



**Australian Government**

---

**Department of the Environment and Energy**

Assessment of the  
**Victorian Eel Fishery**

April 2019

© Copyright Commonwealth of Australia, 2019.



*Assessment of the Victorian Eel Fishery April 2019* is licensed by the Commonwealth of Australia for use under a Creative Commons By Attribution 3.0 Australia licence with the exception of the Coat of Arms of the Commonwealth of Australia, the logo of the agency responsible for publishing the report, content supplied by third parties, and any images depicting people. For licence conditions see: <http://creativecommons.org/licenses/by/3.0/au/>.

This report should be attributed as '*Assessment of the Victorian Eel Fishery April 2019*, Commonwealth of Australia 2019'.

#### **Disclaimer**

This document is an assessment carried out by the Department of the Environment and Energy of a commercial fishery against the Australian Government *Guidelines for the Ecologically Sustainable Management of Fisheries – 2nd Edition*. It forms part of the advice provided to the Minister for the Environment on the fishery in relation to decisions under Parts 13 and 13A of the *Environment Protection and Biodiversity Conservation Act 1999*. The views expressed do not necessarily reflect those of the Minister for the Environment or the Australian Government.

While reasonable efforts have been made to ensure that the contents of this report are factually correct, the Australian Government does not accept responsibility for the accuracy or completeness of the contents, and shall not be liable for any loss or damage that may be occasioned directly or indirectly through the use of, or reliance on, the contents of this report. You should not rely solely on the information presented in the report when making a commercial or other decision.

# CONTENTS

|   |    |
|---|----|
| Executive summary of the assessment of the Victorian Eel Fishery .....  | 1  |
| Section 1: Assessment summary of the Victorian Eel Fishery against the guidelines for the<br>ecologically sustainable management of fisheries (2nd edition), consistent with the<br>EPBC Act..... | 2  |
| Section 2: Detailed analysis of the Victorian Eel Fishery against the guidelines for the<br>ecologically sustainable management of fisheries (2nd edition) .....                                  | 6  |
| Section 3: Assessment of the Victorian Eel Fishery against the requirements of the EPBC Act<br>.....  | 17 |
| Part 12 – Identifying and monitoring biodiversity and making bioregional plans .....  | 17 |
| Part 13A – International movement of wildlife specimens .....   | 17 |
| Part 16 – Precautionary principle and other considerations in making decisions .....  | 19 |
| Section 4: Victorian Eel Fishery – Summary of issues requiring recommendations, April 2019<br>.....   | 20 |
| References .....  | 23 |

## **EXECUTIVE SUMMARY OF THE ASSESSMENT OF THE VICTORIAN EEL FISHERY**

In January 2019, the Victorian Fisheries Authority submitted an application for the Victorian Eel Fishery (the fishery) to the Department of the Environment and Energy for assessment under the provisions of Part 13 (protected species) and Part 13A (wildlife trade) of the EPBC Act. The fishery was also assessed against the Australian Government 'Guidelines for the Ecologically Sustainable Management of Fisheries – 2nd Edition'. A public comment period was open from 18 January 2019 to 20 February 2019.

The fishery is managed under the *Fisheries Act 1995* (Vic) and regulated by the *Fisheries Regulations 2009* (Vic). The fishery incorporates the wild harvesting and culturing of freshwater eels. Wild harvesting is managed under the *Victorian Eel Fishery Management Plan 2017* and occurs in coastal rivers and estuaries along the Victorian coastline. Juvenile eels may be harvested for on-growing in recirculating systems (intensive aquaculture) or for restocking lakes and impoundments (extensive aquaculture). Aquaculture operations are also regulated by other government departments under various legislation, regulations, guidelines, and policies.

Harvesting is managed by input controls only with additional conditions specified on individual licences. A commercial Eel Fishing Access Licence is required to harvest adult eels for export. An Aquaculture (Crown Land - Eel) Licence (CLE) or an Aquaculture (Private Land – Eel) Licence (PLE) are required for harvesting and translocating juvenile eels. While the management arrangements contain objectives, strategies and performance indicators, a lack of reference points prevents the effective measurement of stocks. The Victorian Fisheries Authority is committed to developing a harvest strategy for this fishery that will include reference points and decision rules within the life of the management plan (i.e. five years). Compliance measures include mandatory notification of setting and removal of fyke nets, and monthly catch and effort reports that include catch data, locations fished, numbers of nets and numbers of fishers.

### **Target stocks, bycatch, and protected species**

The fishery targets Longfin Eel and Shortfin Eel. Byproduct species is limited to any introduced species such as European Carp, Goldfish, Roach, and Tench. The Department considers that the management arrangements in place for this fishery are sufficient to ensure fishing is conducted in a manner that does not lead to overfishing and that stocks are not overfished.

The fishery is known to interact with a number of protected species, including Water Rat, and Pygmy Perch. Mitigation measures such as bycatch reduction devices and area restrictions are in place to help minimise the impacts to protected species.

### **Ecosystem impacts**

Taking into account the management arrangements in place and the 2013 ecological risk assessment, the Department considers that fishing operations are being managed to minimise their ecosystem impacts.

### **Research and monitoring**

There is a lack of information regarding the marine life stage for eel species. There are no regular stock assessments due to low fishing activities in recent years, and lack of a suitable stock assessment method for the target species. It is important that collaborative efforts continue with fishery managers and researchers across Australia and New Zealand to ensure up-to-date information can be incorporated into the management of the fishery.

### **Conclusion**

While the fishery is generally well managed, the management arrangements are new and untested. Therefore, the Department considers that product taken in the fishery should be included in the list of exempt native specimens until 13 April 2024. To contain and minimise the risks in the longer term, the recommendations listed in Section 4 will apply to the approval. Unless a specific timeframe is provided, each recommendation should be addressed within this period.

## SECTION 1: ASSESSMENT SUMMARY OF THE VICTORIAN EEL FISHERY AGAINST THE GUIDELINES FOR THE ECOLOGICALLY SUSTAINABLE MANAGEMENT OF FISHERIES (2ND EDITION), CONSISTENT WITH THE EPBC ACT

| Guidelines assessment       | Meets                  | Partially meets | Does not meet | Details  |
|-----------------------------|------------------------|-----------------|---------------|--|
| Management regime           | 4 of 9                 | 5 of 9          | 0 of 9        | <p><b>The management regime is effective.</b></p> <p>The fishery involves the wild capture of eels at different life stages, and the translocation and on-growing of juvenile (glass and elver) eels in lakes and impoundments (extensive aquaculture).</p> <p>Eel stocks are managed by the Victorian Fisheries Authority under the <i>Fisheries Regulations 2009</i> (Vic) and the <i>Fisheries Act 1995</i> (Vic). Wild caught stocks are managed under the <i>Eel Fishery Management Plan 2017</i> (the Eel FMP). Eel fishing and culturing is also subject to other legislation as it relates to matters such as the environment, land tenure, and planning requirements.</p> <p>Management is transparent and information is publicly accessible. State legislation mandates public consultation when developing management plans. The management arrangements include objectives, actions, and performance indicators. However, there are no reference points that would allow stocks to be effectively measured. The Victorian Fisheries Authority has committed to developing a harvest strategy for the fishery within the life of the management plan (i.e. by 2022).</p> |
| Principle 1 (target stocks) | 3 of 11<br>N/a 1 of 11 | 5 of 11         | 2 of 11       | <p><b>Target stocks are generally well managed.</b></p> <p>There is a reliable information collection system in place. There are no regular stock assessments although harvesting is considered sustainable based on data from mandatory recording and monthly reporting to Victorian Fisheries Authority. Stock management relies on migration of a suitable number of adult eels and subsequent recruitment back to Victorian waters. Approximately 40 per cent of state waters that are likely to be used by migrating eels are closed to commercial eel fishing. However, there is limited information available on eel migration and spawning patterns, which makes it difficult to estimate the potential productivity of the fishery and set meaningful reference points.</p> <p>Juvenile eels (glass and elvers) are harvested for restocking of lakes and impoundments (extensive aquaculture). The movement of these juvenile eels is managed via translocation policies and guidelines. Restocking aims to enhance eel production from wild stocks by growing these eels to market size. Only exotic species are permitted to be taken as byproduct.</p>                  |

