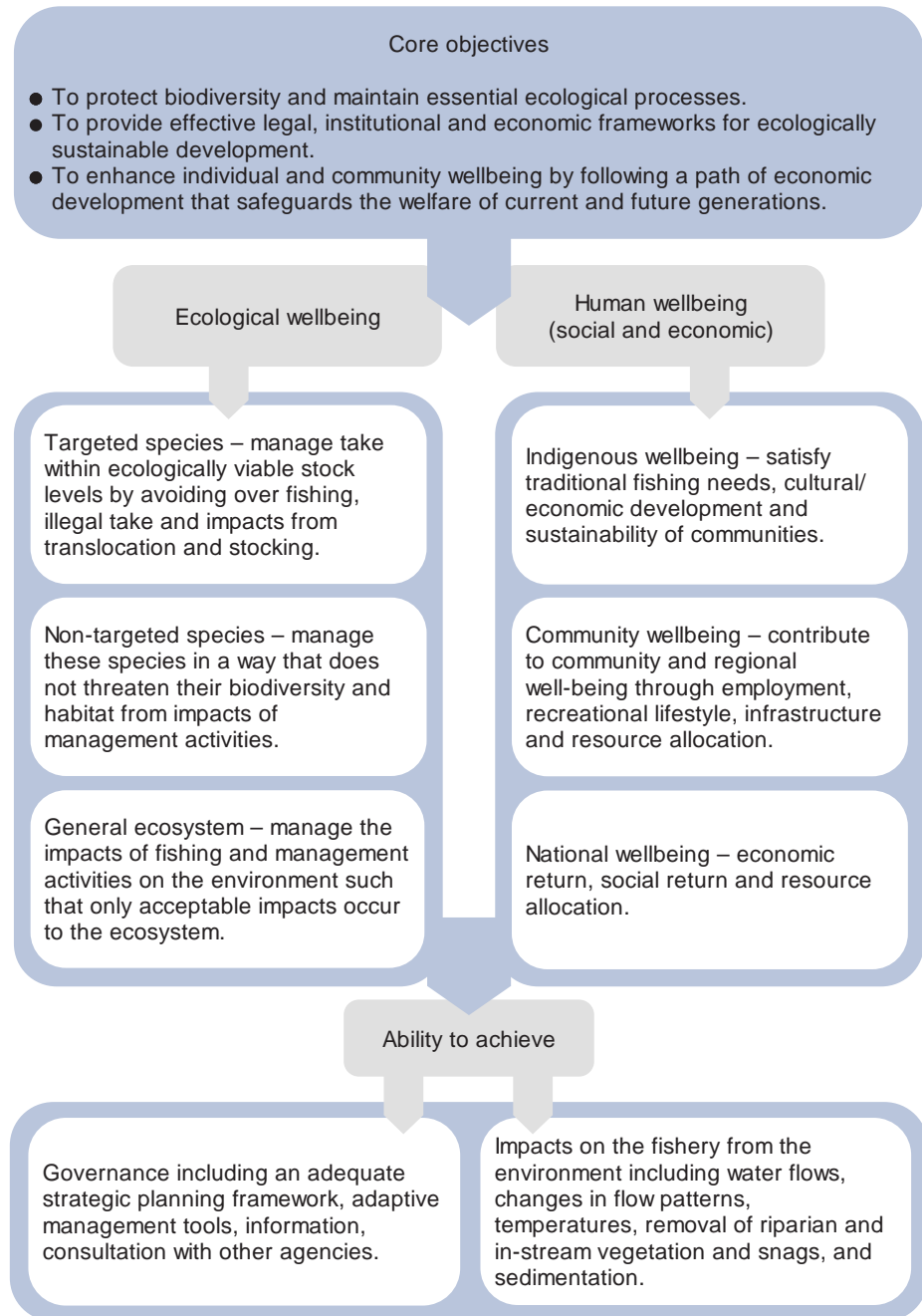
This requires a planning and management framework that:

- defines and documents how the ecologically sustainable objectives and the protection and conservation objectives in the Act are interpreted and applied within the recreational freshwater fisheries context
- defines and documents how recreational fishing demands will be determined and managed within an ecologically sustainable context
- supports the delivery of objectives and outcomes through robust management tools that are responsive to risks and whose development and implementation is based on better practice and sound decision-making processes.

This should be supported by an effective performance reporting framework that has clear outcome focused objectives, relevant and appropriate performance indicators, and comprehensive and reliable data.

Due to the recognised complexity in translating the principles of ecological sustainability into fishery planning and management, a range of nationally-agreed objectives, outcomes and a reporting framework were developed as part of a Commonwealth Government process that commenced in 2002. All state fishery managers participated in this process. The core objectives and outcomes agreed to are outlined in Figure 1B.

Figure 1B
An ecologically sustainable planning framework for fisheries management



Source: Victorian Auditor-General's Office.

1.3.3 Fisheries management

DPI has developed a range of management tools to protect, maintain and enhance recreational fisheries and fishing opportunities. Two key management tools are:

- fishery management plans for either fisheries within a catchment management region or for a highly valued fish species
- DPI's annual stocking program, which is designed to boost fish numbers and types available in selected waterways.

Fisheries management plans

While management plans are not mandatory for recreational freshwater fisheries, DPI currently has nine active fishery management plans in place.

The Act defines what the contents of a management plan should be. A fishery management plan is a formal statement of what environmental, economic and social goals and objectives are to be achieved in the management of a particular fishery, or for a particular species. This includes what actions are to be taken to achieve these goals and objectives, and how the achievement of these goals and objectives can be measured. Management plans also guide how resources are invested and how decisions are made within a fishery, or for a species.

Stocking program

Recreational freshwater fishing in Victoria relies on a combination of stocked and natural fisheries containing both introduced and native species. At present, stocking of recreationally targeted fish species is undertaken to maintain and create opportunities for recreational fishing through the release of hatchery bred fish into waterways. As a priority, stocking should occur where fishing is limited or unavailable due to habitat degradation, alteration of flow regimes or the construction of dams. Stocking is also used to address overfishing.

Despite the significant social and economic benefits derived from stocking Victorian waters, it has the potential to threaten the biodiversity and ecological integrity of fishery habitats and supporting ecosystems and therefore, the sustainability of the fishery.

Threats from stocking activities include:

- the effects on biodiversity and ecological processes through competition, genetic shifts to wild populations, and/or the habitual killing of another species as a source of food
- the establishment of feral populations
- the introduction of parasites and diseases.

To effectively manage these risks, stocking programs and activities must be undertaken in a way that protects and conserves freshwater fishery habitats and supporting ecosystems.

1.4 Audit objective and scope

The audit's objective was to assess whether DPI is effectively managing recreational freshwater fisheries in an ecologically sustainable manner and one that protects and conserves freshwater fishery resources, habitats and supporting ecosystems.

To address the objective, the audit assessed whether:

- recreational freshwater fisheries are managed according to an effective planning framework that reflects DPI's legislative responsibilities
- sound information informs planning and management
- robust management tools exist
- adequate reporting of performance occurs.

The audit focused on DPI's management activities, but the roles of DSE, CMAs and other key stakeholders were considered in the context of DPI's consultation processes to meet its legislative responsibilities for fisheries management.

The audit also examined the adequacy of DPI's fishery management plans and annual stocking activities. It did not examine fisheries regulations and compliance activities as these were recently audited in VAGO's report on the *Effectiveness of Compliance Activities: Departments of Primary Industries and Sustainability and Environment*.

