

Corner Inlet Fishery Risk Assessment Review 2024

This risk assessment framework is a streamlined approach to the *National Ecologically Sustainable Development (ESD) Reporting Framework*. This streamlined approach aims to identify the priority risks for the fishery in a way that is efficient, transparent, objective, uses best available information (which will often be qualitative judgement) and meets the requirements of the Fisheries Act 1995 and national risk management standard.

This draft is based on information available to the VFA and takes into account current levels of commercial and recreational fishing effort. There is potential for further changes to commercial fishing practices that could change the risk ratings.

Likelihood and Consequence Ranking Tables

Likelihood level	Descriptor
Remote (1)	Never heard of, but not impossible
Rare (2)	May occur in exceptional circumstances
Unlikely (3)	Uncommon, but has been known to occur elsewhere
Possible (4)	Some evidence to suggest this is possible here
Occasional (5)	May occur
Likely (6)	It is expected to occur

Consequence level	Descriptor
Negligible (0)	Very insignificant impacts. Unlikely to be even measurable at the scale of the stock/ecosystem/community against natural background variability.
Minor (1)	Possibly detectable but minimal impact on structure/function or dynamics.
Moderate (2)	Maximum appropriate/acceptable level of impact (e.g. full exploitation rate for a target species).
Severe (3)	This level will result in wider and longer-term impacts now occurring (e.g. recruitment overfishing).
Major (4)	Very serious impacts now occurring with relatively long-time frame likely to be needed to restore to an acceptable level.
Catastrophic (5)	Widespread and permanent/irreversible damage or loss will occur – unlikely to ever be fixed (e.g. extinctions).

Risk Ranking Table

Risk Rankings	Risk Values	Likely Management Responses
Negligible	0	Nil
Low	1-6	None specific
Moderate	7-12	Specific management needed
High	13-18	Possible increases to management activities needed
Extreme	>19	Likely additional management activities needed

Summary of Extreme and High Risks

	Threat
Extreme risk (score > 19)	<p><u>External factors affecting the fishery</u></p> <ul style="list-style-type: none"> • Climate change and weather extremes affect long-term sustainability of fish stocks. • A combination of sediment and nutrients from urban and agricultural run-off, dredging, and small boat activity reduce water quality, cause a decline in seagrass.
High risk (score 13 – 18)	<p><u>Target Species</u></p> <ul style="list-style-type: none"> • Commercial harvest of rock flathead from the Corner Inlet fishery leads to recruitment overfishing. • Cumulative harvest (commercial and recreational) of southern blue-spotted flathead and sand flathead from the Corner Inlet fishery leads to recruitment overfishing. <p><u>Secondary and by-product Species</u></p> <ul style="list-style-type: none"> • Cumulative harvest (commercial and recreational) of snapper from the Corner Inlet fishery leads to recruitment overfishing (eastern snapper stock). <p><u>Recreational fishing monitoring</u></p> <ul style="list-style-type: none"> • There is a lack of reliable monitoring data on the recreational fishery currently available. <p><u>Discard mortality of retained species</u></p> <ul style="list-style-type: none"> • Discarding of retained species in C.I during mesh netting operations leads to significant unaccounted fishing mortality <p><u>Capture of non-retained species</u></p> <ul style="list-style-type: none"> • A lack of monitoring of commercial bycatch, including dead discards, results in unforeseen and unacceptable decline of non-retained species in the Inlet. <p><u>Well-being of commercial fishing industry</u></p> <ul style="list-style-type: none"> • Changes in commercial fishing technique by some operators, which focus on maximising total catch, results in catch inequities and disproportionate share of the income from the fishery. • Severe work-related injuries or death of commercial operators occur. <p><u>Wider community well-being</u></p> <ul style="list-style-type: none"> • Some commercial fishing practices do not align with general community expectations for sustainable and responsible fishing practices resulting in lack of community support for bay and inlet fisheries and the fishing industry in general. • There is community concern for commercial net fishing in bays and inlets, in general, impacting social licence of the fishery

Governance - VFA

- Management arrangements do not support efficient, effective and responsive management resulting in suboptimal fishery outcomes.
- Available research/ collected scientific information is not sufficient to support efficient, effective and responsive management resulting in suboptimal fishery outcomes.

Governance (other) - commercial sector

- Some Corner Inlet access licence holders do not support the management arrangements for the fishery leading to a change in practices to work around existing regulations.

External factors potentially affecting the fishery – Land and waterway management

- Land and water management arrangements do not mitigate risk of detrimental impacts to water quality in fishing areas and losses of seagrass.

External factors potentially affecting the fishery – marine pests

- Known pests including green shore crab, Pacific oyster, New Zealand screw shell and broccoli weed cause an unacceptable impact on the fishery's ecosystem by competing for food and/or space.
- Wakame (*Undaria pinnatifida*) at Port Welshpool spreads to surrounding areas via the hulls of vessels.
- Northern Pacific seastar (*Asterias amurensis*) establishes in Corner Inlet and causes an unacceptable impact by preying on native species, including oysters, mussels and scallops.
- European fan worms form dense colonies in Corner Inlet and consume vast amounts of food to the detriment of native species.
- Sea urchin populations increase significantly causing an unacceptable reduction in seagrass coverage.

COMPONENT 1: RETAINED SPECIES

Notes:

1. A rating of 3 in accordance with the Consequence Ranking Table considers that recruitment overfishing will cause a 'severe' ecological outcome and will affect recruitment levels of stocks/or their capacity to increase. This rating of 3 has been given for all primary and secondary species of fish wherever that species is not currently classified as 'threatened' under Victoria's legal framework. This is because local extinctions are not likely (as per the risk rating of 4 - major) but 'recruitment overfishing' would see the exploitation rate above what is considered the maximum appropriate/acceptable level (as per the risk rating of 2 – moderate). There are no primary target or secondary fish species allowed to be taken from Corner Inlet that are listed as threatened under the FFG Act.
2. Any discard issues for retained species are dealt with in Component 1 as well.

Table 1. Primary target species (retained)

Sub-components (level 2)	Risk	Current mitigation (most relevant controls)	Likelihood	Consequence	Risk	Supporting information / comment
Rock flathead (predominantly commercial)						

	<p>Commercial harvest of rock flathead in C.I leads to recruitment overfishing.</p>	<ul style="list-style-type: none"> • Licensing • Gear restrictions (max. mesh net length) • Effort restrictions (e.g. one gear in the water at any one time, weekend closure) • Corner Inlet marine reserve • LML of 27cm • C&E reporting, inspections and traceability requirements • Stock reviews • VMS • Recreational bag limit of 20 (all flathead combined, except dusky) 	<p>5</p>	<p>3</p>	<p>15</p>	<p><u>Background</u></p> <p>A Deakin study using a multi-disciplinary approach to delineate stock structure of rock flathead (<i>Platycephalus laevigatus</i>) in south-eastern Australia, with a primary focus on Corner Inlet which was presented to industry. Acoustic telemetry revealed limited home ranges and localised movement of tagged rock flathead within Corner Inlet itself, with no indications of animals leaving the region. This suggests that movement is likely to be limited within the inlet. Population genetics and otolith microchemistry analyses from samples obtained across Victoria and Tasmania were both in agreement, finding that rock flathead exists as at least two distinct fishing stocks (i.e., Victorian stock and Tasmanian stock). Based on their findings, they recommended that the Corner Inlet fishery be managed as a single, isolated stock. Current management strategies were deemed appropriate, while future studies should consider further investigation into the larval biology of the species and possibility of adult sub-populations residing within the inlet.</p> <p>Rock flathead are highly fecund and with rapid rates of growth. 50 per cent of rock flathead reach size of maturity at 23cm at 2 years of age. A minimum size limit of 27cm currently applies to all fishers for this species. Female rock flathead can live for 21 years and grow to at least 50 cm total length (TL). Male rock flathead only live for 16 years but also grow to 50 cm TL, hence have a faster growth rate.</p> <p>Rock flathead primarily supports the commercial mesh-net and haul seine fishery in Corner Inlet. Recreational fisher surveys over the last few years (2018-2020 have shown that anglers rarely target rock flathead, and the catch is considered to be very low for this species (they generally more vulnerable to lures than fresh bait).</p> <p>The rock flathead stock was not assessed in recent Status of Australian Fish Stocks (SAFS) reporting (up to the most recent publicly available in 2023). The Corner Inlet component of the Victorian rock flathead population was classified as sustainable in 2017 (VFA fish stock review 2017), however the most recent assessment (VFA fish stock review 2022) has noted that there has been a major increase in mesh net effort over the previous two years accompanied by an increase trend in CPUE. There has been an increase in catch of fish below 30cm which suggests there may have been a period of high recruitment which would further benefit the stock. While the length-frequency composition has been stable with a consistent presence of large fish in the catches, the combination increasing effort and increasing catch of rock flathead in Corner Inlet-Nooramunga may result in further stock decline.</p> <p><u>Justification</u></p> <p>The likelihood rating of 5 takes into account the recent stock status assessment (VFA 2022) and current management arrangements in place (see 'current mitigation' column), including the two recent Fisheries Notices (June 2020 and March 2021), and considers that recruitment overfishing 'may occur'. There is not currently a cap or strong control on meshing effort (such as maximum soak times) or output controls such as quota, and rock flathead may well be a resident stock in Corner Inlet making it more vulnerable to recruitment overfishing. The minimum size limit does provide some protection against recruitment overfishing, however there are still risks associated with discard mortality and natural fluctuations in the population and environmental conditions. Additionally, in low King George Whiting years, past experience has demonstrated that operators switch from seine netting to mesh netting increasing the take of rock flathead and risk of recruitment overfishing in these periods. It is acknowledged that the Fisheries Notice implemented in June 2020 may lead to a reduction in long soak times, however there is still limited data to fully understand this</p> <p>An absence of information about trends in abundance of juvenile rock flathead restricts the VFA's ability to respond to forecasts of trends in future stock status (unlike KGW which has collection of information on juveniles for the stock undertaken in Port Philip Bay).</p>
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<p>King George whiting (commercial and recreational)</p>	<p>Cumulative harvest of KGW in C.I leads to recruitment overfishing.</p>	<ul style="list-style-type: none"> • Licensing • Gear restrictions (max net length) • Effort restrictions (e.g. max. 2 seine net shots per day, weekend closure) • LML of 27cm • C&E reporting, inspections and traceability requirements • Annual fishery independent pre-recruit surveys in PPB • Length samples from contracted CI fishers • Regular stock reviews • VMS • r.130 - Offence to possess in or on Victorian waters in a form other than whole or as a carcass • Recreational bag limit of 20 	<p>2</p>	<p>3</p>	<p>6</p>	<p><u>Background</u></p> <p>The Victorian King George whiting population is considered to comprise a State-wide stock that extends into eastern South Australia. This stock has been classified as sustainable (SAFS 2023 and 2022 VFA stock status review). The main fisheries are located in Port Phillip Bay, Western Port and Corner Inlet, with both commercial and recreational targeting in Corner Inlet.</p> <p>In Victorian bays and inlets most King George whiting are harvested as immature fish from about 2 to < 4 years of age. Juvenile whiting migrate out of bays and inlets at 3–5 years of age to complete their adult lives in coastal waters where they can live to approximately 20 years old and reach lengths of at least 60 cm. It is thought that the majority of King George whiting that recruit into Victorian bay and inlet fisheries originate from spawning events in coastal waters off far western Victorian and south-east South Australia. King George whiting are highly fecund and have a moderate to high growth rate, reaching the legal minimum length (LML) of 27 cm in approximately 2 years. Offshore spawning and a long-larval dispersal phase prior to settlement in bay and inlet nursery areas mean that settlement rates of larvae are highly variable from year to year depending on ocean currents. This variability coupled with a short residence time for juveniles within bay and inlet nursery areas (i.e. two-three years when most fish are available for harvest) means that fisheries production and catch rates are naturally highly variable. While the quantity of recreational catch is unknown, a small-scale recreational catch rates monitoring program commenced in Corner Inlet in 2017/18 with more reliable results expected to be available after around 5 years of operation.</p> <p>Neither the commercial fishery CPUE or pre-recruit time series show persistently declining trends. This provides reassurance that the poorly known and lightly fished adult stock in coastal waters is continuing to be replenished at rates that are sufficient to prevent declines in recruitment potential/egg production. Recent strong post-larval recruitment is expected to drive a rapid increase in CPUE over the next few years so the stock should remain sustainable.</p> <p><u>Justification</u></p> <p>It is unknown to what extent fishing pressure in Corner Inlet can impact the replenishing adult population meaning this likelihood rating could be considered somewhat subjective. The given rating of 2 considers that the likelihood of fishing pressure (in Corner Inlet alone) leading to recruitment overfishing of the KGW stock would be rare and may only possibly occur in exceptional circumstances. This rating was considered appropriate after considering what is known about its the life history characteristics, the current stock status of KGW being 'sustainable', and the effectiveness of management arrangements currently in place to limit fishing effort. The likelihood could be considered to be even lower (a score of 1 'remote') given fishing effort in the Inlet has never been known to cause recruitment overfishing of the stock over the long history of the Corner Inlet fishery, however, a more precautionary approach was justified on the lack of information. Collection of pre-recruit survey data in Port Philip Bay does help forecast stock status and could help inform risk, however there is no management control such as quota in place to easily and effectively manage a low recruitment period.</p>