|                                 |                        |                        |                      |   |
|---------------------------------|------------------------|------------------------|----------------------|---|
| Principle 2 (bycatch and TEPS)  | 9 of 12<br>N/a 2 of 12 | 0 of 12                | 1 of 12              | <p><b>Risks to bycatch and protected species are minimal.</b></p> <p>The fishery is known to interact with a number of protected species as bycatch. However, the impact of fishing is considered low. Mitigation measures are in place to help minimise the capture of protected species, particularly air-breathing mammals such as Platypus and Water Rats. However, national recovery plans for EPBC-listed species such as Australian grayling are not clearly addressed in the management arrangements.</p> <p>The Victorian Fisheries Authority closely monitor fishing activity through random and targeted site visits, and mandatory reporting. Pre-fishing and post-fishing reports include fishing locations, the number of nets used, and the numbers of fishers.</p> <p>Threatened ecological communities are not addressed in ecological risk assessments (ERAs). However, the impact on threatened communities is considered low.</p> |
| Principle 2 (ecosystem impacts) | 2 of 5                 | 2 of 5                 | 1 of 5               | <p><b>Ecological risk is inherently low due to the fishing method used.</b></p> <p>No analysis of ecosystem impacts in the 2013 risk assessment, although risks are considered low due to the passive fishing method and relatively small scale of the fishery. Translocation and restocking poses the highest risk due to the potential of transferring aquatic diseases and exotic species into pest-free areas. Although, eels are fished and restocked only into waters south of the Great Dividing Range.</p>  |
| <b>EPBC requirements</b>        | <b>Meets</b>           | <b>Partially meets</b> | <b>Does not meet</b> | <b>Details</b>  |
| Part 12                         |                        |                        |                      | <p><b>Not applicable.</b></p> <p>There is no fishing activity within areas covered by a bioregional plan.</p>   |
| Part 13                         |                        |                        |                      | <p><b>Not applicable.</b></p> <p>No fishing activity occurs in the Commonwealth Marine Area.</p>  |
| Part 13A                        |                        |                        |                      | <p><b>Recommend amending the list of exempt native specimens under Part 13A.</b></p> <p>The Department considers that the amendment of the list of exempt native specimens to include product derived from the fishery until 13 April 2024 would be consistent with the provisions of Part 13A.</p>   |
| Part 16                         |                        |                        |                      | <p><b>Precautionary measures are in place.</b></p> <p>The Department has accounted for the precautionary principle in the preparation of its advice.</p>  |

## Notes:

### **Assessment history**

Information on previous assessments for the Victorian Eel Fishery is available on the Department's website at <http://environment.gov.au/marine/fisheries/vic/eel>.

- 1st assessment finalised May 2004 – List of exempt native specimens (LENS) amended until 01 May 2009. Export approval subject to six recommendations.
- 2nd assessment finalised May 2009 – LENS amended until 01 May 2014. Export approval subject to six recommendations.
- 3rd assessment finalised April 2014 – LENS amended until 17 April 2019. Export approval subject to five recommendations.

### **Fishery reporting**

- Catch data – Commercial fish production at <https://vfa.vic.gov.au/commercial-fishing/commercial-fish-production#fp-teleosts>.
- Annual reports are provided to the Department.

### **Key links**

- Victorian Fisheries Authority webpage – <https://vfa.vic.gov.au/>.
- Victorian Eel Fishery webpage – <https://vfa.vic.gov.au/commercial-fishing/eels>.
- Fisheries consultation – <https://vfa.vic.gov.au/operational-policy/fisheries-consultation>.
- Protected species identification guide – <https://vfa.vic.gov.au/commercial-fishing/reporting-of-fisheries-interactions-with-protected-species>.
- Fishery compliance – <https://vfa.vic.gov.au/enforcement>.
- Victorian aquaculture – <https://vfa.vic.gov.au/aquaculture>.
- Victorian aquaculture strategy – <https://vfa.vic.gov.au/operational-policy/strategy-and-policy/aquaculture-strategy>.
- Seafood Industry Victoria – <http://www.siv.com.au/>.

### **Management arrangements**

- Victorian Eel Fishery Management Plan 2017 – <https://vfa.vic.gov.au/commercial-fishing/eels/victorian-eel-fishery-management-plan>.
- Fisheries notices – <https://vfa.vic.gov.au/operational-policy/legislation-and-regulation>.
- Victorian protocol for the translocation of eels – <https://vfa.vic.gov.au/operational-policy/moving-and-stocking-live-aquatic-organisms/victorian-protocol-for-the-translocation-of-eels>.
- Guidelines for assessing translocations – <https://vfa.vic.gov.au/operational-policy/moving-and-stocking-live-aquatic-organisms/guidelines-for-assessing-translocations>.
- Protocols for the translocation of fish in Victorian inland public waters – <https://vfa.vic.gov.au/operational-policy/moving-and-stocking-live-aquatic-organisms/protocols-for-the-translocation-of-fish>.
- Moving and stocking live aquatic organisms – <https://vfa.vic.gov.au/operational-policy/moving-and-stocking-live-aquatic-organisms>.
- Aquaculture industry associations – <https://vfa.vic.gov.au/aquaculture/victorian-aquaculture-industry-associations>.

### **Enforcing legislation**

- Victorian legislation – <http://www.legislation.vic.gov.au/>:
  - *Fisheries Management Act 1995* (Vic)
  - *Fisheries Management Regulations 2009* (Vic)
  - *Victorian Fisheries Authority Act 2016* (Vic)
  - *Fisheries (Fees, Royalties and Levies) Regulations 2017* (Vic)
  - *Flora and Fauna Guarantee Act 1988* (Vic)
  - *Flora and Fauna Guarantee Regulations 2011* (Vic), and
  - *Environment Protection Act 2017* (Vic).
- Aquaculture management – <https://vfa.vic.gov.au/aquaculture/aquaculture-management>.
  - Victorian aquaculture strategy 2017–2022 – <https://vfa.vic.gov.au/operational-policy/strategy-and-policy/aquaculture-strategy>.

### **Harvest strategy**

- There is currently no harvest strategy for this fishery. However, a harvest strategy is anticipated for development by late 2022, which is when the management plan expires.

### **Ecological Risk Assessment**

- The most recent risk assessment for the fishery was conducted in 2013, but is not publicly available.

### **Stock assessments**

- No stock assessments are available for the fishery.



## SECTION 2: DETAILED ANALYSIS OF THE VICTORIAN EEL FISHERY AGAINST THE GUIDELINES FOR THE ECOLOGICALLY SUSTAINABLE MANAGEMENT OF FISHERIES (2ND EDITION)

| Guidelines criteria   | Comment  |
|---|--|
| <b>THE MANAGEMENT REGIME</b>  |  |
| The management regime does not have to be a formal statutory fishery management plan as such, and may include non-statutory management arrangements or management policies and programs. The regime should: |  |
| Be documented, publicly available and transparent.  | <p><b>Meets</b></p> <p>Yes, the management regime for the Victorian Eel Fishery (the fishery) is documented, transparent and publicly available. The fishery is managed by the Victorian Fisheries Authority (formerly Fisheries Victoria) in accordance with the <i>Victorian Eel Fishery Management Plan 2017</i> (the Eel FMP), made under the <i>Fisheries Act 1995</i> (Vic). Fishing operations are regulated by the <i>Fisheries Regulations 2009</i> (Vic). The Victorian Fisheries Authority also publish Fisheries Notices describing any additional management arrangements such as closures or gear restrictions. Aquaculture operations is managed by a number of state government agencies under various legislation.</p>  |
| Be developed through a consultative process providing opportunity to all interested and affected parties, including the general public.   | <p><b>Meets</b></p> <p>Victorian legislation requires that consultation is fully open and transparent, and must include advice that represents the views and values of key stakeholders. The Victorian Fisheries Authority regularly consult with relevant stakeholders, including all commercial fishery access licence holders, Victorian Eel Fishermen's Association, Seafood Industry Victoria (peak commercial fishing body), VRFish (peak recreational fishing body), traditional owners, and other state and local government agencies.</p> <p>Section 3A of the Fisheries Act outlines the consultation principles that apply to decisions under the Act. Decisions include the declaration or amendments to fishery management plans. In June 2017, the Eel FMP was released for public comment in accordance with section 32.</p>  |
| Ensure that a range of expertise and community interests are involved in individual fishery management committees and during the stock assessment process.  | <p><b>Meets</b></p> <p>There is no formal process for assessing eel stocks in Victorian waters due to low fishing activity resulting from persistent drought conditions and precautionary management by complete closure of numerous waters across the state to commercial fishing.</p> <p>There are no committees or associations directly involved with managing the fishery. However, the level of expertise and public interests involved in managing the fishery is considered adequate given it is a small-scale fishery. Apart from key stakeholders identified above, the Victorian Fisheries Authority has also collaborated with fishery managers in other jurisdictions in Australia and New Zealand on an ad hoc basis. The level of stakeholder engagement has declined in recent years due to low fishing effort. The Victorian Fisheries Authority anticipate further engagement with other jurisdictions to occur as the fishery recovers from drought conditions.</p> |