1.5 Audit method and cost

The audit was performed in accordance with section 15 of the *Audit Act 1994* and the Australian Auditing and Assurance Standards. Pursuant to section 20(3) of the *Audit Act 1994*, unless otherwise indicated any persons named in this report are not the subject of adverse comment or opinion.

The total cost was \$290 000.

1.6 Structure of the report

- Part 2 assesses DPI's planning and management for sustainable fisheries.
 - Part 3 discusses DPI's reporting of its performance in managing recreational freshwater fisheries.
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2 Planning and management for sustainable fisheries

At a glance

Background

Sound planning and management should be driven by a framework that addresses the ecological sustainability, and the habitat and ecosystem protection requirements, of the *Fisheries Act 1995* (the Act). It should be risk-based to target limited resources to areas of highest risk and underpinned by comprehensive and reliable information.

Conclusion

The Department of Primary Industries' planning and management of freshwater recreational fisheries is targeted towards meeting and improving recreational fishing demands and opportunities, without adequately considering or addressing the ecological sustainability, and fishery habitat conservation and protection objectives of the Act.

Findings

- The current planning and management framework has significant gaps and is narrowly focused on meeting recreational fishing interests.
- Planning and management decisions are not based on balanced, robust and reliable information or a comprehensive assessment of risks.
- Consultation with recreational fishing interests to inform planning and management is structured, continuous and transparent, while consultation with natural resource managers is generally ad hoc and opportunistic.
- Fishery management plans are poorly developed and implemented and their performance is not adequately monitored, reported and reviewed.

Recommendations

The Department of Primary Industries should:

- finalise its various draft policy statements and strategies for all recreational freshwater fisheries
- develop a management plan for all freshwater recreational fisheries that addresses the key principles for ecologically sustainably managed fisheries.

2.1 Introduction

Sound planning and management are prerequisites for the long-term sustainability of fisheries. They should address the ecological sustainability, and habitat and ecosystem protection requirements of the *Fisheries Act 1995* (the Act). They should be based on a comprehensive assessment of risks, to target resources to areas of highest risk, and be underpinned by comprehensive and reliable information.

2.2 Conclusion

The Department of Primary Industries (DPI) is not effectively discharging its obligations under the Act to achieve balanced and sustainable outcomes for the management and development of recreational freshwater fisheries. DPI's planning and management activities are predominantly targeted towards meeting and improving recreational fishing demands and opportunities. Little attention is given to address the legislative requirements for the ecologically sustainable management of fisheries and for the protection and conservation of fishery habitats and ecosystems.

Key tools used by DPI to manage recreational freshwater fisheries are not robust. Their implementation is not based on sound and balanced decision-making processes, and decisions are not informed by comprehensive, robust and reliable information and data.

As a result, DPI cannot demonstrate that its planning for, and management of, recreational freshwater fisheries is effective and efficient in achieving their long-term sustainability.

2.3 Planning for the sustainable management of fisheries

DPI's responsibility for Victoria's recreational freshwater fisheries entails managing fisheries in accordance with the principles of ecological sustainability, as outlined in Part 1, and protecting and conserving fishery habitats and supporting ecosystems. It does this at a strategic level by developing and implementing fishery regulations, policies, strategies, guidelines and management plans to guide the development, use and management of fisheries. At an operational level, DPI implements an annual program of recreational fish stocking, research, monitoring and compliance activities.

2.3.1 Planning framework

DPI's planning framework has significant gaps and does not adequately deal with all of its legislative responsibilities for fisheries management. Planning and management outcomes are narrowly focused and prioritised to meet recreational fishing demands. Little attention is given to developing objectives and outcomes for the ecological sustainability of fisheries and for the protection and conservation of fishery habitats and supporting ecosystems.

Policies

There is no current policy that translates the Act's ecological sustainability and habitat and ecosystem protection and conservation requirements into key principles or objectives to drive the planning and management of recreational freshwater fisheries. Twelve years after the 1995 amendments to the Act, DPI developed a policy statement about ecosystems-based fisheries management. The statement recognised that fishery resources needed to be managed in an ecologically sustainable way. It required:

- fishery resources to be managed to minimise the risk of unacceptable impacts on the ecosystem (measured as the impact on targeted and non-targeted species, protected species, habitats and communities)
- the application of a risk-based, precautionary approach to fisheries management where there was uncertainty due to a lack of information
- the management of non-fisheries activities that impact on the aquatic ecosystem in a way that minimised adverse impacts on fisheries
- the tailoring of management responses to account for environmental impacts, such as climate change.

The statement expired in 2010 and has not been replaced.

The majority of these principles were never effectively translated into operational management objectives or plans used to manage fisheries.

There is no policy that outlines principles that could be used as a framework for developing harvest strategies (setting sustainable fish catch and take limits and targets). This is a critical requirement for the long-term sustainability of Victoria's recreational freshwater fisheries. Developing a policy would provide a consistent and transparent framework for harvest strategies and for setting measures to assess the performance and effectiveness of associated management activities. It would also improve the rigour with which fisheries are managed.

Strategies

There is currently no overarching strategy that effectively considers and brings together all the key management processes and steps required to sustainably manage each fishery. Processes are currently considered and applied in isolation of one another. For example, setting targets and limits for recreational fishing and improving access to fisheries resources are not currently considered alongside requirements to protect and conserve fishery resources, habitats and their supporting ecosystems. As a result, current management practices do not adequately take account of the need to balance recreational fishing demands with the need to ensure ecological sustainability and fishery habitat protection and conservation. Further, they are not uniformly developed or consistently applied across all recreational freshwater fisheries.

In an attempt to address this fragmented approach to fisheries planning and management, DPI developed the draft 2011 *Future Fisheries Strategy*. The draft outlined a long-term vision for the management of fisheries and attempted to integrate the key principles, processes and steps required to sustainably manage a fishery.

The *Future Fisheries Strategy* has not been finalised due to a lack of support from key fishing stakeholders for a number of reforms identified in it. This is a missed opportunity as the strategy was sound in theory and addressed the absence of an integrated approach to fisheries planning and management.

DPI also does not have a harvest strategy for recreational freshwater fisheries. Some recreational freshwater fisheries have regulations to control the number of fish caught for one or a few recreationally fished species. However, fish harvest limits have not been methodically set and controls have not been consistently applied across all of Victoria's recreational freshwater fisheries.

While there is a commitment in DPI's 2012–13 business plan to finalise the draft harvest policy, there is no commitment to develop these principles into a specific harvest strategy for recreational freshwater fisheries. This should be a priority.

Planning outcomes

The development and inclusion of corporate outcomes in the planning framework is a key step in translating DPI's legislative responsibilities into operational management activities. The only corporate planning outcome relevant to fisheries is to create 'sustainably managed natural resources through efficient and sustainable allocation, use and management of natural resources'. There is no specific corporate outcome that addresses the management of fisheries, a key primary resource for the Victorian economy. The outcome is vague and contributes to the poor planning framework for fisheries management.

The lack of specific and clearly articulated planning outcomes for the ecologically sustainable management of fisheries is avoidable given better practice outcomes have been documented in Commonwealth guidelines and implemented by other states fishery managers, such as Western Australia, since the early to mid-2000s.