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<p>Southern sea garfish (predominantly commercial)</p>	<p>Cumulative harvest of garfish in C.I leads to recruitment overfishing.</p>	<ul style="list-style-type: none"> • Licensing • Gear restrictions (max net length) • Effort restrictions (e.g. max. 2 seine net shots per day, weekend closure) • C&E reporting and inspections • Regular stock reviews • VMS • Recreational - bag limit of 40 • Note: no commercial or recreational size limits 	<p>3</p>	<p>3</p>	<p>9</p>	<p><u>Background</u></p> <p>The Victorian southern sea garfish population is considered to comprise a single stock that is genetically similar to southern sea garfish in the South Australian gulfs but is distinct from the Tasmanian stock. The Victorian stock for southern sea garfish in Victoria is assessed as sustainable (SAFS 2023, VFA stock review 2022). Abundance of this stock is subject to rapid fluctuations as a result of inter-annual recruitment variability. Current information indicates it is unlikely to be depleted and the current level of fishing mortality is unlikely to cause the stock to become recruitment impaired.</p> <p>There has been decreasing fishing effort with gears for which southern garfish are susceptible to capture that is unrelated to southern garfish abundance, and a relatively stable temporal CPUE trend suggests that the southern garfish is performing adequately. CPUE trend is stable and the last two years of CPUE are above the reference period average in the main fishery of Corner Inlet-Nooramunga. It is predominantly caught by seine net by commercial fishers in Corner Inlet-Nooramunga. The majority of recreational catch of Southern Garfish is expected to come from Port Phillip Bay where it is an important recreational species (particularly for recreational anglers fishing from piers).</p> <p>Southern sea garfish can live to 12 years and grow to 46 cm TL. Size at maturity (50 per cent) is reached at approximately 19 months of age and 21 cm TL. There is no minimum size limit in Victoria. Garfish have a low fecundity and a medium growth rate. The main spawning period is October to March. Bays and inlets are the main spawning areas.</p> <p><u>Justification</u></p> <p>The likelihood rating of 3 considers the life history characteristics of garfish (particularly given maturity is reached at a young age), its stock status and the current management arrangements in place - including the 2 max seine shot rule in the Fisheries Notice, which helps protect against, to an extent, overfishing from the gear type taking the predominant catch. A rating of 'unlikely' is appropriate for recruitment overfishing because it still has been known to occur elsewhere (in line with this category definition). For example, SAFS 2018 found that the biomass of South Australia's Northern Gulf St Vincent southern garfish stock is likely to be depleted and that recruitment is likely to be impaired. With current management tools and ongoing monitoring, the Corner Inlet fishery's impact on the stock should remain sustainable.</p>
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<p>Southern calamari (commercial and recreational)</p>	<p>Cumulative harvest of calamari in C.I leads to recruitment overfishing.</p>	<ul style="list-style-type: none"> • Licensing • Gear restrictions (e.g. max net length) • Effort restrictions (e.g. max. 2 seine net shots per day, weekend closure) • C&E reporting and inspections • Regular stock reviews • VMS • Recreational - bag limit of 10 • Note: no commercial or recreational size limits 	<p>2</p>	<p>3</p>	<p>6</p>	<p><u>Background</u></p> <p>The Victorian southern calamari population supports commercial fisheries in Corner Inlet. Commercial catches of calamari are almost entirely taken by seine net. There are also recreational fisheries in Port Phillip Bay, Corner Inlet, Western Port and coastal waters.</p> <p>The population of southern calamari in Victorian waters is genetically similar and considered a single stock with phenotypic variation. The southern calamari stock is classified as sustainable (SAFS 2023, VFA Stock Review 2022). Current information indicates that the biomass is unlikely to be depleted. There is no evidence to suggest recruitment impairment and in the context of their biology and the relatively low level of fishing pressure, the stock is expected to remain sustainable into the future. CPUE of commercial seine fishing has remained above the reference period average for the last 6-7 years in Corner Inlet-Nooramunga. This means that more calamari have been taken in recent years than has occurred in the past, however, this is not expected to be a concern for this species due to the factors detailed above.</p> <p>Southern calamari live for less than 1 year and grow to 55 cm mantle length (ML). Maturity (50 per cent) is reached at 3 to 6 months /15-20 cm ML (LML=27cm TL). Calamari are moderately fecund and are fast growers. The main spawning period is spring/summer in inshore coastal regions with eggs laid in seagrass and reef algal habitats. Given southern calamari only live for a maximum of one year, the available stock within any given year is reflective of annual spawning success and interannual changes in catch rate likely reflect this aspect of their population biology. There is no minimum size limit in Victoria.</p> <p><u>Justification</u></p> <p>The likelihood rating of 2 considers the life history of calamari (particularly given maturity is reached at a very young age), its stock status, and the current management arrangements in place including the 2 max seine shot rule in the Fisheries Notice which helps protect against, to an extent, overfishing from this gear type. A rating of 'rare' is considered appropriate for recruitment overfishing of this species as it is considered more than unlikely, and it is not known if this has occurred elsewhere with such controls. With current management tools and ongoing monitoring, the Corner Inlet fishery's impact on the stock should remain sustainable.</p>
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<p>Southern blue-spotted flathead & Sand flathead (commercial and recreational)</p>	<p>Cumulative harvest in C.I leads to recruitment overfishing.</p>	<ul style="list-style-type: none"> • Licensing • Gear restrictions (e.g. max net length) • Effort restrictions (e.g. 1 type of gear in water at time, weekend closure) • C&E reporting, inspections and traceability requirements • Stock reviews • VMS • LML of 27cm. • Bag limit is 20 (all flathead combined, except dusky) 	<p>5</p>	<p>3</p>	<p>15</p>	<p><u>Background - Southern bluespotted flathead (<i>Platycephalus speculator</i>)</u> The stock structure of southern bluespotted flathead in Victorian waters is unknown. In the absence of work being done to understand information gaps, the VFA's approach is to assess flathead stocks in bays and estuaries as discrete stocks.</p> <p>In 2023 the commercial harvest of southern bluespotted flathead was all taken from Corner Inlet-Nooramunga. Commercial harvests from Port Phillip Bay have been negligible since 2016, when the removal of netting was instigated.</p> <p>There are also recreational fisheries for this species in Port Phillip Bay, Western Port and Corner Inlet. Flathead is one of the key recreational species taken in Corner Inlet. Surveys of anglers fishing Corner Inlet-Nooramunga show southern bluespotted along with sand flathead are the most commonly targeted and retained species (Conron and Coutin 1995). More recent surveys of fishers returning to boat ramps suggest that these flathead species have remained the most commonly targeted and caught species (VFA unpub. data).</p> <p>In Western Australian waters this species can live to at least 12 years and grow to 90 cm TL. Southern bluespotted flathead mature (50 per cent) at 1–2 years (males 25 cm, females 32 cm), are highly fecund and have a moderate growth rate.</p> <p>The reported commercial catches of southern bluespotted flathead from Corner Inlet-Nooramunga over the last two years has increased from levels seen in 2020/2021. Catch Per Unit of Effort (CPUE) for mesh net and seine net in Corner Inlet-Nooramunga have displayed similar patterns of variation since 2000, and both have increased since 2013. Seine netting and mesh netting is above the reference period average in 2023/24. This may be of a concern to this species, particularly if its distribution is determined to be localised only, as such future harvesting of this species needs to be monitored closely.</p> <p>There are a number of uncertainties around the harvest and CPUE time series among the different flathead species in Corner Inlet. In particular, the accuracy of species and effort reporting. Uncertainty in catch history for southern bluespotted flathead makes it difficult to assess the risk associated with the recent historically high harvests, and primarily for this reason, there is uncertainty about stock status of southern bluespotted flathead in Corner Inlet-Nooramunga.</p> <p><u>Background – Sand flathead</u> Sand flathead are distributed along the entire Victorian coast in coastal waters and in all bays and inlets. The most important fishery for this species is in Port Phillip Bay, with smaller fisheries in Western Port, Corner Inlet, and coastal waters. It is considered that most of the Victorian sand flathead catch is taken by recreational anglers with only minor commercial harvesting.</p> <p>Studies have shown that sand flathead populations in Port Phillip Bay, Western Port and Coastal waters are separate stocks (Victoria Fisheries 2016). Although these studies did not include Corner Inlet sand flathead populations, based on the results of this work, it is likely that the Corner-inlet-Nooramunga sand flathead population is a separate stock. Sand flathead in Port Phillip Bay can live to at least 23 years and grow to a size of 40 cm TL, although fish over 35 cm are relatively uncommon. Length at 50% maturity is reached at two to five years of age at a TL between 22 to 25 cm. Sand flathead growth rate and maximum sizes are lower for Port Phillip Bay than for coastal populations.</p> <p><u>Rating justification - both species</u> The likelihood rating of 5 applies to both species and is based on life history characteristics, low level of information on stock structure and status, and current management arrangements in place and considers that recruitment overfishing may occur. It is attributed to the fact that there is not currently a strong control on commercial effort (such as maximum soak times) or output controls such as quota, and the low level of information on recreational catch. In low KGW whiting years commercial operators are likely to switch from seine to mesh netting, increasing the risk of recruitment overfishing for flathead in this period.</p>
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Table 1.2 Secondary and byproduct species (retained)

Note: here the secondary and by-product species are considered as those species that are caught in relatively small quantities by the fishery and are still marketed.