|   |  |
|---|--|
| <p>Be strategic, containing objectives and performance criteria by which the effectiveness of the management arrangements are measured.</p> | <p><b>Partially meets</b></p> <p>The Fisheries Act contains general objectives that require aquatic resources to be managed, developed, and used in an ecological sustainable manner. The Eel FMP contains fishery-specific objectives, strategies, actions, and performance indicators. The objectives of the Eel FMP aim to ensure the long-term sustainability of eel stocks, the equitable access and use of eel resources, the cost effective and participatory management of the fishery, and to improve the economic viability of the fishery.</p> <p>There are no regular stock assessments, and therefore very little is known about the stock that is available for harvesting. In its current form, the management regime lacks adequate biological reference points such as maintaining stocks above 20 per cent of its unexploited level. Adequate performance indicators would allow the management arrangements to be effectively measured. Under the previous management plan for this fishery, The Victorian Fisheries Authority considered developing biological reference points, and establishing a response system for the fishery. The plan also recommended that precautionary limits and target reference points be set for fishing mortality and spawning biomass. Measures such as these would help ensure that fishing practices continue to be sustainable.</p> <p>The Victorian Fisheries Authority, in consultation with industry, will develop a harvest strategy for the fishery within the timeframe of the existing Eel FMP (i.e. by 2022). The proposed harvest strategy is anticipated to include objectives, performance indicators, and reference points. Adequate reference points allow managers to determine whether or not the management strategy is appropriate and being successfully implemented. Therefore, this export approval is subject to the Victorian Fisheries Authority developing a harvest strategy for this fishery, with implementation to occur as soon as practical (Recommendation 5, Section 4).</p> |
| <p>Be capable of controlling the level of harvest in the fishery using input and/or output controls.</p>                                    | <p><b>Partially meets</b></p> <p>The fishery is managed through input (effort) control measures, which have some capacity to limit harvest. Control measures include:</p> <ul style="list-style-type: none"> <li>• Harvesting is restricted to Longfin Eel (<i>Anguilla reinhardtii</i>) and Shortfin Eel (<i>A. australis</i>). The take of byproduct species is limited to the introduced European Carp (<i>Cyprinus carpio</i>), Goldfish (<i>Carassius auratus</i>), Roach (<i>Rutilus rutilus</i>), and Tench (<i>Tinca tinca</i>).</li> <li>• The management arrangements comprise the wild catch sector and the culture (stock enhanced) sector. Adult eels of both species are harvested in the wild, while only Shortfin Eels caught and stocked at the juvenile life stage (elver and “snigs”) are used in the culture sector.</li> <li>• The number of commercial licences is capped for the wild catch sector. There are no limits to the number of recreational and traditional owner permits. All licence types for the harvesting or culturing of eels are transferable. Licence types are described in the Fisheries Regulations. <ul style="list-style-type: none"> <li>○ Wild catch – Eel Fishery Access Licences capped at 18,</li> </ul> </li> </ul>   |

|  |  |
|--|--|
|  | <ul style="list-style-type: none"> <li>○ Aquaculture – an Aquaculture (Crown Land–Eels) Licence or an Aquaculture (Private Land–Eels) Licence is required to access waterways for the purposes of catching eels for aquaculture.</li> <li>• Mandatory reporting for both the wild harvest and aquaculture sectors on a monthly basis.</li> <li>• Gear restrictions – Commercial eel fishing operators are limited to the use of fyke nets only. Individual licences contain specific conditions such as the numbers of nets, net configurations, number of fishers, and permitted equipment used for aquaculture operations.</li> <li>• Fyke nets must be deployed and removed in accordance with conditions identified on individual licences and under Division 7 of Part 7 of the Fisheries Regulations. Conditions include the number of fyke nets permitted for use in each waterway or water body, requirements for setting nets, the timeframe for clearing nets, and the permitted species.</li> <li>• Area (spatial) restrictions – At least 30 per cent of all Victorian waterways are closed to eel fishing. In most waters where eel fishing does occur, harvesting is restricted to downstream areas.</li> <li>• Victorian Fisheries Authority may also specify the numbers of operators permitted to harvest eels in each waterway.</li> <li>• No legal minimum length or closed seasons apply to the harvesting of eels.</li> <li>• Recreational sector controls include possession limits (10 eels/day) and gear restrictions (rod and reel or hand lines).</li> <li>• Indigenous communities can apply for permits, which help facilitate continued customary fishing practices. Traditional fishing methods include spears or the strategic use of earthen embankments and stone weirs to guide migrating eels into fish traps.</li> </ul> <p>The re-stocking of lakes and impoundments aims to increase the available biomass for wild harvest, and is likely to improve the sustainability of eel stocks.</p> <p>The eel culturing sector includes the re-stocking of lakes (natural) and impoundments (constructed), which involves translocating wild caught eels. The Victorian Fisheries Authority has developed the <i>Guidelines for assessing translocations of live aquatic organisms in Victoria</i> (Fisheries Victoria 2009), and the <i>Protocols for the translocation of fish in Victorian inland public waters</i> (Fisheries Victoria 2005) to guide the translocation of eels for stock enhancement.</p> <p>The movement, or translocation of eels within Victoria, and between jurisdictions is guided by the Victorian protocol for the translocation of eels (McKinnon 2006), the Protocols for the translocation of fish in Victorian inland public waters (DEPI 2005), the Guidelines for assessing translocations of live aquatic organisms in Victoria (DEPI 2003), and in accordance with state legislation to reduce the ecological, social and economic impacts to receiving environment. While both species can be cultured, only short-finned eels are translocated for stock enhancement. Re-stocking of lakes and impoundments is authorised through the Aquaculture (Crown Land – Eels) Licence.</p> |
|--|--|

|   |   |
|---|---|
| Contain the means of enforcing critical aspects of the management arrangements.   | <p><b>Partially meets</b></p> <p>The Fisheries Act and subordinate legislation provide the basis for enforcement, including penalties for non-compliance. The <i>Wildlife Act 1975</i> (Vic) may also apply to protected species interactions. Although no formal compliance strategy exists for the fishery, the Victorian Fisheries Authority have compliance targets for inspections of commercial operators as part of cost recovery measures. The Victorian Fisheries Authority conduct random and targeted inspections of the commercial and recreational sectors across the state. Random inspections occur routinely for the commercial sector, and opportunistically for the recreational sector. Additional enforcement measures include intelligence gathering and surveillance. All operators fishing under permit are required to notify the Victorian Fisheries Authority prior to, and on completion of fishing activities. Pre- and post-fishing reports must include the location, time, date, number of fishers, and numbers of nets deployed and removed from the waters. Apart from fisheries legislation, fishing operations may be subject to the <i>Flora and Fauna Guarantee Act 1988</i> (Vic) for the protection of threatened species.</p>   |
| Provide for the periodic review of the performance of the fishery management arrangements and the management strategies, objectives and criteria.                                       | <p><b>Partially meets</b></p> <p>The revised fishery management plan is in force for five years. The management plan is subject to a review after two years to determine progress against the fishery performance indicators. Annual reports are an important tool for transparent monitoring of the fishery's performance. Annual catch and fishery performance data are reported publicly on the Victorian Fisheries Authority website. No, or limited annual reports were produced during drought years. Until recent years, this practice of non-reporting continued after the alleviation of drought conditions, despite an increase in eel harvest.</p>   |
| Be capable of assessing, monitoring and avoiding, remedying or mitigating any adverse impacts on the wider marine ecosystem in which the target species lives and the fishery operates. | <p><b>Meets</b></p> <p>The management arrangements are capable of effective management of impacts on wider marine ecosystem, which are considered to be very low. There is no monitoring or assessing of the environment in which the fishery operates because these waters are often shared with other boating activities. It is therefore difficult to assess whether environmental impacts are due to the harvesting of eels or other human activities such as water skiing and jet skis. Monitoring and assessing these impacts would also involve multiple government agencies. Fishing activity occurs in freshwater and estuarine conditions. Small flat bottomed punts are used to deploy and remove nets and catches. Operators fishing under permit are required to inform the Victorian Fisheries Authority of the location, time, date, persons, and nets deployed and removed, which allows Fisheries officers to monitor fishing activities for impacts and compliance purposes for operators fishing under permits. The most recent ecological risk assessment (ERA) for the eel fishery was undertaken in December 2013, and found the fishery's environmental impacts was minimal. The ERA included an assessments of impacts of fishing activities to the wider marine ecosystem. The assessment considered the potential impacts from vessels, which is limited to propeller scouring of river beds in shallow waters.</p> |
| Requires compliance with relevant threat abatement plans, recovery plans, the National  | <p><b>Partially meets</b></p> <p>The fishery is known to interact with a number of species listed as vulnerable under the EPBC Act, including the Australian Grayling (<i>Prototroctes maraena</i>), Pygmy Perch (<i>Nannoperca variegata</i>), and Water Rat (<i>Hydromys</i></p>  |