Consultation and engagement

Holistic and integrated planning for recreational freshwater fisheries requires engagement with key stakeholders at both a strategic and operational level. Better practice principles for effective consultative processes include making engagement targeted, timely, transparent and consistent.

DPI undertakes both statutory and non-statutory consultative processes for recreational freshwater fisheries. It has a structured framework in place for its statutory consultative processes which are undertaken for the development of fisheries notices and the declaration or amendment of a fishery management plan.

Procedurally the framework is sound as it reflects the Act's principles for effective consultation, the process to be undertaken and need for a consultation plan template. However, its implementation in some areas is poor. Guidelines are not in place to inform staff on how the consultation principles in the Act should be applied. This has led to examples where there has been limited or no engagement with natural resource managers when developing management plans, and these managers being poorly represented at the fishing forums that guide stocking priorities. Guidelines would improve consultation processes by clarifying the roles of specific stakeholders in influencing decisions, improving transparency and making sure decisions are informed by the appropriate balance of fishing and environmental interests.

At both a strategic and operational level, DPI has a structured, timely and transparent approach targeted at obtaining input from key recreational fishing interest groups. This is not the case, however, with relevant natural resource managers and key conservation peak bodies.

Consultation processes for key stakeholders include state and regional recreational fishing round table forums held annually across a range of regions. Attendance by natural resource managers and conservation interests at these forums is limited and ad hoc, and there are no other structured engagement activities with them.

DPI should adopt a more structured and planned approach to consultation with natural resource managers, similar to the model it applies to obtain recreational fishing interests input. This would facilitate a more effective exchange of information, clarify respective roles and improve the process to achieve balanced outcomes for recreational freshwater fisheries.

DPI, through its reform process has developed a draft Stakeholder Engagement Strategy to guide the implementation of all current and future DPI fishery policies. The principles and processes in this strategy are sound and will significantly improve DPI's consultative processes around fisheries planning and management. DPI is yet to commit to a process to apply these principles.

2.3.2 Research, information and data to inform planning

Reliable and current data and information should underpin all stages of fisheries planning. However, it is difficult to get a comprehensive understanding of freshwater systems as they are exceptionally complex and, in many areas, highly modified by human activity. Data collection and research is undertaken by a number of stakeholders, including the Department of Sustainability and Environment (DSE), the Environment Protection Authority, water authorities and catchment management authorities.

DPI can significantly improve the information base it uses to make planning decisions for the management of recreational freshwater fisheries. There are significant information gaps in critical areas which DPI has direct responsibility for, as shown in Figure 2A.

Figure 2A
Information gaps for the ecologically sustainable management of fisheries

Risks	Responsibility – management and data collection	Status
Impacts on target species – over exploitation, illegal harvest, genetic integrity, disease, and translocation and stocking impacts	DPI	Adequate information, only minor gaps
Impacts on non-target species and biological communities through stocking activities	DPI	Significant information gaps
Impacts on non-target species from fishing activities	DPI	Significant information gaps
Ecological integrity – removal of fish from the food chain	DPI	Significant information gaps
Effects of fishing activities on water quality	Not clear	Significant information gaps
Ecosystem disturbance – loss of habitat from fishing activities	Not clear	Significant information gaps

Source: Victorian Auditor-General's Office.

The information required to implement an effective ecologically sustainable management approach to fisheries has been well referenced in the Commonwealth's 2003 *Guidelines for the ecological sustainable development of fisheries reporting framework*. DPI relies on a narrower range of information and data to inform its planning processes than that required by such better practice guidelines.

While DPI is not directly responsible for collecting some of this information, it should seek agreements with DSE, water authorities and catchment management authorities to collect and exchange data that could be used to assist it in its planning activities.

DPI developed a draft information and knowledge working paper in 2011 as part of its 2010 internal review of fisheries management. The draft paper outlines a strategic decision-making framework underpinned by a set of principles to support the collection, collation and management of fisheries information and knowledge. The working paper identifies some of the information gaps as outlined in Figure 2A. However, there is no commitment in DPI's work program to specifically address these gaps or to enable relevant information to be shared between departments and agencies.

Research

DPI is a signatory to the 2010 national *Fisheries and Aquaculture Research, Development and Extension* strategy. This strategy establishes future directions to improve the focus, efficiency and effectiveness of research and development activities across fishery stakeholders. The strategy's key themes include habitat and ecosystem protection and ecologically sustainable development. However, DPI does not have a structured plan that translates key priority areas into research priorities and projects. There is also no coordination of research effort across relevant departments and groups to meet priorities set for recreational freshwater fisheries.

The 2012 Fisheries Victoria *Science Strategy* identifies fishery management plans as the drivers of research effort. These plans are poorly developed, implemented and monitored, as discussed in Section 2.4.1. Until this is addressed they should not be used to identify research activities. The plans also need to be reviewed to reflect the themes identified in the 2010 national research strategy.

A significant proportion of DPI's research projects are focused on fishery productivity and fishing outcomes. While this research is best practice, it is not balanced with research efforts to improve ecological, habitat and ecosystem information and data. DPI contends that some of this research is the responsibility of others, but there is no evidence of whether DPI is obtaining or using this information in its planning activities.

DPI does fund and partner research with a number of external agencies. The most relevant to recreational freshwater fisheries is DSE's Arthur Rylah Institute. While specific initiatives have generated best practice research, there is no structured approach to foster the development of research priorities based on identified high-risk issues, or to assure alignment with the priority areas identified in the 2010 National Research Strategy. Instead projects are opportunistic and generally dependent on funding obtained under a range of DPI recreational fishing grants.

2.4 Management at the fishery level

Sound management of fisheries should result in the effective delivery of planning outcomes for sustainable recreational freshwater fisheries. This is best achieved by developing and implementing robust management tools that effectively mitigate current and emerging risks to fishery sustainability.

The three key management tools used by DPI to manage recreational freshwater fisheries are fishery management plans, its annual stocking program and the development of fishery regulations and notices to control fishing activities. The latter were recently audited as part of our audit of the *Effectiveness of Compliance Activities: Departments of Primary Industries and Sustainability and Environment* and therefore not considered as part of this discussion.

2.4.1 Management plans

While not mandatory, the Act specifies that where management plans are developed they must:

- provide for the management, development and use of Victoria's fisheries in an efficient, effective and ecologically sustainable way
- result in the protection and conservation of fishery resources, habitats and ecosystems, including the maintenance of aquatic ecological processes and genetic diversity.

Currently there are nine management plans in place for freshwater recreational fisheries. DPI developed the first of these in 2002, with the most recent one finalised in 2012. These were intended to be integrated and comprehensive plans to address the management of declared fisheries or fish species.

However, no criteria have been established to guide the identification and prioritisation of fisheries. This has resulted in management plans being developed in an ad hoc manner, driven mainly by recreational fishing demands. There are five large popular fishing basins with high environmental and conservation values that are not covered by management plans, as shown in Figure 2B.