Sub-components (level 2)	Risk	Current mitigation (most relevant controls)	Likelihood	Consequence	Risk	Supporting information / comment
Blood cockle (recreational)	Recreational harvest (e.g. at McLoughlins beach) causes localised depletion	<ul style="list-style-type: none"> Daily catch limit of 5L of molluscs r.125 – offence to use certain equipment in the intertidal zone (hand and feet only - no digging tools or rakes allowed) 	5	2.5	12.5	<p><i>Anadara trapezia</i> (known as blood cockle) is the primary species that is taken around McLoughlins beach, but there are other species taken from this low energy, mud and seagrass environment. Fishing for these is localised to a small area. In terms of Corner Inlet as a whole, the blood cockle population is considered sustainable as there are many areas where cockles can be found (based on substrate alone). The fishing effort in this small area is restricted to the summer months and there is currently a daily catch limit of 5L in place. However there is a 2L bag limit in place for McLoughlins beach and Venus bay which should reduce fishing pressure.</p> <p>Fisheries Officers patrol the McLoughlins Beach area periodically and generally report a high compliance rate with the catch limit amongst harvesters. However, it was noted that recent months have seen some of the most popular days to date and on occasion there are fishers without a rec fishing licence or have taken more than the bag limit.</p>
Gummy shark (recreational and commercial)	Cumulative harvest of gummy shark in C.I leads to recruitment overfishing.	<ul style="list-style-type: none"> Licensing Gear restrictions (max net length) Effort restrictions (e.g. 1 type of gear in water at time, weekend closure) C&E reporting, inspections and traceability requirements Regular stock reviews VMS r.130 - Offence to possess in or on waters in form other than whole or in the form of carcass Rec and commercial minimum size limit is 45cm. Recreational bag limit is 2 (inclusive of gummy and school shark) 	3	3	9	<p><u>Background</u></p> <p>The VFA 2022 stock status review concluded that the Victorian gummy shark population is sustainable. Gummy shark populations in Victorian waters are a component of a single biological stock for south-eastern Australia which has been classified as sustainable (SAFS 2023). The Commonwealth Southern and Eastern Scalefish and Shark Fishery harvests by far the largest component of the gummy shark catch and is managed by the Commonwealth of Australia using a harvest strategy that includes age structured and pup production outputs to inform quota setting decisions.</p> <p>Gummy shark can live to 16 years and grow to over 180 cm TL (25 kg total body mass). Maturity (50 per cent) for females is at 110–125 cm TL and for males is at 95–115 cm TL. Gummy shark have low fecundity (an average of 14 pups per breeding cycle) and an 11 to 12 month gestation period. The growth rate of male gummy shark is higher than for females. The peak parturition (birthing) period is November to December, with shallow coastal waters, including sheltered bays, the preferred pupping habitat.</p> <p><u>Justification</u></p> <p>In Victoria, it is understood that the majority of Gummy Shark is taken within the Corner Inlet Fishery using mesh net, and the Port Phillip and Western Port Bay Fishery using hook and line only. However, considering the Victorian component accounts for less than one per cent of the Commonwealth catch, the level of fishing mortality in Victoria is unlikely to significantly influence the stock biomass. The Corner Inlet fishery is a small part of the bigger SE fishery that is sustainably managed by AFMA (with a TACC of 1775 tonne in 2020-21). Therefore, the likelihood rating of 3 is considered appropriate.</p>

		<ul style="list-style-type: none"> Note: no catch limit for commercial in C.I (as opposed to licence classes fishing offshore) 				
<p>Snapper (recreational and commercial)</p>	<p>Cumulative harvest of snapper in C.I leads to recruitment overfishing.</p>	<ul style="list-style-type: none"> Minimum size limit 28cm. Recreational bag limit - 10 (of which no more than 3 fish may be equal to or exceed 40cm in length) 	5	3	15	<p>The spawning aggregations that occur along inshore reefs between Corner Inlet-Nooramunga and Lakes Entrance are thought to be important for replenishing the eastern Victorian stock. The main spawning period is from November to January. There is limited information to inform assessment of the eastern stock, despite its perceived growth as a recreational fishery over the last decade. Commercial catch in the eastern zone is mostly taken by Commonwealth operators. Recent recognition of the eastern Victorian stock as a stand-alone stock for SAFS reporting and a lack of information to make any confident judgement of status, along with reports of increased fishing pressure on spawning aggregations by local stakeholders, imply that the current status of eastern Victorian snapper stock is uncertain (VFA stock review 2022). SAFS (2023) classified the eastern Vic stock as undefined. Given the uncertainty and possible importance for replenishing the eastern stock, a likelihood rating of 5 could be considered appropriate in the context of existing management controls.</p>
<p>Other byproduct species (Australian salmon, silver trevally, Yellow-eye mullet, flounder, snook, and others)</p>	<p>Cumulative harvest in C.I leads to recruitment overfishing.</p>	<p>Australian salmon</p> <ul style="list-style-type: none"> Min size limit 21cm Recreational bag limit – 20 <p>Silver trevally</p> <ul style="list-style-type: none"> Min size limit 20cm Recreational bag limit - 20 <p>Yellow eye mullet</p> <ul style="list-style-type: none"> No size limit Recreational bag limit - 40 (all mullet species) <p>Flounder</p> <ul style="list-style-type: none"> Min size limit 23cm Recreational bag limit - 20 <p>Snook</p> <ul style="list-style-type: none"> Min size limit 36cm for commercial Min size limit 30cm for recreational, Recreational bag limit of 10 Commercial Licence holders can take up to 8 wrasse in an one day. 	3	3	9	<p>The VFA's 2023 stock status review concluded:</p> <ul style="list-style-type: none"> - The Eastern Victorian Australian salmon stock is considered to be sustainable (also classified as sustainable in SAFS 2023). The Victorian component of the Australian salmon stocks primarily supports the commercial purse seine ocean fishery, mostly off eastern Victoria, with small catches also taken from Corner Inlet. - The Victorian silver trevally stock is considered undefined. Given the high catch rates in Victorian waters in recent years and low levels of effort, it is unlikely that the Victorian silver trevally stock is depleted or is at risk of becoming recruitment impaired and becoming depleted. While there may be some indications that the broader stock might be depleted, it is unlikely that Victorian fishing is a major contributor given the low catch. - Yellow-eye mullet in Corner Inlet and state-wide appears to be 'recovering', however this species is part of a broader eastern Australian stock which was found to be sustainable in other jurisdictions in recent SAFS report (WA, SA and TAS). In the Corner Inlet commercial fishery, the majority of Yelloweye Mullet are caught using haul seine nets with the remainder taken using mesh nets. While the biomass of this stock is likely to have been depleted and recruitment was impaired, the evidence indicates that the current level of fishing mortality should allow the stock to recover from its recruitment impaired state (SAFS 2023). - Snook - the stock status of snook in Corner Inlet, and more generally throughout the State appears to be sustainable and is classified as such in the most recent SAFS report (SAFS 2023). - Flounder (including green back) - the stock status of flounder (all species in Corner Inlet) has been assessed as sustainable as CPUE is 1.5 times the long-term average indicating there is no recruitment impairment or biomass depletion. - School shark – was classed as depleted in SAFS 2023. However, Victoria's contribution to this status is considered to be very low and minor in comparison to the fished biomass. School shark are managed under AFMA's School Shark Rebuilding Strategy. <p>Leatherjacket and southern eagle rays have not been assessed in the recent SAFS or the VFA stock status review.</p> <p>A likelihood rating of 3 is generally considered appropriate for 'other byproduct species' because they are either classed as sustainable or take in Victoria contributes a relatively minor proportion to the overall stock.</p>

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						<p>While it could be argued a rating of 4 is appropriate for some of these species, none of the species specified are listed as threatened under Victorian legislation and align best with the risk rating of unlikely.</p> <p>Other commercially important species landed in low numbers in the fishery include crabs, black bream, pikes, skates, rays, dusky flathead, tiger flathead and tailor.</p>
	Poor fish identification and inconsistent recording of minor byproduct species results in inaccurate reporting and unforeseen impacts to species.	The current logbook includes lines for 12 specified species, with extra columns for other types of fish.	4	3	12	<p>It is possible that some species are often not correctly identified and/or misreported (e.g different types of flathead may be included together).</p> <p>The Commonwealth's recent assessment, as part of its EPBC export approval for this fishery, stated: there is a lack of information on the status and structure for some byproduct species stocks, and the impact on byproduct species stocks is unclear. The fishing methods do not allow effective selection of target versus byproduct species, and in general, there is no limit on the amount of byproduct that can be landed (although a maximum of eight wrasse can be taken in any one day).</p>

Table 1.3 General risks for all retained species

Sub-components (level 2)	Risk	Current mitigation (most relevant controls)	Likelihood	Consequence	Risk	Supporting information / comment
Cultural / traditional owner fishing	Traditional owner harvest of retained species is unknown and leads to recruitment overfishing.	There is an exemption for any person who identifies as an Aboriginal or Torres Strait Islander person to obtain a recreational fishing licence. However, unless other arrangements exist through a natural resource agreement, the fisheries regulations in relation to fishing gear and catch still apply.	1	3	3	One of the conditions of the Commonwealth's export assessment is to undertake a survey (as part of the proposed management plan) to improve the collection of up-to-date information on indigenous take in the fishery. This has been completed however the data is yet to be analysed and published.