|  |  |
|--|--|
| <p>Policy on Fisheries Bycatch, and bycatch action strategies developed under the policy.</p>  | <p><i>chrysogaster</i>). The Southern Bell Frog (<i>Litoria raniformis</i>) also occurs in areas in which the fishery operates, although there have been no reported interactions with this species. Potential impacts and management actions identified in the following national recovery plans may be relevant to this fishery:</p> <ul style="list-style-type: none"> <li>▪ National Recovery Plan for the Southern Bell Frog (<i>Litoria raniformis</i>);</li> <li>▪ National Recovery Plan for the Australian grayling (<i>Prototroctes maraena</i>);</li> <li>▪ National Recovery Plan for the Variegated Pygmy Perch (<i>Nannoperca variegata</i>).</li> </ul> <p>Rivers in which populations of platypus, and/or significant populations of estuary perch and/or Australian bass occur are not open to eel fishing. The use of bycatch reduction grids is specified on permit conditions for fyke nets that are used in Wildlife Reserves. A Bycatch Action Plan was drafted by Fisheries Victoria (2003), and finalised by (Leporati and McKinnon 2006, cited in McKinnon and Milner 2009). A draft Code of Conduct was also developed by McKinnon (2007) to support the management of bycatch in the fishery. However, these documents are not publicly available.</p>  |
| <p><b>PRINCIPLE 1</b> - A fishery must be conducted in a manner that does not lead to over-fishing, or for those stocks that are over-fished, the fishery must be conducted such that there is a high degree of probability the stock(s) will recover.</p> |  |
| <p><b>Objective 1</b> - The fishery shall be conducted at catch levels that maintain ecologically viable stock levels at an agreed point or range, with acceptable levels of probability.</p>  |  |
| <p><b>Information requirements</b></p>   |  |
| <p><b>1.1.1</b> There is a reliable information collection system in place appropriate to the scale of the fishery. The level of data collection should be based upon an appropriate mix of fishery independent and dependent research and monitoring.</p> | <p><b>Meets</b></p> <p>The fishery targets Longfin Eel (<i>Anguilla reinhardtii</i>) and Shortfin Eel (<i>A. australis</i>) at different life stages. Adult eels are harvested for export, while juvenile eels (elvers and “snigs”) are harvested for on-growing in lakes and impoundments (extensive aquaculture) and for use in intensive aquaculture such as recirculating systems. The application for assessment indicates that there is currently no intensive eel aquaculture in Victoria. Both species are harvested from the wild, but only Shortfin Eels are farmed. Key byproduct species include the introduced European Carp (<i>Cyprinus carpio</i>), Goldfish (<i>Carassius auratus</i>), Roach (<i>Rutilus rutilus</i>), and Tench (<i>Tinca tinca</i>).</p> <p>It is assumed that populations for each target species consist of single genetic stocks. Fishery independent monitoring in south eastern Australia found that recruitment of glass eels is not significantly different between rivers which are commercially fished and those which are not (Gooley et al. 1999).</p> <p>Information is also collected through workshops in collaboration with state-based stakeholders and Tasmanian Inland Fisheries Service. Ongoing research is undertaken with support from FRDC (for examples see McKinnon and Milner 2009; McKinnon et al. 2009). In 2013, Fisheries Victoria engaged with Tasmanian Inland Fisheries Service through a risk assessment workshop. While both agencies anticipated ongoing collaboration, the extent to which this has occurred is uncertain due to the limited activity within eel fisheries in Victoria and other jurisdictions. Annual catch and effort monitoring is published in the Victorian catch and effort bulletin. Wild harvest data such as daily catches, effort, and location is recorded in logbooks. Production from intensive aquaculture facilities are</p> |

|   |  |
|---|--|
|   | <p>recorded on either an aquaculture production return form or an aquaculture incoming stock record form. Wild harvest catch records must be reported to the Victorian Fisheries Authority each month and aquaculture reports bi-annually.</p> <p>There is no observer coverage of this fishery and no independent data collection. No biomass estimates are available for the state or individual catchments, and no reliable estimate of recreational or Indigenous catch is available. However, the harvesting of eels is considered a small scale fishery in Victoria. No research projects for the eel fishery are currently planned. Victoria is planning to participate in broad regional climate change studies that will be relevant to the eel fishery.</p> <p>The estimated number of recreational anglers targeting eel is considered very low (see 2014 fishery reassessment submission).</p> |
| <b>Assessment</b>   |  |
| <b>1.1.2</b> There is a robust assessment of the dynamics and status of the species/fishery and periodic review of the process and the data collected. Assessment should include a process to identify any reduction in biological diversity and /or reproductive capacity. Review should take place at regular intervals but at least every three years. | <p><b>Does not meet</b></p> <p>There is no formal stock assessment process. Fishery dependent data is collected by industry. There are no biomass estimates available for Victoria or individual catchments.</p> <p>There are no reliable estimate of recreational catch although it is likely to be low. Recreational fishers are restricted through bag limits. No reliable estimate on Indigenous catch is available, although catch by this sector is considered negligible.</p> <p>The fishery has not yet recovered from drought conditions.</p>   |
| <b>1.1.3</b> The distribution and spatial structure of the stock(s) has been established and factored into management responses.  | <p><b>Partially meets</b></p> <p>Distribution of both target species (short-finned eel and long-finned eel) in Victorian waters is well known through independent research and studies. However, very little is known about the marine life stages for both eel species. Stock biomass is unknown because no stock assessments for eels have been undertaken in Victoria, and there are no planned stock assessments. However, management measures such as closed areas and limited entry are likely to limit the fishery's impact to target stocks.</p>   |
| <b>1.1.4</b> There are reliable estimates of all removals, including commercial (landings and discards), recreational and indigenous, from the fished stock. These estimates have been factored into stock assessments and target species catch levels.   | <p><b>Partially meets</b></p> <p>Logbooks provide the most accurate estimate of removals in the commercial sector. However, the fishery does not have a base biomass estimate for comparison. Aquaculture product may be used to enhance wild stock. There are no recent estimates of take by recreational and traditional owner sectors. However, take by these sectors is considered negligible. Estimates are based on the National Recreational and Indigenous Fishing Survey 2001 (Henry and Lyle 2003).</p>  |
| <b>1.1.5</b> There is a sound estimate of the potential productivity of the fished stock/s and the proportion that could be harvested.  | <p><b>Does not meet</b></p> <p>There has been no stock assessment, and therefore no sound estimates of productivity. There is no baseline data to assess the available stock. No independent research has been undertaken recently for this fishery due to lack of fishing activities, and financial stress. Logbooks are used to understand the catch per effort. The Victorian Fisheries Authority is negotiating the development of a harvest strategy for the fishery by late 2022.</p>  |