Figure 2B
Freshwater recreational fisheries management plan currency and coverage

Management plan (based on catchment areas)	Fishing basin	Review date	Reviewed
No plan	Avoca River, Campaspe River, Loddon River (North), Loddon River (South), Mallee	–	
Glenelg Hopkins 2006	Glenelg River, Hopkins River, Portland	2011	No
North East 2007	Mitta Mitta, Upper Murray, Ovens River, Kiewa River	2012	No
Corangamite 2008	Barwon River, Corangamite, Otway	2013	
West Gippsland 2008	La Trobe River, South Gippsland, Thomson River	2013	
Wimmera 2008	Wimmera River, Millicent Coast	2013	
Port Phillip and Western Port 2009	Bunyip River, Maribyrnong River, Moorabool River, Werribee River, Yarra River	2014	
Goulburn Broken 2011	Goulburn River, Broken River	2016	
East Gippsland 2012	East Gippsland, Mitchell River, Tambo River, Snowy River	2017	
Victorian Eels 2002	Eels	2007	No ^(a)

(a) Commenced in 2010 but not finalised.
Source: Victorian Auditor-General's Office.

Fishery management plans are poorly developed, implemented and monitored. Current plans broadly detail objectives, general risks, activity-focused performance indicators, strategies and actions. However, they do not consistently:

- incorporate key management practices necessary to manage a fishery sustainably
- specify harvest controls
- have predefined reference or trigger points specifying the number, size or age of fish required to maintain the sustainability of the fishery
- have other indicators of fishery sustainability related to catch and effort data that when reached, trigger a review of the numbers of fish stocked and the fishing controls applied, including the number and types of fish allowed to be caught
- specify strategies and actions to meet the plans' objectives—a significant number of the actions are predicated on receiving funding and others are vague.

When fishery conditions are good, harvest controls, predefined trigger points and sustainability indicators may seem unnecessary. But when fisheries come under pressure from ecological, climatic or human impacts as they have now, clear predetermined reference or trigger points, and predetermined responses, limit the impacts on fisheries long-term sustainability. The performance indicators identified in plans are narrow, activity focused and are not reported with the appropriate information to allow interpretation of performance against objectives. They do not provide a measure of the quality or efficiency of management actions in meeting the plans' objectives or managing risks over time. Nor do they cover all critical aspects of an ecologically sustainably managed fishery, including the impacts on targeted and non-targeted fish species and the impacts of fishing and management activities on fishery habitats and supporting ecosystems.

DPI appoints reference committees to oversee the implementation, monitoring and reporting on the performance of management plans. Under their terms of reference, committees are required to meet once a year to address these responsibilities. Despite current plans being in place since 2006, there is no documented evidence that any reference committee had met or had been provided with any performance information, or that any such information had been systematically reviewed by DPI.

Integrated management plans

In Victoria there are better practice examples where holistic integrated planning and management have led to the development of comprehensive management plans that have resulted in sustainably managed fisheries. However, these examples are limited to the management of a particular species of fish, such as eels, or a specific river area. A good example is DPI's management of the Murray cod fishery, as shown in Figure 2C.

Figure 2C
Management of Murray cod recreational fisheries
– a model for better practice planning

Murray cod is a popular recreational fishing species. Its numbers and distribution have declined significantly from its early-European settlement levels. It is now restricted to a few localised populations across Victoria and New South Wales. Causes for decline are complex and inter-jurisdictional. They include fishing, habitat loss and degradation, introduced species interaction and the loss of genetic diversity.

The need for a coordinated approach to manage Murray cod recreational fisheries was recognised in 2010. DPI led an initiative that resulted in the development of a joint Murray Cod Fishery Management Action Plan and the development of the Murray Cod Fishery Management Group, comprising representatives from research, natural resource management and angling sectors to drive its development and implementation. The group's management actions are wide ranging, complex and involve a range of agencies and jurisdictions.

This approach and plan has resulted in improved integrated fisheries planning and management arrangements, policy alignment between resource management agencies, and a set of focused priorities to drive research and build collaborative research partnerships to enhance the Murray cod recreational fishery.

Source: Victorian Auditor-General's Office.

Other exemplars include the two Demonstration Reach Projects managed by the Murray-Darling Basin Authority and DSE. Applying these model approaches would significantly improve recreational freshwater fisheries planning and management by:

- improving policy alignment between resource management agencies
- clarifying the roles and responsibilities of all entities
- developing an agreed set of focused priorities to drive research and build structured collaborative research partnerships to enhance the fishery
- enabling effective information exchange
- setting agreements for prioritising and resourcing management actions and time frames for delivery
- allowing annual integrated reporting and the review of the performance of the relevant management plan in meeting its objectives.

This could inform the review of existing management plans or the creation of a new single management plan that covers all freshwater recreational fisheries. The department has acknowledged that the current approach of preparing management plans focusing on individual rivers does not provide an effective platform to manage the state's freshwater fisheries as a whole.

2.4.2 Risk-based management

Management of fisheries should be risk-based, incorporating a robust assessment of all risks to recreational freshwater fisheries and their supporting habitats and ecosystems. This includes threats to target fish species, non-target fish species, and to ecological and ecosystem processes. Risk-based management increases the likelihood that activities will be prioritised to address the significant risks to fishery sustainability and assists the most efficient use of limited resources.

DPI's process to identify, assess and prioritise risks across all of Victoria's recreational freshwater fisheries is not comprehensive. Its approach is fragmented; risks are assessed through its management planning process.

Risk assessments are not documented or based on better practice. Balanced input from all relevant stakeholders is generally not obtained. Steering committees for management plans undertake a general risk assessment process as part of the plan's development. These committees heavily represent recreational fishing interests. Assessments do not follow the 2003 nationally endorsed process for undertaking an ecologically sustainable risk assessment for fisheries. Consequently risks are not assessed.

As noted above, the development of fishery management plans are not mandatory under the Act. The nine current management plans cover 27 of the 32 recreational fishing basins. Five popular large fishing basins with high environmental and conservation values are not covered by management plans and therefore, under this approach, risk assessments have not been undertaken. Reliance on this strategy to assess the risks is therefore flawed. Figure 2D illustrates why this issue needs to be addressed.

Figure 2D
The Loddon River fishing basin

The Loddon River basin has no fishery management plan. The basin is a popular recreational fishing area with 33 formalised fishing access sites and a range of species available for fishing.

DPI stock Golden perch and Murray cod into 13 rivers and lakes in the north part of the basin, trout are stocked into 18 rivers and lakes in the south part and seven rivers are stocked throughout the basin with native species.

The basin's conservation and environmental value is high. The northern part of the basin contains seven endangered and threatened species and there are 10 in the southern part. There are 20 sites in this basin listed in an international treaty for the conservation and sustainable utilisation of wetlands (the Ramsar Convention on Wetlands of International Importance). There are only 1 950 listed sites across all signatory countries.

An order has been made by the Governor in Council allowing anglers to take the Murray cod and Murray spiny crayfish from all waters in the Loddon River basin and Silver perch from lakes and impoundments, subject to conditions. Murray cod is listed as a threatened species.

Additionally, recreational fishing is allowed to occur in Gunbower Creek, which is listed as a site of environmental significance (one of the Ramsar sites).

Without a complete and robust assessment of all risk and threats, or an integrated long-term management plan for the basin, fishing activities, stocking programs and public access may result in irreversible impacts to the sustainability of these sites and species.

Source: Victorian Auditor-General's Office.

Current management plans and, hence, risk assessments, are required to be reviewed every five years. However, only two of the management plans developed since 2002 have been reviewed. None of the nine current plans have been reviewed either within their five-year frame or as part of their annual performance review and reporting process. Subsequently, it is not known whether the risks identified in plans over one year old are still current and are being effectively managed, or whether there are new and emerging risks to the sustainability of these fisheries.