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<p>Recreational fishing monitoring</p>	<p>There is a lack of reliable monitoring data available on the recreational fishery.</p>	<ul style="list-style-type: none"> • Creel surveys • GoFishVic app/angler diary survey • Incoming boat ramp cameras 	<p>5</p>	<p>3</p>	<p>15</p>	<p>There are no recent estimates of total annual recreational catch from Corner Inlet. The most commonly caught recreational species are likely southern calamari, sand flathead, yank (blue-spotted) flathead, Australian salmon, gummy shark, snapper, silver trevally and King George whiting. Fishing effort in the recreational sector is thought to be increasing and is likely to grow further as a result of the Victorian Government's 'Target one million' initiative. A survey is anticipated to improve accuracy of catch estimates. Recreational fishers are encouraged to register for the Angler Diary Program, which allows them to voluntarily record fishing duration, number and size of fish caught. Boat ramp cameras have been in place for some time, including Port Welshpool and Port Albert at Corner Inlet which the VFA has contributed funding towards. These ramp cameras along with others around the state have been contributing to a broader FRDC study which aims to use the activity data to assess fishing effort in Victoria. The study is expected to be published early 2025.</p>
<p>Discard mortality</p>	<p>Discarding of retained species in C.I during seine netting operations leads to significant unaccounted fishing mortality</p>	<ul style="list-style-type: none"> • Towing both ends of the net simultaneously prohibited 	<p>4</p>	<p>3</p>	<p>12</p>	<p>Previous research of seine netting in bay and inlets (Knuckey et al., 2002) indicates a relatively high survivability of fish when released (close to 90 per cent for most species).</p> <p>There have been occasional reports by Fisheries Officers of dead undersize fish such as KGW in the water near seine netting operations, which have been attributed to being meshed and killed in 1-3/4" mesh in the wings of seine nets. There was an action in the management plan that was developed in 1995 which proposed to ban the use of seine nets with mesh sizes between 1 1/4" and 1 7/8" (not inclusive), however that Plan was actually never declared, and the measure was not implemented.</p>
	<p>Discarding of retained species in C.I during mesh netting operations leads to significant unaccounted fishing mortality</p>	<ul style="list-style-type: none"> • Maximum mesh length • Only one type of gear permitted in the water at a time (July 2024 Fisheries Notice) 	<p>5</p>	<p>3</p>	<p>15</p>	<p>Mesh net effort in 2017 and 2023 was at its highest levels over the 20 year period leading up to the start of 2024, and this has been driven by much longer soak times (often greater than 12 hours). In addition to the increased risk of overfishing the stock, this practice can result in the catch being subject to predation by other species such as crabs and occasionally expose the catch to air on low tides from which product may be discarded and never make it to market.</p> <p>It is noted that the Fisheries Notice (implemented from June 2020) is expected to reduce soak times for some operators given fishers who choose to seine net cannot leave mesh nets in the water during this time. This may reduce the amount of rock flathead that could have been discarded. While this Notice has been in force for some time, The quantification has not been done and so it is hard to say if effort has reduced.</p> <p>There is no published research on mesh netting and its impacts for discarded target species (e.g. quantity, survivability) in Corner Inlet. However, based on the information above, and in consideration of there being no restrictions on soak times, it is considered that significant unaccounted fishing mortality may occur (i.e justifying a likelihood rating of 5). A consequence rating of 3 is appropriate as the impact could be severe whereby the recruitment to the exploitable stock becomes significantly reduced.</p> <p>A VFA funded Bycatch study is expected to be completed mid 2025 which aims to address the knowledge gap surrounding mesh net mortality.</p>

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	Discarding of retained species in C.I from hook and line fishing leads to significant unaccounted fishing mortality	<ul style="list-style-type: none"> Limit of 400 hooks on commercial long-line (or combination of long-lines) 	4	3	12	Hook and line fishing in Corner Inlet is predominantly recreational, but some commercial long-lining occasionally occurs.
Illegal take for sale	Illegal take for sale leads to recruitment overfishing	<ul style="list-style-type: none"> Licensing Catch and effort reporting Fish traceability requirements Compliance inspections Vessel Monitoring Systems 	4	3	12	This has been given a rating of 4 because illegal take for sale, at a scale that reduces the population below target levels, could possibly occur. Some illegal take for sale has occasionally occurred in this fishery in the past. Ongoing inspections by Fisheries Officers for both recreational and commercial fishers, the recent introduction of VMS on commercial boats and strengthened seafood traceability laws do help ensure this is not likely (i.e. a rating of 6 is not justified).

COMPONENT 2: NON-RETAINED SPECIES

Table 2.1 Captured non-retained species

Sub-components (level 2)	Risk	Current mitigation (most relevant controls)	Likelihood	Consequence	Risk	Supporting information / comment
<p>Threatened, endangered, protected (TEP) species captures</p>	<p>Commercial captures of TEP species cause an unacceptable level of mortality or injury (e.g. seahorse, seadragon, pipefish, cormorants, great white shark, grey nurse shark, Australian fur seal).</p>	<ul style="list-style-type: none"> Regulation 61 requires fishers to immediately return any fish that is not to be retained to the water with the least possible injury or damage and immediately return any animal that is incidentally taken to its natural habitat, with the least possible injury or damage. There are TEP interaction reporting requirements enacted by GIC orders. Offences provisions exist under the Flora and Fauna Guarantee Act 1988, Wildlife Act 1975 and Fisheries Act 1995 (protected aquatic biota) where interactions are not reported. Operators are provided with the Protected Species Identification Guide for Victoria's Commercial Fishers Guide to assist them in reporting interactions. Export approval under the Commonwealth's Environment Protection and Biodiversity Conservation Act 1999 is contingent on interaction reporting. 	<p>3</p>	<p>3</p>	<p>9</p>	<p>In Victoria, all native mammals, birds, reptiles and amphibians, fish listed under the FFG Act and syngnathids (sea horses, sea dragons etc) are TEP species.</p> <p>The Victorian Department of Environment, Energy and Climate Action (DEECA) provides an amnesty from prosecution under the Wildlife Act 1975 and the Flora and Fauna Guarantee Act 1988 to Victorian commercial fishers who accidentally interact with protected wildlife while lawfully operating under their fishing licence, providing they report the interaction in the approved way. The amnesty is subject to the following conditions:</p> <ul style="list-style-type: none"> the fishing activities are being undertaken in accordance with the licence conditions; the interaction was unintentional; immediate steps were taken to return the protected species to its natural environment as quickly as possible and with minimum injury; and the licence holder reported the interaction in the approved manner and within the time specified. <p>Commercial TEP species reporting for CI licence holders indicates low level capture of seahorses which are typically released alive. Capture of pipefish is more common but also generally released alive, while a low number of pipefish deaths or injuries occur.</p> <p>For example, between 2015 and 2023, of the 1,548 reported interactions, 1,514 of the animals were returned to the water alive and 34 were dead or injured.</p> <p>Most reported incidences of TEP interactions are from seine netting. However, mesh netting can catch some bird species while they dive for fish.</p>

		<ul style="list-style-type: none"> Offences provisions exist under the Prevention of Cruelty to Animals Act (POCTA) 1986 where interactions involve cruelty. Victorian Bay and Inlet Fisheries Association (VBIFA) Environmental Management System 				
	<p>Recreational captures of TEP species cause an unacceptable level of mortality or injury (e.g. great white shark, grey nurse shark, Australian fur seal).</p>	<ul style="list-style-type: none"> Regulation 136 requires fishers to release unwanted fish back to the water immediately with the least possible injury or damage. Offences associated with TEP species exists under the Flora and Fauna Guarantee Act 1988, Wildlife Act 1975 and Fisheries Act 1995 (protected aquatic biota). Offences provisions exist under the POCTA Act where interactions involve cruelty. 	2	3	6	<p>The level of recreational captures/interactions with TEP species is unknown.</p> <p>Most recreational fishing activity in the Corner Inlet fishery would be hook and line method and it is unlikely there would be many actual captures of protected species. Captures of great white and grey nurse sharks may occasionally occur from this method but would be rare.</p> <p>While illegal, hand collection of protected sygnathids (seahorses, seadragons, pipefish) is possible, however there is no known evidence of this occurring in Corner Inlet.</p>
Other captures	<p>A lack of monitoring of commercial bycatch of fish, including dead discards, results in unforeseen and unacceptable decline of fish bycatch species in the Inlet.</p>	N/A	5	3	15	<p>It is not mandatory for commercial fishers to record the amount and type of bycatch species (other than protected species). A wide range of species are captured in Corner Inlet particularly with methods such as seine netting - this can mean it is burdensome to record the diverse range of bycatch and difficulties may arise in identifying non-commercial species. Of those released from a seine net, it is expected that approximately 90% survive (Knuckey et. al., 2002). There is not currently a good understanding of the quantity and survival rates of bycatch from mesh netting in the Inlet.</p> <p>Small numbers of bycatch species such as porcupine fish, toad fish, cobblers, black stingray, banjo shark, Port Jackson shark, and sandy crab are captured.</p> <p>One condition of the Commonwealth's EPBC export approval is for the VFA to develop a monitoring program, with particular focus on improvements to byproduct and bycatch monitoring which is expected to be completed in 2025</p>
	<p>Commercial and recreational catch and release practices do not effectively prevent mortality or injury to bycatch (e.g. Porcupine Fish, Toad Fish, Cobblers, Black Stingray, Banjo Shark, Port Jackson Shark).</p>	<ul style="list-style-type: none"> Fisheries Regulations 2019 – r.61 and r.136 require fishers to release unwanted fish back to the water immediately with the least possible injury or damage. VBIFA EMS 	3	3	9	<p>Knuckey <i>et al</i> (2002) found that the survival rate of fish released from haul seine nets to about a ninety per cent across all species. There is not currently a good understanding of the survival rates of bycatch from mesh netting in the Inlet.</p> <p>The Victorian Bay and Inlet Fisheries Association (VBIFA) Environmental Management System (VBIFA 2013) documents established practices to improve selectivity and increase the survivability of bycatch species returned to the water. It is understood that many Corner Inlet fishers are members of and comply with this Environmental Management System.</p>

		<ul style="list-style-type: none"> Offences provisions exist under the POCTA Act where interactions involve cruelty. 				No anecdotal evidence suggesting recreational catch and release fish/animal welfare issues more prominent in Corner Inlet than occasional occurrences in other areas of Victoria.
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Table 2.2 Interaction (but not captured) with non-retained species

Sub-components (level 2)	Risk	Current mitigation (most relevant controls)	Likelihood	Consequence	Risk	Supporting information / comment
TEP species interactions (no capture)	Commercial - fisher, fishing gear or vessel interactions cause an unacceptable level of mortality, injury or disturbance to TEP species (e.g. hooked or entangled seabirds, seals, collisions/approaching cetaceans, unacceptable animal welfare incidents).	<ul style="list-style-type: none"> There are TEP interaction reporting requirements enacted by GIC orders. Offences provisions exist under the Flora and Fauna Guarantee Act 1988, Wildlife Act 1975 and Fisheries Act 1995 (protected aquatic biota) where interactions are not reported. Export approval under the Commonwealth's Environment Protection and Biodiversity Conservation Act 1999 is contingent on interaction reporting. Offences provisions exist under the Prevention of Cruelty to Animals Act (POCTA) 1986 where interactions involve cruelty. VBIFA EMS Wildlife (Marine Mammal) Regulations 2019 restrict the distance which vessels can approach cetaceans 	4	3	12	<p>Interactions are an animal welfare concern and/or a potential threat to the long-term conservation status of the TEP species. Interaction management is also important for maintaining the social licence of the fishery.</p> <p>Data indicates non-capture interactions with TEP species are relatively low. Seals may present when fishers bring in nets and have been highlighted as a nuisance, however poor animal welfare outcomes are not common as they do not actually become entangled and swim away unharmed when the fishing operation is complete. For the most part, Seals will jump in and out of the net to eat the fish trapped inside.</p> <p>Seabirds currently make up the majority of negative interactions when they become trapped in mesh nets.</p>