|  |  |
|--|--|
| <b>Management responses</b>  |  |
| <b>1.1.6</b> There are reference points (target and/or limit), that trigger management actions including a biological bottom line and/or a catch or effort upper limit beyond which the stock should not be taken.   | <b>Partially meets</b><br>There are no reference points that would trigger management actions for the harvesting of target or byproduct species. However, the Victorian Fisheries Authority has indicated that they are consulting with stakeholders to develop a harvest strategy, which is likely to include reference points.   |
| <b>1.1.7</b> There are management strategies in place capable of controlling the level of take.  | <b>Partially meets</b><br>The fishery is managed by input controls. The sustainability of eel harvesting is dependent on allowing sufficient numbers of adult eels to migrate from coastal rivers to the spawning grounds. The key strategy to achieve this objective is to limit the number of waters that are open to commercial fishing, and thereby increasing the opportunities for adult eels to migrate. The management arrangements include the closure of approximately half of Victoria major coastal rivers to eel fishing. Escapement from waters open to commercial fishing, when combined with escapement from stocks in closed waters, is considered sufficient to meet sustainability requirements. Licence conditions specify additional restrictions such as allocated waters. Daily catch limits apply for recreation and indigenous sectors. |
| <b>1.1.8</b> Fishing is conducted in a manner that does not threaten stocks of byproduct species.  | <b>Meets</b><br>Apart from the two target species, commercial eel fishers are only permitted to take European Carp, Goldfish, Roach, and Tench. All other species must be returned to the water. Therefore, there fishery is unlikely to have a negative impact on byproduct species.  |
| (Guidelines 1.1.1 to 1.1.7 should be applied to byproduct species to an appropriate level)   |  |
| <b>1.1.9</b> The management response, considering uncertainties in the assessment and precautionary management actions, has a high chance of achieving the objective.  | <b>Partially meets</b><br>The management arrangements are likely to meet the objective to conduct the fishery at catch levels that maintain ecologically viable stock levels. However, the fishery would benefit from additional management measures such as the development of a harvest strategy with adequate reference points, and regular stock assessments that provide baseline data to estimate stock productivity.  |
| <b>If overfished, go to Objective 2:</b>   |  |
| <b>If not overfished, go to PRINCIPLE 2:</b>   |  |
| <b>Objective 2</b> - Where the fished stock(s) are below a defined reference point, the fishery will be managed to promote recovery to ecologically viable stock levels within nominated timeframes.   |  |
| <b>Management responses</b>  |  |
| <b>1.2.1</b> A precautionary recovery strategy is in place specifying management actions, or staged management responses, which are linked to reference points. The recovery strategy should apply until the stock recovers, and should aim for recovery within a specific | <b>Partially meets</b><br>The fishery harvests eels at different life stages. Waters are closed to eel fishing where stocks are severely impacted by environmental conditions. Approximately 30 per cent of coastal rivers are closed permanently to commercial eel fishing.<br>The Department has previously recommended that a precautionary recovery strategy be developed for the glass eel sector (Recommendation 5(c) of the 2014 assessment). The Victorian Fisheries Authority indicated that a  |



|   |   |
|---|---|
| time period appropriate to the biology of the stock.  | recovery strategy would be developed by mid-2018, however no strategy has been developed that would ensure glass eels are harvested sustainably. Therefore, this recommendation is considered to be ongoing (see Section 4).  |
| <b>1.2.2</b> If the stock is estimated as being at or below the biological and / or effort bottom line, management responses such as a zero targeted catch, temporary fishery closure or a 'whole of fishery' effort or quota reduction are implemented.  | <b>Not applicable</b><br>Waters are closed to eel fishing where stocks are severely impacted by environmental conditions. Approximately 30 per cent of coastal rivers are closed permanently to commercial eel fishing.   |
| <b>PRINCIPLE 2</b> - Fishing operations should be managed to minimise their impact on the structure, productivity, function and biological diversity of the ecosystem.  |   |
| <b>Objective 1</b> - The fishery is conducted in a manner that does not threaten bycatch species.   |   |
| <b>Information requirements</b>   |   |
| <b>2.1.1</b> Reliable information, appropriate to the scale of the fishery, is collected on the composition and abundance of bycatch.   | <b>Meets</b><br>Bycatch is recorded in daily logbooks. A bycatch monitoring program identified 54 bycatch species over a three year period involving 1300 net days across various locations. The survey was conducted during drought conditions. Drought-induced stress is known to alter the composition of aquatic faunal communities. Therefore, appropriate timing is crucial to ensure that all potential bycatch species are surveyed.  |
| <b>Assessment</b>   |   |
| <b>2.1.2</b> There is a risk analysis of the bycatch with respect to its vulnerability to fishing.  | <b>Meets</b><br>In 2007, a bycatch risk analysis was conducted, but this is not publicly available. A summary of key findings, available in the 2014 assessment submission, indicates low risks associated with air-breathing bycatch such as Platypus and Water Rats ( <i>Hydromys chrysogaster</i> ) (DPI 2014). In 2008, a broader eel fishery risk assessment identified water quantity and quality and illegal fishing of closed waters as high risk threats. FRDC has funded research to better understand and mitigate the impacts of fishing to bycatch species (see McKinnon and Milner 2008; McKinnon, Allan & Milner 2009). There has been no recent risk analysis of bycatch vulnerability in this fishery.   |
| <b>Management responses</b>   |   |
| <b>2.1.3</b> Measures are in place to avoid capture and mortality of bycatch species unless it is determined that the level of catch is sustainable (except in relation to endangered, threatened or protected species). Steps must be taken to develop suitable technology if none is available. | <b>Meets</b><br>Management responses are in place to avoid the capture and mortality of bycatch. Bycatch reduction devices (BRDs) are commonly used in commercial fyke nets and include the addition of escape tubes (a short piece of 40 mm diameter PVC tubing sewn into the mesh of the fyke net near the cod end, to allow small eels and fish to escape). Plastic grids can also be added to the entry funnel of the net to prevent the entry of aquatic fauna and larger fish. Ongoing mitigation measures include bycatch reduction devices in Wildlife Reserves, ongoing research on fyke net modifications (see for example McKinnon and Milner 2008; McKinnon, Allan & Milner 2009), gear restrictions and operational requirements such as floating cod end, bycatch reduction devices, spatial closures where known populations of protected species occur. |



|   |   |
|---|---|
| <b>2.1.4</b> An indicator group of bycatch species is monitored.  | <b>Meets</b><br>No indicator group of bycatch species has been identified, although bycatch is monitored via monthly bycatch reports. Any increase in total bycatch or specific species can be readily recorded for analysis.   |
| <b>2.1.5</b> There are decision rules that trigger additional management measures when there are significant perturbations in the indicator species numbers.  | <b>Does not meet</b><br>No decision rules have been developed that would trigger management measures for indicator species.   |
| <b>2.1.6</b> The management response, considering uncertainties in the assessment and precautionary management actions, has a high chance of achieving the objective.   | <b>Meets</b><br>Given the low bycatch rate and management strategies in place the fishery is likely to be conducted in a manner that minimises the fishery's impact on bycatch species.   |
| <b>Objective 2</b> - The fishery is conducted in a manner that avoids mortality of, or injuries to, endangered, threatened or protected species and avoids or minimises impacts on threatened ecological communities. |   |
| <b>Information requirements</b>   |   |
| <b>2.2.1</b> Reliable information is collected on the interaction with endangered, threatened or protected species and threatened ecological communities.   | <b>Meets</b><br>Daily logbooks are used to record interactions with endangered, threatened or protected species. Proposed modifications to the Protected Species Action Plan reporting form is in progress to allow reporting on protected species interactions. Fishers are unlikely to operate within or adjacent to threatened ecological communities.   |
| <b>Assessments</b>  |   |
| <b>2.2.2</b> There is an assessment of the impact of the fishery on endangered, threatened or protected species.  | <b>Meets</b><br>In general, the fishery is regarded as relatively benign with a limited number of operators using limited gear in selected waterways. The potential impact of the fishery on TEPS is likely to be low. The fishery is considered to have a low risk for air-breathing species such as Platypus (DPI 2014). The three year bycatch monitoring program found five bycatch species of protected fauna were recorded; Australasian grebe, coot, cormorant, water rat and eastern snake-neck tortoise (DPI 2013).<br>A risk assessment conducted in December 2013 identified a number of protected species that may interact with the fishery. Key findings of the risk assessment listed the Growling Grass Frog ( <i>Litoria raniformis</i> ) mortality as <i>Occasional</i> , which is defined as occurring once every three to four months. The Victorian Fisheries Authority considers this number to be low. Three pygmy perch species listed vulnerable under the EPBC Act have been recorded in the fishery. Reports are generic with no differentiation between species, although overall numbers are considered to be very low. The fishery has a large number of annual captures of turtles and tortoises, however these species are mostly released unharmed. Four mortalities were reported in the five years prior to the 2014 EPBC Act assessment for this fishery. The mortality rates for protected species associated with commercial eel fishing in Victoria are considered low. Platypus mortality due to incidental capture in commercial fyke nets is low. |