2.4.3 Stocking program

Decisions made by DPI under its current stocking decision framework are not supported by robust scientific information or reliable data. Decisions about where and what recreationally fished species should be stocked annually are based on information and data with significant gaps. These include:

- data on the survival of stocked fish under various conditions
- information on how to manage issues of stocking around naturally breeding populations
- information on the best mix of species for stocking in different regions and water body types and optimal fish sizes for recreational fisheries and conservation programs.

Generally, decisions are made based on informal information about the requirements of recreational fishing groups, water flows and quality, and the success of previous stocking activities. This approach may be appropriate for small single species stocking activities, but it is not adequate for the ongoing more complex stocking that DPI regularly and increasingly undertakes.

Stocking activities have intended and unintended impacts. In terms of intended consequences, DPI's annual stocking program regularly exceeds short-term targets set for improved recreational fishing opportunities as determined by catch and effort data. One-off monitoring programs have also demonstrated that stocking programs have restored depleted recreational freshwater fisheries and that, without stocking, a number of these recreational fisheries would not be as productive or even available due to the variable and degraded environmental conditions. There is also anecdotal evidence that historical native fish stocking has led to improved populations of native fish within and outside their natural ranges.

DPI has a framework to manage a range of unintended potential ecological and habitat impacts associated with its stocking program. This framework is considered better practice by other state fishery managers. However, there are gaps in its implementation. For example, despite the significant conservation and environmental value of some of the areas that are stocked, the impacts of stocking activities on non-target fish species, fishery habitats and supporting ecological processes are not adequately assessed.

New stocking approvals are granted following the consideration of recommendations from an independent panel. Approvals may specify conditions that must be met. In a number of approvals sighted, conditions were vital for managing identified risks. However, there was limited evidence that robust processes are in place to determine whether these conditions are complied with. There is minimal base line scientific data collected prior to stocking activities that can be used to benchmark the short- and long-term success of stocking activities. Current assessments of success are focused on recreational fishing outcomes, and rely on angler and catch and effort data reported by recreational fishers. This data is not sufficient to measure success as it does not address the ecological sustainability of fisheries, is not monitored across the range of fish and waterways stocked, and is not quality assured.

The angler diary program is expanding, which will significantly improve the coverage of fishing areas and species catch and effort data. However, there is a need to implement other targeted, scientific and quality assured monitoring programs which validate catch and effort data in high-risk areas and measure relevant elements of the ecological sustainability of fisheries. For example, improved monitoring and assessment of stocking activities is needed to understand non-intended impacts.

DPI has undertaken two internal reviews to develop a more rigorous scientific decision-making framework to support its stocking program—the first of these commenced in 2007, the second in 2011.

Stocking recommendations implemented from these reviews mainly relate to improving the technical and quality assurance aspects of practices used to rear stocked fish. The implementation of recommendations has not been timely or adequately prioritised to improve the scientific information and data that underpin the:

- prioritisation of stocking activities
- assessment and evaluation of the performance of annual stocking programs in improving fisheries sustainability
- assessment and information of the potential impact of stocking activities on freshwater fishery ecology, non-target species and supporting fishery habitats.

2.5 Proposed planning and management reforms

DPI undertook a comprehensive review of its management of both commercial and recreational fisheries in 2010. This review identified the need to address a range of issues in three key areas: access security, planning and management, and stakeholder engagement.

DPI's 2011 *Future Fisheries Strategy: Proposals for Reform* contains a series of actions to address these. These included the development of policy statements, strategies, guidelines and working papers to improve the planning and management of fisheries. Among these are a draft Stakeholder Engagement Strategy, a draft information and knowledge working paper, a draft *Harvest Strategy Policy* working paper, draft Management Plan Guidelines and a management plan template.

The principles and guidelines within these documents, if finalised and implemented, would significantly improve DPI's planning and management of fisheries. However, this has been delayed by the decision to place the reforms identified under the draft *Future Fisheries Strategy* on hold due to the lack of support from key recreational fishing interests.

In its place DPI has developed a draft Fisheries Statement that includes key steps and actions to improve the planning and management of fisheries. The draft statement outlines a set of objectives and principles for the ecologically sustainable management of fisheries. The proposed key steps outline the general process that should be applied to manage any fishery, and the action plan identifies where these steps will be applied as a priority.

While the proposed steps are an improvement on current management processes, they do not adequately address the conservation and protection of fishery habitats, ecosystems or ecological processes. The key areas identified for action are focused only on select commercial and high-risk fisheries. The single area prioritised for improvement in relation to recreational fishing is the improvement of catch and effort data. These priorities are said to be based on ministerial decisions, stakeholder consultation, and an assessment of risk, although DPI is unable to provide documented evidence of the latter.

The 2012–13 Fisheries Victoria draft work plan commits DPI to finalising a draft Stakeholder Engagement Strategy, a *Harvest Strategy Policy*, and an Information Strategy. However, given the planning and management of recreational freshwater fisheries is not prioritised in the action plan, it is questionable whether the principles and guidelines in these documents will be translated into improved planning and management.

The long-term sustainable management of recreational freshwater fisheries is a high-risk issue that requires significant resources and reform to improve the current inadequate planning and management approach. The social and economic benefits of recreational freshwater fisheries to the Victorian community are significant.

Recommendations

The Department of Primary Industries should

1. finalise its 2012 draft Fisheries Statement and apply its objectives and principles to the planning and management of recreational freshwater fisheries
2. finalise the policy for its draft 2011 Harvest Strategy and implement the principles and guidelines uniformly across all recreational freshwater fisheries
3. finalise its draft 2011 Stakeholder Engagement Strategy and implement the principles and guidelines across recreational freshwater fishing consultative processes
4. develop a management plan for all recreational freshwater fisheries which includes:
 - clear performance outcomes, operational objectives and a suite of robust, balanced and measurable outcome-focused performance indicators, that are clearly linked to the legislative objectives for the management of fisheries
 - management actions and targets to mitigate high priority risks identified through a risk assessment process that at least adopts the principles identified in the 2003 *Guidelines for the ecologically sustainable management reporting framework for fisheries*
 - a harvest strategy which sets catch and take limits and targets
 - identification of gaps in information and data, and prioritises research, information collection and monitoring activities to address high-risk gaps
 - a set of regularly monitored predetermined reference points or triggers for high-risk fishery issues, supported by predetermined decision rules if the triggers are reached
 - the identification and allocation of resources and time frames to implement management plan actions
 - a detailed performance monitoring and reporting framework to track the progress and effectiveness of the plan against its objectives.

Recommendations – *continued*

The Department of Primary Industries should:

5. review its *Fisheries Statement Action Plan* to reflect the above actions, to address the poor planning and management of freshwater recreational fisheries
 6. collate previous and current existing stocking records and research data into a clear evidence-based tool to guide current decision-making for fish stocking
 7. prioritise and implement the relevant high-priority recommendations, from its internal reviews of its stocking processes and programs, to improve its current decision-making framework in relation to:
 - the assessment and evaluation of the performance of annual stocking programs in improving fishery sustainability
 - the assessment and information gathering of the potential impact of stocking activities on freshwater fishery ecology, non-target species and supporting fishery habitats.
-

3

Performance reporting

At a glance

Background

The reporting of performance is central to the principles of transparent and accountable management. Effective performance reporting requires clear, outcome focused objectives, relevant and appropriate performance indicators and the collection of reliable performance data.