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	<p>Recreational - fisher, gear or vessel results in an unacceptable level of mortality, injury or disturbance to TEP species (e.g. hooked seabirds, seals, collisions/approaching cetaceans, unacceptable animal welfare incidents).</p>	<ul style="list-style-type: none"> • Offence provisions for taking, harming or disturbing wildlife under the Wildlife Act 1975 (inadvertent interactions are not an offence). • Wildlife (Marine Mammal) Regulations 2019 restrict the distance which vessels can approach cetaceans • Offences provisions exist under the Prevention of Cruelty to Animals Act (POCTA) 1986 where interactions involve cruelty. 	2	3	6	<p>The VFA is not aware of any anecdotal evidence to suggest this is a significant problem or more prominent problem than in other Victorian marine waters.</p> <p>Boats must not approach within 100m of a dolphin or 200m of a whale (other than narrow waterways). Jetskis must not approach within 300m of any cetacean. Caution zones also apply within 300 metres of a whale, within 150 metres of a dolphin and within 50 metres of a seal.</p> <p>These restrictions are also enforced by other agencies (Victoria Police, Parks Victoria etc), so a high level of compliance is expected.</p>
Other interactions (no capture)	<p>Commercial fisher, gear or vessel interactions cause an unacceptable level of mortality, injury or disturbance to other fish</p>	<ul style="list-style-type: none"> • Offences provisions exist under the Prevention of Cruelty to Animals Act (POCTA) 1986 where interactions involve cruelty. • VBIFA EMS • 	2	3	6	<p>The VFA is not aware of any anecdotal evidence to suggest this is a significant problem or more prominent than similar commercial fishing activity in other Victorian marine waters.</p>
	<p>Recreational fisher, gear or vessel interactions cause an unacceptable level of mortality, injury or disturbance to other fish (e.g. stingrays cut loose after being hooked).</p>	<ul style="list-style-type: none"> • Offences provisions exist under the Prevention of Cruelty to Animals Act (POCTA) 1986 where interactions involve cruelty. 	4	3	12	<p>The VFA is not aware of any anecdotal evidence to suggest this is a significant problem or more prominent than typical recreational fishing activity in other Victorian marine waters.</p>

COMPONENT 3: IMPACTS OF FISHING ON ECOSYSTEM

Table 3.1 Impact on trophic structure

Sub-components (level 2)	Risk	Current mitigation (most relevant controls)	Likelihood	Consequence	Risk	Supporting information / comment
Removal of/damage to organisms by fishing	Bait collection significantly impacts food source for key species.	N/A	2	3	6	The VFA is not aware of any substantial harvesting of bait in the Inlet, as the focus is typically on higher value species for consumption. Recent restrictions in the bag limit of cockles and pippies in nearby areas (5L bag limit has been reduced to 2L) is expected to control any increase in fishing pressure.
	Commercial or recreational fishing (other than for bait) removes a food source for other species with an unacceptable impact on their population (e.g. other fish species, birds, seals, sharks).	N/A	3	3	9	Under existing management arrangements, this is considered unlikely as there is no evidence that fishing by either sector has caused depleted populations of another species or trophic shifts in Corner Inlet. It is worth noting that commercial fishers take a wide variety of species with methods such as seine netting and that this could possibly minimise risks to trophic structure changes.
	Overharvesting of species that can prey on or compete with sea urchins leads to sea urchin barrens.	N/A	2	4	8	Potential urchin predators include Port Jackson sharks, some species of scalefish such as snapper and leatherjackets, crabs and octopus. There are no controls on take of species such as Port Jackson sharks, snapper, leatherjacket for Corner Inlet commercial licence holders. However, there is no clear evidence that current levels of take of these species contributes to increased sea urchin populations in the Inlet. Commercial fishers cannot take sea urchin under their Corner Inlet licence. Take of octopus likely to be negligible from both sectors (particularly given the fishing gear currently allowed to be used).
	Cumulative physical damage of benthos from commercial and recreational fishing, including from gear interactions and anchoring, cause large-scale seagrass decline resulting in trophic shifts.	<ul style="list-style-type: none"> VBIFA EMS 	4	3	12	The loss of seagrass beds would have long-term impacts on species abundance due to its importance as a key habitat, and as the basis of the trophic food web for species like King George whiting, rock flathead and southern sea garfish. It could be argued the likelihood and consequence rating for this could be higher, however any clear evidence this is actually occurring is not apparent. The VBIFA Environmental Management System (VBIFA 2013) aims to manage some of the impacts of fishing and includes measures to reduce seagrass damage by nets.
Addition and/or movement of biological material	Discarded fish (whole and parts) provides advantageous food source and changes abundance of co-existing fish species and/or increases populations of other animals such as birds and seals.	N/A	3	2	6	No clear evidence demonstrating a change in species populations due to discards.
	Fishing bait used introduces aquatic disease to the Inlet, impacting species populations.	N/A	2	4	8	Bait acquired by some recreational fishers such as frozen overseas product could be a risk. However, there is no clear evidence that these types of baits are commonly used and impacting on any species in the Inlet.
	Inadvertent translocation of organisms by fishing boats (ballast water, biofouling) introduces invasive species damaging local environment and threatening native species.	N/A	3	3	9	The VFA is not aware of any evidence to suggest this is happening or has the potential to occur.

Table 3.2 Direct habitat disturbance

Sub-components (level 2)	Risk	Current mitigation (most relevant controls)	Likelihood	Consequence	Risk	Supporting information / comment
Mesh netting	Commercial mesh net fishing equipment causes an unacceptable level of damage to benthic habitat.	N/A	2	3	6	An unacceptable level of damage could be a significant cumulative decline in seagrass over time (i.e it is destroyed faster than it regenerates). It is considered that mesh netting gear would only cause an unacceptable level of damage on benthic habitat in rare instances, particularly given they are static when set. There is only minimal contact/damage expected to occur from this method of fishing, which would primarily be attributed to the small anchors used to position the nets.
Seine netting	Commercial seine netting fishing equipment causes an unacceptable level of damage to benthic habitat.	N/A	4	3	12	The haul seine netting methods used in Corner Inlet over recent decades are considered a low impact method on the substrate, whereby any dragging of the footline of the net on the substrate is minimal or causes minimal damage. The VBIFA Environmental Management System (VBIFA 2013) aims to manage some of the impacts of fishing and includes measures to reduce seagrass damage by nets and avoidance of anchoring in seagrass meadows. The likelihood rating of 4 has been given here as it is considered possible. In recent times winching of long ropes by a minority of fishers has been observed as a change in practice – this is an example of how seine netting practices can change and could have more damaging implications for seagrass (e.g. increased dragging of nets/rope on benthos). A Fisheries Notice (2024) is in place to address this issue and reduce impact to seagrass. There has also been a previous report of chains attached to footline of a seine net by an operator to increase their catch, which if true could cause significant damage to substrate including seagrass. However, this allegation has not been observed/confirmed by local Fisheries Officers to date.
Boat anchoring	Boating from recreational and commercial fishers in the inlet causes unacceptable disturbance (e.g. wave action) of benthos.	N/A	2	1	2	Boating could increase turbidity. However, the VFA is not aware of any evidence to suggest this is causing an unacceptable level of disturbance at this point in time.
	Anchors used for fishing boats (recreational and commercial) cause an unacceptable level of damage or disturbance to benthos.	N/A	4	3	12	No evidence of recent impact but is considered a threat (Ford <i>et al</i> 2016; case study of seagrass decline at Corner Inlet). Seagrass beds and mudflats are sensitive to propeller scarring and vessel groundings in shallow water (especially at low tide) and anchor damage (VEAC Assessment 2019). For the commercial sector, the VBIFA Environmental Management System (VBIFA 2013) which many licence holders were signatories to, aims to manage some of the impacts of fishing and includes voluntary measures such as avoidance of anchoring in seagrass meadows. The level of impact from recreational boats anchoring is unknown.
Practices associated with shellfish collection	Recreational harvesting practices for collection of shellfish leads to significant decline of seagrass in these areas.	r.125 – offence to use certain equipment in the intertidal zone (hand and feet only - no digging tools or rakes allowed)	5	2.5	12.5	Fisheries Officer observations to date indicate that while it is possible there has been minor decline in seagrass in small parts of the most popular harvesting area (McLoughlins beach), the seagrass still appears to be growing there. It was noted that the harvesting activity is not overly destructive to the substrate as fishers are mostly bare foot when collecting cockles and digging instruments are already prohibited under fisheries regulations. This area is an important multicultural recreational fishery that provides enjoyment to many families.

Table 3.3 Broader environment

Sub-components (level 2)	Risk	Current mitigation (most relevant controls)	Likelihood	Consequence	Risk	Supporting information / comment
Water quality	Fuel/oil discharge from recreational or commercial fishing boats unacceptably pollutes local waterways degrading water quality and affecting survival rates of species present.	N/A	2	3	6	The VFA is not aware of any evidence water quality has been significantly reduced due to fishing boat operations.
	Rubbish or fuel/oil discharge from recreational or commercial fishing boats unacceptably pollutes local waterways causing an unacceptable aesthetic impact.	N/A	3	1	3	The VFA is not aware of any evidence that littering or fuel discharge from fishers is commonplace or impacting the aesthetic values of the Inlet.
Air quality	Emissions from fishing boats degrades aesthetics of the Inlet and/or unacceptably contributes to climate change.	N/A	3	2	6	The VFA is not aware of any evidence of poor local air quality and associated reduction of aesthetic value as a result of fishing boat emissions. There is no known evidence to suggest fishing boats cause an unacceptable contribution to global emissions particularly when compared to similar fisheries and other industries.
Seagrass coverage	Cumulative fishing activity results in unacceptable decline to seagrass coverage.	N/A	3	4	12	<p>This risk considers the cumulative impact of the three risks listed for direct habitat disturbance above (commercial mesh netting, commercial seine netting and anchoring of recreational and commercial boats)</p> <p>Seagrass cover in Corner Inlet has been variable over the last fifty years or more. There have been numerous studies attempting to track fluctuations in seagrass in Corner Inlet, from use of anecdotal evidence to sophisticated satellite tracking software. However, due to the range of methods used, it is difficult to compare these studies and accurately quantify the changes over time. It is thought sub-tidal seagrass area has generally seen a slow decline since the mid-1960s. Posidonia (Broad leaf seagrass) is relatively steady, but it is the fine-leaf seagrass declining. There is no known evidence suggesting the latter has been attributed due to commercial fishing practices.</p> <p>Seagrass beds have a high primary productivity, and provide food and habitat for commercially and recreationally important fish and invertebrate species.</p>

COMPONENT 4: INDIGENOUS WELL-BEING

Table 4.1 Employment and Income

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Sub-components (level 2)	Risk	Current mitigation (most relevant controls)	Likelihood	Consequence	Risk	Supporting information / comment
Access to the resource for commercial purposes	Access and management arrangements do not meet the employment/income expectations or aspirations of the TOs resulting in reduced employment and income opportunities	<ul style="list-style-type: none"> 	4	2	8	<p>Gunaikurnai Land and Waters Aboriginal Corporation (GLaWAC) may be able to provide further insights or views on this.</p> <p>The first principles review of the legislation and policies underpinning native title agreements under the Traditional Owner Settlement Act 2010 is currently considering ways to improve access to natural resources.</p>
Relationships with industry	There are no strong connections between TOs and Corner Inlet's fishing industry to facilitate potential employment opportunities that may arise, resulting in reduced employment	N/A	6	2	12	<p>GLaWAC may be able to provide further insights or views on this.</p>