|   |   |
|---|---|
| <b>2.2.3</b> There is an assessment of the impact of the fishery on threatened ecological communities.  | <b>Not applicable</b><br>The fishery is unlikely to interact directly with threatened ecological communities. Therefore, no mitigation measures are required.   |
| <b>Management responses</b>   |   |
| <b>2.2.4</b> There are measures in place to avoid capture and/or mortality of endangered, threatened or protected species.  | <b>Meets</b><br>Mitigation measures are in place to avoid interactions with protected species. Plastic grids and raised cod ends are used in areas of higher risk.  |
| <b>2.2.5</b> There are measures in place to avoid impact on threatened ecological communities.  | <b>Not applicable</b><br>Not applicable as the fishery is unlikely to interact directly with threatened ecological communities. Therefore, no mitigation measures are required.   |
| <b>2.2.6</b> The management response, considering uncertainties in the assessment and precautionary management actions, has a high chance of achieving the objective.   | <b>Meets</b><br>Management response has the capacity to achieve the objective to conduct the fishery in a manner that minimises the impacts to TEPS and TECs. Risks are considered low, and ongoing research into appropriate mitigation measures is likely to further reduce risks to protected species.   |
| <b>Objective 3</b> - The fishery is conducted, in a manner that minimises the impact of fishing operations on the ecosystem generally.  |   |
| <b>Information requirements</b>   |   |
| <b>2.3.1</b> Information appropriate for the analysis in 2.3.2 is collated and/or collected covering the fishery's impact on the ecosystem and environment generally.   | <b>Partially meets</b><br>Data is collected for bycatch and protected species, but there are no methods to collect data for the wider environment in which the fishery operates. Information is collected through workshops, and industry reporting requirements against licence conditions.<br>Adequate management measures are in place. Licence numbers are capped at 18, and operators are restricted to the use of fyke nets, which are not likely to have an adverse impact on the environment.<br>Collaboration with other jurisdictions has occurred in the past, but there has been very little collaboration because of low fishing activities in recent years.   |
| <b>Assessment</b>   |   |
| <b>2.3.2</b> Information is collected and a risk analysis, appropriate to the scale of the fishery and its potential impacts, is conducted into the susceptibility of each of the following ecosystem components to the fishery.<br>1. Impacts on ecological communities<br>• Benthic communities<br>• Ecologically related, associated or dependent species<br>• Water column communities<br>2. Impacts on food chains | <b>Meets</b><br>The 2013 ERA did not address all impacts on the ecosystem, although it was limited due to the low activity in the eel fishery (DPI 2013). The Victorian Fisheries Authority has indicated that minimal environmental impacts are expected to result from the operation of the eel fishery. Potential impacts may include damage to riverine habitats, riparian and in-stream vegetation, disturbance of the substrate and river banks during deployment and retrieval of gear and the use of four-wheel-drive vehicles, boats, and water pollution due to the operation of outboard motors. Eel fishing occurs in relatively shallow waters in estuaries, rivers, or lakes (natural or constructed). Fyke nets are static once deployed, and therefore are likely to have a low to negligible impact on the waters in which they are used. Fyke nets must be clearly marked, which helps to minimise the effects of 'ghost fishing by the partial or complete loss of nets. |

|   |   |
|---|---|
| <ul style="list-style-type: none"> <li>• Structure</li> <li>• Productivity/flows</li> </ul> <p>3. Impacts on the physical environment</p> <ul style="list-style-type: none"> <li>• Physical habitat</li> <li>• Water quality</li> </ul>                   |   |
| <b>Management responses</b>   |   |
| <b>2.3.3</b> Management actions are in place to ensure significant damage to ecosystems does not arise from the impacts described in 2.3.1.   | <b>Meets</b><br>The fishery management plan includes actions that help to minimise the impact of fishing to the wider ecosystem, including closed areas, gear restrictions, and licence conditions. |
| <b>2.3.4</b> There are decision rules that trigger further management responses when monitoring detects impacts on selected ecosystem indicators beyond a predetermined level, or where action is indicated by application of the precautionary approach. | <b>Does not meet</b><br>The fishery management plan include performance indicators, but no additional triggers that would detect ecosystem impacts.   |
| <b>2.3.5</b> The management response, considering uncertainties in the assessment and precautionary management actions, has a high chance of achieving the objective.   | <b>Partially meets</b><br>The management response has some capability to achieve objective to conduct the fishery in a manner that minimises the impact of fishing operations on the ecosystem.     |

## SECTION 3: ASSESSMENT OF THE VICTORIAN EEL FISHERY AGAINST THE REQUIREMENTS OF THE EPBC ACT

The table below is not a complete or exact representation of the EPBC Act. It is intended to show that the relevant sections and components of the EPBC Act have been taken into account in the formulation of advice on the fishery in relation to decisions under Part 13 and Part 13A.

### Part 12 – Identifying and monitoring biodiversity and making bioregional plans

| Section 176 Bioregional Plans                               | Comment   |
|---|---|
| (5) Minister must have regard to relevant bioregional plans | <b>Not applicable</b><br>The fishery operates within the South-east Marine Region, which is not covered by any Marine Bioregional Plan. |

### Part 13A – International movement of wildlife specimens

| Section 303BA Objects of Part 13A   | Comment  |
|---|--|
| <p>(1) The objects of this Part are as follows:</p> <ul style="list-style-type: none"> <li>(a) to ensure that Australia complies with its obligations under CITES and the Biodiversity Convention;</li> <li>(b) to protect wildlife that may be adversely affected by trade;</li> <li>(c) to promote the conservation of biodiversity in Australia and other countries;</li> <li>(d) to ensure that any commercial utilisation of Australian native wildlife for the purposes of export is managed in an ecologically sustainable way;</li> <li>(e) to promote the humane treatment of wildlife;</li> <li>(f) to ensure ethical conduct during any research associated with the utilisation of wildlife; and</li> <li>(h) to ensure the precautionary principle is taken into account in making decisions relating to the utilisation of wildlife.</li> </ul> | <p>The management arrangements for the Victorian Eel Fishery have been assessed as consistent with the general guidance provided in the objects of Part 13A as:</p> <ul style="list-style-type: none"> <li>• the fishery will not harvest any Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) listed species</li> <li>• there are management arrangements in place to ensure that the resource is being managed in an ecologically sustainable way (see Table 1)</li> <li>• the operation of the fishery is unlikely to be unsustainable and threaten biodiversity within the next seven years, and</li> <li>• the Environment Protection and Biodiversity Conservation Regulations 2000 do not specify fish as a class of animal in relation to the welfare of live specimens.</li> </ul> |