Conclusion

The Department of Primary Industries' (DPI) approach to performance reporting for recreational freshwater fisheries does not provide sufficient internal or public assurance that it is meeting its legislative responsibilities to manage fisheries in a way that protects and conserves fishery habitats and ecosystems, and improves recreational fishing opportunities.

Findings

- Performance indicators are narrow and output focused. They do not provide information on the quality, efficiency and effectiveness of DPI activities.
- There are significant gaps in performance data and information collected and DPI's reporting is not transparent.
- Performance data collected from different sources vary in accuracy, relevance and comparability—and its collection, collation and storage of data is not underpinned by quality assured processes and data management systems.

Recommendations

The Department of Primary Industries should:

- develop a performance reporting framework for fisheries that includes clear performance outcomes aligned with its core legislative objectives, which has balanced, measurable and outcome-focused performance indicators, underpinned by quality assured performance data
- develop and document performance reporting policies and standards, including those for the collection and verification of performance data.

3.1 Introduction

Reporting performance is a key element of effective governance and public sector accountability. Effective performance reporting also enables the Department of Primary Industries (DPI) to track and evaluate performance, and address poor performance when detected.

Effective performance reporting requires clear, outcome focused objectives that can be measured by relevant and appropriate performance indicators, which are underpinned by robust and reliable performance data. This should be supported by quality assured processes and systems to collect, store and analyse data and by the transparent reporting of results.

3.2 Conclusion

DPI's reporting of its performance in managing recreational freshwater fisheries is narrow and output focused. It does not provide sufficient internal or public assurance that it is meeting its legislative responsibilities to manage these fisheries in an ecologically sustainable way, while improving recreational fishing outcomes.

DPI does not comprehensively report its performance against its legislative responsibilities. This is because performance objectives for fisheries management are not clearly articulated, performance indicators are narrow and output focused, and provide no measure of the quality, effectiveness or efficiency of its activities. Performance reporting therefore offers little insight into the impact of DPI's activities in managing risks and achieving balanced sustainable outcomes for recreational freshwater fisheries.

3.3 Performance reporting framework

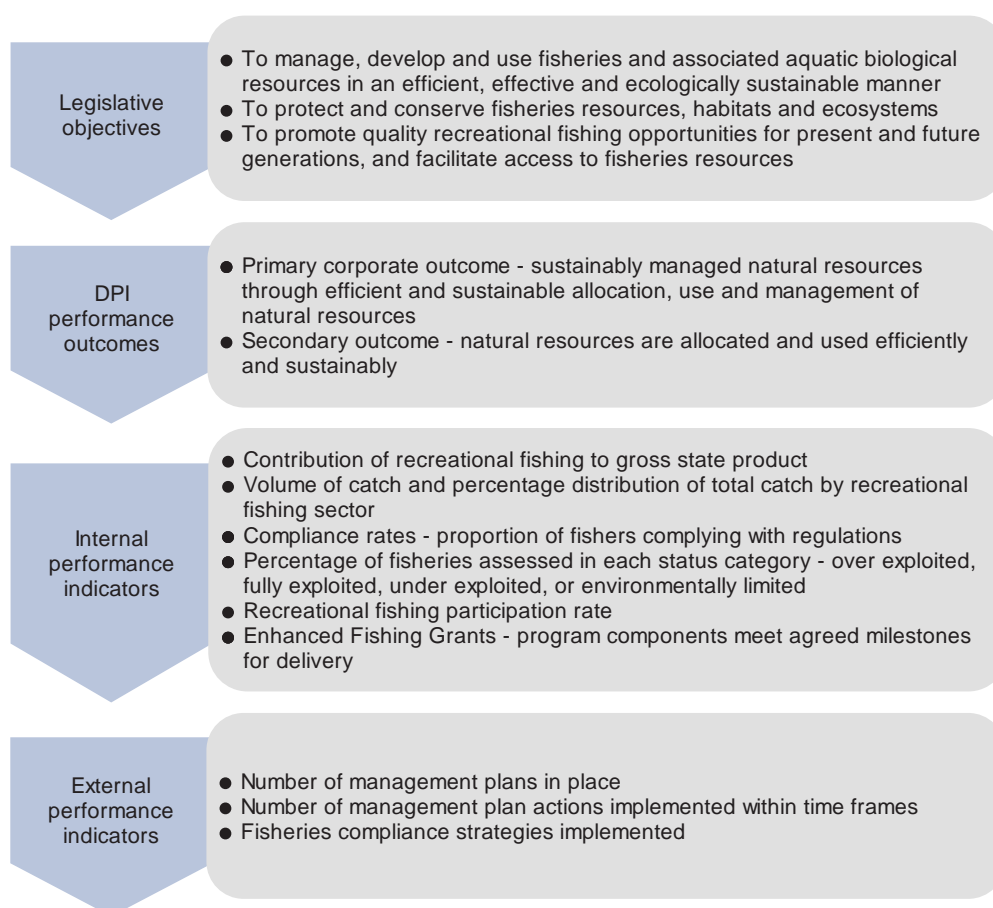
DPI's performance reporting framework does not demonstrate that it is achieving or even pursuing the ecologically sustainable management of recreational freshwater fisheries. This is a consequence of DPI's narrowly focused planning and management of these fisheries that does not adequately address all of its legislative responsibilities. Its performance reporting framework is also narrowly focused; it centres on whether it has met recreational fishing demands and improved the biological productivity of fisheries. The current reporting framework is deficient as it does not include:

- clear and precise outcome based objectives that are drawn from legislation, the corporate plan, policies and strategies
- a balanced set of comprehensive, measurable and relevant performance indicators
- robust and reliable data collection processes and systems, underpinned by appropriate quality assurance procedures.

3.3.1 Objectives and outcomes

The legislative objectives for fisheries management are clearly outlined in the *Fisheries Act 1995* (the Act). DPI's translation of these objectives into performance outcomes for fisheries management lack clarity and are set only at a high level. There are no specific corporate performance outcomes established for fisheries. This is illustrated in Figure 3A.

Figure 3A
Performance reporting framework for Department of Primary Industries managed fisheries