Table 4.2 Cultural Values

Sub-components (level 2)	Risk	Current mitigation (most relevant controls)	Likelihood	Consequence	Risk	Supporting information / comment
Traditional fishing	Management arrangements do not address/meet the cultural take expectation/aspiration of the TOs resulting in further disenchantment and social disruption for TOs	<ul style="list-style-type: none"> Anyone who identifies as indigenous is exempt from purchase of recreational fishing licence Traditional Owners can access fish resources for traditional purposes through natural resource agreements under the Traditional Owner Settlement Act 2010. 	3	2	6	<p>GLaWAC may be able to provide further insights or views on this.</p> <p>The first principles review of the legislation and policies underpinning native title agreements under the Traditional Owner Settlement Act 2010 is currently considering ways to improve access to natural resources.</p>
Culturally important areas or species	Management arrangements and recreational and commercial fishing attitudes do not take into account cultural sensitivities in relation to certain areas or species of the Inlet resulting in further disenchantment	<ul style="list-style-type: none"> Marine parks currently cover some culturally important sites in Corner Inlet-Nooramunga area 	3	2	6	<p>The Corner Inlet and Nooramunga area has significant cultural value to the Traditional Land Owners, the Gunaikurnai, Bunurong and Boon Wurrung people.</p> <p>GLaWAC may be able to provide further insights or views on this.</p>

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COMPONENT 5: COMMUNITY WELL-BEING

Table 5.1 Commercial fishing industry community (i.e the people directly employed and their families)

Sub-components (level 2)	Risk	Current mitigation (most relevant controls)	Likelihood	Consequence	Risk	Supporting information / comment
Economic benefits	Management arrangements do not support efficient commercial fishing operations (e.g. use of boats, time) resulting in reduced fisher income and employment in the sector and flow-on effects to fisher families	N/A	5	2	10	There are effort restrictions on when fishing can occur (generally weekdays only - due to resource sharing with recreational sector), limits on the use of one gear at any one time (as detailed in the June 2020 Fisheries Notice) and restrictions on use authorised gear (e.g. max. net lengths, 2 seine net shots per day). Consideration could be given to revised management arrangements that could improve economic efficiency of fishing while maintaining equitable, responsible and sustainable practices.
	Management arrangements do not optimise sustainable exploitation of the fisheries resource (e.g. maximising economic yield) resulting in reduced fisher income and employment in the sector and flow-on effects to fisher families	N/A	5	2	10	Fishery is currently primarily input controlled (e.g. gear restrictions) rather than output controlled (e.g. quota). Consideration could be given to management arrangements that optimise sustainable exploitation of the fisheries resource and account for fluctuations in abundance of retained species.
	Changes in commercial fishing technique by some operators, which focus on maximising total catch, results in catch inequities and disproportionate share of the income from the fishery	<ul style="list-style-type: none"> Regulations relevant to seine netting Recent Fisheries Notices limiting seine net shots to 2 per day, requiring fishers only use one form of equipment at any given time, maximum rope length, anchoring requirement, and requiring VMS on tender boats 	6	3	18	Recent Fisheries Notice (July 2024) was implemented after a minority of operators that were using techniques that differ to the traditional fishing methods (particularly seine netting) creating an unfair advantage and also risk the sustainability of the fishery. The Notice restricts seine shots to two per day and limits the use of multiple gear types at one time. There is also a provision for fishers with multiple licenses to land their catch from one license before fishing another. This risk is likely to remain under a solely input controlled management regime.
Human safety	Severe work-related injuries or death of commercial operators occurs	<ul style="list-style-type: none"> Requirement for fishers to comply with the Occupational Health and Safety Act 2004 and the Commonwealth's Marine Safety (Domestic Commercial Vessel) National Law Act 2012 . Safety Management System (SMS) 	3.5	5	17.5	Responsibility for commercial fishing in a safe manner rests with the commercial fishers themselves, as employees or employers (including being self-employed) under the Occupational Health and Safety Act 2004 and through common law liability. The Commonwealth's Marine Safety (Domestic Commercial Vessel) National Law Act 2012 (the national law) also provides a single national framework for ensuring the safe operation, design, construction and equipping of domestic commercial vessels. This law imposes safety duty obligations on owners and masters of domestic commercial vessels to 'so far as is reasonably practicable' ensure the safety of their vessels, marine safety equipment that relates to the vessel, and the operation of the vessel. Domestic commercial vessels owners and masters must implement and maintain safety management systems (SMS) on their vessels to comply with their statutory safety obligations. Restrictions on fishing effort as opposed to catch may influence fisher motivations to fish when the weather may be dangerous in order to maximise their catch and income. The VFA have previously proposed more flexible management arrangements e.g. a weekly limit of seine net shots instead of instead of daily (such as the current 2 shots from midnight to midnight).

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						A likelihood rating of 3.5 is considered appropriate as it falls between 'unlikely' and 'possible', and notes that there is at least one known death from commercial fishing in the Inlet which occurred many years ago
	Unsafe work practices result in severe injury or death of other boaters and leave commercial operators liable	<ul style="list-style-type: none"> Requirement for fishers to comply with the Occupational Health and Safety Act 2004 and the Commonwealth's Marine Safety (Domestic Commercial Vessel) National Law Act 2012 . Remind fishers of their OH&S responsibilities 	2	5	10	<p>Changes to fishing methods over time can increase risk to other fishers/boaters in exceptional circumstances. While concerns around use of long ropes were raised with the VFA recently, the March 2021 Fisheries Notice is likely to address the risks</p> <p>Responsibility for commercial fishing in a safe manner rests with the commercial fishers themselves, as employees or employers (including being self-employed) under the Occupational Health and Safety Act 2004 and through common law liability.</p> <p>The Commonwealth's Marine Safety (Domestic Commercial Vessel) National Law Act 2012 (the national law) also provides a single national framework for ensuring the safe operation, design, construction and equipping of domestic commercial vessels. This law imposes safety duty obligations on owners and masters of domestic commercial vessels to 'so far as reasonably practicable' ensure the safety of their vessels, marine safety equipment that relates to the vessel, and the operation of the vessel. Domestic commercial vessels owners and masters must implement and maintain safety management systems on their vessels to comply with their statutory safety obligations.</p>
Lifestyle	Fishers experiencing mental health issues do not have adequate support		2	5	10	May occur but is considered rare. Fellow fishers, SIV and the VFA may have a role here to direct fishers to suitable support services, such as Beyond Blue, in an effort to assist.
Industry structure	Structure of commercial sector reduces commercial viability of fishery resulting in the relocation of fishers, their families and their businesses and impacting other services such as schools, entertainment etc.	<ul style="list-style-type: none"> Cap on licences numbers Licence transfers allowed 	3	3	9	The fishery has been capped at 18 licence holders for many years. There are no inactive licences.

Table 5.2 Dependent communities

Sub-components (level 2)	Risk	Current mitigation (most relevant controls)	Likelihood	Consequence	Risk	Supporting information / comment
Local communities	Access to local seafood - Management arrangements do not support economically viable commercial harvest levels that can support access to fresh, healthy seafood for local communities	Various	1	2	2	It is understood that a sizeable catch from Corner Inlet is sold to local community, wider Victoria and NSW, with some fish occasionally exported.
	Employment opportunities - Management arrangements do not support viable commercial harvest levels resulting in reduced employment opportunities with associated seafood services industries (e.g. fish and chip	Various	4	2	8	Concerns have been raised by at least one fisher in relation to the June 2020 Fisheries Notice and its burden (attributed to the limitation on one type of fishing gear in the water at a time) on the ability to supply a variety of fish to local fish and chip shops impacting service industries. This issue has not been raised since.

shops) and a local employment/social disruption problem.					
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COMPONENT 6: WIDER WELL-BEING

Table 6. Economic and social

Sub-components (level 2)	Risk	Current mitigation (most relevant controls)	Likelihood	Consequence	Risk	Supporting information / comment
State and national economy	Management arrangements do not support viable commercial and recreational fisheries affecting the economy from a loss of seafood production and tourism opportunities		2	2	4	Popular recreational fishery. Long-standing, viable commercial fishery.
Resource sharing between sectors	Management arrangements do not support good recreational fishing opportunities or angler satisfaction resulting in an unacceptable level of conflict between the recreational and commercial sectors and a lack of community pride for the fishery	<ul style="list-style-type: none"> Commercial fishing prohibited between midnight on Friday and 5 PM the following Sunday Recreational bag and size limits Commercial input controls 	3	3	9	<p>Unpublished, preliminary data indicates a high level of fishing satisfaction from recent creel surveys of fishers in Corner Inlet, however this monitoring program has only been in place for a few years meaning data is limited.</p> <p>Representatives from the recreational sector have previously indicated they would like to see a more equitable share of key species such as King George Whiting in years of lower abundance.</p>
Attitudes to the fishery	Some commercial fishing practices do not align with general community expectations for sustainable and responsible fishing resulting in a lack of community support for bay and inlet fisheries and the fishing industry in general	<ul style="list-style-type: none"> Fisheries Notice 2024 	5	3	15	<p>Past concerns relating to some operators winching and towing seine nets with long ropes and sweeping a much larger area than more traditional methods had the potential to impact public support for commercial practices. The current Fisheries Notices addresses these concerns.</p> <p>Other matters have also been raised relating to the very long soak times for mesh nets, mesh nets occasionally being left exposed to air, and occasional winching of mesh nets, which have the potential to create poor social licence outcomes. The Fisheries Notice also aims to restrict this to limiting fishers to use one type of gear at a time so mesh nets cant be left out while seining occurs</p>
	There is community concern for commercial net fishing (in general) in bays and inlets impacting social licence of the fishery		6	3	18	Effective regulations are needed to help maintain social licence / community acceptance going forward.

Health benefits/risks and tourism destination	Management arrangements do not support viable fisheries resulting in a reduced supply of healthy seafood, including those outside of Corner Inlet region.		1	3	3	The long-standing, sustainable, Corner Inlet fishery provides a wide variety of seafood for Australian consumers.
	Risk of contaminated seafood from reduced water quality		1	4	4	Elevated nutrients and sediments from run-off cause turbidity, reduce light levels, promote excess growth of algae, epiphytes and phytoplankton, decrease dissolved oxygen.
Import replacement	A lack of local seafood demand results in fishers preferencing supply of product overseas, reducing fisheries value/benefit to Australians		2	3	6	While small amounts of export has been known to occur, the Corner Inlet fishery supplies product predominantly to the Australian market (mostly VIC and NSW). The Commonwealth recently assessed and issued export approval under the EPBC Act for the Corner Inlet fishery.