| Section 303DC Minister may amend list (non CITES species)   | Comment   |
|---|---|
| <p>(1) The Minister may, by legislative instrument, amend the list referred to in section 303DB [list of exempt native specimens] by:</p> <p>(a) doing any of the following:</p> <ul style="list-style-type: none"> <li>(i) including items in the list;</li> <li>(ii) deleting items from the list;</li> <li>(iii) imposing a condition or restriction to which the inclusion of a specimen in the list is subject;</li> <li>(iv) varying or revoking a condition or restriction to which the inclusion of a specimen in the list is subject; or</li> </ul> <p>(b) correcting an inaccuracy or updating the name of a species.</p> | <p>The Department recommends that specimens that are or are derived from fish or invertebrates harvested in the Victorian Eel Fishery, as defined in the management regime in force under the <i>Fisheries Act 1995</i> (Vic) and <i>Fisheries Regulations 2009</i> (Vic), but not including</p> <ul style="list-style-type: none"> <li>• specimens that belong to eligible listed threatened species, as defined under section 303BC of the EPBC Act, or</li> <li>• specimens that belong to taxa listed under section 303CA of the EPBC Act (Australia's CITES list).</li> </ul> <p>be included in the list of exempt native specimens until 13 April 2024.</p> |
| <p>(1A) In deciding to amend the LENS, the Minister must rely primarily on outcomes an assessment under Part 10, Divisions 1 or 2</p>   | <p><b>Not applicable.</b><br/>The fishery is not managed by the Commonwealth.</p>   |
| <p>(1C) The above does not limit matters that may be considered when deciding to amend LENS.</p>  | <p><b>Meets</b><br/>The Department considers that it has taken into account all matters relevant to making an informed decision to amend the list of exempt native specimens to include product taken in this fishery.</p>  |
| <p>(3) Before amending the LENS, the Minister must consult:</p> <ul style="list-style-type: none"> <li>(a) other Minister or Ministers as appropriate; and</li> <li>(b) other Minister or Ministers of each State and self-governing Territory as appropriate; and</li> <li>(c) other persons and organisations as appropriate.</li> </ul>  | <p><b>Meets</b><br/>The submission from the Victorian Fisheries Authority was made available on the Department's website from 18 January 2019 to 20 February 2019. No comments received.</p>  |
| <p>(5) A copy of an instrument made under section 303DC is to be made available for inspection on the internet.</p>   | <p>Yes, the instrument made under section 303DC(1)(a) for the fishery will be registered on the Federal Register of Legislation, and a link to the instrument made available through the Department's website.</p>  |

|  |   |
|--|---|
|  | Under subsection 56(1) of the <i>Legislation Act 2003</i> (Cth), registration on the FRL meets the requirements for gazettal. |
|--|---|

## Part 16 – Precautionary principle and other considerations in making decisions

| Section 391 Minister must consider precautionary principle in making decisions |  | Comment  |
|--|--|--|
| (1)  | Minister must take account of the precautionary principle in making a decision, to the extent that the decision is consistent with other provisions under this Act.  | <b>Meets</b><br>Given the used of low impact fishing gear, regular compliance monitoring of fishing activities, and measures already in place to mitigate risks to protected species, including Platypus, precautionary measures are considered to be in place to prevent serious or irreversible environmental damage being caused by this fishery. |
| (2)  | The precautionary principle is that lack of full scientific certainty should not be used as a reason for postponing a measure to prevent degradation of the environment where there are threats of serious or irreversible environmental damage. |  |

## SECTION 4: VICTORIAN EEL FISHERY – SUMMARY OF ISSUES REQUIRING RECOMMENDATIONS, APRIL 2019

| Issue   | Recommendation  |
|---|---|
| <p><b><u>General Management</u></b></p> <p>The export of Australian native flora and fauna is regulated by the Department of the Environment and Energy (the Department) under the <i>Environment Protection and Biodiversity Conservation Act 1999</i> (EPBC Act). The EPBC Act export approval process is based on an assessment of the fishery's management arrangements that are in force at the time of the decision.</p> <p>Export decisions relate to the arrangements in force at the time of the decision. To ensure that these decisions remain valid and export approval continues uninterrupted, the Department needs to be advised of any changes that are made to the management regime and make an assessment that the new arrangements are equivalent or better, in terms of ecological sustainability, than those in place at the time of the original decision. This includes operational and legislated amendments that may affect sustainability of the target species or negatively impact on byproduct, bycatch, EPBC Act-listed protected species or the ecosystem.</p>  | <p><b>Recommendation 1:</b></p> <p>Operation of the Victoria Eel Fishery will be carried out in accordance with management regime in force under the <i>Fisheries Management Act 1995</i> (Vic) and <i>Fisheries Management Regulations 2009</i> (Vic).</p> <p><b>Recommendation 2:</b></p> <p>The Victorian Fisheries Authority to inform the Department of the Environment and Energy of any intended material changes to the fishery's management arrangements that may affect the assessment against which <i>Environment Protection and Biodiversity Conservation Act 1999</i> decisions are made.</p> |
| <p><b><u>Annual reporting</u></b></p> <p>It is important that reports be produced and presented to the Department annually in order for the performance of the fishery and progress in implementing the recommendations in this report and other managerial commitments to be monitored and assessed throughout the life of the declaration. Annual reports should follow Appendix B to the 'Guidelines for the Ecologically Sustainable Management of Fisheries - 2nd Edition' and include a description of the fishery, management arrangements in place, research and monitoring outcomes, recent catch data for all sectors of the fishery, status of target stock, interactions with EPBC Act protected species, impacts of the fishery on the ecosystem in which it operates and progress in implementing the Department's recommendations.</p> <p>The Victorian Fisheries Authority has provided annual reports for the 2017 and 2018 fishing seasons. These reports describe how the Victorian Fisheries Authority has addressed the Department's recommendations described in the 2014 assessment for this fishery, including the need for ongoing inter-jurisdictional collaboration, and the development and implementation of a new management plan for the fishery.</p> <p>Electronic copies of the guidelines are available from the Department's website at <a href="http://www.environment.gov.au/resource/guidelines-ecologically-sustainable-management-fisheries">http://www.environment.gov.au/resource/guidelines-ecologically-sustainable-management-fisheries</a>.</p> | <p><b>Recommendation 3:</b></p> <p>The Victorian Fisheries Authority to produce and present reports to the Department of the Environment and Energy annually as per Appendix B of the 'Guidelines for the Ecologically Sustainable Management of Fisheries - 2nd Edition'.</p>  |

| Issue   | Recommendation   |
|---|--|
| <p><b><u>Cross jurisdictional cooperation</u></b></p> <p>Long-finned Eel (<i>Anguilla reinhardtii</i>) and Short-finned Eel (<i>A. australis</i>) are harvested in the eastern states of Australia and in New Zealand. These species are considered likely to each belong to single genetic stocks within their natural distribution. In addition, there is a lack of available information regarding the biology of eels, particularly the marine life phase, which increases the importance for developing collaborative arrangements that aim to improve the management of eels across all jurisdictions. Prolonged drought conditions have also had a severe impact on stocks for both species in all jurisdictions because they are highly susceptible to environmental variability in temperature, salinity and river flow. These environmental impacts may be short-term (e.g. seasonal rainfall) or long-term (e.g. drought conditions). Cross jurisdictional communication between the management agencies responsible for the commercial harvest of these species is therefore important to identify and address sustainability issues for eel stocks. The Victorian Fisheries Authority understands the importance of collaboration with other jurisdictions and is committed to this across a broad range of fisheries.</p> <p>Engagement with other jurisdictions has mostly occurred on an ad hoc basis, including a risk assessment workshop in 2013 that included participation by officers from the Tasmanian Inland Fisheries Service. The Victorian Fisheries Authority has indicated that collaboration with other jurisdictions has declined in recent years due to low fishing activity caused by prolonged drought conditions but expect collaboration to increase as the fishery recovers. Nonetheless, the Department recognises the efforts of the Victorian Fisheries Authority in actively engaging more broadly with eel fishery managers. The Department encourages regular and ongoing collaboration that can identify and account for potential changes in the populations for both target species, and contribute to the sustainability of commercial eel stocks. It is important that the Victorian Fisheries Authority provide a summary of cross jurisdictional engagement and complementary management activities such as the number and type of forums attended as part of the annual report to the Department, in accordance with recommendation 3 of this approval.</p> | <p><b>Recommendation 4:</b></p> <p>The Victorian Fisheries Authority to collaborate with other jurisdictions and pursue consistent and complementary research needs and management arrangements for the target species.</p>  |
| <p><b><u>Harvest strategy</u></b></p> <p>The Department notes the progress made by the Victorian Fisheries Authority in reviewing the management arrangements, and developing and implementing a management plan for the fishery. The management plan will be in force for five years. The Victorian Fisheries Authority is committed to the implementation of a harvest strategy during the life of the management plan (i.e. by late 2022).</p> <p>While the Department recognises the inherent difficulty in setting biologically based reference points for harvesting eels, precautionary performance measures are possible. Developing a harvest strategy will improve the transparency of, and confidence in management outcomes, improve the fishery's capacity to be managed adaptively, and allow harvest rates to be adjusted in response to ecosystem changes. Without a strategy or policy to provide guidance on resource allocation, there is an increased risk of inconsistent and/or unpredictable fisheries management decisions, particularly over longer timeframes.</p>  | <p><b>Recommendation 5:</b></p> <p>To control the level of harvest and the potential impacts on the target species, the Victorian Fisheries Authority to develop and implement a harvest strategy within the life of the existing management plan. The harvest strategy is to be reviewable and include performance measures linked to defined management triggers and responses. It should also include mechanisms to enable ongoing monitoring of the fishery and take into account the impact of environmental conditions on the fishery.</p> |