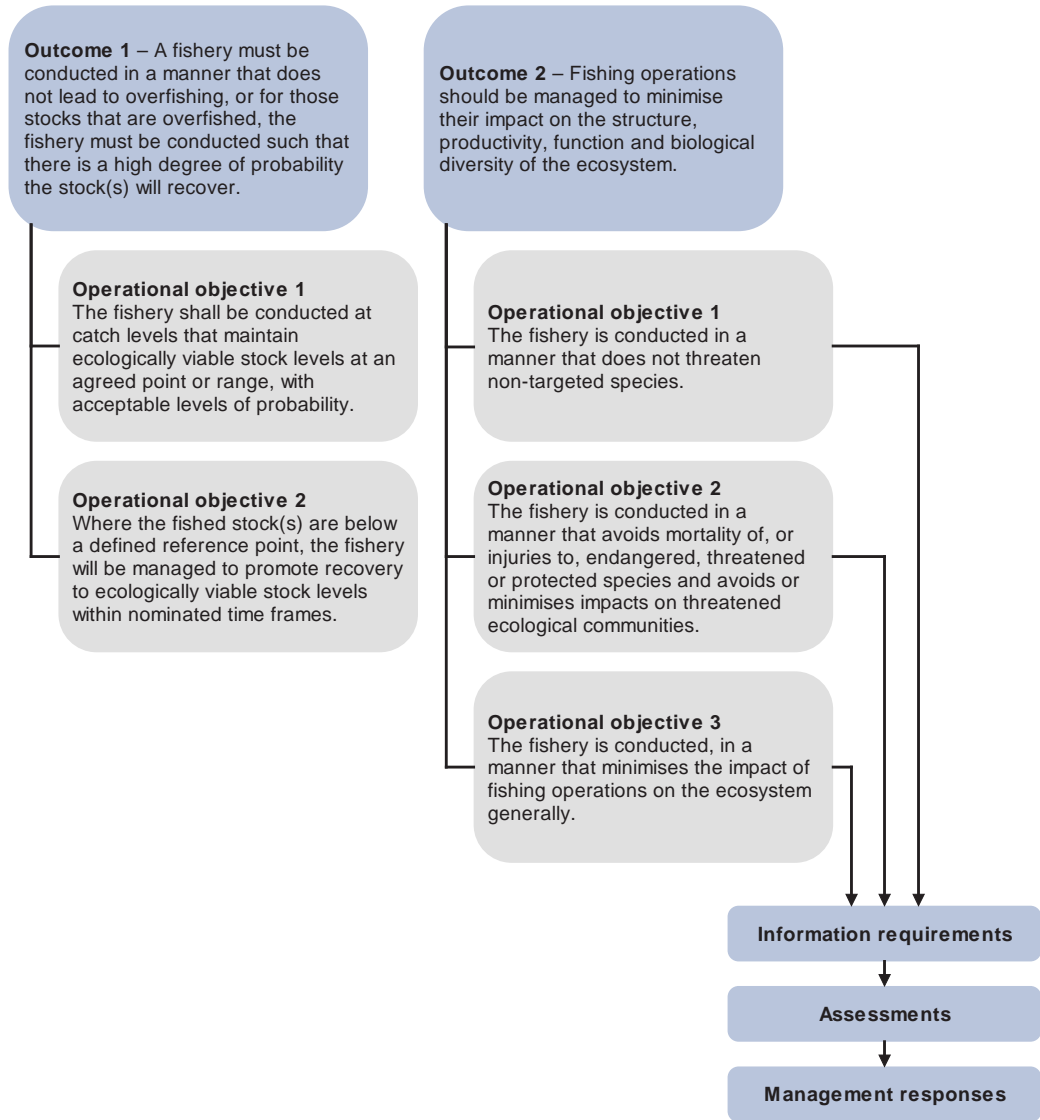


Source: Victorian Auditor-General's Office.

DPI is therefore unable to effectively monitor and report its performance against its suite of legislative responsibilities.

DPI could significantly improve the performance outcomes used by incorporating, and modifying those outlined in better practice performance reporting frameworks for ecologically sustainably managed fisheries such as those used by the Commonwealth, which are outlined in Figure 3B.

Figure 3B
Commonwealth performance reporting framework
for ecologically sustainably managed fisheries



Source: Victorian Auditor-General's Office.

3.3.2 Performance indicators

DPI has developed a set of performance indicators as part of its external and internal accountability requirements. However, there are significant inadequacies because the indicators do not:

- comprehensively cover all aspects of DPI's legislative responsibilities for fisheries management
- provide balanced information about the quality, efficiency and effectiveness of DPI's activities, as they are output focused.

Indicators are narrowly focused

Performance indicators used by DPI to report its performance to its executive are narrowly focused on the outcome of improving recreational fishing opportunities. Indicators mainly relate to biological fishery performance and operational outputs for recreational fishing, such as the volume of catch and recreational fishing participation rates. They do not effectively address or measure DPI's performance against the ecological sustainability and fishery habitat and ecosystem conservation and protection objectives of the Act.

The only performance indicator that alludes to the sustainability of fisheries is the 'percentage of fisheries assessed in each status category as over exploited, fully exploited, under exploited, or environmentally limited'. The use of this indicator alone is not adequate to measure the sustainability of fisheries as it relates only to the measurement and sustainability of fishing species that are targeted recreationally, and only a small number of freshwater species targeted are monitored and reported against. This indicator is only measured and assessed every two years as part of DPI's *Fishery Status Report*, but it is reported on annually in DPI's corporate performance reporting.

There are no indicators that relate to the sustainability of non-targeted fish species within the recreational fishery. The protection of these species is important for the long-term sustainability of the fishery as they help keep the system in balance. There is also no indicator that provides a measure of the impact of management activities on fishery habitats and freshwater ecological processes, the conservation and protection of which is required for the long-term sustainability of fisheries.

Indicators are focused on activities

DPI's performance indicators do not measure efficiency, quality or effectiveness. For example, the performance indicator for the effectiveness of fisheries management plans is the number of fisheries management plans in place and the number of actions from the plans implemented within required time frames. This measures implementation of activities only, not their impact, efficiency or quality. It therefore provides no indication of the performance of these plans in meeting their objectives or the overall contribution management plans make to meeting DPI's legislative responsibilities for fisheries management. Further, as the department only reports on those actions it considers it is responsible for, there is a lack of publically available information about the implementation of the full range of actions initially identified as being important to the management of these key fisheries.

3.4 Performance data and management systems

Parliament and the public need to be assured that the information in performance reports is comprehensive, reliable and has been verified. DPI's processes to collect, collate, analyse and store performance data are deficient and both the transparency and reliability of the data that is reported is questionable.

3.4.1 Performance data

DPI has a long history of collecting fishery performance data from a range of sources. However, there are significant gaps and deficiencies in the data collected.

Comprehensiveness

To adequately report on performance in managing recreational freshwater fisheries, DPI needs to collect performance data that provides insights into:

- efficient, effective and ecologically sustainable management of fisheries
- the protection and conservation of fisheries resources, habitats and ecosystems
- improving and promoting recreational fishing opportunities for present and future generations.

DPI's performance indicators are heavily biased towards measuring whether recreational fishing demands have been met and whether there have been improvements in recreational fishing opportunities for present generations.

DPI is able to analyse and report on how it is improving current recreational fishing outcomes using catch and effort data and other data from one-off biological productivity monitoring programs. This data is not useful in assessing DPI's performance in managing fisheries in an ecologically sustainable way or its performance in protecting and conserving fishery habitats and ecosystems.

Reliability

Current performance data collected on the productivity of fisheries is based on catch and effort data recorded by anglers. While this is an important source of data, given the lack of other cost effective scientific data collection methods, it is important that it is considered alongside quality assured data to validate and verify the data that is provided by anglers.

Although the department does have limited one off quality assured data sets around a fishery or fish species, its collection is fragmented and ad hoc. Data should be systematically collected over a period of time so as to target high-value species and high-risk areas. The cost of this risk-based approach is warranted given the net economic and social benefits of recreational fishing to Victoria.

Transparency

There is a lack of transparency in DPI's performance data and its subsequent reporting about the extent to which the actions under fisheries management plans are achieved. Each year DPI has reported to Parliament that it achieves its targeted 90 per cent delivery of actions in fishery management plans within required time frames. There are approximately 400 actions identified in plans across the state. However, the department reports on only what it considers to be its relevant actions and not the full range of actions that are within management plans. When all actions are factored in, actual performance since 2008 against this measure ranges from 76 per cent to 80 per cent. It does not transparently seek to qualify that the reported data relates only to some actions under these plans and not all.