COMPONENT 7: GOVERNANCE

Table 7.1 Victorian Fisheries Authority – From Policy, management, science and licensing to Enforcement and Education

Sub-components (level 2)	Risk	Current mitigation (most relevant controls)	Likelihood	Consequence	Risk	Supporting information / comment
Fisheries legislation and regulation	The legislative and regulatory framework do not adequately support efficient, effective and responsive management resulting in suboptimal fishery outcomes.	<ul style="list-style-type: none"> Fisheries Act 1995 Fisheries Regulations 2019 Fisheries (Fees, Royalties and Levies) Regulations 2017 Conservation, Forests and Lands (Fisheries Infringement Notices) Regulations 2020 	2	2	4	<p>The legislative framework for managing a fishery such as Corner Inlet appears to be sufficient and the VFA has the powers to manage it in line with the objectives of the Fisheries Act.</p> <p>The recent Fisheries Notice has proven quick management changes are possible to address immediate sustainability concerns.</p>
Management	Commercial net fishing regulations have not been adequately reviewed and revised for more than 20 years.	<ul style="list-style-type: none"> Implementation and review of 2020 and 2024 Fisheries Notices relating to seine netting Corner Inlet Fishery Supplementary Guide 2024 The Corner Inlet Fishery Management Plan was published in 2023 	2	2	4	<p>Net fishing regulations should ensure sustainable, responsible and respectful fishing practices to support the social licence of the fishery.</p> <p>The Corner Inlet Fishery Management Plan was published in 2023.</p> <p>The Corner Inlet Supplementary Commercial Fishing Guide was published in July 2024.</p>

	Management arrangements do not support efficient, effective and responsive management resulting in suboptimal fishery outcomes.	<ul style="list-style-type: none"> Fisheries Act 1995 Fisheries Regulations 2019 Fisheries (Fees, Royalties and Levies) Regulations 2017 Conservation, Forests and Lands (Fisheries Infringement Notices) Regulations 2020 	5	3	15	<p>No significant concerns evident relating to recreational fishing. The 2019 regulation review was also recently conducted and no significant concerns were evident during this process.</p> <p>However, recent discussions with commercial fishers have highlighted concerns with existing management arrangements. Revised management arrangements could be developed through a formal management planning process or sooner if required to mitigate sustainability risks and any significant safety risks if clearly evident. Some fishers have suggested transferring recent Fisheries Notices into regulation.</p> <p>Implementation of vessel monitoring system requirements for the commercial fishery are beneficial. The planned implementation of electronic reporting will also improve the ability to respond more quickly to sustainability concerns that may arise.</p>
Consultation	Consultation mechanisms do not support adequate consultation with fishers and the wider community on Corner Inlet fishery management changes.	<ul style="list-style-type: none"> Section 3A of the Fisheries Act 1995 Consultation requirements under the Subordinate Legislation Act 1994 	2	2	4	<p>The Fisheries Act requires that the VFA consult with commercial and recreational fishers and other relevant stakeholders before making changes to fisheries management arrangements. This includes changes to legislation and regulations, declaring fishery management plans, changing licence conditions and making Fisheries Notices. The consultation principles are set out in section 3A of the Fisheries Act.</p> <p>Note: there is a 60-day minimum public consultation period for a draft fishery management plan.</p>
Research and science	Available research/ collected scientific information is not sufficient to support efficient, effective and responsive management, resulting in suboptimal fishery outcomes.	<ul style="list-style-type: none"> Regular stock reviews Annual fishery independent pre-recruit surveys of KGW in PPB Length samples of KGW from contracted CI fishers 	5	3	15	<p>Further information on recreational take has been identified as a future information need. Boat ramp cameras have been installed to support further insights. Research on population dynamics of rock flathead is currently underway and expected to be published in early 2025. There are some other information gaps for particular species as highlighted in the retained species section and regular SAFS reporting. The VFA is developing a list of research priorities for inclusion in the management plan.</p>
Cost recovery	The costs of managing commercial fishing are subsidised by Government.	<ul style="list-style-type: none"> Fisheries (Fees, Royalties and Levies) Regulations 2017 	2	2	4	<p>The VFA currently administers a prospective model of cost recovery for commercial fishing entitlements. Under this model, licence holders are consulted on the services to be delivered by the VFA for the year, and then charged a levy based on these services. Further information on cost recovery can be found at: https://vfa.vic.gov.au/__data/assets/pdf_file/0010/452269/2019-20-CornerInlet.pdf</p>
Compliance - Commercial	Compliance arrangements relevant to the commercial sector do not adequately support efficient, effective and responsive management resulting in suboptimal fishery outcomes.	<ul style="list-style-type: none"> Catch and effort reporting requirements Fish receipt traceability requirements VMS Compliance inspections 13 FISH reporting line Conservation, Forests and Lands (Fisheries Infringement Notices) Regulations 2020 	2	2	4	<p>Offenders are subject to education, penalties including fines, prohibitions on fishing, seizure of gear including boats and vehicles and surrender of licences depending on the severity of the offence.</p> <p>The VFA is currently developing a commercial guide for each fishery, including the Corner Inlet fishery, which will further help ensure fishers are aware of regulatory requirements.</p> <p>The recent introduction of Vessel Monitoring System supports effective and efficient compliance activities.</p>
Compliance - Recreational	Compliance arrangements relevant to the recreational sector do not adequately support efficient, effective and responsive management resulting in suboptimal fishery outcomes.	<ul style="list-style-type: none"> Compliance inspections 13 FISH reporting line Conservation, Forests and Lands (Fisheries Infringement Notices) Regulations 2020 	2	2	4	<p>The VFA currently has an active presence of Fisheries Officers (based at Yarram office) at Corner Inlet, complemented by recreational bag/gear limits and other restrictions that support compliance of recreational activities in line with the rest of the state.</p>

Table 7.2 Commercial and recreational fishing sector representation

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Sub-components (level 2)	Risk	Current mitigation (most relevant controls)	Likelihood	Consequence	Risk	Supporting information / comment
SIV and VRFish	Majority of fishers do not believe peak bodies adequately support their fishing interests, resulting in suboptimal fishery outcomes.	N/A	4	2	8	There appears to be a divergence of views from commercial licence holders as to how the fishery should be managed. SIV is working with industry to develop a new Voluntary Code of Practice for Corner Inlet. There is currently a review of VRFish underway.
Corner Inlet licence holders	Some Corner Inlet access licence holders do not support the management arrangements for the fishery, leading to a change in practices to work around existing regulations.	N/A	5	3	15	Recent events saw a minority of licence operators change from what is considered more traditional fishing practices in the Inlet to work around the Fisheries Notice rules to increase their fishing effort and catch. A survey of licence holders was conducted in September 2020 to further understand fisher views and two Fisheries Notices were implemented. These have now been condensed into the current 2024 Notice. A fishery management plan has also been published that involved consultation with commercial license holders and recreational anglers.
Corner Inlet Fisheries Habitat Association	CIFHA members do not support the management arrangements for the fishery, resulting in a lack of confidence in management of the fishery.	N/A	2	3	6	CIFHA supports the implementation of the Fisheries Notice and has suggested these be put into regulation. These will be put into the next reg package to be implemented.
Recreational sector	There is a general lack of support from the recreational sector in relation to the management arrangements for the fishery, resulting in suboptimal fishery outcomes.	<ul style="list-style-type: none"> Social media 	2	2	4	There are some concerns relating to commercial sector operations evident and/or a lack of knowledge as to how commercial fishers operate. The management plan should address this where possible. The only concern of significance in relation to the existing recreational fishing management arrangements relates to collection of cockles at McLoughlins beach – a revised bag limit has been implemented in a Fisheries Notice with the intention to put this into regulation.

Table 7.3 Other (e.g. voluntary codes of practice)

Sub-components (level 2)	Risk	Current mitigation (most relevant controls)	Likelihood	Consequence	Risk	Supporting information / comment
VBIFA Environmental Management System Code of Practice	There is not currently an effective commercial fishing voluntary Code of Practice for Corner Inlet, which could help improve social licence of the fishery	<ul style="list-style-type: none"> Current code of practice exists but is dated New code of practice expected to be published in 2025 	4	2	8	There is a new Code of Practice which is currently being finalised with SIV. It is expected that this will be published in 2025.

COMPONENT 8: EXTERNAL FACTORS AFFECTING THE FISHERY

Table 8.1 Other entities (other government agencies. NGO's etc.)

Sub-components (level 2)	Risk	Current mitigation (most relevant controls)	Likelihood	Consequence	Risk	Supporting information / comment
DEECA	Coastal management and marine planning legislation or policy prevents/restricts access points and fishing operations for a viable recreational and/or commercial fishery.	<ul style="list-style-type: none"> Input into Marine and Coastal Policies and strategies and Marine Spatial Management plans 	1	4	4	
	Threatened species policy or legislation unreasonably prevents/restricts fishing operations for a viable recreational and/or commercial fishery.	<ul style="list-style-type: none"> Input into FFG Act listing proposals and draft action statements. 	1	3	3	
Parks Victoria	Marine parks management unreasonably prevents/restricts access points for a viable recreational and/or commercial fishery.	<ul style="list-style-type: none"> Input into National Parks legislation and regulation and Marine Park Management Plans. 	2	3	6	The Corner Inlet Marine and Coastal Park and Nooramunga Marine and Coastal Park are managed by Parks Victoria (as is the Corner Inlet Marine National Park).
West Gippsland CMA	Land and water management arrangements do not mitigate risk of detrimental impacts to water quality in fishing areas and losses of seagrass	<ul style="list-style-type: none"> Input into CMA strategies and plans. Input into local government strategies and plans. Input into water, land and biodiversity legislation, regulation, plans and strategies. 	4	4	16	<p>The West Gippsland Catchment Management Authority is responsible for catchment management in the region. The condition and extent of important habitat including seagrass meadows, sandflats, mangroves and saltmarsh are threatened by nutrient and sediment pollution that results mostly from catchment land uses.</p> <p>There is a water strategy 2014-2022 currently in place. https://www.wgcma.vic.gov.au/wp-content/uploads/2015/01/WaterStrategy2014-2022-web-pt4.pdf While technically expired, there are no other strategies announced.</p> <p>There is also a Corner Inlet water quality improvement plan that was made in 2013: https://www.wgcma.vic.gov.au/wp-content/uploads/2015/01/corner-inlet-wqipweb.pdf</p>
Yarram Yarram Landcare Network	Government funding for seagrass restoration projects ceases.		4	3	12	
Primesafe	Requirements of PrimeSafe accreditation are unreasonably burdensome, resulting in lost opportunities to sell sustainable local seafood.	<ul style="list-style-type: none"> Input into food safety legislation and regulation. 	3	3	9	

Conservation organisations	Campaigns or programs run by conservation organisations impact on social licence for the fishery or cause a reduction in sales of fish by commercial sector.		4	2	8	Sustainable seafood programs such as AMCS's <i>Goodfish</i> program assess species at a state level. Their website advises consumers to eat less of species such as southern garfish from Victoria which they have listed as amber (traffic light system), while the VFA's stock status of garfish in Corner Inlet is classed as sustainable. Goodfish have previously advised they are looking at listing rock flathead on their sustainable seafood guide (however when or how this will be listed is unknown).
Commonwealth Department of Agriculture, Water and the Environment	Conditions of EPBC export approval are not achievable, resulting in revocation of export accreditation.	<ul style="list-style-type: none"> Fishery manager to progress these tasks and submit before due date. 	3	2	6	The current EPBC export approval is subject to the following: <ul style="list-style-type: none"> By 19 December 2024 the VFA is required to produce an annual report on the Corner Inlet Fishery. By 31 August 2025, the VFA must provide advice to DCCEEW on the review findings of a review on bycatch and discard reporting measures. By December 2024 publish a review of the Ecological Risk Assessment for the Corner Inlet Fishery, which describes fishery risks and species-specific risk. By 31 July 2025 develop and publish an implementation plan outlining actions to progress key priorities identified in the Ecological Risk Assessment.
Local councils (Wellington Shire, South Gippsland Shire) and Better boating Vic	There is a lack of recreational fishing facilities (e.g. jetties, boat ramps, cleaning tables) to support the number of recreational fishers active in the area.	<ul style="list-style-type: none"> Input into Better Boating Victoria policies and grants RFL large grants program Target One Million initiative. 	4	2	8	A list of the current jetties and boat ramps can be found at: https://www.gippslandports.vic.gov.au/ports-and-waterways/ports-and-waterways/corner-inlet-port-albert/