| Issue   | Recommendation   |
|---|--|
| <p>A harvest strategy should be developed in consultation with stakeholders, and include:</p> <ul style="list-style-type: none"> <li>• management objectives,</li> <li>• indicators that will be monitored to evaluate performance against the objectives</li> <li>• reference points that establish the bounds of acceptable performance for the fishery</li> <li>• the decision rules that will be invoked if reference points are not achieved, and</li> <li>• consideration of the environment in which the fishery operates.</li> </ul> <p>Any review of the management arrangements should also address issues pertaining to future drought or impacts on water quality as noted as high risk in the 2013 risk assessment workshop for this fishery.</p> <p>Since 2004, the Department has maintained its recommendation to integrate a precautionary management strategy for the glass eel sub-fishery to monitor and ensure the ongoing sustainability of the sub-fishery. The Department was advised that the anticipated development of a glass eel sub-fishery as a source for stock enhancement purposes did not occur. The Victorian Fisheries Authority advises that the inability to progress this recommendation has resulted from ongoing drought conditions, which has contributed to a decline in fishing activity.</p> <p>The Victorian Fisheries Authority also advised that there is currently only a small amount of effort in the glass eel sub-fishery under permit with highly precautionary conditions, including a cap on catch. The glass eel sub-fishery operates under permit conditions which allows specific conditions to be put in place and may be revoked at any time. Furthermore, the Victorian Fisheries Authority anticipate that should there be increased interest in harvesting from this sub-fishery it will be managed under the new harvest strategy. Given the likelihood that environmental conditions will improve in the future, the Department considers it appropriate to maintain the current recommendation, albeit in a modified form.</p> <p>Therefore, the Department also recommends that any review of the management arrangements include a precautionary management strategy for the glass eel sub-fishery to prepare for the resumption of harvesting in this sector. In the review, the Victorian Fisheries Authority should consider appropriate mechanisms, including monitoring, to enhance management of the wild harvest sector in light of changing environmental conditions.</p> | <p><b>Recommendation 6:</b></p> <p>Should there be resumption of harvesting in the glass eel sub-fishery, the Victorian Fisheries Authority to develop and implement a precautionary management strategy for this sub-fishery designed to:</p> <p>a) monitor the level of harvest and the potential impacts on bycatch species in the sub-fishery;</p> <p>b) be reviewable and, where practical and reliable stock assessment methods are available, include performance measures linked to defined management triggers and responses; and</p> <p>c) enable the ongoing monitoring of the sub-fishery, taking into account the impact of environmental conditions.</p> |

## REFERENCES

- Backhouse G, Jackson J, and O'Connor J 2008 'National recovery plan for the Australian Grayling *Prototroctes maraena*', Department of Sustainability and Environment, Melbourne VIC, Available at <http://www.environment.gov.au/system/files/resources/184f9f43-1f10-441d-a918-5df406b2cd2c/files/australian-grayling.pdf>.
- Clemann N, and Gillespie GR 2012 'National recovery plan for the Southern Bell Frog *Litoria raniformis*', Department of Sustainability and Environment, Melbourne VIC, Available at <http://www.environment.gov.au/system/files/resources/9b960bf4-cc03-4ee9-b1a4-b80494662f64/files/litoria-raniformis.pdf>.
- Department of Environment and Primary Industries 2005 'Protocols for the translocation of fish in Victorian inland public waters', Fisheries Victoria Management Report Series No. 24, Queenscliff VIC, Available at <https://vfa.vic.gov.au/operational-policy/moving-and-stocking-live-aquatic-organisms/protocols-for-the-translocation-of-fish>.
- Department of Primary Industries 2014 'Application to the Department of the Environment for re-assessment of the Victorian Eel Fishery', February 2014, Victorian Department of Primary Industries, Queenscliff VIC, Available at [http://www.environment.gov.au/system/files/pages/677c89ad-40fe-46e9-9317-54cf3b430bb7/files/application-2014\\_0.pdf](http://www.environment.gov.au/system/files/pages/677c89ad-40fe-46e9-9317-54cf3b430bb7/files/application-2014_0.pdf).
- Department of the Environment and Resource Management 2010 'National Recovery plan for the water mouse (false water rat) *Xeromys myoides*', Report to Department of Sustainability, Environment, Water, Population and Communities, Canberra. Department of the Environment and Resource Management, Brisbane QLD. Available at <http://www.environment.gov.au/biodiversity/threatened/recovery-plans/national-recovery-plan-water-mouse-false-water-rat-xeromys-myoides>.
- Fisheries Victoria 2005 'Protocols for the translocation of fish in Victorian inland public waters', Fisheries Management Report Series No. 24, August 2005, Fisheries Victoria, Queenscliff VIC, Available at <https://vfa.vic.gov.au/operational-policy/moving-and-stocking-live-aquatic-organisms/protocols-for-the-translocation-of-fish>.
- Fisheries Victoria 2009 'Guidelines for assessing translocations of live aquatic organisms in Victoria', Fisheries Management Report Series No. 65, February 2009, Fisheries Victoria, Queenscliff VIC, Available at <https://vfa.vic.gov.au/operational-policy/moving-and-stocking-live-aquatic-organisms/guidelines-for-assessing-translocations>.
- Gooley GJ, McKinnon LJ, Ingram BA, Larkin B, Colins RO, and de Silva SS 1999 'Assessment of juvenile eel resources in south eastern Australia and associated development of intensive eel farming for local production', FRDC Project No. 94/067, Marine and Freshwater Resources Institute, 124.pp.
- Henry GW and Lyle JM 2003 'The national recreational and indigenous fishing survey', July 2003, FRDC Project No. 99/158, NSW Fisheries Final Report Series No. 48, Cronulla NSW, Available at <http://frdc.com.au/Archived-Reports/FRDC%20Projects/1999-158-DLD.pdf>.
- McKinnon LJ 2006 'Victorian protocol for the translocation of eels', Fisheries Victoria Management Report Series No. 27, Queenscliff VIC, Available at <https://vfa.vic.gov.au/operational-policy/moving-and-stocking-live-aquatic-organisms/victorian-protocol-for-the-translocation-of-eels>.
- McKinnon LJ and Milner GL 2009 'Empowering Industry R&D: Trials of gear modifications to reduce bycatch in freshwater fyke nets', Fisheries Research and Development Corporation 2008/017, Canberra ACT, Available at <http://frdc.com.au/project/2008-017>.

- McKinnon LJ, Allan WJ, and Milner GL 2009 'Tactical research fund: Empowering Industry R&D – Refinements of fyke net modifications to improve uptake by industry', Fisheries Research and Development Corporation 2009/064, Canberra ACT, Available at <http://frdc.com.au/project/2008-017>.
- Saddler S and Hammer M 2010 'National recovery plan for the Variegated Pygmy Perch *Nannoperca variegata*', Department of Sustainability and Environment, Melbourne VIC, Available at <http://www.environment.gov.au/system/files/resources/63f9eb36-8b3d-43ad-b931-b5a30cc300b0/files/variegated-pygmy-perch.pdf>.
- VRFish 2009 'Economic study of recreational fishing in Victoria', November 2009, Melbourne VIC, Available at [https://www.vrfish.com.au/wp-content/uploads/2018/05/Report\\_Victoria\\_rec\\_fishing\\_economic\\_study\\_2009.pdf](https://www.vrfish.com.au/wp-content/uploads/2018/05/Report_Victoria_rec_fishing_economic_study_2009.pdf).