In summary, DPI cannot provide assurance to either Parliament or the public that it is effectively and efficiently managing recreational freshwater fisheries to assure their long-term sustainability because of its poor performance reporting framework and the inadequacy of performance data collected.

3.4.2 Performance data management systems

DPI does not have standard operating procedures or quality assured processes that underpin performance data collection, collation, analysis, storage and retrieval. Good practice requires departments to document standards and procedures for these activities. Compliance with these provides some assurance that data is sound, accurate and reliable.

Current systems to hold and retrieve performance data for fisheries are not well developed, integrated or efficient. Data is stored and categorised in a number of databases and in informal data storage methods, including spread sheets and reports. The only structured and quality assured database that holds information relevant to recreational freshwater fishing is the *Rec* database, which captures information on recreational fishing licences. DPI's quality assured catch and effort database (ICE) only holds information on commercial and abalone fish catch, not recreational fish catch.

The quality, accessibility and reliability of the information and data available for performance reporting varies considerably. Data has to be consolidated and reconciled from a range of data storage systems databases prior to its use for performance reporting. This is neither efficient nor effective and may result in current or critical information being missed or misused.

There are a range of other entities responsible for collecting fisheries and waterway health data. There is also data held by many stakeholders, which may be useful to DPI if it is to effectively report against its legislative responsibilities. Without a clear or consistent approach to the collection and analysis of this information DPI is restricted in its ability to effectively report against its legislative responsibilities.

Recommendations

The Department of Primary Industries should:

8. develop a performance reporting framework for fisheries that includes clear performance outcomes aligned with its core legislative objectives, which has balanced, measurable and outcome-focused performance indicators, underpinned by quality assured performance data
 9. develop and document performance reporting policies and standards, including those for the collection and verification of performance data.
-

Appendix A.

Audit Act 1994 section 16— submissions and comments

Introduction

In accordance with section 16(3) of the *Audit Act 1994* a copy of this report was provided to the Department of Primary Industries with a request for submissions or comments.

The submissions and comments provided are not subject to audit nor the evidentiary standards required to reach an audit conclusion. Responsibility for the accuracy, fairness and balance of those comments rests solely with the agency head.

Response provided by the Department of Primary Industries.....34

Further audit comment:

Acting Auditor-General's response to the Department of Primary Industries35

RESPONSE provided by the Secretary, Department of Primary Industries



Department of Primary Industries

Our Ref: SI008465

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Our Ref:

Dear Dr Frost,

PROPOSED AUDIT REPORT - MANAGEMENT OF FRESHWATER FISHERIES

Thank you for your letter of 8 February 2013 inviting a submission in response to the proposed audit report on the Management of Freshwater Fisheries.

I contest the Victorian Auditor-General's Office (VAGO) conclusion that the Department of Primary Industries (DPI) is not effectively discharging its legislative responsibilities to deliver balanced and sustainable outcomes for recreational freshwater fisheries. DPI has a strong record of considering each of the economic, social and environmental objectives in the *Fisheries Act 1995* when making decisions to authorise recreational fishing and fish stocking activities, as clearly demonstrated through the preparation of the *Fisheries Regulations 2009* and associated Regulatory Impact Statement and development of various Fisheries Notices.

As generally acknowledged by VAGO, DPI is mindful that the ecological processes in Victoria's freshwater fisheries are mostly determined by the modified condition of many lakes and rivers and their catchments (e.g. changed river flow patterns, changed sediment and nutrient regimes, barriers to fish migration, and the incursion of aquatic pests and weeds), rather than the fishing and fish stocking activity regulated by DPI under the *Fisheries Act 1995*. The regulatory and other management processes that DPI has put in place (such as fish bag and size limits, fishing gear rules, closed seasons and translocation protocols) are commensurate with the risks for recreational fishing and stocking freshwater fisheries. DPI is committed to continuing to implement the current regulatory and translocation processes in close consultation with all interested stakeholders and relevant government agencies.

I accept VAGO's recommendation that DPI should prepare a single management plan for all recreational freshwater fisheries, noting that this is a discretionary action under the *Fisheries Act 1995*. Such a plan could provide a useful way to describe how DPI currently manages freshwater fisheries and provide important guidance for other agencies and community groups with an interest in improving the condition of waterways and their catchment areas. The preparation of a single plan also could provide a cost effective basis to make some improvement to our performance reporting for freshwater fisheries, including links to the monitoring programs run by other land and water agencies.

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For more information about DPI visit the website at www.dpi.vic.gov.au or call the Customer Service Centre on 136 186.



**RESPONSE provided by the Secretary, Department of Primary Industries –
continued**

I also accept VAGO's recommendations for DPI to finalise guiding documents for setting objectives and principles for managing fisheries, harvest strategies, fish stocking and stakeholder engagement. These documents will be refined over time as DPI works closely with fishing stakeholders to progressively review and improve the management of Victoria's freshwater, estuarine and marine fisheries.

With regard to performance reporting, DPI's reporting is consistent with the *Budget and Financial Management Guidelines* published by the Department of Treasury and Finance, which, amongst other factors, clearly show that departments are expected to report on outputs that are directly attributable to the actions of the organisation. More broadly, DPI routinely reports on the condition of Victoria's fisheries and the department's actions in a transparent way, such as through the preparation and publication of biennial Fisheries Status Reports, Vic Fish Stock reports and statutory consultation plans.

I welcome VAGO's findings that DPI is delivering significant improvements for recreational fishers, particularly through our extensive program to stock native and salmonid fish species in many suitable waterways across Victoria. It is important to recognise that this program includes developing the techniques required to produce and stock native species with a conservation status, including Murray cod, Trout cod and Macquarie perch.

I am also pleased that VAGO's audit report acknowledges the structured, timely and open approach DPI takes to get feedback from recreational fishing groups.

Thank you for providing me with the opportunity to respond to VAGO's audit report.

Yours sincerely,



Jeff Rosewarne
Secretary

25/2/2013

Acting Auditor-General's response to the Department of Primary Industries

Evidence provided to this audit shows that while the department is delivering improved recreational freshwater fishing outcomes, it is not adequately considering or addressing the ecological sustainability and fishery habitat conservation and protection objectives of the *Fisheries Act 1995* (the Act). The preparation of regulations under the Act, including the associated regulatory impact statement, does not in and of itself, provide evidence of the department's actual and ongoing practice in managing its responsibilities under this legislation.

In terms of the department's actions being commensurate with the risks, the department does not measure the impact of its actions on fishery habitats, freshwater ecological processes, or on the sustainability of non-targeted fish species. It therefore does not know what the full impact of these activities are and cannot demonstrate it is effectively managing the associated risks.

Auditor-General's reports

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Report title	Date tabled
Carer Support Programs (2012–13:1)	August 2012
Investment Attraction (2012–13:2)	August 2012
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Effectiveness of Compliance Activities: Departments of Primary Industries and Sustainability and Environment (2012–13:9)	October 2012
Auditor-General's Report on the Annual Financial Report of the State of Victoria, 2011–12 (2012–13:10)	November 2012
Public Hospitals: Results of the 2011–12 Audits (2012–13:11)	November 2012
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Addressing Homelessness: Partnerships and Plans (2012–13:20)	February 2013
Implementation of School Infrastructure Programs (2012–13:21)	February 2013

Report title	Date tabled
Rating Practices in Local Government (2012–13:22)	February 2013
Management of Unplanned Leave in Emergency Services (2012–13:23)	March 2013

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