Table 8.2 Other external factors (e.g. climate change)

Sub-components (level 2)	Risk	Current mitigation (most relevant controls)	Likelihood	Consequence	Risk	Supporting information / comment
Marine pests	Known pests including green shore crab, Pacific oyster, New Zealand screw shell and broccoli weed cause an unacceptable impact on the fishery's ecosystem by competing for food and/or space.	<ul style="list-style-type: none"> Noxious Aquatic Species provisions of the Fisheries Act 1995 	6	3	18	<p>Known pests in the Corner Inlet and Nooramunga areas include green shore crab, Pacific oyster, New Zealand screw shell and broccoli weed (VEAC Environmental atlas).</p> <p>European green shore crab - A voracious and aggressive predator with a broad diet, it out-competes native crabs for food and habitat. It is a major cause of mortality of native crabs and mollusc populations. This species has reportedly been present at Corner Inlet since the late 19th century (Ramsar Ecological Character Description report, 2011).</p> <p>Pacific Oysters - alter habitats by covering substrates and forming reefs, and over growing native species. It is fast growing and is a filter feeder, competing with native species for food.</p> <p>New Zealand screw shell (<i>Maoricolpus roseus</i>) can densely blanket the sea floor with live and dead shells and faecal pellets. It is a suspension feeder, so can compete with scallops, commercially farmed shellfish and native species.</p> <p>Broccoli weed - introduced green macroalgae.</p> <p>Other pests of concern in the Corner Inlet area include northern Pacific seastar, European fan worm and Japanese kelp (VEAC Environmental atlas).</p>
	Wakame (<i>Undaria pinnatifida</i>) at Port Welshpool spreads to surrounding areas via the hulls of vessels.	<ul style="list-style-type: none"> Noxious Aquatic Species provisions of the Fisheries Act 1995 	6	3	18	Wakame (Japanese Kelp) grows rapidly and forms dense underwater forests, outcompeting native kelp and algae for light and space, then dies back in summer, changing kelp habitat. It can quickly colonise disturbed areas with preference for solid surfaces such as rocks. There are few known predators.

	<ul style="list-style-type: none"> Government agencies reminding boaters of the "Check, Clean, Dry" method 				<p>Wakame has been detected near Port Welshpool (see https://nimpis.marinepests.gov.au/species/species/50). It is likely that it was introduced to Port Welshpool via the hulls of vessels coming from Port Phillip Bay.</p> <p>Unfortunately, the infestation at Port Welshpool is large and appears to have been spreading within the port area for some time. Complete removal of the infestation from Port Welshpool is not feasible however, it is important to stop it spreading to other areas such as the largely pristine waters of Wilsons Promontory. Many boats launch from Port Welshpool and travel to locations such as Refuge Cove, but also to other locations such as Lakes Entrance.</p>
Northern Pacific seastar (<i>Asterias amurensis</i>) establishes in Corner Inlet and causes an unacceptable impact by preying on native species, including oysters, mussels and scallops.	<ul style="list-style-type: none"> Noxious Aquatic Species provisions of the Fisheries Act 1995 	5	3	15	<p>Northern Pacific seastar (<i>Asterias amurensis</i>) is considered a key invasive marine pest threat to the Corner Inlet Ramsar site (Ecological Character Description, 2011).</p> <p>This invasive starfish occurs in mud, sand or rocky habitats, but typically in areas protected from direct wave action. It is a voracious predator and will eat almost any animal it can capture. It is considered a serious pest in Australia because of its impact on native marine ecosystems and marine industries such as shellfish farming.</p> <p>This seastar is considered established in Port Phillip Bay. This species represents an invasion risk to Corner Inlet. There have also been detections in San Remo, Andersons Inlet, Waratah Bay, Tidal River and the Gippsland Lakes area, however, efforts are made to ensure that they do not establish. The public are encouraged to report suspected detections of <i>A. amurensis</i> in areas outside of Port Phillip Bay.</p>
European fan worms form dense colonies in Corner Inlet and consume vast amounts of food to the detriment of native species.	<ul style="list-style-type: none"> Noxious Aquatic Species provisions of the Fisheries Act 1995 	5	3	15	<p>European fan worms (<i>Sabella spallanzanii</i>) can form dense colonies and consume vast amounts of food to the detriment of native species. It fouls infrastructure and can increase operating costs for industry. This pest has no known predators in Australia.</p> <p>This species has become established along the south eastern and south western Australian coastline including Port Phillip Bay. It inhabits shallow subtidal areas between one and 30 metres depth, preferring harbours and embayments sheltered from direct wave action. It colonises both hard and soft substrata, often anchored to hard surfaces within the soft sediments. <i>S. spallanzanii</i> presents a potential invasion risk to Corner Inlet since it is established in similar habitats in other areas elsewhere along the Victorian Coast (Ramsar Ecological Character Description report, 2011).</p>
Sea urchin populations increase significantly causing an unacceptable reduction in seagrass coverage.	<ul style="list-style-type: none"> Commercial harvesting Culling programs run by Parks Victoria and not for profit groups. 	6	3	18	<p>A recent spike in the number of the native purple-spined sea urchin at Corner Inlet has decreased the broadleaf seagrass in the area by thousands of hectares. The urchin eats the seagrass, and this has significantly reduced much of the seagrass beds.</p> <p>Commercial fishers and the VFA have recently worked with Parks Victoria to cull purple sea urchins (<i>Heliocidaris erythrogramma</i>) which had moved into seagrass meadows in the Nooramunga Marine and Coastal Park area, causing large areas of bare sand or 'barrens'.</p>
Water quality and flow A combination of sediment and nutrients from urban and agricultural run-off, dredging, and small boat activity reduce water quality, causing a decline in seagrass.	<ul style="list-style-type: none"> Input into CMA strategies and plans. Input into local government strategies and plans. Input into water, land and biodiversity legislation, regulation, plans and strategies. 	5	4	20	<p>The condition and extent of important habitat including seagrass meadows, sandflats, mangroves and saltmarsh are threatened by nutrient and sediment pollution that results mostly from catchment land uses.</p> <p>Following large rainfall events, plumes of 'dirty water' can be seen extending into Corner Inlet and Nooramunga from the main river channels. In addition to reports of seagrass loss, commercial fishers have observed blooms of marine algae within the seagrass beds in summer and autumn. These blooms have included 'Slub' (a filamentous brown algae of unknown taxonomy), macroalgae on the sediments between the seagrass plants and microalgae on the seagrass leaves.</p> <p>There is a Corner Inlet water quality improvement plan that was made in 2013: https://www.wgcm.vic.gov.au/wp-content/uploads/2015/01/corner-inlet-wqipweb.pdf</p>

<p>Ramsar listing</p>	<p>RAMSAR listing unreasonably restricts the fishery for commercial or recreational purposes due to their operations being assessed as not compatible with the sites' ecological character.</p>	<ul style="list-style-type: none"> Input into RAMSAR listing processes. 	<p>2</p>	<p>3</p>	<p>6</p>	<p>The Corner Inlet fishery operates entirely within the Corner Inlet Ramsar site and has done so for many years. Types of gear are currently restricted by fishing regulations and any novel gear that has the potential to damage this unique environment is unlikely to be authorised in the future.</p> <p>The Corner Inlet Ramsar Site was listed in 1982. Much of the Ramsar site is reserved in the Corner Inlet Marine and Coastal Park and Nooramunga Marine and Coastal Park which are managed by Parks Victoria. The Ecological Character Description details the critical ecological components, processes and services of the Ramsar site. Management arrangements must ensure that commercial fishing activities remain compatible with the Ramsar sites ecological character.</p> <p>The WGCMA are the Corner Inlet Ramsar Site Coordinators. They along with Parks Vic, GLaWAC and DEECA are responsible for the delivery of the Ramsar Site Management Plan activities. The Ramsar obligations require Victoria to report against limits of acceptable change (LAC) to track ecological character. One of the defined LAC's relates to changes in fish abundance – an unacceptable change will have occurred if the long-term median catch (greater than 5 years) falls below the 20th percentile historical baseline values in standardised abundance or catch-per-unit-effort of five or more commercially significant species (relative to baseline) due to altered habitat conditions within the site. The commercially significant species that were originally listed are Australian salmon, rock flathead, southern sand flathead, greenback flounder, southern garfish, yelloweye mullet, gummy shark, and King George whiting. The last time this was reviewed (using 2016 fishery assessment) it was concluded that all these species were average or above average when compared to the long-term average, with the exception on yellow-eye mullet which was deemed below average. The WGCMA is current reviewing the latest fishery assessment to update this in their 2020 assessment.</p>
<p>Climate change and weather extremes</p>	<p>Changing climate (e.g. changes to water temperature, biota, seagrass, shoreline, tidal flows) affects long-term sustainability of fish stocks.</p>		<p>5</p>	<p>4</p>	<p>20</p>	<p>Future impacts from climate change on the coastal and estuarine environments of Corner Inlet could be significant. The management plan should consider the likely implications of climate change.</p> <p>Under modelled climate change scenarios conducted in 2008, it was predicted there will be changes to both catchment flows and the hydrodynamics of the embayment. The two main implications of this for the Corner Inlet WQIP (2013) are:</p> <ul style="list-style-type: none"> - Large rainfall events, including those resulting from extreme storms, will continue to be a major contributor to loads of sediment and nutrient entering the embayment, however the frequency and duration of events are likely to reduce (in line with the time period modelled by Water Technology in 2008 and used as the basis for the WQIP). - Wind speeds will increase as a consequence of a larger number or increased severity of storms. This will result in increased erosion along the shores of the Corner Inlet Ramsar Site and increased resuspension of benthic material within the embayment. <p>The report (WQIP 2013) noted "the available climate models and the current state of knowledge make it impossible to explicitly predict the implications of climate change for Corner Inlet". As such, more recent analyses of climate change predictions should be identified to understand and assess this risk.</p>
<p>Renewable energy development</p>	<p>Development of windfarms impact the fisheries resource or fishing operations.</p>	<ul style="list-style-type: none"> Input into planning and development applications 	<p>2</p>	<p>2</p>	<p>4</p>	<p>There is a proposal for a significant windfarm development off South Gippsland (i.e. 'the Star of the South'). This is proposed to be outside the fishery boundary, off McLoughlins entrance.</p>
<p>Extractive industry exploration</p>	<p>Seismic activities affect recruitment of key species in Corner Inlet.</p>	<ul style="list-style-type: none"> Input into seismic exploration applications 	<p>3</p>	<p>3</p>	<p>9</p>	<p>There have been reports of reduced KGW catches off East Gippsland, possibly attributed to seismic exploration activities.</p>

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Export markets	Export market closures or unpredictability reduces the potential economic returns for the commercial fishery.	<ul style="list-style-type: none">Input into Commonwealth representations to export markets	4	2	8	Most commercial product from Corner Inlet is currently sold in Victoria or to NSW.
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